

Superseded

Technical Specification

**Transport and Main Roads Specifications
MRTS51 Environmental Management**

April 2017

Superseded

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1 Introduction

This Technical Specification applies to environmental management requirements applicable to Work under the Contract. Where other statutory requirements (e.g. *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 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
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 2187.2-1993 Appendix J.
Approval	Approval means any environment or Cultural Heritage related, permit, authority, license, self-assessable code, statutory exemption with conditions, protocol 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 but not limited to prohibited and restricted invasive plants (weeds) and animals.
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.

Term	Definition
Compliance Management Plan (CMP)	A CMP is a statutory approval under TIA 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.
Critical Facility, Infrastructure and Utility	<p>In relation to impacts from noise and vibration, a Critical Facility, Infrastructure or Utility is defined in accordance with the <i>Transport Noise Management Code of Practice: Volume 2 Construction Noise and Vibration</i> as:</p> <ul style="list-style-type: none"> • Critical facilities include medical/health buildings, educational/research facilities, courts of law and community buildings. The latter three are only considered critical when in use. Critical facilities are usually sensitive to both construction noise and vibration. • Critical infrastructure and utilities include dams, electrical and telecommunications facilities (including railway signalling systems), oil and gas pipelines and other petrochemical installations and utilities such as water mains and sewers. Critical infrastructure and utilities are typically sensitive to construction vibration. • Other facilities, infrastructure or utilities (for example bridges) which may be deemed to be of critical importance on a project-specific basis.
Cultural Heritage	Cultural Heritage includes artefacts, sites, items, areas or places of known or potential Cultural Heritage significance (both indigenous and non-indigenous).
Cultural Heritage Personnel	Persons nominated by the Indigenous Party's including but not limited to monitors, survey staff, and elders.
DAF	Queensland Department of Agriculture and Fisheries
DEHP	Department of Environment and Heritage Protection (Queensland)
Discharge	<p>The movement of Site stormwater:</p> <ol style="list-style-type: none"> 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.
EMP(C)	Environmental Management Plan (Construction)
Environment and Cultural Heritage Incident	An environment 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 7.8.1 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.

Term	Definition
Environmental Nuisance	As defined by the <i>Environmental Protection Act</i> 1994, Section 15.
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.
Indigenous Party/s	The signatory party to the Principal's Cultural Heritage Management Agreement or Cultural Heritage Management Plan.
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 MRTS02.1) • noise barriers (Clause 8.2 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 3.2 of Annexure MRTS04.1) • areas available for disposal of excess and unsuitable material on Site (Clause 6 of Annexure MRTS04.1) • marketable timber (Clause 7.2.3 of MRTS04) • clear zones (Clause 2.4 of MRTS04.1), and • other areas identified by the Principal within the Contract.
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</i> 1994, Section 16.
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.
Sensitive Receiver/s (air quality)	<p>As defined by the department's <i>Road Traffic Air Quality 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</i> 1992 • 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).

Term	Definition
Sensitive Receptor/s (for noise and vibration)	<p>Defined in accordance with the <i>Transport Noise Code of Practice</i>: Volume 2 Construction Noise and Vibration as:</p> <ul style="list-style-type: none"> • a dwelling (detached or attached) including house, townhouse, unit, reformatory institution, caravan park or retirement village • a library, child care centre, kindergarten, school, school playground, college, university, museum, art gallery or other educational institution, hospital, respite care facility, nursing home, aged care facility, surgery or other medical centre • a community building including a place of public worship • a court of law • a hotel, motel or other premises which provides accommodation for the public • a commercial (office) or retail facility • 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 • an outdoor recreational area (such as public park or gardens open to the public, whether or not on payment of a fee, for passive recreation other than for sport or organised entertainment) or a private open space.
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 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.
Suitably Qualified and Experienced Person (fauna)	<ol style="list-style-type: none"> 1. An ecological consultant with experience in conducting surveys for animal breeding places 2. A person who possesses a degree in natural science or similar with experience in conducting surveys for animal breeding places; or 3. A spotter-catcher who are holders of a DEHP rehabilitation permit issued under the NCA.
Waste	As defined by the <i>Environmental Protection Act</i> , Section 13.
Water Quality Investigation Criteria	The Water Quality Investigation Criteria outlined in Table 8.2.3.2 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.
Waterway	As defined as a watercourse under the Environmental Protection Regulation 2008 and including naturally occurring surface waters as defined in the Environmental Protection Regulation 2008.
Weekly Site Inspections	Weekly Site Inspections undertaken by the Contractor's Environmental Representative or other person deemed suitable by Administrator, and are documented visual inspections of environmental Management Measures to assess presence, functionality and adequacy of measures prescribed in the EMP(C).

Term	Definition
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
AS 1940	AS 1940:2004 - <i>The storage and handling of flammable and combustible liquids</i>
AS 2187.2	<i>Explosives – Storage and use – Use of explosives</i>
AS 3833	AS3833:2007 - <i>The storage and handling of mixed classes of dangerous goods, in packages and intermediate bulk containers</i>
Contractor's Monthly Environmental Reporting Template	MRTS51 Appendix A Contractor's Monthly Environmental Report, Transport and Main Roads, 2016, Technical Publications
DEHP Procedural Guide – Summary Sheet	DEHP Procedural Guide, Summary Sheet – <i>Standard Work Method for the Assessment of the lawfulness of releases to waters from land development and construction sites in South East Queensland</i>
Departmental Cultural Heritage Induction	<i>Cultural Heritage Induction</i> , Transport and Main Roads, Queensland
Exemption Requirements for the taking of water without entitlement (WSS/ 2013/666)	<i>Exemption Requirements for the taking of water without entitlement under the Water Regulation 2002</i> (WSS/ 2013/666), Department of Natural Resources and Mines, Version 3.01, 2014
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, Major Update – December 2016</i>
Monitoring and Sampling Manual	<i>Monitoring and Sampling Manual 2009</i> , Environmental Protection (Water) Policy 2009, (Version 2, 2010 (July 2013 edits))
MRTS01	<i>Introduction to Technical Specifications</i>
MRTS02	<i>Provision for Traffic</i>
MRTS04	<i>General Earthworks</i>
MRTS14	<i>Road Furniture</i>
MRTS16	<i>Landscape and Revegetation Works</i>
MRTS15	<i>Noise Fences</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>

Reference	Title
National Environment Protection (Assessment of Site Contamination) Measure, 1999	<i>National Environment Protection (Assessment of Site Contamination) Measure</i> , National Environment Protection Council, 1999 (Commonwealth)
Noise Code of Practice: Volume 2	<i>Transport Noise Management Code of Practice</i> , Volume 2 – Construction Noise and Vibration, Transport and Main Roads (2016)
Road Traffic Air Quality Management Manual	<i>Road Traffic Air Quality Management Manual</i> , Transport and Main Roads, March 2016
SMP Low risk	<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 and Heritage Protection, June 2016
Technical Note 03	TN03 - <i>Measurement of Ground Vibrations and Airblast</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	Milestone
6.1	1. EMP(C) is assessed for suitability by Administrator	Submission of EMP(C)
6.1	2. Amendments to EMP(C) are assessed for suitability by Administrator	Submission of EMP(C) amendments

5.2 Non-conformances with this 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 7.8 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 given 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 – 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.

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 Incidents 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 and to address corrective actions following non-conformances or Environment and Cultural Heritage Incidents. 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.

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
- observe the Site for actual or potential Environmental Harm or Environmental Nuisance
- identify maintenance requirements for implemented Management Measures, and
- verifying preparedness for adverse weather conditions where weather forecast.

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.

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. For contracts specified as medium or high noise or vibration risk, complaints shall be managed in accordance with the *Transport Noise Code of Practice*: Volume 2 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

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.

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 exception 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 exception 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 obtained.
- e) Register of current and completed non-conformance reports, 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.
- 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. The Contractor may nominate to utilise their own reporting template if deemed suitable by the Administrator.

Where exception 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

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.

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 Incidents

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

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 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 Specification (Table 8.2.3.2)
- 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) damage to known or potential Cultural Heritage
- i) ground disturbance or vegetation clearing beyond the boundary of the Contract's Cultural Heritage Management Agreement or Plan otherwise deemed suitable by the Administrator
- j) movement or relocation of Cultural Heritage without approval of the Indigenous Party/s
- k) clearing of a protected plant under State or Commonwealth legislation other than authorised under an Environmental Approval
- l) 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
- m) 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 Incidents under the Contract.

7.7.2 Management

The Contractor shall undertake immediate remedial actions to mitigate Environmental Harm or further impacts. Immediate response actions shall not be delayed by the need for notification to Administrator or Administrating 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 40 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.

Form B of Appendix MRTS51 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 Administrating Authority and Administrator's 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 and what records need to be submitted to the Administrator upon Practical Completion. Records and registers shall also be made available to the Administrator upon request.

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"/>

Record Requirement	Submit to Administrator at Practical Completion
Contractor environment audit reports and subsequent corrective actions taken	
Meeting minutes with Administrating 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 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"/>
Quantities of water and quarry materials extracted from non-commercial sources under the contract by source site	<input checked="" type="checkbox"/>
Electronic copy of Waste tracking records and, where required by Clause 11.2 of Annexure MRTS51.1, a completed Waste register (MRTS51 Appendix C)	<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.

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.

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 defects 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 for 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 and material sources)
- e) the Limit of Clearing and the boundary of the Cultural Heritage Management Agreement or Cultural Heritage Management Plan 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 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, and turnaround points.

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*.

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 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	Total Suspended Solids	Discharges shall be < 50 mg/L TSS for a 1 yr ARI, 24 hr event ⁵ Where specified, an alternative discharge criteria identified in Annexure MRTS52.1.	N/A	< 50 mg/L TSS for a 1 yr ARI, 24 hr event ⁶ 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/Acidic 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 (DO)	90% Saturation (lower limit) ⁶	N/A	> 85% saturation for flowing waters DO > 5 mg/L	10% decrease

8.2.2.1 Flocculation

NOTE: The use of flocculants for erosion and sediment control is prescribed in MRTS52, 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

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

⁵ Based on the DEHP Procedural Guide – Standard work method for the assessment of the lawfulness of releases to waterways from construction sites

⁶ Derived from the *DEHP Queensland Water Quality Guidelines* 2009, July 2013

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 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 ARI⁷,

⁷ The Contractor shall use the most recently available IFD (Intensity – Frequency- Duration) data available through the Bureau of Meteorology (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).

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 DEHP's Procedural Guide, Summary Sheet⁸, 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 consist of visual Monitoring. Discharge and Waterway Monitoring shall be undertaken by the Contractor in accordance with Table 8.2.3 of this Technical Specification unless otherwise specified in Clause 2.2 of Annexure MRTS51.1.

Table 8.2.3.1 - Water quality Monitoring locations and frequency

Monitoring	Locations	Frequency / Trigger	
		Weekly ⁹	Rainfall ¹⁰ causing Discharge
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.

Where Monitoring observes Discharges or Waterways to be:

- a) visually contaminated

⁸ NOTE The DEHP procedural Guide requirements pertaining to sediment basins shall only be applied where appropriate for medium and high risk projects.

⁹ 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)

¹⁰ As soon as practicable following a rainfall event causing Discharge to a Waterway or Waterbody.

- 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 Contractor shall undertake investigations, assess whether reasonable and practicable measures are implemented, and whether corrective actions are required. 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 Appendix MRTS51.1, the Contractor shall be responsible for developing and undertaking a Water Quality Monitoring Program as part of the EMP(C). The Contractor's Water Quality Monitoring Program shall be developed in accordance with *DEHP's Monitoring and Sampling Manual 2009*. 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 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.
- d) The Contractor's water quality Monitoring Plan:
 - i. low risk – The plan shall nominated Monitoring locations, frequency and methodology, or
 - ii. for medium and high water quality risk – The Contractor's Monitoring program in accordance with *DEHP's Monitoring and Sampling Manual 2009* 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)).

8.4 Cultural Heritage

8.4.1 General

The Contractor shall be responsible for the management (including protection) of Indigenous and non-Indigenous Cultural Heritage within and adjacent to the Site to avoid harm to Cultural Heritage.

Contract-specific management requirements are stipulated in Clause 3.1 - 3.6 of Annexure MRTS51.1.

Where stated in Clause 3.4 of Annexure MRTS51.1, the Department has entered into an agreement with Indigenous parties for the management of Cultural Heritage located 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*, and *Queensland Heritage Act 1992* and the *Environmental 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) or Cultural Heritage Management Agreement (CHMA) is specified in Clause 3 of Annexure MRTS51.1, the Contractor shall operate in accordance with the conditions.

The Contractor shall comply with the contract specific requirements in Clause 3.1 - 3.6 of Annexure MRTS51.1.

8.4.2.1 Indigenous Heritage

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

Where, during the Contract, items of potential Indigenous Cultural Heritage are discovered when Cultural Heritage Personnel are present, activities shall only proceed in accordance with the procedures outlined in the CHMP 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 Non-Indigenous heritage

The Contractor shall comply with any Approval conditions as stated in Clause 1 of Annexure MRTS51.1. Unless otherwise stated in Clause 1 of Annexure MRTS51.1, the Contractor shall obtain all Approvals required for impacting 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 (Indigenous or Non-Indigenous) are discovered (and when no Cultural Heritage Personnel are present for Indigenous heritage), the Contractor will follow the 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.

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 or CHMP, Monitoring by Cultural Heritage personnel is required in addition to the Contractor's Monitoring activities. In accordance with the CHMA 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 or CHMP. If activities requiring Monitoring by Cultural Heritage Personnel are occurring 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 or CHMA.

Whilst on site, the Cultural Heritage personnel(s) 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(s) shall be employed and paid by the Principal.

The Contractor's Work Supervisor shall verify and sign the Cultural Heritage personnel including monitor(s) signed and completed daily Monitoring Report and timesheet 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.

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) location of known Cultural Heritage significance within and adjacent to the Work Site
- c) Work under the Contract likely to occur in proximity to Cultural Heritage
- d) Cultural Heritage Management Measures, and
- e) a Monitoring Plan for cultural heritage including Works under the Contract that Cultural Heritage Personnel are required to monitor.

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). This Technical Specification does not address noise impacts on native fauna unless specified in the Annexure MRTS51.1.

In addition to the Sensitive Receptors and Critical Facilities, Infrastructure and Utilities identified by the Principal in Clause 4 of Annexure MRTS51.1, the Contractor shall be responsible for identifying Sensitive Receptors and Critical Facilities, Infrastructure and Utilities likely to be affected by construction noise through the application of the performance requirements in Clause 8.5.2.

8.5.2 Performance requirements

The Contractor shall at all times take reasonable and practicable Management Measures to avoid and mitigate Environmental Harm or Environmental Nuisance from noise associated with Work under the Contract.

The documentation, assessment and mitigation requirements are set by the Contract's noise risk level, as defined in Clause 4.1 of Annexure MRTS51.1.

For all Contracts, the Contractor shall review the Noise Management Plan or EMP(C), 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.

8.5.2.1 Low noise risk

For Contracts specified as low noise risk in Clause 4.1 of Annexure MRTS51.1, the *Transport Noise Code of Practice*: Volume 2 is not applicable.

8.5.2.2 Medium or high noise risk

For Contracts identified in Clause 4.1 of Annexure MRTS51.1 as medium or high risk for noise, the Contractor shall comply with the *Transport Noise Code of Practice: Volume 2*. Specifically, the Contractor shall be responsible for preparing, undertaking, submitting and maintaining the following:

- a) Where specified in Clause 4.3 of Annexure MRTS51.1 that the Principal has not completed a preconstruction assessment, the Contractor shall undertake a Noise Assessment Report in accordance with Section 4 of the *Noise Code of Practice: Volume 2*, to identify noise generating activities on Site, Sensitive Receptors likely to be impacted by Construction noise, and undertake assessment of likely noise impacts. The Noise Assessment Report will identify Sensitive Receptors to be included within the Noise Management Plan and shall be carried out prior to the commencement of construction. The Noise Assessment Report shall be signed off by a Registered Professional Engineer of Queensland (RPEQ) with relevant qualifications and experience, and submitted to the Administrator for deemed suitability.

If the Principal has provided a Noise Assessment Report that considers construction noise, the Contractor shall review the Noise Assessment Report and comply with the requirements. If the Contractor cannot comply with or has differing construction methods to those documented within the existing Noise Assessment Report, then the Contractor shall advise the Administrator and prepare an update to the Noise Assessment Report.

- b) Development of a stand-alone Noise Management Plan in accordance with the requirements of the *Noise Code of Practice: Volume 2*. The Noise Management Plan shall be based on the information and outcomes of the RPEQ-signed Noise Assessment Report.
- c) Planned and trial Noise Assessment Report (including Monitoring) shall be undertaken by the Contractor where stipulated in the Noise Management Plan.

8.5.3 Monitoring

For medium and high noise risk Contracts, the Contractor shall undertake noise assessment (referred to as construction stage assessment in the *Noise Code of Practice: Volume 2* where required by the Contractor's Noise Management Plan.

8.5.4 EMP(C) requirements for noise

For low noise risk contracts

The EMP(C) requirements and documentation shall be as follows:

- a) location of any Sensitive Receptors and Critical Facilities, Infrastructure and Utilities in proximity to the project
- b) noise (including air blasting overpressure) generating activities, their locations, work periods ¹¹(standard hours, non-standard hours (day / evening), nonstandard hours (night time))
- c) evaluation outcome of whether Sensitive Receptors will likely be impacted by construction noise
- d) noise Management Measures to avoid or minimise noise impacts, and

¹¹ Work periods are as defined in the *Noise Code of Practice: Volume 2* Table 3.1.3.

- e) contingency plan for Environmental Harm associated with noise impacts.

For medium or high noise risk contracts

The Contractor's Noise Management Plan shall be prepared, maintained and implemented in accordance with the *Noise Code of Practice: Volume 2*. The Noise Management Plan shall be prepared as a stand-alone document. The Noise Management Plan and supporting Noise Assessment Report will form part of the overall EMP(C).

8.6 Vibration

8.6.1 General

The Contractor is responsible for managing Work under the Contract to avoid Environmental Harm or Environmental Nuisance to Sensitive Receptors and Critical Facilities, Infrastructure or Utilities. For the purpose of this Specification potential vibration impacts are categorised in two forms:

1. Human comfort vibration management relates to managing vibration to avoid nuisance to public, residents or people utilising the area in the vicinity of the Site.
2. Building / Structural vibration management relates to managing vibration to avoid structural damage to buildings and structures within and beyond the Site. This also includes to managing impacts on building contents and surrounding utilities and services.

This Technical Specification does not address vibration impacts to native fauna unless specified in Clause 5 of Annexure MRTS51.1.

In addition to the Sensitive Receptors and Critical Facilities, Infrastructure and Utilities identified by the Principal in Clause 5 of Annexure MRTS51.1, the Contractor shall be responsible for identifying Sensitive Receptors and Critical Facilities, Infrastructure and Utilities likely to be affected by Construction vibration through the application of the performance requirements in Section 8.6.2.

8.6.2 Performance requirements

The Contractor shall at all times take reasonable and practicable Management Measures to mitigate:

1. Vibration impacts associated with Work under the Contract so as not to cause Environmental Harm and Environmental Nuisance in accordance with *Environmental Protection Act 1994* (Human comfort Vibration), and
2. Environmental Harm to structures, premises, services and buildings within or beyond the boundary of the Site as a result of Work under the Contract. (Building / Structural Vibration).

The Contractor shall document the reasonable and practicable Management Measures either in a standalone Vibration Management Plan or the EMP(C). The Contractor shall review the Vibration Management Plan and update and implement additional Management Measures where:

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

The performance requirements of the contract are dependent on the vibration risk level specified in Clause 5.1 of Annexure MRTS51.1.

8.6.2.1 Vibration (building / structural)

In managing vibration effects in nearby buildings and structures, for all Contacts the Contractor shall comply with the following:

- a) Vibration limits given within the *Noise Code of Practice: Volume 2* (for medium or high Vibration Risk Projects only).
- b) Air Blast Overpressure and ground vibration from blasting limits given in *Environmental Protection Act 1994 Section 440ZB*¹².
- c) Ground vibration values in *TN03 Measurement of Ground Vibrations and Air blast* unless otherwise set by Vibration Assessment Report, and
- d) Vibration Monitoring requirements stated in Clause 5.4 of Annexure MRTS51.1.

Where the vibration criteria cannot be achieved, the Contractor shall notify the Administrator and advise the owner of the premise, building, service or structure affected of the predicted particle velocity and what reasonable and practicable Management Measures shall be employed to minimise impacts. The Administrator shall assess the application for suitability prior to the Contractor proceeding.

8.6.2.2 Low vibration risk contracts

For contracts specified as low vibration risk in Clause 5.1 of Annexure MRTS51.1, the *Noise Code of Practice: Volume 2* is not applicable. The Contractor shall nominate reasonable and practicable Management Measures to prevent Environmental Harm and Environmental Nuisance.

8.6.2.3 Medium or high vibration risk contracts

For contracts identified in Clause 5.1 of Annexure MRTS51.1 as medium or high risk for vibration, the Contractor shall comply with the *Noise Code of Practice: Volume 2*. Specifically, the Contractor shall be responsible for undertaking, submitting to the Administrator, implementing and maintaining the following:

- a) Where specified in Clause 5.2 of Annexure MRTS51.1, that the Principal has not completed a Preconstruction Assessment, the Contractor shall prepare and undertake a Vibration Assessment Report identifying Sensitive Receptors and Critical Facilities, Infrastructure and Utilities in accordance with the *Noise Code of Practice: Volume 2*. The Vibration Assessment Report will identify Sensitive Receptors to be included within the Vibration Management Plan and shall be carried out prior to the commencement of vibration-generating Works. The Vibration Assessment Report shall be signed off by an RPEQ with relevant qualifications and experience, as required by the *Noise Code of Practice: Volume 2* and submitted to the Administrator for deemed suitability.

¹² 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.

- b) Where the Principal has provided a Vibration Assessment Report that considers construction Vibration, the Contractor shall review the Principal's Vibration Assessment Report and comply with the requirements. If the Contractor cannot comply with the Principal's Vibration Assessment Report, then the Contractor shall advise the Administrator and prepare an update to the Vibration Assessment Report prior to commencement of vibration-generating Works.
- c) Where required by Vibration Assessment Report or Clause 5.5 of Annexure MRTS51.1, a condition survey of buildings and structures as "at risk" of damage. The condition survey shall be undertaken prior to commencing vibration generating Works. In addition, condition surveys shall be carried out on those structures and buildings listed in Clause 5.4 of Annexure MRTS51.1, prior to the commencement of Works unless the Vibration Assessment Report determines the structures / buildings are not at risk of damage. The survey shall assess the current structural and architectural condition of buildings and structures and shall record all existing cracks and other defect. Photographs shall support the condition survey. Unless stated in Clause 5.6 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.
- d) A standalone Vibration Management Plan that includes details as required by the *Noise Code of Practice*: Volume 2. The Vibration Management Plan shall be based on the information and outcomes of the RPEQ signed Vibration Assessment Report.
- e) 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.
- f) Undertake other investigations such as building contents investigations and infrastructure, services and utility investigations as determined in the Vibration Assessment Report.

Where the Contractor's Vibration Assessment Report identifies a department's structure/s are at risk of impact from vibration, the Contractor shall advise the Administrator. At their discretion, the Administrator may advise the Contractor of vibration criteria for the specific structure/s potentially impacted.

8.6.3 Monitoring

Where stipulated in Clause 5.3 of Annexure MRTS51.1 or by the Contractor's Vibration Management Plan or vibration section of the EMP(C), the Contractor shall undertake assessment for vibration (human comfort) and / or Vibration (structural / building) during Works under the contract identified as having potential risk of impact.

Contract records shall include all vibration assessment results are documented, investigated and managed in accordance with the *Noise Code of Practice*: Volume 2 and Clause 7 of this Technical Specification.

8.6.4 EMP(C) requirements for vibration

For low vibration risk contracts, the EMP(C) shall include documents and / or diagrams indicating the following:

- a) the type of Vibration Sensitive Receptors and Critical Facilities, Infrastructure and Utilities potentially impacted by Works under the Contract the location in relation to Site
- b) location of significant Vibration and Air Blasting Overpressure generating Works within the Site
- c) applicable construction vibration criteria for assessment
- d) evaluation outcome of which Sensitive Receptors, structures and / or buildings will likely be impacted by construction vibration and Air Blast Overpressure and from what Works
- e) vibration Management Measures and strategies to avoid or minimise Environmental Harm of vibration (human comfort) and vibration (structural / building), and
- f) contingency plan for observed damage to structures (private, public or departmental-owned).

For medium or high vibration risk contracts, the Contractors Vibration Management Plan shall be prepared, maintained and implemented in accordance with the *Noise Code of Practice: Volume 2*. The Vibration Management Plan shall be prepared as a stand-alone document. The Vibration Management Plan and supporting Vibration Assessment Report will form part of the overall EMP(C).

NOTE: Where vibration and noise risk levels are both medium and high, the Assessment Report and Management Plans may be combined in accordance with the Noise Code of Practice: Volume 2.

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 the Annexure, 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 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 Annexure MRTS51.1 Clause 6.3, 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 Annexure MRTS51.1 Clause 6.4, 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 MRTS04 *General Earthworks* Clause 11 in relation to use of or disposal of surplus and unsuitable material and MRTS96 *Management and Removal of Asbestos*.

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

Where a DEHP-accepted Site Management Plan exists, this is identified in Annexure MRTS51.1 Clause 7.2.

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 DEHP-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 MRS51.1.

Where stipulated in Clause 7.3 of MRT51.1, the Contractor shall develop and implement a Contaminated Site investigation by a suitably qualified person, management and Compliance Testing 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 DEHP in accordance with the requirements of the *Environment 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 Administrator for suitability, submit to DEHP for acceptance, and carry out remediation of Contaminated Site in accordance with the Site Management Plan, and
- f) provide the DEHP-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 (ITP's) 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 EMPC 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.

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 DAF¹³, 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, and to known habitat and breeding places. 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

¹³ https://www.daf.qld.gov.au/__data/assets/pdf_file/0007/75886/spatial-data-layer-user-guide-jan-13.pdf

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 these are stipulated in Clause 8.2 of Annexure MTS51.1. The Principal has obtained an Environmental Approval for Tampering with Animal Breeding Places of Least Concern Species¹⁴ (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 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) Complete the Register of Tampering with an Animal Breeding Place¹⁵ 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

- c) 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.

In the event that native fauna species is injured or killed on Site, the Contractor shall undertake an investigation into the Environmental Incident and determine whether the injury / death was related to Works under the Contract and 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 the

¹⁴ INCLUDE LINK TO SMP ON EXTERNAL WEBSITE

¹⁵ <https://www.ehp.qld.gov.au/licences-permits/plants-animals/documents/fm-wl-register-animal-breeding-place.xls>

Department of Agricultural and Forestry's Self-Assessable Codes for Temporary Waterway Barrier Works (WWBW02).

Where compliance with a Self Assessable Code 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 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 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 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
- 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 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 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 & Grubbing activities under the contract are covered in MRTS04.

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 *Landscaping and Revegetation Works* Specification and the Annexure MRTS16.1.

Management of vegetative waste is detailed in Clause 8.13 Waste management.

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 listed in Clause 1 of Annexure MRTS51.1. If the Contractor cannot

comply with the Approval, 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 AS4970 2009 *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 the Annexure MRTS51.1.

8.11.3 Monitoring

Where specified in Clause 9 of 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)
 - 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 undertake reasonable and practicable Management Measures to mitigate Environmental Harm 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 - 10.3 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 Clean-down* 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 8.1.1.2 of MRTS16 *Landscape and Revegetation* 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, spoil locations).
- 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

8.13.1 General

The Contractor shall be responsible for management of Wastes generated from Work under the Contract in accordance with the *Environmental Protection Act* 1994. This shall include Wastes generated at Site Camp and facilities under MRTS28.

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 Waste and litter.

8.13.2 Performance requirements

The Contractor shall adopt the Waste management hierarchy of avoidance, reuse recycling, energy recovery and disposal of wastes generated under the Contract. No Waste, including vegetative Waste, or litter shall be burnt on Site unless allowed as specified in Clause 8.7.2.

Upon completion of works, the Contractor shall ensure that all Wastes have been removed from Site or otherwise lawfully disposed of on Site. No Waste shall be buried on Site unless deemed suitable by the Administrator and the Administering Authority.

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. 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 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.

Where stipulated in Clause 11.2 of Annexure MRTS51.1, the Contractor shall record Wastes generated, disposed, recycled and reused by the Work under the Contract in the Waste Register provided in Appendix C of MRTS51 or an alternative template as deemed suitable by the Administrator. The Contractor shall retain copies of all documents issued in relation to Trackable

Waste¹⁶ transportation and disposal processes. The completed Waste Management Register shall be submitted to the Administrator at Practical Completion.

8.13.3 EMP(C) requirements for Waste management

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. Wastes shall be categorised as per register in MRTS51 Appendix C.
- b) Waste management strategies (avoidance, reuse, recycling, energy, recovery, disposal).
- c) Waste containment locations.
- d) All mulch stockpiles shall be identified on plans, and
- e) The procedure for measuring and recording Waste generated, reused, recycled and disposed of under the contract.

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.

¹⁶ Trackable waste as defined under the Schedule 2E of Environmental Protection Regulation 2008.

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 sources¹⁷ 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.

¹⁷ Non-commercial sources are sources where either Principal or Contractor hold relevant approvals and material sourcing operations are undertaken by the Contractor or its sub-contractor.

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.

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

For all material sourcing, unless stated otherwise in Appendix 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 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 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) (i.e. 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 5.2.2 of MRTS16 where applicable, and

Other

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

9 Supplementary requirements

The requirements of MRTS51 *Environmental Management* are varied by the supplementary requirements given in Clause 12 of Annexure MRTS51.1.

Superseded

Superseded