

# Civil Engineering Technical Requirement

## CIVIL-SR-002

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# WORK IN OR ABOUT QUEENSLAND RAIL PROPERTY

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Revision: 8

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Revision	Date	Section(s) Amended	Summary of Amendment
Initial	05/03/1997		
A	14/05/1997		Minor editing prior to authorisation
B	16/01/2001		QUEENSLAND RAIL costs updated Definition of terms altered
C	04/02/2002		Safety Induction course costs updated
D	30/06/2005		Definition of Terms altered
E	22/12/2009		Complete Revision
F	30/09/2010		New disclaimer. Rebranded.
G	30/05/2011		Clauses 8, 9 and 10 removed. Title changed from MCE to CIVIL
8	09/06/2016		3 metres from track centreline, updated to 3 metres from nearest rail. Terminology updated.

### Compliance:

Significant issues with compliance to the Civil Engineering Technical Requirements detailed in this document shall be addressed through the Rail Infrastructure Manager who will liaise with the Track and Structures Discipline Head as necessary.

### Feedback:

If you have any suggestions for improvement to any documentation, especially inaccuracies or ambiguities, please email [CivilEngineeringStandards@qr.com.au](mailto:CivilEngineeringStandards@qr.com.au) with the document number in the subject heading.

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## 1.0 INTRODUCTION

This Technical Requirement details the criteria which must be met by an external party working in or about Queensland Rail property. Reference is made to the following additional Queensland Rail Technical Requirements which must also be satisfied:

- *CIVIL-SR-003 Work adjacent to overhead line equipment,*

A copy of this document may be obtained from Queensland Rail.

All reference documents, e.g. Australian Standards, codes and Queensland Rail Technical Requirements, are to be the latest version.

### 1.1 Scope

This Technical Requirement specifies the requirements that a Contractor must comply with when working on:-

- Queensland Rail Property.
- In the vicinity of Queensland Rail property.
- Over or under Queensland Rail property.

When working on or adjacent to electrified tracks these requirements need to be read in conjunction with the Technical Requirement *CIVIL-SR-003 "Work Adjacent to Overhead Line Equipment"*.

### 1.2 Definition of Terms

- I. "Contractor". The persons, firm, partnership, company or corporation carrying out work adjacent to or over railway tracks, whether as a contract or as day labour. The word "Contractor" shall mean the Contractor, its servants, workmen or agents, subcontractors of the Contractor, and suppliers and invitees of the Contractor.
- II. "Danger Zone". All space within 3 metres horizontally from the nearest rail and any distance above or below this 3 metres, unless a safe place exists or can be created.
- III. "Operating Railway". The existing railway, which is in operation and includes but is not limited to fixed structures, installations, buildings and the like, as well as rollingstock and other equipment operating on the track.
- IV. "Operating Track". A railway track over which trains and other track-mounted equipment may be operating.
- V. "Possession Protection Officer (PPO)". The Competent Worker responsible for coordinating protection of worksites under a Local Possession Authority or where they hold a Work on Track Authority which has multiple worksites and rail traffic is moving between the worksites

- VI. "Project Manager". Queensland Rail appointed representative to oversee and coordinate the works during planning, design, construction and post construction.
- VII. "Protection Officer (PO)". The Competent Worker responsible for managing the rail safety component of worksite protection who has the responsibility for liaising with Train Control (except where a PPO has been appointed) and arranging for the necessary track protection;
- VIII. "Queensland Rail ". Queensland Rail having its offices at 305 Edward Street, Brisbane, Queensland.
- IX. "Queensland Rail Property". Property owned, leased, managed or occupied by Queensland Rail.
- X. "Rail Infrastructure Manager". A person who has effective management and control of rail infrastructure or proposed rail infrastructure, whether or not the person:
  - (a) owns or will own the rail infrastructure; or
  - (b) has or will have a statutory or contractual right to use the rail infrastructure or to control, or provide, access to it.
- XI. "Track Closure". The closure of a section of the Operating Track to all rail traffic other than construction related rail traffic.
- XII. "Track Possession". The period within a Track Closure when the Contractor is authorised to carry out work over, under or adjacent to the closed Operating Track.
- XIII. "Work". Work which could directly or indirectly affect Queensland Rail property and/or operations.
- XIV. "Work Site". Each separate location where work is to be carried out over, under or adjacent to the Operating Railway.

### 1.3 QUEENSLAND RAIL Corridor Safety

Queensland Rail corridor safety must be applied in accordance with "Queensland Network Rules and Procedures" MD-12-189. These requirements apply to all persons entering the rail corridor, including all visitors, vendors and suppliers to the worksite.

No one may enter the rail corridor without being supervised by a Queensland Rail qualified Protection Officer or being accredited as a Queensland Rail qualified Protection Officer.

All planned work within the rail corridor requires a written and approved Corridor Access Safety Plan (SW61), developed prior to entering the corridor, by the worksite Queensland Rail Protection Officer and

the Worksite Supervisor. The Contractor must contact Queensland Rail prior to planning to enter the rail corridor, to arrange for a worksite assessment of the Queensland Rail corridor safety requirements, by a Queensland Rail Protection Officer.

The Contractor shall be responsible for ensuring that all staff, employees and all other persons for whom the Contractor is responsible are appropriately qualified and fully informed of the dangers and procedures while working near existing railway tracks and overhead traction wiring equipment. If rail safety work is to be carried out, the contractor's employees and subcontractors are to possess a valid and current Rail Industry Worker (RIW) card.

#### 1.4 Safety Clothing

The Contractor shall ensure that all employees, visitors and other personnel employed or present on railway property in areas generally excluded from the public, shall at all times wear high visibility orange shirts, in accordance with Queensland Rail safety standard "Personal Protection Equipment" MD-12-140. Where work is to be carried out at night or in reduced visibility, all shall wear reflectorised orange safety shirts or vests, in accordance with Queensland Rail's requirements.

The Contractor shall ensure that no red or green clothing, including hats and safety helmets, are to be worn by any employee, visitor or other personnel of the Contractor while on railway property, in areas generally excluded from the public.

#### 1.5 Work Authorisation

Work shall be carried out in accordance with the approved scope of works and to the satisfaction of Queensland Rail or a Queensland Rail appointed Project Manager.

All work performed on Queensland Rail property or when directed by Queensland Rail shall be under the supervision of a PPO or PO and shall be carried out only at times authorised by Queensland Rail or the Queensland Rail appointed Project Manager.

When the Works are located on or adjacent to a railway track with overhead traction wiring equipment, these requirements shall be read in conjunction with CIVIL-SR-003 - "Work Adjacent to Overhead Line Equipment".

## 2.0 CONSTRUCTION METHODS

### 2.1 General

The Contractor shall execute the Works in such manner as not to impede, obstruct, interfere with, or endanger in any way the operations and/or property of Queensland Rail.

The safe operation of the railway is to take precedence over all work. No work is to be

performed which will jeopardise the safe operation of railway traffic.

The Contractor shall be responsible during the progress of the works to avoid damage to any existing structures or services either owned by Queensland Rail or other Authorities. Before the commencement of any Works the Contractor shall arrange to check the location of services shown on drawings and for the presence of any other services not shown, by contacting "Dial Before You Dig".

Any damage to such services or/and structures shall be repaired at the Contractor's cost, either by the Contractor or by the relevant Authority and to the satisfaction of the Authority concerned. The Contractor shall also be responsible for all costs incurred by the Service Authority due to interruptions to the service caused by any damage done by the Contractor.

In electrified railway areas, any damage to overhead line equipment is a serious safety hazard. Any damage to grading rings (copper wires buried around existing mast foundations) or traction bonds (cables attached to the railway rails) must be immediately reported to the PO or PPO.

### 2.2 Interfering with a Railway

In accordance with section 255 of the Transport Infrastructure Act 1994, the Contractor must not interfere with a railway, unless he or she has Queensland Rail's written approval.

Should a Contractor interfere with a railway, the Rail Infrastructure Manager for the railway may, by written notice, require the Contractor to rectify the interference within a stated reasonable time.

Should the Contractor not comply with the requirement, the Rail Infrastructure Manager may elect to rectify the interference at cost to the Contractor.

### 2.3 Environmental Management

The Contractor is responsible for managing environmental risks and impacts associated with Works undertaken by the Contractor on Queensland Rail property, in accordance with all relevant State and Federal legislation and Local Authority regulations.

The Contractor shall prepare and implement appropriate documentation to effectively manage environmental impacts. Commensurate with risk, this may include, but is not limited to: Construction Environmental Management Plan, environment risk assessments, Job Safety & Environment Analysis (JSEA) and/or Work Method Statements.

No work on Queensland Rail property will be permitted until written notification from Queensland

Rail has been received that confirms the adequacy of submitted documentation.

#### **2.4 Possession Protection Officer / Protection Officer (PPO/PO)**

No operation which, in the opinion of the PPO or PO, could affect in any way whatsoever Queensland Rail operations and/or property shall be performed unless a PPO or PO is in attendance. The Contractor shall advise the PPO or PO through the Project Manager at least 30 days in advance, stating the period or periods for which PO's are required, unless a shorter period is approved by the Project Manager.

The PPO will arrange with the Project Manager for the services of POs for the period or periods required.

The number of POs employed at any time shall be at the discretion of the PPO.

#### **2.5 Project Manager**

All enquires and correspondence to Queensland Rail, associated with the Works, is to be directed through the Project Manager.

#### **2.6 Construction Procedure**

The Contractor shall prepare Safe Work Method Statements (SWMS) as required by the Workplace Health and Safety Act and the Queensland Rail Project Manager and submit them to the Queensland Rail Project Manager for review. Safe Work Method Statements shall include details of construction procedures, together with details of all falsework and formwork to be used over or adjacent to the railway tracks. Work shall not commence until such Safe Work Method Statements have been reviewed and approved by the Project Manager.

#### **2.7 Track Clearances**

All Operating Tracks have a Danger Zone within 3 metres horizontally from the nearest rail and any distance above or below this 3 metres. For electrified track, there is also a 3 metre exclusion zone from all components of the overhead traction equipment. All overhead components are to be considered live unless they have been certified isolated and earthed. For details of procedures when working near electrified lines reference must be made to CIVIL-SR-003 - "Work Adjacent to Overhead Line Equipment".

All types of plant, fixed or mobile, used about or in connection with any work shall be so operated that no portion of the plant is at any time closer than the Danger Zone of 3 metres horizontally from the nearest rail.

If it is necessary at any time to operate plant closer than 3 metres horizontally from the nearest rail (inside the Danger Zone), such closer operation or

erection will only be permitted under track protection approved by the PPO/PO.

Where a worker, piece of plant or equipment has the potential to be struck by rail traffic on an adjacent live track, procedures detailed in QR 9010 in MD-12-189 Queensland Network Rules and Procedures must be followed. This may include a barrier in place between the worksite and live track, or, where a barrier is not possible an alternative form of protection must be provided.

Where barriers are used as track protection, authorisation for such barriers will be made by the PO/PPO.

All temporary buildings, shelters, barriers, falsework, formwork and the like shall only be erected at locations assessed by the PO/PPO and approved by the Project Manager. No portion of any such building, shelter, barrier, falsework, formwork and the like shall be closer than 3 metres horizontally from the nearest rail.

If it is necessary at any time to erect falsework or formwork or other temporary structure closer than 3 metres horizontally from the nearest rail (inside the Danger Zone), such closer works will only be permitted after approval has been obtained from the Project Manager and under track protection approved by the PPO/PO.

All work inside Queensland Rail property shall be supervised by a PPO or PO, unless otherwise approved by the Project Manager. Work further than 3 metres horizontally from the nearest rail, but at a higher level where objects could fall within 3 metres horizontally from the nearest rail, or on to overhead line equipment, will only be permitted under track protection approved by the PPO/PO in consultation with the Traction Power Engineer.

The Contractor shall erect and maintain throughout the Contract period, a Queensland Rail approved barrier at least 3 metres horizontally from the nearest rail to indicate the limits of the safe work area.

For minimum clearances for falsework and formwork erected over non-electrified railway track refer to Queensland Rail standard drawing 2754 "Standard clearances for new structures". When working on or adjacent to electrified lines reference must be made to CIVIL-SR-003 - "Requirements for Work Adjacent to Overhead Line Equipment".

For work being carried out below rail level, all personnel must be at least 3 metres horizontally from the nearest rail during the passage of any train through the worksite unless approved protection barriers are provided for objects falling from above.

## 2.8 Track Possession

Work which could involve undermining the track, damaging the track, blocking the track with rock or spoil, blasting and other operations which could prevent the safe operation of trains shall only be carried out during approved track possessions.

The Contractor shall schedule such work for the track possession periods available and shall ensure adequate manpower and equipment is on hand to complete the work and make the track available for train operations within the total track possession period.

For minor possessions, the minimum period for notification of the Contractor's requirements for possessions shall be six (6) months unless a shorter period is approved by the Project Manager.

For major possessions, an extra period for notification may be required. External Contractors are to submit requests on the appropriate form (via relevant Project Manager) to Queensland Rail. A minimum notification of 12 months, where practicable, or at least 6 months, from the day of operation depending on location is required unless otherwise stipulated in the following documents:

SEQ – MD-13-545  
Regional – MD-11-938

The Track Possessions shall be in sufficient detail, including dates and durations desired for each Track Possession, to provide all necessary information on work at Work Sites, which affects or may affect the Operating Railway.

The Contractor shall be responsible for the accuracy of all information stated on the application and for delivery of the application to the Project Manager.

The Project Manager will not give the Contractor approval to commence work for which the track possession has been arranged until the Contractor has satisfied the PPO or PO that the proposed procedures are suitable and that adequate plant, materials and labour are on hand to complete the work within the allotted period.

The Contractor may not have available the whole of the period of any track closure as an exclusive use for the carrying out of work. Prior, concurrent or concluding activities by Queensland Rail may restrict the time available to the Contractor.

All costs associated with the provision of track possessions as well as any costs associated with the withholding of approval or the provision of additional or backup plant or labour shall be borne by the Contractor.

After a Track Possession has been granted by Queensland Rail for a nominated date, the

contractor shall advise the Project Manager of any changes to the required date of the Track Possession by no later than 10 days prior to the Track Possession date. Should the Contractor fail to advise within the required minimum notification times, appropriate cancellation costs will apply. The Project Manager will endeavour to give the contractor as much notice as possible of any Track Possession that cannot be granted, but will not be obliged to compensate the contractor for any loss.

The Contractor shall, to the extent stated by Queensland Rail, pay all costs incurred by Queensland Rail in connection with track possession.

The Contractor shall pay without deduction all moneys due and owing to Queensland Rail pursuant to this clause within the timeframe specified in the contract.

Queensland Rail reserves the right at any time to cancel any Track Possession at short notice by notice in writing to the Contractor.

## 2.9 Delays to Trains

Where the operations of Queensland Rail trains are delayed by over 5 minutes by the Contractor, and Queensland Rail determines that such delays are attributable to the default or neglect of the Contractor the cost of such delays shall be recovered by Queensland Rail from the Contractor.

The cost of delay shall be calculated by Queensland Rail for the train standing at the point of obstruction and for each train delayed further along the line in either direction.

If the delay is such that alternative transport arrangements are necessary for passengers or freight, the full cost of providing the alternative transport will be recoverable from the Contractor in addition to the cost of the delayed trains.

## 2.10 Stopping Work

If the Contractor is executing any work in a manner which, in the opinion of the PPO, PO or Project Manager, could endanger Queensland Rail operations and/or property, the PPO, PO or Project Manager shall have the right to instruct the Contractor to stop such work. If such instructions are not carried out, the PPO, PO or Project Manager shall have the power to stop immediately all work, which could endanger Queensland Rail operations and/or property until adequate safety measures are implemented.

## 2.11 Removal of Contractor's Employee

The PPO and the PO shall have the power to instruct the Project Manager, in writing, to order the Contractor to remove any employee of the Contractor from the Works, should that employee

disobey an instruction given by the Protection Officer.

If a person breaches Queensland Rail's safety requirements associated with the safe operation of the operating corridor, then that person will be immediately removed from the Work Site, by the PO. The matter will be referred to the PPO/Project Manager, who will determine whether that person shall be permanently removed from the Work Site.

### 2.12 Temporary Level Crossings

If access across railway tracks is required by the Contractor and is considered necessary by the Project Manager, Queensland Rail will provide, maintain and remove at the expense of the Contractor temporary level crossings to enable the Contractor to gain access to the Works Site.

Queensland Rail must assess any proposed temporary level crossings, in accordance with the Australian Standard 1742.7 for level crossings. The Contractor shall apply the controls as recommended by the Queensland Rail assessment. All costs of the assessment and crossing construction shall be at the Contractor's cost.

The location of any access across railway tracks shall be authorised in writing by the Project Manager.

Approach earthworks to such crossings shall be constructed by the Contractor at the Contractor's expense to details provided by Queensland Rail.

The Contractor shall advise the Project Manager at least six (6) weeks in advance of the date when such access will be required, but Queensland Rail will not be responsible for any delay in the construction of the crossing and the Contractor shall have no claim on Queensland Rail in respect of any such delay.

### 2.13 Excavation near a Railway Track

The Contractor is to give Queensland Rail or the Queensland Rail Project Manager at least four (4) weeks notice of any intention to excavate within 25 metres of an existing or defined future rail corridor boundary, adjacent to or under railway tracks and over or under a railway tunnel. Excavations in these areas are to be carried out by methods described in Queensland Rail's conditions of approval for the Works and/or methods authorised by the Project Manager.

The Contractor shall be responsible for the costs of any track supports.

Where required by the Contractor and/or considered necessary by the Project Manager, the construction and installation of track supports will be carried out, at the Contractor's cost, by Queensland Rail. The Contractor shall be responsible for the construction and installation of any shoring required.

The Contractor shall be responsible for the safety of excavations within Queensland Rail property and shall cover and/or protect any such excavations with barriers and lights as necessary.

Excavations on Queensland Rail property shall not be backfilled until the methods and material proposed have been submitted to and reviewed by the Project Manager.

### 2.14 Blasting

Rock may be excavated by the use of explosives as specified in "QR-CTS-Part 6 Earthworks", and Department of Transport and Main Roads document "MRTS55 Use of Explosives in Roadworks". The Department of Environment and Heritage Protection (DEHP)'s guidelines for Noise and Vibration from Blasting shall also apply.

Inspections of buildings, structures and railway tracks shall be carried out in any area where the maximum peak particle velocity from a blast generated ground vibration is likely to exceed 5 mm/s or the subsequent airblast is likely to exceed 120 dB. Such inspections shall be carried out before and after blasting operations.

Measurements shall be taken of the ground vibration and airblast for each blast at a point in close proximity to the nearest buildings, structures or railway tracks. Records shall be kept of all inspections and the ground vibration and airblast measurement information for each blast, and provided to the Project Manager upon request.

The Contractor must give the Project Manager at least four (4) weeks' notice of any intention to excavate by blasting and shall furnish full details of the location thereof and the proposed methods as well as the name and permit number of the licensed shotfirer.

Such blasting may only be carried at locations authorised by the Project Manager and at times authorised by the PPO or PO. The PO shall be in attendance.

Because of the extensive use of radio communications in the Queensland Rail system, the Contractor shall only use a non electric initiation system for explosives unless otherwise approved by the Project Manager. Explosive holes may be filled and stemmed prior to the passage of the last train past the Work Site but the interconnection of the initiation system between blast holes shall not occur until the track is clear of trains and permission given to the contractor to proceed by the PO.

Blasting will not be permitted near any structures, fixtures, foundations and the like, the stability or integrity of which, in the opinion of the Project Manager, PPO or PO may be endangered by blasting.

The Contractor will provide screens, barriers, mats and the like to limit the effects of blasting.

The Contractor will be held responsible for any loss, damage or injury sustained by the public or by workmen (whether employees of the Contractor, Queensland Rail or other Authority) and for any damage to property of any description whatsoever caused directly or indirectly by such blasting.

### **2.15 Construction Plan**

For construction over railway tracks, the Contractor shall detail, in a construction plan, the construction procedure and interfaces with the railway. Construction shall not commence until the construction plan has been submitted to and approved by the Queensland Rail Project Manager.

### **3.0 RELOCATION OR ALTERATION OF RAILWAY SERVICES**

The Contractor must advise the Project Manager in writing at least eight (8) weeks before the date that any alterations to Queensland Rail services such as signalling, telecommunications or power supply systems will be required, unless a shorter period is approved by the Project Manager.

The cost of any such work shall be borne by the Contractor.

### **4.0 WORKS AREAS ON RAILWAY LAND**

The Contractor must advise the Project Manager in writing of any areas of railway land required by the Contractor for carrying out the Works at least six (6) weeks before the land is required. The Contractor must not take possession of any railway land until the extent and limits of all work areas on railway land have been authorised by the Project Manager.

The Contractor must erect safety fences and any other necessary protective measures to ensure that the Contractor's possession of such areas does not interfere with or endanger in any way whatsoever members of the public, Queensland Rail agents or servants, or Queensland Rail operations or property.

The Contractor must ensure that existing public access is maintained throughout the construction to a standard at least equal to that existing prior to the start of construction.

### **5.0 DEMOLITION OF EXISTING STRUCTURES**

Demolition work must not commence until full details of proposed demolition methods and of the types of plant and equipment to be used have been submitted to and authorised by the Project Manager.

The demolition work is to be carried out under the supervision of a holder of a current and valid Queensland demolition licence.

The demolition work is to be carried out in such a manner that no material shall fall on Queensland Rail tracks, other Queensland Rail installations or adjacent properties.

If there is a possibility of material falling on Queensland Rail tracks or other Queensland Rail installations, the Contractor is to provide protection to such tracks and/or installations as approved by the PPO or PO and the Project Manager.

Demolition must only be carried out at times authorised by the Project Manager, and the PO shall be in attendance.

### **6.0 REMOVAL AND RE-ERECTING OF FENCING**

If it is proposed to remove any fences along the railway boundary as part of the Works, or where other fences are removed temporarily or disturbed prior approval from the Project Manager is required. All such fences shall be replaced or repaired by the Contractor, and left, at the time of the completion of the Works, in the same order and condition as they were at the commencement of the Works.

The Contractor must maintain operating corridor security at all times or provide a PO to supervise. A temporary fence shall be erected to protect corridor security before fences are removed.

Following removal of any fence along the railway boundary, the Contractor shall erect suitable barricades along the boundary at all times when work at that location is not in progress and until the fence is re-erected or replaced.

The Contractor is to keep the fence stock proof at all times when access is not required.

### **7.0 REMOVAL OF BUILDINGS AND CLEANING UP**

Upon completion of work on Queensland Rail land, the Contractor is to remove all temporary construction buildings, offices, workshops, temporary structures, plant, materials, surplus earth, rubbish and other construction items and shall restore the site to its original condition.

Any unfinished restoration works, which are not to Queensland Rail satisfaction, will be completed by Queensland Rail at the expense of the Contractor.