

Technical Specification

Transport and Main Roads Specifications MRTS51 Environmental Management

March 2025

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1 Introduction

This Technical Specification applies to environmental management requirements applicable to Work under the Contract. Where other statutory requirements (for example, *Environmental Protection Act 1994*) demand higher standards of environmental management, the higher standards require adoption.

This Technical Specification shall be read in conjunction with MRTS01 *Introduction to Technical Specifications*, MRTS50 *Specific Quality System Requirements*, MRTS52 *Erosion and Sediment Control* and other Technical Specifications as appropriate.

This Technical Specification forms part of the Transport and Main Roads Specifications Manual. This Technical Specification is not intended to address environmental management related to planning and design of transport infrastructure or activities related to transport infrastructure.

2 Definition of terms

The terms in this Technical Specification shall be as defined in Clause 2 of MRTS01 *Introduction to Technical Specifications*.

Additional terms used in this Technical Specification shall be as defined in Table 2.

Table 2 – Definition of terms

Term	Definition
Aboriginal or Torres Strait Islander Party(ies)	The signatory party to the Principal's Cultural Heritage Management Agreement, Cultural Heritage Management Plan, or Cultural Heritage Field Agreement.
Administering Authority	An Authority with legislative jurisdiction.
Air Blast Overpressure	Air Blast overpressure (or air blast level) is the energy transmitted from the blast Site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave is known as the peak air overpressure, generally measured in decibels using the linear frequency-weighting. Air blast measurement and reporting shall be conducted using methodologies in accordance with the provisions of Australian Standard AS 2187.2 Appendix J.
Approval	Any permit, authority, licence, self-assessable code, statutory exemption with conditions, protocol, agreement or plan, or other statutory instrument with conditions.
Average Reoccurrence Interval (ARI)	The average or expected value of the periods between exceedances of a given rainfall total accumulated over a given duration. It is implicit in this definition that the periods between exceedances are generally random.
Biosecurity Instrument Permit	An authority issued by Biosecurity Queensland under the <i>Biosecurity Act 2014</i> for movement of a carrier of a regulated Biosecurity Matter under a biosecurity zone regulation to a place outside the zone or into an area subject of a movement control where the activity does not meet the regulatory provisions defined in the Queensland Biosecurity Manual.
Biosecurity Matter	Biosecurity matters as defined in the <i>Biosecurity Act 2014</i> including Biosecurity Matters listed by Local, State and Commonwealth Governments. Biosecurity matters include but are not limited to prohibited and restricted invasive plants (weeds) and animals.

Term	Definition
CHFA	Cultural Heritage Field Agreement.
CHMA	Cultural Heritage Management Agreement
CHMP	Cultural Heritage Management Plan.
Complaint	A verbal or written complaint from a member of the public regarding the Works under the Contract and the impact upon their person or property.
Contractor's Declaration	Is the Contractor's Declaration listed in Table 3 of this Technical Specification.
Compliance Management Plan (CMP)	A CMP is a statutory approval under the <i>Transport Infrastructure Act 1994</i> by the department in relation to specific legislative requirement(s) and replaces the requirement for compliance or approval under another Act provided compliance with the CMP achieved.
Compliance Testing	Compliance Testing to determine whether a product, system, or action complies with the requirements of a Technical Specification, Contract or regulation or legislation or a combination of any or all.
Contaminated Sites	An area of land where any chemical substance or waste has been added as a direct or indirect result of human activity at above background level and represents, or potentially represents, an adverse health or environmental impact.
Cultural Heritage	Cultural Heritage includes artefacts, sites, items, areas or places of known or potential Cultural Heritage significance including Aboriginal, Torres Strait Islander and historical / European origin.
Cultural Heritage Personnel	Persons nominated by the Aboriginal or Torres Strait Islander Parties including but not limited to monitors, survey staff and elders.
Deposition	Intentional placement of material in a specified location for a purpose.
Deposition Area	An area of land, where Surplus Material is deposited by the Contractor with the consent of the Landowner.
Discharge	The movement of Site stormwater: a) into a Waterway within the Site b) into a Waterway adjacent to the Site, and c) beyond the boundary of the Site where it could reasonably enter a Waterway.
DO	Dissolved Oxygen.
EC	Electrical Conductivity.
EMP(C)	Environmental Management Plan (Construction).
Environmental and Cultural Heritage Incident	An Environmental and Cultural Heritage incident is the occurrence of a reportable breach of legislation, an event that causes or has the potential to cause material or serious Environmental Harm, or unauthorised harm to Cultural Heritage. For the purpose of this Technical Specification, events listed in Clause 7.7.1 are also Environmental and Cultural Heritage Incidents.
Environmental Harm	As defined by the <i>Environmental Protection Act 1994</i> , Section 14.
Environmental Management	The protection of existing environment and Cultural Heritage from Environmental Harm associated with the Works under the Contract.
Environmental Nuisance	As defined by the <i>Environmental Protection Act 1994</i> , Section 15.
ESCP	Erosion and Sediment Control Plan.

Term	Definition
Exclusion Zone	An area not to be entered by a person or machine for the duration of the Contract or otherwise designated period of time or restricted access for authorised persons.
IECA	International Erosion Control Association Australasia.
ITP	Inspection and Test Plan.
Legislative Requirements	Means Acts, ordinances, regulations, by-laws, orders, awards and proclamations of the jurisdiction where Work Under the Contract or the particular part thereof is being carried out.
Limits of Clearing	<p>The Limits of Clearing are defined as the outside boundary of areas specified within the Contract for clearing and ground disturbance, specifically:</p> <ul style="list-style-type: none"> • areas for clearing and grubbing (under Clause 7.2 of MRTS04) • side tracks (Clause 3.8 of Annexure MRTS02.1) • noise barriers (Clause 7.2 of MRTS15) • fencing (Clause 11.4 of MRTS14) • borrow areas and associated access tracks (Clause 17 of MRTS04) • water point access tracks (Clause 12 of Annexure MRTS51.1) • stockpile locations (Clause 2.2 of Annexure MRTS04.1) • areas available for Deposition of Surplus material on Site (Clause 5 of Annexure MRTS04.1) • marketable timber (Clause 7.2.3 of MRTS04) • clear zones (Clause 1.4 of MRTS04.1), and • other areas identified by the Principal within the Contract, or as required to comply with legislative requirements.
Management Measure(s)	A Management Measure is purpose-built structure or strategy employed by the Contractor and documented in the EMP(C) to prevent or minimise Environmental Harm or provide an environmental benefit.
Material Environmental Harm	As defined in the <i>Environmental Protection Act 1994</i> , Section 16.
Native Title	As defined in the <i>Native Title Act 1993</i> , Section 223.
Off-site	Land that does not form part of the Site.
Permanent Environmental Infrastructure	Environmental Management measures that consist of a structure or other hard engineering feature that forms part of the network beyond the duration of the Contract. Permanent Environmental Infrastructure includes structural components for fish or other fauna passage, sediment basins, glider poles, fauna underpasses, overpasses, permanent exclusion fencing, ladders, artificial nesting resources or any other infrastructure specified by the Administering Authority or the Principal in Clause 13.1 of Annexure MRTS51.1.
Queensland Waterway for Waterway Barrier Works	The Queensland Waterway for Waterway Barrier Works is a spatial data set, which defines Waterways by colour based on their risk of adverse impact from instream barriers on fish movement.
Recycled Materials and Products	Recycled Materials and Products refers to a construction material or product that contains a proportion of re-processed waste material.
Reuse	When material is used again with minimal modification or processing.
RPEQ	Registered Professional Engineer of Queensland.

Term	Definition
Sensitive Receiver(s) (air quality)	<p>As defined by the department's <i>Road Traffic Air Quality Management Manual</i>, Glossary, as any of the following:</p> <ul style="list-style-type: none"> • a dwelling (detached and attached), reformatory institution, caravan park or retirement village • a library, child care centre, kindergarten, school, school playgrounds, college, university, museum, art gallery or other educational institution • a hotel, motel or other premises which provides accommodation for the public • a protected area, or an area identified under a conservation plan as a critical habitat or an area of major interest under the <i>Nature Conservation Act 1992</i>, or • a public park or gardens that is open to the public (whether or not on payment of a fee) for use other than for sport or organised entertainment (passive recreation only).
Sensitive Receptor(s) (for noise and vibration)	Defined in accordance with Section 3.1.1 and 3.1.2 of the <i>Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration</i> .
Serious Environmental Harm	As defined in the <i>Environmental Protection Act 1994</i> , Section 17.
Significant Vegetation	Significant Vegetation is an individual plant or vegetation community, which are protected under either State or Commonwealth legislation, or have been identified under the Clause 9 of Annexure MRTS51.1 as being of significance.
Site	Means the lands and other places upon described in Item 7A of General Conditions of Contract and any other lands and places made available to the Contractor by the Principal for the purpose of the Contract.
Spotter Catcher (fauna)	A person authorised under a current rehabilitation permit to take and/or keep a protected animal whose habitat is about to be destroyed by human activity in accordance with the Nature Conservation (Administration) Regulation 2017.
Suitably Qualified and Experienced Person (fauna)	<p>A person with formal qualifications and/or experience in identification of native animals and wildlife ecology. A person is considered to be suitably qualified and experienced if they meet one or more of the following criteria:</p> <ol style="list-style-type: none"> 1. an ecological consultant with experience in conducting surveys for native animal breeding places 2. a person who possesses a degree in natural science or similar with experience in conducting surveys for native animal breeding places, or 3. a person who is authorised as a Spotter Catcher under a rehabilitation permit issued under the <i>Nature Conservation Act 1992</i>.
Surplus Material	Material that is surplus to the Contract requirements that is required to be managed as a Waste in accordance with Clause 8.13.
TIA	<i>Transport Infrastructure Act 1994</i> .
TSS	Total Suspended Solids.
Waste	As defined by the <i>Environmental Protection Act 1994</i> , Section 13.
Water Quality Investigation Criteria	The Water Quality Investigation Criteria outlined in Table 8.2.2 of this Technical Specification sets the criteria for impacts to water quality. Non-conformance with Water Quality Investigation Criteria trigger investigations as to the cause of the non-conformance and whether the non-conformance represents an Environmental Incident.

Term	Definition
Waterway	As defined as a watercourse or naturally occurring surface waters under the Environmental Protection Regulation 2019.
Weekly Site Inspections	Weekly Site Inspections undertaken by the Contractor's Environmental Representative or other person deemed suitable by the Administrator, and are documented visual inspections of environmental Management Measures to assess presence, functionality and adequacy of measures prescribed in the EMP(C).
Work under the Contract	The work which the Contractor is or may be required to execute under the Contract and includes variations, remedial work, Construction Plant and Temporary Works.

3 Referenced documents

Table 3 lists documents referenced in this Technical Specification.

Table 3 – Referenced documents

Reference	Title
<i>Aboriginal Cultural Heritage Act 2003</i>	<i>Aboriginal Cultural Heritage Act 2003</i>
<i>Archaeological Discovery Protocol</i>	<i>Archaeological Discovery Protocol, Transport and Main Roads – Department of Environment and Science</i>
AS 1940	<i>The storage and handling of flammable and combustible liquids</i>
AS 2187.2	<i>Explosives – Storage and use – Part 2: Use of explosives</i>
AS 3833	<i>The storage and handling of mixed classes of dangerous goods, in packages and intermediate bulk containers</i>
AS 4970	<i>Protection of trees on development sites</i>
<i>Biosecurity Act 2014</i>	<i>Biosecurity Act 2014</i>
Contractor's Declaration	<i>MRTS51 Appendix C Contractor's Declaration for Deposition of Surplus Material, Transport and Main Roads</i>
Contractor's Monthly Environmental Reporting Template	<i>MRTS51 Appendix A Contractor's Monthly Environmental Report, Transport and Main Roads</i>
Departmental Cultural Heritage Induction	<i>Cultural Heritage Induction, Transport and Main Roads, Queensland</i>
EP175	<i>Engineering Policy EP175 – Deposition of Surplus Material – Assessment Methodology, Transport and Main Roads</i>
<i>Environmental Protection Act 1994</i>	<i>Environmental Protection Act 1994</i>
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	<i>Environment Protection and Biodiversity Conservation Act 1999</i>

Reference	Title
Exemption Requirements for constructing authorities for the taking of water without entitlement (WSS/2013/666)	<i>Exemption Requirements for constructing authorities for the taking of water without a water entitlement (OSW/2020/5467)</i> , Department of Natural Resources and Mines
Hydrologic and Hydraulic Modelling Guideline	<i>Hydrologic and Hydraulic Modelling Technical Guideline</i> , Transport and Main Roads
IECA Best Practice Erosion and Sediment Control Appendix B – Sediment Basin Design and Operation	<i>International Erosion and Sediment Control (Australasia), Best Practice Erosion and Sediment Control, Appendix B – Sediment Basin Design and Operation</i>
Monitoring and Sampling Manual	<i>Monitoring and Sampling Manual, Environmental Protection (Water) Policy 2009</i> , Department of Environment and Science
MRTS01	<i>Introduction to Technical Specifications</i>
MRTS02	<i>Provision for Traffic</i>
MRTS04	<i>General Earthworks</i>
MRTS14	<i>Road Furniture</i>
MRTS15	<i>Noise Fences</i>
MRTS16	<i>Landscape and Revegetation Works</i>
MRTS28	<i>Contractor's Site Facilities and Camp</i>
MRTS50	<i>Specific Quality System Requirements</i>
MRTS52	<i>Erosion and Sediment Control</i>
MRTS96	<i>Management and Removal of Asbestos</i>
Nature Conservation Act 1992	<i>Nature Conservation Act 1992</i>
National Environment Protection (Assessment of Site Contamination) Measure, 1999	<i>National Environment Protection (Assessment of Site Contamination) Measure, 1999</i> , Commonwealth National Environment Protection Council
Native Title Act 1993	<i>Native Title Act 1993</i>
Native Title Work Procedures	<i>Queensland Government Native Title Work Procedures</i> , Queensland Department of Resources
Procedural Guide	<i>Procedural Guide, Releases to waters from land development sites and construction sites 2500m² and greater</i> , Department of Environment and Science, Queensland

Reference	Title
QDAF Accepted development requirements for operational work that is constructing or raising waterway barrier works	<i>Accepted development requirements for operational work that is constructing or raising waterway barrier works</i> , Department of Agriculture and Fisheries, Queensland
QDAF Vehicle and machinery cleandown procedures	<i>Vehicle and machinery cleandown procedures</i> , Department of Agriculture and Fisheries, Queensland
<i>Queensland Heritage Act 1992</i>	<i>Queensland Heritage Act 1992</i>
<i>Queensland Waterways for Waterway Barrier Works</i>	<i>Queensland Waterways for Waterway Barrier Works</i> , Queensland Department of Agriculture and Fisheries
<i>Road Planning and Design Manual</i>	<i>Road Planning and Design Manual</i> , 2nd Edition, Transport and Main Roads
<i>Road Traffic Air Quality Management Manual</i>	<i>Road Traffic Air Quality Management Manual</i> , Transport and Main Roads
<i>SMP-low risk</i>	<i>Transport and Main Roads Species Management Program for tampering with animal breeding places – low risk of impacts – least concern animals (excluding special least concern or colonial breeders)</i> , issued by the Department of Environment, Science and Innovation
<i>TN03</i>	<i>Technical Note 03 Measurement of Ground Vibrations and Airblast</i> , Transport and Main Roads
<i>Torres Strait Islander Cultural Heritage Act 2003</i>	<i>Torres Strait Islander Cultural Heritage Act 2003</i>
<i>Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration</i> , Transport and Main Roads	

4 Standard test methods

Unless stated elsewhere herein, Compliance Testing shall be carried out in accordance with the relevant Australian Standard. Where no Australian Standard exists for the test, acceptable best practice methodology shall be employed based on State or Federal Administering Authority publications.

4.1 Compliance testing

Where stipulated in this Technical Specification, the Contractor is responsible for performing Compliance Testing as specified to ensure that the Environmental Management performance complies with the standards and requirements of the Contract and statutory legislation. However, the Contractor's Compliance Testing program shall be such that the frequencies and number of Compliance Tests are not less than those specified in Annexure MRTS51.1.

5 Quality system requirements

5.1 Hold Points and Milestones

General requirements for Hold Points, Witness Points and Milestones are specified in Clause 5.2 of MRTS01 *Introduction to Technical Specifications* and Clause 8.3 of MRTS50 *Specific Quality System Requirements*.

The Hold Points and Milestones applicable to this Technical Specification are summarised below in Table 5.1. There are no Witness Points defined.

Table 5.1 – Hold Points and Milestones

Clause	Hold Point	Witness Point	Milestone
6.3	1. EMP(C) is assessed for suitability by Administrator		Submission of EMP(C)
6.4	2. Amendments to EMP(C) are assessed for suitability by Administrator		Submission of EMP(C) amendments
7.8	3. Environmental Records received by Administrator prior to issue of certificate of Practical Completion		Submission of Environmental Records
8.5.3, 8.6.3	4. Complaint related noise assessment proposal is submitted to the Administrator prior to commencing.		
8.5.3, 8.6.3	5. Respite or temporary relocation offer is assessed for suitability by the Administrator prior to being implemented or offered		
8.13.2.1	6. Contractor's Declaration for Deposition of Surplus Material is submitted to Administrator prior to Deposition.		Prior to Deposition

5.2 Non-conformances with this Technical Specification

Non-conformances identified under this Technical Specification shall be recorded, reported and managed under the Contractor's Quality Plan. This includes Monitoring non-conformances, Compliance Testing non-conformances and non-conformances raised by Contractor or Principal's audits.

Non-conformances that are also Environmental and Cultural Heritage Incidents, shall in addition be notified, managed and reported in accordance with Clause 7.7 of this Technical Specification.

6 Environmental management

6.1 General requirements

At all times, the Contractor shall be responsible for identifying and undertaking reasonable and practicable Management Measures appropriate to the Work under the Contract, in order to:

- a) avoid causing Environmental Harm, and
- b) comply with Legislative Requirements.

6.2 Contract-specific requirements

Contract-specific requirements are detailed in the Annexure MRTS51.1. The Contractor shall take notice of and must comply with these requirements as well as the requirements listed in this Technical Specification.

6.3 Environmental Management Plan (Construction)

For the duration of the Contract, the Contractor shall develop, implement and maintain an Environmental Management Plan – Construction (EMP(C)) that meets the requirements of the Contract. Works under the Contract shall be completed in accordance with the most current version of the EMP(C) deemed suitable by the Administrator. The Contractor may, with the Administrator's deemed suitability, substitute environmental Management Measures included in this Technical Specification with other environmental Management Measures which achieve the same, or better, environmental outcomes. These Management Measures shall be documented in the EMP(C).

The Contractor's Environmental Management Plan (Construction) (EMP(C)) shall address:

- a) administrative requirements (Clause 7 of this Technical Specification), and
- b) operational requirements and Management Measures identified for each environmental element (Clause 8 of this Technical Specification).

Submission of the EMP(C) shall be in accordance with the General Conditions of Contract.

Hold Point 1 Milestone

The EMP(C) shall be accessible on Site at all times during Work under the Contract.

The Administrator shall be provided with an electronic copy of the most current and complete version of the EMP(C) at all times.

6.4 EMP(C) updates

The Contractor shall develop and document a process of periodically reviewing the EMP(C). The process shall focus on identifying opportunities for continual improvement of processes and practices to ensure that the EMP(C) is relevant to the Work under the Contract. The process shall address how

legislative changes and Environment and Cultural Heritage Incident corrective actions will be addressed via an update to the EMP(C). The Contractor shall establish and implement document version control.

Updates to the EMP(C) shall be undertaken by the Contractor to address changes on Site, Works under the Contract, to address corrective actions following non-conformances or Environment and Cultural Heritage Incidents and when the Contractor has completed and signed a Contractor's Declaration for Deposition of Surplus Material. Where undertaken, updates to the EMP(C) shall be submitted to the Administrator as part of the Contractor's Monthly Environmental Report, for deemed suitability. **Hold Point 2 Milestone**

7 EMP(C) Administrative requirements

7.1 Weekly Site Inspections

The Contractor's Environmental Representative shall undertake and document Weekly Site Inspections for the purpose of:

- verifying Management Measures prescribed in the EMP(C) are present, functional and adequate¹
- observing the Site for actual or potential Environmental Nuisance or Environmental Harm
- identifying maintenance requirements for implemented Management Measures, and
- verifying preparedness for adverse weather conditions.

The Contractor shall undertake corrective actions to rectify issues identified by the Weekly Site Inspections.

The procedure for Weekly Site Inspections shall be documented within the EMP(C). The Weekly Site Inspection records shall be made available to the Administrator within 48 hours of a request for a specific Weekly Site Inspection Report.

In addition to Weekly Site Inspections, the Contractor shall be required to undertake daily observations during work activities that pose a risk of causing actual or potential Environmental Nuisance or Environmental Harm.

7.2 Notification of visits by Administering Authorities

The Contractor shall notify the Administrator of correspondence, meetings with or visits from representatives of any Administering Authority within 24 hours of the Contractor becoming aware of the event. The Administrator may nominate a representative to attend the planned meeting or visit on the Site as an observer.

7.3 Complaint management

In addition to Clause 15.6.2 of the General Conditions of Contract, the EMP(C) shall contain the Contractor's procedures for notification, investigation, and assessment for legislative triggers, management and reporting of environmental and Cultural Heritage-related complaints. The Contractor shall manage complaints in accordance with their procedure.

¹ Adequate refers to whether the Management Measures employed on Site are reasonable and practicable to manage the risk of Environmental Harm occurring as a result of the Works under the Contract.

For contracts, which require compliance with the *Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration*, complaints shall be managed in accordance with the *Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration* including undertaking complaint assessment where required.

7.4 Principal's surveillance and audits

The Administrator or their representative(s) may undertake inspections and audits of the EMP(C) implementation as part of the Contract Plan. The Administrator shall provide at least five business days' notice of a planned audit or inspection. The Administrator may, at their discretion, undertake unplanned audits in response to non-conformances, Environment or Cultural Heritage Incidents, or upon receiving complaints regarding the Site.

7.5 Environmental monitoring

The Contractor shall undertake Monitoring as specified in this Technical Specification, in the Annexure MRTS51.1 and where required as a condition of an Approval. The EMP(C) shall contain procedure(s) for undertaking the various types of Monitoring including specific location(s), method, timing, frequency, duration, parameter to be monitored, and objective / criteria measured against.

Where Monitoring identifies a non-conforming result with the legislative or Contractual criteria or objective, this non-conformance shall be reported in the Contractor's monthly environmental reporting (Clause 7.6 of this Technical Specification) and Clause 7.8 of this Technical Specification.

7.6 Monthly environmental reporting

The Contractor shall complete and submit reporting to the Administrator in the form of a monthly environmental report. The monthly environmental report shall be submitted to the Administrator within five business days of the end of each month². The monthly environmental report shall include reporting and statements actively addressing³ but not limited to the following that occurred during the reporting month:

- a) Contractor's updates to EMP(C) and Erosion and Sediment Control Plan (ESCP).
- b) Weekly Site Inspections – number of inspections completed, and summary of corrective actions undertaken.
- c) Monitoring Reporting – summary of Monitoring and whether non-conforming results were obtained including submission of animal breeding place registers maintained in accordance with a Species Management Program.
- d) Compliance Testing reporting if applicable – summary of Compliance Testing and whether non-conforming results were obtained.
- e) Register of current and completed non-conformance reports, corrective actions, environment-related complaints and Environmental and Cultural Heritage Incidents raised by the Contractor as part of their Quality System in relation to this Technical Specification and a record of the current status.

² If laboratory test results are not available at the time of monthly reporting it shall be included in the following month's report.

³ Actively addressing means that where there is nothing to report, the Contractor shall report 'nil' rather than omission of any response.

- f) Positive environmental outcomes achieved and opportunities identified by the Contractor, and
- g) Where the Contractor has developed a Compliance Management Plan, Compliance Reporting under the Compliance Management Plan.

A template for the Contractor's Monthly Environmental Report is provided in Appendix A of *MRTS51 Environmental Management, Appendix – Forms A–C*. The Contractor may nominate to utilise their own reporting template if deemed suitable by the Administrator.

Where reporting demonstrates repeated or multiple (three or more) non-conformances of the same issue, the Administrator may instruct the Contractor to undertake a review of the adequacy of Management Measures outlined in the EMP(C) and provide response back to the Administrator within five business days either confirming and justifying the suitability of the existing EMP(C) or notifying of updates to the EMP(C) and the justification.

7.7 Notification and management of environmental and cultural heritage incidents

The EMP(C) shall contain the Contractor's procedures for notification and management of Environmental and Cultural Heritage Incidents in accordance with relevant legislation, Approval conditions and this Technical Specification.

Incident levels and descriptions may differ between the Contractor and Principals management systems. The Contractor shall map their incident management matrix to be consistent with the Principals incident management matrix to ensure there is no confusion about how environmental incidents should be categorised.

7.7.1 Notification

The Contractor shall report to the Administering Authority in accordance with the Approval conditions and relevant legislation where a breach of Approval condition(s), reportable legislative breach, or actual or potential material or serious Environmental Harm (as defined in the *Environmental Protection Act 1994*) is identified.

In addition, the Contractor shall notify the Administrator as soon as practicable, but no later than four hours, upon becoming aware of any of the following:

- a) actual or potential material or serious Environmental Harm as defined in the *Environmental Protection Act 1994*
- b) reportable breach of legislation
- c) breach of an Approval condition(s)
- d) non-conformances from Water Quality Investigation Criteria recorded during Monitoring as specified in this Technical Specification (Table 8.2.2)
- e) injury or death of native fauna other than least concern species, potentially caused by Work under the Contract, including the occurrence of a fish kill on Site or in Waterways receiving Discharge from Site
- f) tampering with a native animal breeding place(s) other than in accordance with an applicable Species Management Program
- g) ground disturbance or vegetation clearing beyond the Contractual Limits of Clearing or areas otherwise deemed suitable by the Administrator

- h) unauthorised damage to known or potential Cultural Heritage
- i) ground disturbance or vegetation clearing beyond the boundary of the Contract's Cultural Heritage Management Agreement, Field Agreement, or Plan otherwise deemed suitable by the Administrator
- j) movement or relocation of Cultural Heritage without approval of the Aboriginal or Torres Strait Islander Party(ies)
- k) clearing of a protected plant under State or Commonwealth legislation other than authorised under an Environmental Approval
- l) unauthorised deposition of surplus material off-site
- m) identification of a new Biosecurity prohibited matter or restricted matter (Category 1 or 2) on Site or breach of a condition of a biosecurity zone, and
- n) discovery of a Contaminated Site (including unexploded ordinance) or land contamination occurred on the Site during the Work under the Contract.

Unless justified otherwise and deemed suitable by the Administrator, the above events shall be reported and managed by the Contractor as Environmental and Cultural Heritage Incidents under the Contract.

7.7.2 Management

The Contractor shall undertake immediate remedial actions to mitigate Environmental Harm or further impacts. Immediate remedial actions shall not be delayed by the need for notification to Administrator or Administering Authority.

Once the immediate risk from the Environmental and Cultural Heritage Incident is alleviated, the Contractor shall investigate the cause of the breach and/or potential Environmental Harm, identify, and implement corrective actions as soon as practicable. The Contractor shall provide an Environment and Heritage Incident Report to the Administrator within 20 business days of the Environmental and Cultural Heritage Incident detailing:

- a) the nature of the incident
- b) what Management Measures were in place to prevent an incident occurring
- c) probable cause of the incident, and
- d) what corrective actions have been undertaken to prevent incidents reoccurring.

Appendix B of MRTS51 *Environmental Management, Appendix – Forms A–C* provides an Environmental and Cultural Heritage Incident Report template. The Contractor may utilise the template or utilise their own Environment and Cultural Heritage Incident Report template where the information provided is the same, where deemed suitable by the Administrator.

The Administrator may at their discretion, instruct the Contractor to make additional corrective actions.

Should the Works under the Contract result in Environmental Nuisance or Environmental Harm, the Contractor shall be responsible for remediation works to make good the Environmental Nuisance and/or Environmental Harm to the Administering Authority and Administrator' satisfaction. Where penalties or offsets are payable for Environmental Nuisance or Environmental Harm, they will be at the Contractor's expense.

7.8 Records and registers

Environmental records are to be included in the Quality Records under the Contract. Table 7.8 of this Technical Specification identifies environmental record requirements. Records and registers shall be made available to the Administrator upon request. **Hold Point 3 Milestone**

The environmental records listed in Table 7.8 shall be submitted to the Administrator (electronically unless agreed to by the Contract Administrator) prior to Practical Completion.

Table 7.8 – Environmental record requirements and requirements for submission to Administrator

Record Requirement	Submit to Administrator at Practical Completion
Environment and Cultural Heritage induction attendance registers.	<input checked="" type="checkbox"/>
Environmental and Cultural Heritage Incident reports, non-conformances and complaints register and associated corrective actions taken.	<input checked="" type="checkbox"/>
Weekly Site Inspection checklists and diary entries.	
Monitoring results.	<input checked="" type="checkbox"/>
Compliance Testing results.	<input checked="" type="checkbox"/>
Contractor environment audit reports and subsequent corrective actions taken.	
Meeting minutes with Administering Authorities and interested parties relating to the Management Measures.	<input checked="" type="checkbox"/>
Formal letters from Administering Authorities.	<input checked="" type="checkbox"/>
Biosecurity Matter certificates, Biosecurity Instrument Permits and Biosecurity management documentation.	<input checked="" type="checkbox"/>
Complete registers kept under Species Management Program of animal breeding place(s) tampered with, relocated and injury(s) or death(s) to native fauna.	<input checked="" type="checkbox"/>
Records to demonstrate and document compliance with Environmental Approvals held by Principal and Contractor.	<input checked="" type="checkbox"/>
As constructed drawings and maintenance plans for any permanent environmental management infrastructure constructed (that is, sediment basins, fauna management infrastructure).	<input checked="" type="checkbox"/>
Details regarding ongoing management, monitoring or reporting requirements related to Environmental Approvals held by Principal or Contractor.	<input checked="" type="checkbox"/>
Quantities of water and quarry materials extracted from non-commercial sources under the Contract by source Site.	<input checked="" type="checkbox"/>
Electronic copy of the completed Waste 2 Resource Calculator, the department's Waste Estimation and Reporting tool submitted to both Administrator and emailed to projectwasteregister@tmr.qld.gov.au .	<input checked="" type="checkbox"/>
Cultural Heritage personnel daily timesheets.	<input checked="" type="checkbox"/>
Any other record identified within the Contractor's EMP(C).	
Any other record required by Annexure MRTS51.1.	<input checked="" type="checkbox"/>

7.9 Environmental roles and responsibilities of personnel

The Contractor's EMP(C) shall document all environmental-specific roles and responsibilities of personnel.

7.10 Selection and management of sub-contractors

The Contractor shall include a requirement to comply with the EMP(C) in all Contractual arrangements with sub-contractors.

7.11 Approvals

The Contractor shall be responsible for identifying statutory requirements and obtaining all Approvals that are required for the construction activities. The EMP(C) shall include a list of all Approvals relevant to the Contract. Details shall include:

- a) name, type and reference number of Approval
- b) Administering Authority
- c) commencement and expiry date, and
- d) conditions of Approvals.

Where Environmental Approvals contain or are likely to contain conditions that will extend beyond the period of the Contract, the Contractor shall seek advice from the Principal regarding the acceptance of the Environmental Approval condition prior to formalising the Approval.

Clause 1 of Annexure MRTS51.1 details Approvals that the Principal has obtained for the works and associated conditions and requirements. Copies of all Approvals submitted and obtained by the Contractor shall be made available to the Administrator on request.

The Contractor shall comply with the relevant conditions of Approvals obtained by the Contractor as well as those obtained by the Principal (where stipulated in Clause 1 of Annexure MRTS51.1). The Contractor shall retain records required to demonstrate compliance with all Approvals in accordance with Clause 7.9 of this Technical Specification.

Where the conditions contained in Approvals listed in Clause 1 of Annexure MRTS51.1 contain a reporting requirement or supply of data or other documentation, the Contractor will supply the necessary documentation to the Principal no later than 20 business days prior to the dates specified in the Approvals for the Principal's approval. Reports shall not be released or published without the written approval of the Principal. On the discretion of the Principal, any inadequacies or inaccuracies in the documentation will be addressed to the satisfaction of the Principal at the Contractors expense.

Projects that include works within tidal areas may require compliance with marine related legislation such as:

- Code for Accepted Development for Tidal Works.
- Accepted Development Requirements for Removal, Destruction or Damage of Marine Plants, and/or
- Accepted Development Requirements for Work Within Declared Fish Habitat Area (FHA).

At practical completion the Contractor shall provide documentation of the successful surrender of Approvals held by the Contractor that relate to the Contract. Where surrender is not feasible, and where deemed suitable by the Administrator, the Contractor shall apply to transfer the Approvals to the Principal prior to the defect's liability period concluding. The Contractor shall be responsible for providing all relevant documentation regarding the transfer to the Principal.

7.12 Site induction

Prior to commencing ground disturbing activities, the Contractor shall ensure that all staff involved in, or supervising, these activities, have attended an Environmental Site Induction. This includes, as a minimum, all Site management staff, employees and subcontractors working on activities which disturb the natural ground surface.

The Contractor shall prepare and deliver a Contract Specific Site Induction to all persons upon entering the Site. The Contractor shall maintain a register signed by those inducted. The register shall contain but not be limited to the name of inductees, dates inducted, and the name of the induction facilitator.

A copy of the Contractor's Environmental induction shall be included in the Contractor's EMP(C).

The induction shall include, but not be limited to:

- a) basic roles and responsibilities for environmental management including general environmental duty and duty to notify under the *Environmental Protection Act 1994*
- b) specific locations within the Site of environmental and Cultural Heritage significance or risks, including exclusions zones and details of prohibited and restricted Biosecurity Matters on Site with photos of the matter
- c) the scope and conditions of Approvals applicable to the Contract
- d) locations of ancillary activities deemed suitable by the Administrator (including but not limited to stockpile Sites, turnaround points, construction water, material sources and Deposition Areas for Surplus Material if known)
- e) the Limit of Clearing and the boundary of the CHMA, CHFA, or CHMP where applicable
- f) environmental Management Measures stipulated in the Contractor's EMP(C)
- g) procedures for notifying of potential Environmental and Cultural Heritage Incidents, and
- h) contingency plans for unplanned events.

Cultural Heritage Induction

Prior to commencing ground disturbing activities, the Contractor shall ensure that all staff involved in, or supervising, these activities, have attended the Principal's Cultural Heritage Induction (email TMR.Heritage@tmr.qld.gov.au for a copy) or an alternative Cultural Heritage Induction course deemed suitable by the Administrator. This includes, as a minimum, all Site management staff, employees and subcontractors working on activities which disturb the natural ground surface. The Principal's Cultural Heritage Induction shall be arranged through the Administrator.

8 EMP(C) specific element requirements

8.1 General

Environmental elements included in the EMP(C) shall include, but not be limited to those defined in the following sections.

The EMP(C) shall encompass the Environmental Management of the Works under the Contract including Temporary Works and ancillary activities including sourcing water, gravel, side tracks, stockpile Sites, Contractor's Site facilities and camps, turnaround points and Deposition Areas for Surplus Material.

The Contractor shall select Management Measures which are reasonable and practicable for the environmental impacts they are managing. A brief justification of the suitability of the Management Measures based on the risk assessed shall be provided in the EMP(C) for environmental elements.

8.2 Water quality

8.2.1 General

The Contractor shall be responsible for the management of water quality to meet Contractual and Legislative Requirements, and not cause Environmental Harm or Environmental Nuisance to Waterways within the Site or adjacent Waterways into which the Site Discharges.

Water quality management pertaining to sediment is managed under MRTS52 *Erosion and Sediment Control*. For contracts that are not using MRTS52 *Erosion and Sediment Control*, the Contractor shall comply with contract specific requirements relating to Erosion and Sediment Control stipulated in Clause 14 of Annexure MRST51.1.

8.2.2 Performance requirements

The Contractor shall at all times undertake reasonable and practicable Management Measures to avoid Environmental Harm or Environmental Nuisance within the Site and to Waterways into which the Site Discharges. Specifically, the Contractor shall comply with the *Environmental Protection Act 1994*, Section 440ZG.

Water quality Management Measures shall be designed to achieve Discharge from Site compliant with the Water Quality Investigation Criteria (Discharge) outlined in Table 8.2.2 of this Technical Specification.

The Project Manager and/or Environmental Officer is encouraged to develop Site specific discharge criteria relevant to the receiving environment / catchment Site based on the risks to the receiving environment and Site specific information available. In particular it is recommended that Site specific criteria be developed for:

- naturally occurring acid environments and ecosystems such as wallum streams, and
- projects located in western catchments such as Murray-Darling and desert channel area.

Consideration may need to be given to the analysis of water for Electrical Conductivity particularly if using a coagulant or flocculant which increases EC and water being discharged into a low salinity low flow stream.

Site specific water quality criteria, including discharge criteria, can be specified in Clause 2.2 of Annexure MRST51.1.

The Contractor shall develop and undertake a water quality Monitoring Plan that is reasonable and practicable in accordance with the requirements stipulated in Clause 8.2.3 of this Technical Specification.

Table 8.2.2 – Water quality investigation criteria

Contract Water Quality Risk	Parameter	Discharge	Dewatering to Land ⁴	Waterway	
				Level	Change (Upstream-Downstream)
Low water quality risk	Turbidity	No visual evidence of sediment accumulating at point of Discharge.	N/A	No visible change from upstream	-
	Waste	No waste or litter visible	No waste or litter	No waste or litter	-
	Hydrocarbons tannins, paint	No visible trace	No visible trace	No visible change from upstream	-
Medium and high water quality risk	Suspended Solids	Discharges shall be < 50 mg/L TSS or equivalent turbidity as determined by laboratory analysis by correlating turbidity with the suspended solids limit. Where specified, an alternative discharge criteria identified in Annexure MRTS52.1.	N/A	< 50 mg/L TSS or equivalent turbidity as determined by laboratory analysis by correlating turbidity with the suspended solids limit	5 mg/L or 10% increase (whichever is greatest)
	pH	Stable pH reading; and General Sites: 6.5 – 8.5, or Wallum / Acidic Ecosystems: 5.0 – 7.0	Stable pH reading, and General Sites: 6.5 – 8.5, or Wallum / Acidic Ecosystem: 5.0 – 7.0	General Sites: 6.5 - 8.5 Wallum / Acid ecosystems: 5.0 – 7.0	1.0 pH unit change
	Hydrocarbons tannins, paint	No visible trace	No visible trace	No visible change from upstream	-
	Waste	No waste or litter	No waste or litter	No waste or litter	-
	Dissolved Oxygen	90% Saturation (lower limit) ⁵	N/A	> 85% saturation for flowing waters DO > 5 mg/L	10% decrease

NOTE: For medium and high water quality risk projects, the Contractor shall ensure that water temperature (°C) is recorded for each monitoring record on the water quality monitoring spreadsheet.

⁴ Deliberate releases to land such as dewatering to land (does not apply to overland flow).

⁵ Derived from the DEHP Queensland Water Quality Guidelines 2009.

8.2.2.1 Flocculation

NOTE: The use of flocculants for erosion and sediment control is prescribed in MRTS52 Erosion and Sediment Control, however the use and discharge of chemical flocculants are also a water quality consideration.

Where flocculation is undertaken on Site, the Contractor shall select, store, apply and monitor the use of flocculants in accordance with *IECA Best Practice Erosion and Sediment Control Appendix B – Sediment Basin Design and Operation*, Step 17 to ensure that the flocculant does not cause Environmental Harm on the surrounding land and water. If Monitoring by the Contractor or Administrator indicates Environmental Harm may be occurring, flocculation shall cease until changes are made to the flocculation process to prevent the Environmental Harm.

Management of sediment basin sludge where flocculant has been used shall be in accordance with the chemical supplier's advice and documented within the EMP(C).

8.2.2.2 Stormwater reuse

The reuse of stormwater (including stormwater captured in sediment basins) for dust suppression, roadworks or landscaping is preferred over Discharge. Where water is to be reused for landscaping it shall be compliant with Clause 7.9 of MRTS16 *Landscape and Revegetation Works* quality requirements.

Where captured stormwater is to be reused on roadworks the Contractor shall address requirements in MRTS04 *General Earthworks*.

8.2.3 Monitoring

The Contractor shall develop and undertake a water quality monitoring plan to verify the effective management of water quality risks from Site. Applicable Water Quality Investigation Criteria consists of three criteria: Discharge, Waterways and Land.

1. Discharge criteria – criteria applicable to stormwater flows moving into Waterways within the Site, Waterways adjacent to the Site and beyond the boundary of the Site where it could reasonably enter a Waterway such as in defined drainage lines (Discharges). Discharges criteria also applies to Discharges from sediment basin(s) prior to dewatering. Discharge criteria does not extend to overland flows.
2. Waterway(s) criteria – criteria for Waterway(s) are applicable to Waterways within a Site or receiving Waterways adjacent to Site. Purpose of the criteria is to compare water quality parameters of the Waterway upstream of the Site to downstream of the Site to identify potential water quality impacts from the Works under the Contract. The Contractor shall nominate representative locations, not more than 100 m upstream and 100 m downstream of the works on all Waterways where stormwater is Discharged.
3. Land criteria – the land criteria applies where sediment basins or other impoundment of water is purposefully dewatered over areas of land for the purpose of evaporation and infiltration. The water quality shall comply with the criteria in Table 8.2.2. Active Monitoring of land criteria will only be required where stipulated in Clause 2 of Annexure MRTS51.1 or as requested by Administrator.

Monitoring results shall be recorded on a monitoring spreadsheet and evaluated by the Contractor against the Water Quality Investigation Criteria to verify compliance. For each Monitoring result that does not conform with the Water Quality Investigation Criteria (Discharge or Waterway) the Contractor shall:

- a) Report the non-conformance to the Administrator and Administering Authority in accordance with Clause 7 of this Technical Specification. Including the size of the rainfall event Annual Recurrence Interval (ARI)⁶, duration of the rainfall event (where applicable), the water quality parameter that exceeded the criteria and level that was recorded from within the Site and downstream of the Site.
- b) Undertake an investigation in accordance with the processes outlined in the Administering Authority's *Procedural Guide*⁷, and
- c) Develop and implement corrective actions such as improved work procedures or Management Measures to improve water quality and prevent re-occurrence of Monitoring non-conformances.

NOTE: The Monitoring non-conformance will be a Contractual non-conformance unless the Contractor can be demonstrated the following:

- for Total Suspended Solids, the rainfall event that caused Discharge was greater than the specified design event (Table 8.2.2).
- reasonable and practicable measures were in place, functional and maintained, or
- non-conformance was caused by factors external to Site activities / practices (for example, an upstream third-party polluter).

8.2.3.1 Low risk contracts – Visual Monitoring of Discharge and Waterways

For contracts specified as low water quality risk in Clause 2.1 of Annexure MRTS51.1, Monitoring of Discharges and Waterways shall be undertaken via visual Monitoring in accordance with Table 8.2.3.1 of this Technical Specification, unless otherwise specified in Clause 2.3 of Annexure MRTS51.1.

⁶ The Contractor shall use the most recently available IFD (Intensity – Frequency- Duration) data available through the Bureau of Meteorology (<http://www.bom.gov.au/>). Alternatively, the Contractor may utilise data from a calibrated Site based rainfall intensity gauge and Bureau of Meteorology data. The rainfall event shall be expressed as Annual Recurrence Interval (ARI).

⁷ Note the *Procedural Guide* requirements pertaining to sediment basins shall only be applied where appropriate for medium and high risk projects.

Table 8.2.3.1 – Visual water quality Monitoring locations and frequency

Visual Monitoring	Locations	Frequency / Trigger	
		Weekly ⁸	15 mm Rainfall in 2 hours ⁹
Discharge	At representative locations where concentrated-flows of stormwater Discharges from Site.		✓
Waterways	At representative locations upstream and downstream of the Site on Waterways within the Site and where Discharges enter from the Site. Where possible, the upstream and downstream Monitoring location should be no more than 100 m from the Works.	✓	✓

Visual Monitoring will be documented in the form of spreadsheets and photographs of the Monitoring locations. Photographs must include a time and date stamp. Rainfall data from the Bureau of Meteorology may be used for any comparison with Monitoring where required.

The Contractor shall undertake investigations, assess whether reasonable and practicable measures are implemented, and whether corrective actions are required where visual Monitoring observes Discharges or Waterways to be:

- a) visually contaminated
- b) there is a visible accumulation of sediment or other contaminant within a Waterway at the point of Discharge, or
- c) a complaint is received.

The outcome of the investigation shall be recorded and reported to the Administrator in accordance with Clause 7 of this Technical Specification.

The Administrator may at their discretion, instruct the Contractor to undertake further investigations and/or undertake water quality monitoring in accordance with Clause 8.2.3.2 of this Technical Specification.

8.2.3.2 Medium and high water quality risk contracts

For projects specified as medium or high water quality risk in Clause 2.1 of Annexure MRTS51.1, the Contractor shall be responsible for developing, undertaking and recording a Water Quality Monitoring Program as part of the EMP(C). The Contractor's Water Quality Monitoring Program shall be developed in accordance with the *Monitoring and Sampling Manual*. The Contractor's Water Quality Monitoring Program shall be reasonable and practicable considering risks from Works under the Contract and the sensitivity of the receiving Waterways.

8.2.3.2.1 Site rainfall

In order to obtain accurate rainfall data, the Contractor shall install a proprietary rain gauge and/or proprietary meteorological station and keep a record of the rainfall depth (mm) of each rainfall event, and where possible duration of the rainfall event. In instances of continuous rainfall greater than

⁸ Weekly during Works where potential impact to a Waterway or Waterbody with water present (for example, from earthworks, stockpiling of pre-coated aggregate, concrete curing within a Waterway, clearing and grubbing).

⁹ Transport and Main Roads calculated this, the Contractor is able to adopt a higher standard to manage risk where appropriate.

24 hours, daily records and total duration shall be recorded when the Site is still open for operation. For geographically diverse Sites where rainfall is likely to differ significantly across the Site the Contractor shall install a rain gauge at locations representative of each climatic zone.

8.2.4 EMP(C) requirement for water quality

The EMP(C) shall include descriptions and/or diagrams of:

- a) Waterbodies and Waterways within 50 m of the Site boundaries that the Site Discharged to.
- b) List Works under the Contract (including ancillary activities and temporary works) in locations at risk of impacting water quality other than erosion and sediment control risks, including:
 - i. the potential contaminants
 - ii. locations of Works in relation to waterbodies and Waterways, and
 - iii. flow paths to waterbodies and Waterways within and adjacent to Site.
- c) Water Quality Management Measures, other than erosion and sediment controls which are addressed in the Erosion and Sediment Control Plan in accordance with MRTS52 *Erosion and Sediment Control*.
- d) The Contractor's Water Quality Monitoring Plan:
 - i. Low risk – The plan shall nominate Monitoring locations, frequency and methodology, or
 - ii. For medium and high water quality risk – the Contractor's Monitoring program in accordance with the *Monitoring and Sampling Manual* that shall document as a minimum:
 - sampling scope – objectives of sampling, spatial boundaries, duration and frequency
 - sampling design – what, where, when and how to sample including quality control requirements, and
 - the spreadsheet template for analysis of results against Water Quality Investigation Criteria (Table 8.2.2 of this Technical Specification) and rainfall data.
- e) Contingency plans for Environmental Harm to water quality.

8.3 Erosion and sedimentation

Requirements relating to Erosion and Sediment Control are contained within MRTS52 *Erosion and Sediment Control*. The Erosion and Sediment Control Plan forms part of the Environmental Management Plan (Construction) (EMP(C)).

For contracts that are not using MRTS52 *Erosion and Sediment Control*, the Contractor shall comply with contract specific requirements relating to Erosion and Sediment Control stipulated in Clause 14 of Annexure MRST51.1.

8.4 Cultural Heritage

8.4.1 General

The Contractor shall be responsible for the management (including protection) of Aboriginal, Torres Strait Islander and Historical / European Cultural Heritage - within and adjacent to the Site to avoid harm to Cultural Heritage.

Contract-specific management requirements are stipulated in Clauses 3.1 – 3.8 of Annexure MRTS51.1.

Where stated in Clause 3.5 of Annexure MRTS51.1, the department has entered into an agreement with Aboriginal or Torres Strait Islander Party(ies) for the management of Cultural Heritage located within and adjacent to the Site.

Where stated in Clause 3.8 of Annexure MRTS51.1, the department has obtained Approvals for works on Historical / European Cultural Heritage within and adjacent to the Site.

8.4.2 Performance requirements

The Contractor shall undertake Work under the Contract in compliance with the *Aboriginal Cultural Heritage Act 2003*, *Torres Strait Islander Cultural Heritage Act 2003*, *Queensland Heritage Act 1992* and the *Environment Protection and Biodiversity Conservation Act 1999*.

The Contractor shall at all times take reasonable and practicable Management Measures to avoid harm to Cultural Heritage from Works under the Contract. Where a Cultural Heritage Management Plan (CHMP), Cultural Heritage Management Agreement (CHMA), or Cultural Heritage Field Agreement (CHFA) is specified in Clause 3 of Annexure MRTS51.1, the Contactor shall operate in accordance with the conditions. Where Approvals for works on Historical / European Cultural Heritage are specified in Clause 3 of Annexure MRTS51.1, the Contractor shall operate in accordance with any conditions of the Approval.

Prior to any Works under the Contract commencing, the Contractor shall conduct field verification of known Cultural Heritage sites listed in Clause 3.3 and 3.7 of Annexure MRTS51.1 and install appropriate flagging or fencing to ensure that sites are clearly distinguishable and not harmed during clearing or earthworks, unless authorised by Cultural Heritage Personnel or the Contract Administrator.

The Contractor shall comply with the contract specific requirements in Clause 3.1 – 3.8 of Annexure MRTS51.1.

8.4.2.1 Aboriginal or Torres Strait Islander Heritage

Where disturbance or clearing is required outside the area covered by the CHMA, CHFA, or CHMP, the Contractor shall notify the Administrator. Works will not commence beyond the area covered by the CHMA, CHFA or CHMP Agreement, until deemed suitable by the Administrator.

Where, during the Contract, items of potential Aboriginal or Torres Strait Cultural Heritage are discovered when Cultural Heritage Personnel are present, activities shall only proceed in accordance with the procedures outlined in the CHMP, CHFA, or CHMA. If Cultural Heritage Personnel are not present at the time of a discovery, refer to Clause 8.4.2.3 of this Technical Specification for management requirements.

8.4.2.2 Historical / European heritage

The Contractor shall comply with any Approval conditions as stated in Clause 3.8 of Annexure MRTS51.1 as well as any contract specific requirements in Clause 3.1. Unless otherwise stated in Clause 1 of Annexure MRTS51.1, the Contractor shall obtain all Approvals required for impacting Historical / European heritage listed places within and adjacent to the Site as per the applicable legislation.

8.4.2.3 Unexpected discovery / find

Where items of potential Cultural Heritage significance (including Aboriginal, Torres Strait Islander and Historical / European origin) are discovered and when no Cultural Heritage Personnel are present for Aboriginal or Torres Strait Islander heritage, the Contractor will follow the Principal's Find – Stop – Notify – Manage procedure:

- a) FIND: An item of potential Cultural Heritage is found.
- b) STOP: All work at the Find location shall cease. The item shall not be removed or disturbed.
- c) NOTIFY: The Contractor shall immediately notify the Administrator. The Administrator will promptly notify the Principal's Cultural Heritage Officer, and
- d) MANAGE: Principal's Cultural Heritage Officer will arrange for the potential Cultural Heritage to be inspected and assessed for significance. Principal's Cultural Heritage Officers shall provide the temporary management recommendations. This may include securing the find by erecting an exclusion zone for a period of time and precluding access to that area. The Contractor shall notify all Site personnel of the object and/or area and proposed treatment of the object and/or area as soon as possible, but prior to commencing work on the next working day.

Historical / European heritage discoveries will be assessed by the Principal in accordance with the *Transport and Main Roads – Department of Environment and Science Archaeological Discovery Protocol* (email TMR.Heritage@tmr.qld.gov.au for a copy) and may require notification to Department of Environment, Science and Innovation (DESI). In the event DESI imposes additional management strategies, the Contractor shall assist the Principal with the implementation of these.

Aboriginal or Torres Strait Islander heritage discoveries may require reporting to the local Aboriginal or Torres Strait Islander Party(ies) by the Principal. Where the Party(ies) and Principal agree on management strategies, the Contractor shall assist the Principal with the implementation of these.

8.4.3 Monitoring

NOTE: This section relates to Monitoring activities generally and is not exclusively related to Monitoring of Works by Cultural Heritage Personnel.

Where stipulated in Clause 3 of Annexure MRTS51.1, Monitoring is required of specific areas within the Site. Where Monitoring is required, it shall be undertaken and reported in accordance with Clause 7 of this Technical Specification.

Where stipulated in the CHMA, CHFA, or CHMP, Monitoring by Cultural Heritage personnel is required in addition to the Contractor's Monitoring activities. In accordance with the CHMA, CHFA, or CHMP, the Contractor shall be responsible for ensuring that the Cultural Heritage Personnel are on Site during ground disturbance activities identified in the CHMA, CHFA or CHMP. If activities requiring Monitoring by Cultural Heritage Personnel occur and Cultural Heritage Personnel are not present, the

Contractor is to advise the Administrator immediately. The Contractor may only proceed in accordance with the conditions of the CHMP, CHFA, or CHMA.

While on Site, the Cultural Heritage personnel shall be supervised and coordinated by the Contractor. The Contractor shall ensure that the Cultural Heritage personnel are appropriately inducted, as required by Workplace Health and Safety Regulations. The Contractor shall ensure that the Cultural Heritage personnel comply with the relevant Codes of Conduct and workplace regulations that apply to the construction Site. Cultural Heritage personnel shall be employed and paid by the Principal.

The Contractor's Work Supervisor shall verify and sign the Cultural Heritage personnel's Monitoring Report and timesheets daily. (A copy of the report / timesheet proforma shall be provided by the Principal). The Contractor shall retain a copy of timesheets store and submit to the Administrator on a weekly basis.

Where the conditions of a Historical / European heritage approval as stipulated in Clause 3.8 of Annexure MRTS51.1 require monitoring of a heritage site, the Contractor shall conduct monitoring in accordance with the approval conditions and immediately report any damage or potential damage to the site to the Contract Administrator.

8.4.4 EMP(C) requirements for Cultural Heritage

The EMP(C) shall include documents and/or diagrams indicating the following:

- a) the Principal's Cultural Heritage Officer contact details
- b) locations of known Cultural Heritage sites within and adjacent to the Work Site
- c) how each Cultural Heritage site has been flagged or fenced off to prevent harm
- d) Work under the Contract likely to occur in proximity to Cultural Heritage sites
- e) Cultural Heritage Management Measures, including those in Clause 3 of Annexure MRTS51.1
- f) a Monitoring Plan for cultural heritage including Works under the Contract that Cultural Heritage Personnel are required to monitor, and
- g) assessment, consultation and approval outcomes for any proposed Deposition Areas for Surplus Material, if applicable.

8.5 Noise

8.5.1 General

The Contractor is responsible for the management of construction noise generated from Work under the Contract. The requirements of this Technical Specification do not include management of noise in relation to noise exposure within the Workplace (occupational noise). Noise impacts on native fauna (if required) are considered under Clause 8.10 of this Technical Specification.

In addition to the Sensitive Receptors identified by the Principal in Clause 4.2 of Annexure MRTS51.1, the Contractor shall be responsible for identifying Sensitive Receptors likely to be affected by construction noise through the application of the performance requirements in Clause 8.5.2 of this Technical Specification.

8.5.2 Performance requirements

The Contractor shall implement reasonable and practicable Management Measures to prevent or minimise Environmental Harm or Environmental Nuisance at Sensitive Receptors from noise associated with Work under the Contract.

The level of construction noise documentation, assessment and Management Measure requirements will vary with the scale and scope of the project.

At a minimum, the Contractor shall address the construction noise requirements of Clause 8.5 of this Technical Specification in their EMP(C).

Where nominated in Clause 4.1 of Annexure MRTS51.1, the Contractor shall, in addition to the minimum requirements of Clause 8.5.2 of this Technical Specification, address construction noise in accordance with the requirements of the *Transport Noise Management Code of Practice*:

Volume 2 – *Construction Noise and Vibration*, and prepare the following:

- Noise Assessment Report, and
- Noise Management Plan.

Where a sustainability assessment is being undertaken by the project, and credits are being attained for noise, the Contractor shall address construction noise in accordance with the requirements of the *Transport Noise Management Code of Practice*: Volume 2 – *Construction Noise and Vibration* and the Infrastructure Sustainability Council Technical Manual v2.1, Env-2 Noise.

The *Transport Noise Management Code of Practice*: Volume 2 – *Construction Noise and Vibration* is not intended for use on all transport infrastructure projects. It is intended for use in the following scenarios:

- projects that have potential to cause noise or vibration related environmental harm or nuisance due to their construction complexity, size or scope
- projects with piling works, and/or
- projects with ISC sustainability requirements.

The Project Manager is encouraged to discuss the potential noise impacts of their project and the intent of the *Transport Noise Management Code of Practice*: Volume 2 – *Construction Noise and Vibration* with internal subject matter experts.

8.5.3 Monitoring and Complaint Management

The Contractor shall inform the Administrator of any noise complaints related to works associated with the contract as soon as practicable. The Contractor shall undertake a preliminary assessment to determine if the complaint is justifiable.

In the event of a justifiable noise complaint, the Contractor must:

- Investigate the cause of the complaint through consultation with the complainant. Review and log the type, location and duration of the site activity, meteorological conditions and other extraneous noise events occurring at the time of the activity which is the subject of the complaint.

- Develop and implement appropriate work procedures or Management Measures to prevent or minimise further noise impacts, and
- Within five working days of receipt of the noise complaint, report the results of the investigation and the actions taken to close out the complaint(s) to the Administrator.

If directed by the Administrator, the Contractor shall undertake additional complaint related noise assessment: **Hold Point 4**

- Perform attended noise monitoring at the location from which the complaint arose (or a representative location) during a representative period to determine construction noise levels at the location of the complainant. Monitoring shall be conducted in accordance with applicable industry standards and note the ambient and background noise environment at the time of measurement.
- Use attended noise monitoring data in the assessment of the impacts and identify reasonable and practicable noise Management Measures required to be implemented, and
- Report the results of the monitoring, investigation and the actions taken to address the complaint to the Administrator.

The Contractor shall take reasonable and practical measures to resolve a justifiable complaint and implement reasonable and practical Management Measures.

After other reasonable and practical Management Measures are exhausted, the Contractor shall consider respite, in consultation with the Administrator, restricting the number of nights per week that the works are undertaken near residences.

Alternatively, the Contractor shall consider the potential for temporary relocation of the occupants of affected receivers where other reasonable and practicable Management Measures are exhausted and respite cannot be offered. Prior to undertaking respite or offering temporary relocation, the Contractor shall submit documentation for acceptance by the Administrator. **Hold Point 5**

Where required by Clause 4.1 of Annexure MRTS51.1, the Contractor shall also comply with the noise monitoring requirements of the *Transport Noise Management Code of Practice*:

Volume 2 – *Construction Noise and Vibration*. The Contractor shall undertake any noise monitoring and assessment required by the Contractor's Noise Management Plan which has been accepted by the Principal through the Administrator.

The Contractor shall include all noise complaints within the Contractor's monthly environmental report.

8.5.4 EMP(C) requirements for noise

The EMP(C) requirements and documentation shall include following (but not limited to):

- a) The location and type of noise Sensitive Receptors potentially impacted by Works associated with the Contract.
- b) Noise (including air blasting overpressure) generating activities, their locations, proximity to Sensitive Receptors, work periods (standard hours, non-standard hours (day / evening), non-standard hours (night time)).
- c) Evaluation outcome for Sensitive Receptors which are likely to be impacted by construction noise. Works which are likely to cause the impact shall be documented.

- d) All reasonable and practicable vibration Management Measures to prevent or minimise noise impacts to Sensitive Receptors. Noise Management Measures within the EMP(C), shall include (but not limited to):
- i. Notifying occupants of potentially impacted properties prior to scheduled Works during Non-standard hours.
 - ii. Noisy activities associated with the project (e.g. concrete cutting, jack hammers, vibratory rollers, vacuum trucks, hydraulic hammers, guard rail piling / piling, clearing and grubbing) within 200m of Sensitive Receptors (e.g. residential and educational buildings) shall not occur during the hours of 10 pm to 8 am or at any time on a Sunday or public holiday. Relaxation of curfews for noisy equipment is at the discretion of the Administrator. Any request for relaxation shall be supported with additional Management Measures to minimise noise impacts.
 - iii. The use of tonal reversing alarms / beepers by the project should be avoided on site, where possible. (Consider broad band reversing beepers).
- e) Contingency plan for Environmental Harm associated with noise impacts.

Where required by Clause 4.1 of Annexure MRTS51.1, the Contractor shall prepare, maintain and implement a Noise Management Plan in accordance with the *Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration*. The Noise Management Plan and supporting Noise Assessment Report will form part of the EMP(C).

The following standalone documents shall be submitted to and accepted by the Principal through the Administrator prior to use:

- Noise Assessment Report, and
- Noise Management Plan.

The Contractor shall review the Noise Management Plan and/or EMP(C), and update and implement additional Management Measures where:

- directed by the Administrator
- in response to a justifiable complaint caused by the Work under the Contract, or
- when changes in the equipment / work method, intensity, location, duration, or timing of impacts that are expected to increase noise impacts are foreseen.

Where both noise and vibration are to be managed in accordance with the *Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration*, the assessment reports and management plans shall be combined as single documents and submitted as:

- Noise and Vibration Assessment Report, and
- Noise and Vibration Management Plan.

8.6 Vibration

8.6.1 General

The Contractor is responsible for the management of construction vibration generated from Work under the Contract. The requirements of this Technical Specification do not include management of vibration in relation to vibration exposure within the Workplace (occupational vibration). Vibration impacts on native fauna (if required) are considered under Clause 8.10 of this Technical Specification.

For the purpose of this Technical Specification potential vibration impacts and management are categorised in two forms:

1. Human comfort vibration management relates to managing vibration amenity impacts to Sensitive Receptors (for example, public, residents or people) utilising the area in the vicinity of the Work under the Contract, and
2. Building / Structural vibration management relates to managing vibration to avoid structural damage to Sensitive Receptors (for example, buildings and structures) within and beyond the Site. This also includes managing impacts on building contents.

For vibration impacts to public utility plant (PUP), the construction contractor is responsible for liaising with the relevant utility authority based on their work methods to seek approval during construction to manage potential impacts in accordance with MRTS170 *Public Utilities in Road Projects Site Works*, MRTS171 *Public Utilities in Road Projects Principal Contractor Responsibilities* and utility provider requirements.

In addition to the Sensitive Receptors identified by the Principal in Clause 5.2 of Annexure MRTS51.1, the Contractor shall be responsible for identifying Sensitive Receptors likely to be affected by Construction vibration through the application of the performance requirements in Clause 8.6.2 of this Technical Specification.

8.6.2 Performance requirements

The Contractor shall implement reasonable and practicable Management Measures to prevent or minimise Environmental Harm or Environmental Nuisance at Sensitive Receptors from vibration associated with Work under the Contract.

The level of construction vibration documentation, assessment and Management Measure requirements will vary with the scale and scope of the project.

At a minimum, the Contractor shall address the construction vibration requirements of Clause 8.6 of this Technical Specification in the EMP(C).

When managing vibration impacts at Sensitive Receptors (including buildings and structures), the Contractor shall comply with the following:

- Air Blast Overpressure and ground vibration from blasting limits given in *Environmental Protection Act 1994* Section 440ZB¹⁰.
- Ground vibration values in TN03 *Measurement of Ground Vibrations and Airblast*.

The Contractor shall nominate vibration criteria to prevent damage to cultural / heritage Sensitive Receptors (including damage / disruption to building contents) in the vicinity of the Work under the Contract.

The vibration criteria to prevent building / structural damage shall be complied with at all times, unless otherwise approved by the Administrator.

Where required by Clause 5.1 of Annexure MRTS51.1, the Contractor shall also address construction vibration in accordance with the requirements of the *Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration*, and prepare the following:

- Vibration Assessment Report, and
- Vibration Management Plan.

Where a sustainability assessment is being undertaken by the project, and credits are being attained for vibration, the Contractor shall address construction vibration in accordance with the requirements of the *Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration* and the *Infrastructure Sustainability Council Technical Manual v2.1, Env 3 Vibration*.

The *Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration* is not intended for use on all transport infrastructure projects. It is intended for use in the following scenarios:

- projects that have potential to cause noise or vibration related environmental harm or nuisance due to their construction complexity, size or scope
- projects with piling works, and/or
- projects with ISC sustainability requirements.

The Project Manager is encouraged to discuss the potential vibration impacts of their project and the intent of the *Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration* with internal subject matter experts.

¹⁰ A person must not conduct blasting if:

- a) the air blast overpressure is more than 115dB Z Peak for four out of any five consecutive blasts, or
- b) the air blast overpressure is more than 120dB Z Peak for any blast; or
- c) the ground vibration is:
 - i. for vibrations of more than 35Hz more than 25 mm a second ground vibration, peak particle velocity, or
 - ii. for vibrations of no more than 35Hz more than 10 mm a second ground vibration, peak particle velocity.

8.6.2.1 Condition surveys

Where required by the EMP(C), Vibration Assessment Report or Vibration Management Plan, a condition survey of buildings and structures shall be undertaken prior to commencing vibration generating Works. Condition surveys shall be carried out on those structures and buildings listed in Clause 5.3 of Annexure MRTS51.1, prior to the commencement of Works unless a Registered Professional Engineer of Queensland (RPEQ) determines the structures / buildings are not at risk of damage from construction vibration.

The survey shall assess the current structural and architectural condition of buildings and structures and shall record all existing cracks and other defects. Photographs shall support the condition survey.

Unless stated in Clause 5.4 of Annexure MRTS51.1 a registered structural engineer (RPEQ) shall carry out the condition survey. The survey is to be carried out with the consent and in the presence of the owner or owner's representative. A copy of the condition survey shall be given to the Administrator five working days before any Works that cause vibration start.

The contractor shall undertake post-construction condition surveys at buildings and structures subsequent to completion of the works. Post-construction condition survey reports detailing the results of the inspections shall be submitted to the Administrator following completion of the relevant activity.

The Contractor is responsible for identifying any of the department's structure(s) which are at risk of impact from vibration. The Contractor shall advise the Administrator, and at their discretion, the Administrator may advise the Contractor of vibration criteria, condition survey and any other requirements to be met for the potentially impacted structure(s).

8.6.3 Monitoring and complaint management

The Contractor shall inform the Administrator of any damage caused by, or vibration complaints related to, works associated with the contract as soon as practicable. The Contractor shall undertake a preliminary assessment to determine if the complaint is justifiable.

In the event of a justifiable vibration complaint, the Contractor must:

- Investigate the cause of the complaint through consultation with the complainant. Review and log the type, location and duration of the site activity, and other extraneous vibration events occurring at the time of the activity which is the subject of the complaint.
- Develop and implement appropriate work procedures or Management Measures to prevent or minimise further vibration impacts.
- Within five working days of receipt of the vibration complaint, report the results of the investigation and the actions taken to close out the complaint(s) to the Administrator.

If directed by the Administrator, the Contractor shall undertake additional complaint related vibration assessment. **Hold Point 4**

- Conduct vibration monitoring at the location from which the complaint arose in accordance with relevant Australian Standards and the departments Technical Note TN03 *Measurement of Ground Vibrations and Airblast*. Vibration monitoring shall have real-time alarms to ensure that the equipment operator is made aware of the level of vibration relative to the relevant human comfort and/or damage / disruption vibration limits.

- Use the vibration monitoring data in the assessment of impacts (that is, compare with the building / asset specific vibration levels developed as part of the EMP(C) or the safe levels listed in the departments Technical Note TN03 *Measurement of Ground Vibrations and Airblast*) and identify reasonable and practicable vibration Management Measures required to be implemented.
- Report the results of the monitoring, investigation and the actions taken to address the complaint to the Administrator.

The Contractor shall take reasonable and practical measures to resolve a justifiable complaint and implement reasonable and practical Management Measures.

After other reasonable and practical Management Measures are exhausted, the Contractor shall consider respite to address human comfort impacts, in consultation with the Administrator, restricting the number of nights per week that the works are undertaken near residences.

Alternatively, the Contractor shall consider the potential for temporary relocation of the occupants of affected receivers to address human comfort impacts where other reasonable and practicable Management Measures are exhausted and respite cannot be offered. Prior to undertaking respite or offering temporary relocation, the Contractor shall submit documentation for acceptance by the Administrator. **Hold Point 5**

It is noted that the provision of respite and/or temporary relocation are not Management Measures to address vibration damage impacts.

Where required by Clause 5.1 of Annexure MRTS51.1, the Contractor shall also comply with the vibration monitoring requirements of the *Transport Noise Management Code of Practice*: Volume 2 – *Construction Noise and Vibration*. The Contractor shall undertake any vibration monitoring and assessment required by the Contractor's Vibration Management Plan which has been accepted by the Principal through the Administrator.

The Contractor shall include all vibration damage impacts and complaints (for example, human comfort, building contents damage / disruption and/or building / structural damage) within the Contractor's monthly environmental report.

8.6.4 EMP(C) requirements for vibration

The EMP(C) requirements and documentation and/or diagrams shall include the following (but not limited to):

- a) The location and type of Vibration Sensitive Receptors (including buildings and structures) potentially impacted by Works under the Contract.
Vibration (including air blasting overpressure) generating activities, their locations, proximity to Sensitive Receptors, work periods¹¹ (standard hours, non standard hours (day / evening), non-standard hours (night time)).
- b) Applicable construction vibration criteria for Sensitive Receptors.

¹¹ Work periods are as defined in the *Transport Noise Management Code of Practice*: Volume 2 – *Construction Noise and Vibration* Table 3.1.3.

- c) Evaluation outcome for Sensitive Receptors (including, structures and/or buildings) which are likely to be impacted by construction vibration and Air Blast Overpressure. Works which are likely to cause the impact shall be documented.
- d) All reasonable and practicable vibration Management Measures to prevent or minimise vibration impacts to (human comfort) and prevent damage to Sensitive Receptors. Vibration Management Measures within the EMP(C), shall include (but not limited to):
 - i. Limitations to construction methodologies and the use of particular equipment in the vicinity of Sensitive Receptors to manage human comfort impacts and potential damage / disruption to buildings and structures (including contents) (for example, vibratory roller size / class restrictions near some Sensitive Receptors managed with the implementation of safe working distances).
- e) Contingency plan for observed damage to structures (private, public or departmental-owned).

In the event of damage due to construction vibration or a vibration complaint relating to construction vibration (human comfort and/or damage), the Contractor must immediately report the damage and/or complaint to the Administrator and undertake actions as requested by the Administrator.

Where required by Clause 5.1 of Annexure MRTS51.1, the Contractor shall prepare, maintain, and implement a Vibration Management Plan in accordance with the *Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration*. The Vibration Management Plan and supporting Vibration Assessment Report will form part of the EMP(C).

The following standalone documents shall be submitted to and accepted by the Principal through the Administrator prior to use:

- Vibration Assessment Report, and
- Vibration Management Plan.

The Contractor shall review the Vibration Management Plan and/or EMP(C), and update and implement additional Management Measures where:

- directed by the Administrator
- in response to a justifiable complaint caused by the Work under the Contract, or
- when changes in the equipment / work method, intensity, location, duration or timing of impacts that are expected to increase vibration impacts are foreseen.

8.7 Air quality

8.7.1 General

The Contractor shall be responsible for managing work under the Contract to avoid and minimise Environmental Harm on air quality including from dust, smoke and offensive odours and other air pollutants.

8.7.2 Performance requirements

The Contractor shall at all times take reasonable and practicable Management Measures to avoid causing Environmental Harm and Environmental Nuisance.

Where specified in Clause 6.3 of Annexure MRTS51.1, the Contractor shall assess and manage construction related air quality in accordance with Chapter 6 of the *Road Traffic Air Quality*

Management Manual. Construction related air quality complaints shall be managed in accordance with Chapter 7 of the *Road Traffic Air Quality Management Manual*.

Burning of material shall not be permitted unless specifically allowed by Clause 6.1 of Annexure MRTS51.1. If burning is permitted, the Contractor shall:

- a) obtain approval from the Administering Authority prior to burning
- b) notify adjacent landowners
- c) comply with additional conditions specified in Clause 6.2 of Annexure MRTS51.1, and
- d) not burn regulated waste that shall create toxic or nuisance emissions.

8.7.3 Monitoring

Where stipulated in Clause 6.3 of Annexure MRTS51.1, the Contractor shall undertake air quality Monitoring. Air quality Monitoring shall be undertaken in accordance with the current Australia Standard measurement techniques. Contract records shall include all air quality Monitoring results, schedule and all instrument calibrations. Reporting of air quality Monitoring shall be in accordance with Clause 7 of this Technical Specification.

Weekly Site Inspections shall include daily observations of the Site for visual evidence of dust or emissions travelling beyond the boundary of the Site and evidence of dust fallout from the Works on adjacent vegetation or buildings.

8.7.4 EMP(C) requirements for air quality

The EMP(C) shall include documents and/or diagrams indicating the following:

- a) Location of Air Quality Sensitive Receivers to the Site.
- b) Works likely to cause Environmental Harm or Environmental Nuisance in relation to air quality and location of these works on Site (for example, blasting, excavation, crushing, screening and earth moving plant, compressors and pumps, fabrication areas, lead paint removal, workshops, concrete batching and mixing plant, and all other construction plant and equipment).
- c) Prevailing wind direction and speeds (wind rose) generally expected for the Site location (available from Bureau of Meteorology).
- d) Evaluation outcome of which air quality sensitive receivers will likely experience Environmental Nuisance or Environmental Harm in relation to air quality (unless Monitoring specified in Annexure MRTS51.1 this is qualitative evaluation).
- e) Management Measures and strategies for mitigating Environmental Nuisance and Environmental Harm to air quality. Works that may result in air quality emissions of a substance harmful to health, shall be identified and additional specific management practices and controls prescribed.
- f) Where Monitoring is stipulated in Clause 6.3 of Annexure MRTS51.1, air quality Monitoring methodology, equipment used, frequency, duration, location of equipment and details of the person undertaking the Monitoring Assessment.

- g) Where Air Quality Compliance Testing is stipulated in Clause 6.3 of Annexure MRTS51.1, Air Quality Compliance Testing methodology, equipment used, frequency, duration, location and details of the person undertaking the Compliance Testing Assessment, and
- h) Contingency Plan for observations of emissions exceeding criteria.

8.8 Acid sulfate soils

The Contractor shall be responsible for the management of actual or potential acid sulfate soils within the Site. The Contractor's EMP(C) shall address the requirements of MRTS04 *General Earthworks* including the requirements concerning the management of actual and potential acid sulfate soils.

8.9 Contaminated Sites

8.9.1 General

The Contractor shall be responsible for managing Work under the Contract in order to mitigate risks of Environmental Harm from Contaminated Sites within the Site (for example, contaminated soil, waste dumps, unexploded ordnances). In addition to the requirements in this Technical Specification, the Contractor shall comply with the requirements of Clause 11 of MRTS04 *General Earthworks* in relation to Deposition of Surplus Material and MRTS96 *Management and Removal of Asbestos*.

Known locations of Contaminated Sites are stated in Clause 7.1 of Annexure MRTS51.1.

Where an Administering Authority-accepted Site Management Plan exists, this is identified in Clause 7.2 of Annexure MRTS51.1.

8.9.2 Performance requirements

The Contractor shall at all times take reasonable and practicable Management Measures to manage known Contaminated Sites in order to avoid and prevent the spread of contaminants either within the Site or beyond the boundary of the Site. Management shall be in accordance with the Administering Authority-approved Site Management Plan where it exists. Where the contract requires disturbance of known Contaminated Sites, Management Measures will extend to the active containment and, where stipulated in Annexure MRTS51.1, treatment of contaminated material. Management must be in accordance with statutory requirements under the *Environmental Protection Act 1994*. Where disposal is required off Site, a disposal permit shall be obtained by the Contractor unless otherwise stated in Clause 1 of Annexure MRTS51.1.

Where stipulated in Clause 7.3 of Annexure MRTS51.1, the Contractor shall develop and implement a Contaminated Site investigation by a suitably qualified person, management and Sampling Analysis and Quality Plan in accordance with *Environmental Protection Act 1994*, Chapter 7, Part 8 Contaminated Land.

If an additional Contaminated Site is identified during Work under the Contract, the Contractor shall:

- a) notify the Administrator in accordance with Clause 7 of this Technical Specification
- b) notify the Administering Authority in accordance with the requirements of the *Environmental Protection Act 1994* (for unexploded ordnances (UXO) notify Department of Defence)
- c) prevent spread of contamination
- d) manage the Contaminated Site in accordance with statutory requirements

- e) where instructed by the Administrator, the Contractor will develop a Site Management Plan in accordance with statutory requirements, submit to the Administrator for suitability, submit to the Administering Authority for acceptance, and carry out remediation of Contaminated Site in accordance with the Site Management Plan, and
- f) provide the Administering Authority-accepted Site Management Plan to Administrator for records.

The Principal may at their discretion elect to undertake the investigation and management of additional Contaminated Site by its own agents. The Contractor shall facilitate the investigation.

8.9.3 Monitoring

Where stipulated in Clause 7.2 of Annexure MRTS51.1, the Contractor shall develop and undertake a reasonable and practicable Monitoring Plan submitted for deemed suitability with the EMP(C).

In addition to the requirements of Clause 7 of this Technical Specification, Weekly Site Inspections shall incorporate observations for evidence of contaminates or contaminated material being transported from the Contaminated Site without appropriate management.

8.9.4 Compliance testing

Where stipulated in Clause 7.3 of Annexure MRTS51.1, the Contractor shall undertake Compliance Testing in accordance with the Contractor's (or pre-existing) Contaminated Site Management Plan and the requirements stipulated in the *National Environment Protection (Assessment of Site Contamination) Measure*, 1999. Compliance Testing shall be required of material treated for remediation as part of this Contract. The Contractor shall provide Inspection and Test Plans (ITPs) for Contaminated Site Compliance Testing as part of the Quality Plan.

8.9.5 EMP(C) requirements for Contaminated Sites

The EMP(C) shall include documents and/or diagrams indicating the following:

- a) location of known Contaminated Sites and known insitu contaminants
- b) Management Measures and Monitoring requirements applicable to each Contaminated Site
- c) where stipulated by Clause 7.3 of Annexure MRTS51.1, the EMP(C) shall document the Contractor's Contaminated Site Management Plan including methods of assessment, remediation and Compliance Testing, and
- d) contingency plan for the event of contaminants leaving Site or being discovered on Site.

8.10 Native fauna

8.10.1 General

The Contractor shall be responsible for managing potential Environmental Harm to native fauna, their breeding places, and their habitat within the Site and adjacent to the Site. This includes stockpiles of cleared vegetation.

The Contractor shall be responsible for the assessment, management and compliance of temporary Waterway Barrier Works undertaken as part of this Contract unless otherwise stipulated in Clause 1 of

Annexure MRTS51.1. Principal identified *Queensland Waterways for Waterway Barrier Works*, as mapped by the administering authority¹², are identified in Clause 8.1 of Annexure MRTS51.1.

NOTE: This Technical Specification does not address permanent fauna sensitive road design requirements as these shall be included in Contract design drawings.

8.10.2 Performance requirements

The Contractor shall take reasonable and practicable Management Measures to avoid Environmental Harm and Environmental Nuisance to native fauna, known fauna habitat and breeding places and to temporary fauna habitat (e.g. vegetation stockpiles). Where Environmental Harm cannot be avoided, the Contractor shall comply with the provisions of both State and Commonwealth legislation pertaining to native fauna. Where impacts to native fauna, known habitat and breeding places cannot be avoided, the Contractor shall operate in accordance with Legislative Requirements.

Where the Principal has identified native fauna habitat, breeding places(s), the locations and specific management requirements of the Principal are stipulated in Clause 8.2 of Annexure MRTS51.1. The Contractor shall incorporate the Management Measures stipulated in Clause 8.2 of Annexure MRTS51.1 in the fauna management section of the EMP(C). The Principal has obtained Statewide Environmental Approvals for Tampering with Animal Breeding Places of Least Concern Species¹³ (SMP-low risk).

Where the Works under the Contract will result in a requirement to tamper with a breeding place covered by the scope of the Principal's Statewide SMP-low risk, the Contractor shall be responsible for:

- a) Tampering with any least concern breeding places in accordance with Table 1 of the SMP-low risk including the engagement of Suitably Qualified and Experienced Person (fauna) as required.
- b) Providing the details of Clause 8.2 of Annexure MRTS51.1 to the Contractor's Suitably Qualified and Experienced Person (fauna) for compliance as part of their management program.
- c) Complete the Register of Tampering with an Animal Breeding Place¹⁴ in accordance with the department's Technical Note completing a SMP Register, to record any breeding places known to have been tampered with and whether native fauna have been injured or killed. If no animal breeding places are identified 'Nil' shall be entered into the register. Report fauna-related Monitoring and submit the SMP Register with the Monthly Environmental Report (Clause 7 of this Technical Specification), and
- d) Submit the final completed Register to Administrator at Practical Completion in accordance with Clause 7.8 of this Technical Specification.

If required by legislation, the Contractor shall obtain other necessary Approvals unless otherwise Principal-supplied in Clause 1 of Annexure MRTS51.1.

Any unauthorised death of fauna or tampering with a breeding place not in accordance with an Approval will be reported in accordance with Clause 7 of this Technical Specification.

¹² <https://www.data.qld.gov.au/dataset/queensland-Waterways-for-waterway-barrier-works>.

¹³ <https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Animal-Breeding>.

¹⁴ <https://environment.desi.qld.gov.au/licences-permits/plants-animals/species-management-program>.

In the event that native fauna is injured or killed on Site, or where it is suspected that native fauna death outside the Site may be a result of Work under the Contract (for example, fish kills), the Contractor shall undertake an investigation into the Environmental Incident and determine whether the injury / death was related to Works under the Contract. The investigation shall determine whether reasonable and practicable measures were in place and determine if corrective actions are warranted to prevent a similar incident re-occurring. The Contractor shall submit the results of their investigation in accordance with Clause 7 of this Technical Specification. The Administrator may at its discretion elect to undertake their own investigation.

Where stipulated in Clause 8.2 of Annexure MRTS51.1, the Contractor shall implement measures to facilitate the safe movement of fauna across the Site. Where temporary fencing is required in Clause 8.3 of Annexure MRTS51.1, the Contractor shall plan for fauna movement as part of the fencing installation.

8.10.2.1 Waterway barrier works

Principal-identified Queensland Waterways for Waterway Barrier Works within the Site are identified in Clause 8.4 of Annexure MRTS51.1. Where waterway barrier works Approvals (Development Approval or Self Assessable Code) apply to permanent structures, the Contractor shall undertake works in accordance with the applicable Approval. If temporary waterway barrier works are to be constructed, raised or modified as part of this Contract, the Contractor shall ensure compliance with QDAF's *Accepted development requirements for operational work that is constructing or raising waterway barrier works* (Acceptable Development Requirements).

Where compliance with the Accepted Development Requirements is not practicable, the Contractor is obligated to obtain an applicable Development Approval and comply with Approval conditions.

If the Contractor requires access over or works within a waterway mapped under the *Queensland Waterways for Waterway Barrier Works* not within the Site, the Contractor is required to undertake an assessment of applicable fish passage requirements. The Contractor shall obtain the necessary Approvals.

The Contractor shall be responsible for completing and submitting pre and post works notifications for all waterway barrier (permanent and temporary) works under the Contract.

8.10.3 Monitoring

Contract-specific requirements for Monitoring are outlined in Clause 8.4 of Annexure MRTS51.1 or Clause 1 of Annexure MRTS51.1 under the Environmental Approval.

When operating under the Statewide SMP-low risk, the Contractor shall engage a Suitably Qualified and Experienced Person (Fauna) to undertake pre-clearing inspections of vegetation and potential breeding places and Monitor for native fauna and breeding places when undertaking Works that are known or likely to impact animal breeding places or native fauna.

The Suitably Qualified and Experienced Person (fauna) inspections are to verify the absence or presence of native fauna and breeding places and, where active breeding places exist, the absence or presence of eggs or young. The Suitably Qualified and Experienced Person (fauna) shall advise the Contractor of the outcomes of the inspections and whether the SMP-low risk is applicable. Where the Statewide SMP-low risk applies, the Contractor shall, based on the advice of the Suitably Qualified and Experienced Person (fauna), undertake:

- a) measures to avoid tampering with breeding places, death or injury to animals
- b) where avoidance is not possible, engage the Suitably Qualified and Experienced Person (fauna) to undertake Management Measures to relocate and preserve breeding places and animals if appropriate
- c) where avoidance and relocation is not practicable, engage the Suitably Qualified and Experienced Person (fauna) to destroy breeding places and remove eggs and young for rehabilitation, and
- d) as a last resort, engage the Suitably Qualified and Experienced Person (fauna) to destroy eggs, young under an appropriate Damage Mitigation Permit.

The Contractor shall record Monitoring and tampering data in the Register for tampering with animal breeding places.

8.10.4 EMP(C) requirements for native fauna

The EMP(C) shall include documents and/or diagrams indicating the following:

- a) location of native fauna habitat and breeding places within the Site and relative to the Limits of Clearing / ground disturbance
- b) identification of activities that are likely to impact fauna, habitat or animal breeding places and the nature of impacts
- c) identification of mapped *Queensland Waterways for Waterway Barrier Works* impacted by the Work under the Contract and location of any temporary Waterway Barrier Works
- d) Management Measures and strategies for native fauna, breeding places, habitat, vegetation stockpiles and fish passage, including details of any Suitably Qualified and Experienced Person (fauna) to be utilised for fauna management
- e) contingency plan including procedures for fauna rescue and release including treatment of fauna injured by Work under the Contract, and
- f) contact details for emergency wildlife care shall be included on the Site's emergency contact list and within the fauna management plan.

8.11 Vegetation

8.11.1 General

NOTE: This Vegetation section of MRTS51 Environmental Management is for the management of potential impacts upon Significant Vegetation and to minimise the Environmental Harm of the Works under the Contract on vegetation that is to be retained. Clearing and Grubbing activities under the contract are covered in MRTS04 General Earthworks.

The Contractor shall be responsible for managing Work under the Contract in order to avoid Environmental Harm on Significant Vegetation within the Site, minimise the disturbance area on Site, and undertake progressive vegetation clearing and rehabilitation where reasonable and practicable.

Significant Vegetation known to occur within the Site and associated management requirements are stated in Clause 9 of Annexure MRTS51.1.

Details of revegetation, ground preparation and planting media are outlined in MRTS16 *Landscape and Revegetation Works* and the Annexure MRTS16.1.

Management of vegetative waste is detailed in Clause 8.13 Waste 2 Resource.

8.11.2 Performance requirements

The Contractor shall adhere to the Contractual Limits of Clearing as defined in Table 2 of this Technical Specification. The Contractor shall take reasonable and practicable Management Measures to avoid disturbance to vegetation or ground surface outside of the Limits of Clearing and to minimise disturbance areas within the Limits of Clearing where practicable. The Contractor shall install identification markers along the Limits of Clearing boundary prior to commencing vegetation clearing and ground disturbance. Identification markers shall be maintained for the duration of the Contract or at least until Works are complete in the adjacent area.

Where the Contractor identifies the requirement for additional areas of vegetation or ground to be disturbed outside the specified Limits of Clearing, the Contractor shall submit a request to the Administrator. If the Administrator deems the additional areas suitable for clearing, the Contractor shall amend the Limits of Clearing and erosion and sediment controls managing the Site before proceeding. The Contractor will be responsible for determining whether Approval(s) are required, obtaining the Approval(s) and complying with conditions. Delays incurred as a result of obtaining Approvals shall be the Contractor's responsibility.

Where Significant Vegetation is identified within the Limits of Clearing, the Contractor shall comply with Principal obtained Approvals, or other legislative requirements such as accepted development requirements, listed in Clause 1 of Annexure MRTS51.1. If the Contractor cannot comply, the Contractor shall advise the Administrator and be responsible for obtaining an alternative Approval for the relevant vegetation clearing.

The Contractor shall clearly identify areas of Significant Vegetation or habitat by identification markers that are visibly different to the limits of clearing markers and deemed suitable by the Administrator. Staff will be made aware of these areas through Site Induction, training and tool box talks prior to vegetation clearing or grubbing commencing.

Any vegetation clearing beyond the Limits of Clearing or not otherwise deemed suitable by the Administrator, shall be reported to the Administrator in accordance with Clause 7 of this Technical Specification. The Contractor shall provide details on the area (metre squared), the location, a

description of the vegetation cleared and other issues that might relate to the clearing (such as clearing outside the Cultural Heritage Management Agreement area).

Where disturbance has occurred beyond the Limits of Clearing, the Administrator may at their discretion, order the Contractor to stop Works which pertain to the activity where the unauthorised disturbance occurred. The Administrator will then promptly arrange for the Site to be inspected and the extent and impact of the additional clearing assessed. The Administrator may choose to declare the area an Exclusion Zone for any period of time until the Administrator is satisfied that the additional clearing has been investigated, remediated and measures have been implemented to prevent additional unauthorised clearing from reoccurring. Remediation of unauthorised cleared areas beyond the Limits of Clearing deemed suitable by the Administrator will be at the Contractor's expense.

Where the Administrator has declared an area excluded from Works, the Contractor will organise for relevant exclusion devices to be erected to ensure that access to the area by the Contractor's staff or others is prevented. The Contractor shall notify all Site personnel of the exclusion area as soon as possible, but prior to commencing work on the next working day. The Contractor will be responsible for ensuring that access to an excluded area remains restricted until informed otherwise by the Administrator.

Where Works encroach on individual trees or vegetation to be retained, ground disturbance or other Works, including material stockpiling, shall not encroach within the dripline of the tree (below canopy of tree) unless otherwise deemed suitable by the Administrator. For contracts within an urban context, the Contractor shall comply with AS 4970 *Protection of trees on development Sites* for the protection of vegetation to be retained.

Clear zone clearing shall be undertaken in accordance with the departmental *Road Planning and Design Manual*, Supplements to Volume 3, Part 6 Roadside Design, Safety and Barriers or otherwise stated in Annexure MRTS04.1. Specifically, clearing for clear zone shall be the selective removal of infrangible vegetation.

Any other requirements are stated in Clause 9 of Annexure MRTS51.1.

8.11.3 Monitoring

Where specified in Clause 9 of Annexure MRTS51.1, the Contractor shall undertake Monitoring of specific areas of Significant Vegetation or areas of Site as specified.

Weekly Site Inspections shall inspect and verify the adherence to the Limits of Clearing for the duration of the Contract. The Monitoring shall assess whether identification markers are present, functional and adequate, and any maintenance requirements for the markers. The Weekly Site Inspections shall also assess whether any clearing or disturbance has occurred beyond the Limits of Clearing without Administrator deemed suitability.

8.11.4 EMP(C) requirements for vegetation management

The EMP(C) shall include documents and/or diagrams indicating the following:

- a) A drawing depicting the following:
 - i. location and dimensions of Contractual Limits of Clearing (as specified in Clause 8.11.1 of this Technical Specification)
 - ii. limits of Contractor's intended vegetation clearing (demonstrating minimised clearing area)

- iii. restrictions to clearing in Waterways (as specified in Clause 7.2.2 of MRTS04 General Earthworks)
 - iv. any areas required for clearing additional to the Contractual Limit of Clearing
 - v. locations of Significant Vegetation and any specific trees identified in Clause 9 of Annexure MRTS51.1 or Annexure MRTS04.1 to be retained on Site, and
 - vi. a program of clearing operations demonstrating progressive clearing stages where practicable.
- b) Identification method for the Limit of Clearing and method of identifying Significant Vegetation.
 - c) Management Measures and strategies to minimise the area of vegetation clearing, and
 - d) Where required Environmental Approval for additional clearing.

8.12 Biosecurity

8.12.1 General

The Contractor shall be responsible for managing Work under the Contract in order to mitigate the spread of Biosecurity Matters.

8.12.2 Performance requirements

The Contractor shall comply with the *Biosecurity Act 2014*. The Contractor shall fulfil their General Biosecurity Obligations to mitigate Biosecurity risk from prohibited and restricted Biosecurity Matters (including but not limited to invasive animals and plants) within the Site by preventing their spread into the Site, within the Site and out of the Site. The Contractor shall manage movement of Biosecurity Matter carriers across biosecurity management zone boundaries as part of Work under the Contract. Biosecurity matters known to occur within the worksite and associated management requirements are stated in Clause 10.1 - 10.2 of Annexure MRTS51.1.

The Contractor shall undertake the following:

- a) Obtain biosecurity certificates certifying that all imported topsoils and mulches are free of prohibited or restricted biosecurity matters.
- b) Ensure construction plant and vehicles undergo a documented cleaned down prior to entry to Site.
- c) Ensure construction plant and vehicles operating in biosecurity-contaminated areas undergo a clean down in accordance with *QDAF Vehicle and machinery cleandown procedures* prior to movement out of the biosecurity-contaminated area.
- d) Where specified in Clause 1 of Annexure MRTS51.1, comply with the departmental Biosecurity Instrument Permit requirements.
- e) Obtain and comply with a Biosecurity Instrument Permit for applicable Work under the Contract not covered by Principal's Biosecurity Instrument Permit.

- f) Where previously unidentified suspected prohibited or restricted Biosecurity Matter is identified on or adjacent to the Site, the Contractor shall isolate the infestation and implement Management Measures to prevent the spread or transmission of the Biosecurity Matter out of the identified infestation area within the Site. The Contractor shall notify the Administrator and, where applicable Biosecurity Queensland, in accordance with Clause 7 of this Technical Specification, and
- g) Ensure use of pesticides is undertaken by appropriately licenced contractors and in accordance with the label including the requirements of Clause 7.3 and 8.3 of MRTS16 *Landscape and Revegetation Works* and retain records of spray activities.

Where temporary clean-down bays are used, the Contractor shall document:

- Maintenance requirements and procedures.
- Management Measures implemented to contain wastewater and restrict movement of Biosecurity Matters particularly to Waterways and drainage lines.
- Management Measures to contain biosecurity matter, sediments, oils and greases, and
- Prevention of vehicle recontamination.

8.12.3 Monitoring

Where stipulated in Clause 10.1 of Annexure MRTS51.1 or a condition of an Environmental Approval (Clause 1 of Annexure MRTS51.1), the Contractor shall undertake Monitoring of the Site for new infestations of Biosecurity Matters. The Contractor shall submit a Biosecurity Monitoring Plan as part of the EMP(C) for deemed suitability.

8.12.4 EMP(C) requirements for biosecurity

The EMP(C) shall include documents and/or diagrams indicating the following:

- a) Details of the Biosecurity Matter including photo, location of Biosecurity Matter infestations, the Biosecurity Matter category and respective Management Measures.
- b) Location of applicable biosecurity management zone boundaries in relation to Work under the Contract (including ancillary activities such as water source, stockpile sites, gravel sources, Deposition Areas).
- c) Identify movement of Biosecurity Matter carriers across biosecurity zone boundaries and Biosecurity Instrument Permit details pertaining to these movements.
- d) Management Measures for preventing the spread of Biosecurity Matters within Site and out of the Site.
- e) Measures to exclude access to known areas of Biosecurity Matter infestation such as flagging.
- f) Location of clean-down facility (if temporary clean down bay is to be constructed on Site, specify design and maintenance requirements).
- g) Specific Monitoring procedures for biosecurity matters (method, timing, frequency, duration, parameter to be monitored, criteria / outcome measured against).
- h) Pesticide treatment schedule addressing method of control, chemicals, locations, timing of works, and
- i) Biosecurity Matter Commercial Operator's Licence.

8.13 Waste 2 Resource

8.13.1 General

The Contractor shall be responsible for management of Wastes generated from Work under the Contract in accordance with the relevant Legislative Requirements including the *Environmental Protection Act 1994* and the *Waste Reduction and Recycling Act 2011*. This shall include Wastes generated at Site Camp and facilities under MRTS28 *Contractor's Site Facilities and Camp*.

Where illegally dumped Waste and litter is discovered during the Work under the Contract, the Principal may instruct the Contractor to undertake appropriate management, removal and disposal of illegally dumped Waste and litter. Amounts of illegally dumped Waste and litter are to be recorded in the department's *Waste 2 Resource Calculator*¹⁵, the department's Waste Estimation and Reporting Tool.

8.13.2 Performance requirements

The Contractor shall implement the Waste hierarchy Waste minimisation and Resource recovery measures for Work under the contract. Where Waste, including Surplus Material, is suitable for a higher-value reuse or recycling application, it shall be used for that purpose.

High-value reuse and recycling applications refers to elements of general earthworks construction where the Contractor may nominate to use surplus material in ways that maximise the value of the material without having to manage them as Waste materials.

Upon completion of Works, the Contractor shall ensure that all Wastes have been removed from Site or otherwise deposited in compliance with Clause 11 of MRTS04 *General Earthworks*. No Waste shall be buried on Site unless deemed suitable by the Administrator and the Administering Authority. No Waste, including vegetative Waste, or litter shall be burnt on Site unless allowed as specified in Clause 8.7.2.

The Contractor shall separate, sort and ensure the appropriate storage of Wastes to prevent mixing or contamination that limits reuse and recycling opportunities.

The Contractor shall provide bins at common areas at all times. Bins shall be fitted with lids and serviced prior to being filled to capacity. During construction, the Contractor shall maintain the Site free of litter.

Vegetation Waste from clearing and grubbing, that is free from Biosecurity Matter, may be used in conjunction with soil erosion and sediment measures such as brush matting or mulch or for appropriate fauna logs in accordance with Clause 7.2.5 of MRTS04 *General Earthworks*. Clause 11.1 of Annexure MRTS51.1 specifies the method of management of vegetation Waste from clearing and grubbing activities.

Mulch stockpiles shall be separated from drainage lines and Waterways by distance or Management Measure to inhibit Discharge. Mulch stockpiles shall be a maximum of 2.5 m in height where air temperature is < 30° and humidity < 70%. Where Site climate conditions exceed this, mulch stockpiles should be reduced to a maximum height of 1.5 m and Monitored regularly for excess leachate and

¹⁵ <https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Project-waste-reporting>.

heat. Where the volume of mulch generated by the Works exceeds the volume of mulch required for the Work under Contract, the Contractor shall be responsible for removal from Site and reuse of the mulch.

The Contractor shall record wastes generated¹⁶, disposed¹⁷, recycled¹⁸ and reused¹⁹ and Recycled Materials and Products utilised by the Work under the Contract in the *Waste 2 Resource Calculator*. The Contractor shall retain copies of all documents issued in relation to Trackable Waste²⁰ transportation and disposal processes. The Contractor shall enter all relevant data in to the *Waste 2 Resource Calculator* and shall submit the completed file both to the Administrator and via email to projectwasteregister@tmr.qld.gov.au prior to Practical Completion. Further information is available in the Project Waste Reporting internet page²¹.

8.13.2.1 Deposition of Surplus Material

Where Surplus Material can be used for a higher-value reuse or recycling application, it shall be used for that purpose. Where a higher-value reuse or recycling application is not feasible, and the Surplus Material is considered low environmental risk, the Contractor may consider Deposition of Surplus Material in accordance with:

- Clause 11 of MRTS04 *General Earthworks* and EP175 *Deposition of Surplus Material – Assessment Methodology*.

Surplus Material that may be considered low environmental risk materials are:

- clean earth material
- natural and manufactured aggregate
- recycled aggregates including crushed concrete, brick, pavers, glass
- untreated timber; and
- clear and grubbed material.

Should there be no suitable options for Deposition of Surplus Material, the material shall be removed from the Site and disposed of in accordance with all relevant Legislative Requirements.

The Principal may identify and assess potential Deposition Areas for Deposition of Surplus Material. Principal Identified Deposition Areas are specified in Clause 5 of Annexure MRTS04.1. The Contractor may elect to utilise Principal-identified Deposition Areas. Where no Principal-identified Deposition Areas are specified, or where the Contractor does not wish to utilise Principal-identified Deposition Areas, the Contractor may elect to identify and assess alternate sites for suitability.

¹⁶ Generated – The total quantity of material or products that enters a waste stream before it is recycled, reused, recovered or disposed to landfill.

¹⁷ Disposed - Quantity of discarded or discharged waste material that has been disposed of at licenced landfill facilities in accordance with prescribed legislation.

¹⁸ Recycled - Quantity of waste material that is recovered and used as an input or resource product (usually offsite).

¹⁹ Reused - Quantity of waste material that is used again (on or off Site) with minimal modification or processing.

²⁰ Trackable waste as defined under the Schedule 2E of Environmental Protection Regulation 2008.

²¹ <https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Project-waste-reporting>.

The Contractor shall be responsible for the assessment and management of Surplus Material and the Deposition Area in relation to environment, heritage, native title and hydrologic / hydraulic impacts.

The Contractor shall obtain the necessary Approvals required to deposit Surplus Material at the Deposition Area unless otherwise Principal-supplied in Clause 1 of Annexure MRTS51.1. The Contractor must comply with all relevant Legislative Requirements and EP175 *Deposition of Surplus Material – Assessment Methodology*. The Contractor shall take all necessary measures to limit potential harm, such as environmental harm and harm to property which may result from Deposition of Surplus Material.

Management of Surplus Material shall be detailed in the Contractor's Surplus Material Management Plan required under Clause 5 of MRTS04 *General Earthworks*. The Surplus Material Management Plan is to form part of the Contractor's Environmental Management Plan (Construction) (EMP(C)).

Prior to Deposition of Surplus Material, the Contractor shall provide the following details to the Principal:

- a) details of the mitigation and management measures to be undertaken by the Contractor to ensure the Deposited Surplus Material is stable and not posing any environmental or safety concerns in future, this may be included within the EMP(C)
- b) a copy of the Surplus Material Management Plan, and
- c) a completed and signed Contractor's Declaration for Deposition of Surplus Material (Appendix C to this Technical Specification) for each Deposition Area **Hold Point 6 Milestone**.

The EMP(C) containing the mitigation and management measures for Deposition of Surplus Material must be deemed suitable by the Administrator prior to Deposition.

Upon completion of Deposition by the Contractor, the landowner is responsible for identifying and complying with all relevant Legislative Requirements to use or move the material.

8.13.3 EMP(C) requirements for Waste 2 Resource

Where the Contractor has been required to complete the Waste 2 Resource Plan Tender Schedule S12 (C7810.S12.TIC), a copy of that completed tender schedule shall be included in the EMP(C) and inform the waste estimates and recycled material estimates for the Works under the Contract.

The EMP(C) shall include documents and/or diagrams indicating the following:

- a) estimates of type and quantity of waste expected to be generated and their source. Waste shall be categorised as per the waste streams stipulated in the *Waste 2 Resource Calculator – User Guide*²² the department's waste estimation and reporting tool
- b) waste management strategies (avoidance, reuse, recycling, energy, recovery, disposal)
- c) identification of type and volume of Recycled Materials and Products proposed to be used on the project with any applicable corresponding savings
- d) procedures for the sorting, separation and storage of wastes
- e) waste containment locations

²² <https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Project-waste-reporting>.

- f) all mulch stockpiles shall be identified on plans
- g) the procedure and accountabilities for the measurement and recording of waste generated, reused, recycled and disposed and Recycled Materials and Products utilised under the Contract, and
- h) where Deposition of Surplus Material will occur under the Contract, mitigation and management measures to be undertaken by the Contractor to ensure the Deposited Surplus Material is stable and not posing any environmental or safety concerns in future.

8.14 Chemicals and fuels

8.14.1 General

The Contractor shall be responsible for the management of all chemicals and fuels within the Site so as not to cause Environmental Nuisance or Environmental Harm.

8.14.2 Performance requirements

In addition to satisfying the requirements of *Environmental Protection (Water) Policy 2009*, management of hazardous substances or dangerous goods (flammable and combustible liquid storage) shall comply with AS 1940 and AS 3833, including minor storages in accordance with Section 2 of the Standards.

Where Work under the Contract shall trigger an Approval in relation to chemical storage, the Contractor shall be responsible for obtaining and complying with relevant Approval(s).

The Contractor shall ensure spill response equipment is available on the Site for use in an emergency. Spill response equipment shall be commensurate with the Site location, topographical features, type and quantity of chemicals and fuels being stored on Site and the time of year the contract is undertaken. All Staff on Site shall be trained in the use of spill response equipment.

The Contractor shall, promptly remediate any contamination resulting from spills, leaks and Discharges to a condition similar to that existing before the contamination and to the Administrator's satisfaction.

Refuelling of machinery shall conform to the following requirements:

- a) occur away from Waterways unless for tracked machinery and contingency plan Management Measures are available in the immediate area
- b) fuelling activity to be supervised at all times, and
- c) hoses to be fitted with a stop valve at the nozzle end.

Machinery shall be maintained to minimise the leakage of oil, fuel, hydraulic and other fluids. During the servicing of machinery, the Contractor shall use Management Measures to capture and contain oils, fuels, hydraulic and other fluids so as to minimise contamination of the servicing area.

Surface coating treatments will be undertaken in a manner that avoids or minimises release of chemical to the environment and contact with the public.

Unless otherwise stated in the contract, no pre-coating of aggregates shall be conducted on Site.

8.14.3 EMP(C) requirements for management of chemicals and fuels

The EMP(C) shall include documents and/or diagrams indicating the following:

- a) list chemical and fuels stored on Site in volumes greater than 250 L, the maximum quantity to be stored at any one time, storage location
- b) type and number / size of spill response equipment stored on site
- c) Management Measures, including containment, for avoiding contamination or discharge to land or water from fuels and chemicals
- d) details of any approvals held in relation to fuel and chemical storage or use, and
- e) contingency plan in the event of a contamination or discharge.

8.15 Sourcing of construction materials (non-commercial sources)

NOTE: This clause applies to sourcing construction material from non-commercial sources and sourcing of water from non-potable water.

8.15.1 General

Construction materials such as gravel, embankment material, and water are often sourced from non-commercial sources without existing infrastructure, management procedures and Approvals.

The sourcing of construction materials from non-commercial sources²³ requires that the material source, the activity (the 'take') and any associated Site activities such as clearing vegetation, construction of access tracks potentially including Waterway Barriers Works, be planned and managed by the Contractor to ensure operations comply with legislation and avoid causing Environmental Harm.

8.15.2 Performance requirement

Where Approvals have not been obtained by the Principal, the Contractor is responsible for identifying, assessing, obtaining Environmental Approvals for relevant material sources including construction water and gravel resources or sourcing from suitably licensed Suppliers. The materials supplied by the Contractor shall be from sources compliant with relevant environmental legislation and managed in accordance with Environmental Approval conditions.

Where specified in Clause 1 of Annexure MRTS51.1, the Principal has obtained Approvals pertaining to the material source and activity. The Contractor shall ensure that Works under the Contract are in accordance with the conditions of the Approvals, recording and documenting compliance as required by the Approval. The Contractor shall plan and undertake Management Measures in accordance with the Approval Conditions and include in the EMP(C).

The Contractor shall maintain volumetric and photographic records of material sourced and supplied under the contract from each source as well as other records required for compliance with Approvals. The records shall be reported in accordance with Clause 7 of this Technical Specification.

Progressive rehabilitation of source Sites and access tracks approved by the Administrator shall be undertaken by the Contractor as sources are exhausted or supply requirements are fulfilled.

²³ Non-commercial sources are sources where either Principal or Contractor hold relevant approvals and material sourcing operations are undertaken by the Contractor or its subcontractor.

Rehabilitation shall be in accordance with the relevant approvals and Technical Specifications in MRTS16 *Landscape and Revegetation Works* and the Annexure MRTS16.1.

For all material sourcing, unless stated otherwise in Clause 12.1 of Annexure MRTS51.1 the Contractor shall complete all pre-works notifications, record keeping and reporting under the applicable Approvals.

Weekly Site Inspections shall include inspection of any material sources outside of the Site in accordance with the Weekly Site Inspections specified throughout-MRTS51 *Environmental Management* or otherwise stated in Approvals.

8.15.3 Monitoring

For construction water sources, the Contractor's shall undertake Monitoring of the water source to ensure compliance with the *Exemption Requirements for constructing authorities for the taking of water without entitlement (WSS/2013/666)* or other applicable Approval. This shall require Monitoring of water levels in a non-flowing source against a depth gauge or suitable alternative and recording percentage of full capacity. For flowing sources, Monitoring shall be of the flow rate and whether flows cease during Works under the Contract.

For construction gravel, fill and sand material sources, the Contractor shall undertake Monitoring of the material source Site against Approval and EMP(C) requirements specified in Clause 12.1 of Annexure MRTS51.1. In accordance with Clause 7 of this Technical Specification, if Monitoring finds variances from the Approval criteria and conditions, this shall be raised as a Non-Conformance and further investigated.

8.15.4 EMP(C) requirements for material sourcing

The EMP(C) shall include documents and/or diagrams indicating the following:

Water sourcing

- a) Key water consumption activities under the contract, the estimated volumes of water, the identified construction water source(s) and proposed volume of take, Legislative Requirements, applicable conditions for take and whether notification to other users has been undertaken.
- b) Water efficiency strategies to be utilised under the Contract.
- c) Procedures for Monitoring against requirements of any applicable Environmental Approval (exemption) (that is, capacity level of non-flowing source).

Construction material

- d) Identified gravel, fill or sand sources, distance to Site, access track requirements, stockpile areas, associated approvals and conditions, proposed volume of take and progressive rehabilitation processes.
- e) Activity based management plan for extraction Sites.
- f) Soil Management Plan – Construction in accordance with Clause 5.2.1 of MRTS16 *Landscape and Revegetation Works* where applicable, and

Other

- g) Other construction material requirements identified sources and Management Measures.

9 Permanent environmental infrastructure

Where the design drawings or Environmental Approvals require the construction of Permanent Environmental Infrastructure such as sediment basins or fauna management infrastructure, the Contractor shall develop documentation on the operational and maintenance requirements for the infrastructure. Further in accordance with MRTS50 *Specific Quality System Requirements* the Contractor shall develop and submit to the Principal, As-Constructed drawings of the Permanent Environmental Infrastructure.

The list of Principal identified Permanent Environmental Infrastructure requiring operational and maintenance plans is provided in Clause 13.1 of Annexure MRTS51.1.

10 Supplementary requirements

The requirements of MRTS51 *Environmental Management* are varied by the supplementary requirements given in Clause 14 of Annexure MRTS51.1.

