

Our Ref: MCR-24-729

Mr Charles Millsteed
Chief Executive Officer
Queensland Competition Authority
Level 27 145 Ann Street
Brisbane Qld 4000

Dear Mr Millsteed


2023-24 Capital Expenditure Report — West Moreton System

Queensland Rail's Access Undertaking 2 (**AU2**) requires that the Queensland Competition Authority (**QCA**) be provided with details of capital expenditure for the subject year that Queensland Rail considers should be included in the Regulatory Asset Base (**RAB**).

Attached is the 2023-24 Capital Expenditure Report (and supporting documentation) providing details of the assets Queensland Rail considers should be included in the West Moreton System RAB.

As required by clause 1.3(c), Schedule E of AU2, I can confirm that the information contained in the 2023-24 Capital Expenditure Report is in all material respects correct.

If your officers have any questions in relation to this matter, please contact Queensland Rail's Policy and Regulations Manager Mr Douglas Jasch by telephone on 07 3072 0544 or via email at douglas.jasch@qr.com.au.

Yours sincerely



Kat Stapleton
Chief Executive Officer


17 December 2024

West Moreton System Capital Expenditure Report 2023–24

December 2024

Commercial-In-Confidence

 QueenslandRail

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1. Structure of Submission

1.1 Queensland Rail's network

This report has been submitted to the Queensland Competition Authority (**QCA**) in accordance with Queensland Rail's Access Undertaking 2 (**AU2**) requirements. The report is structured as follows:

- **Section 1** outlines the structure of this report.
- **Section 2** summarises AU2's requirements and process for Queensland Rail producing this 2023-24 Capital Expenditure Report as well as the matters the QCA must take into account when considering the report. Additionally, Section 2 provides a summary of the financial information relevant to this report.
- **Section 3** sets out the key characteristics of the West Moreton System, which will assist in providing an understanding of Queensland Rail's fit for purpose capital program.
- **Section 4** explains Queensland Rail's Investment Framework.
- **Section 5** sets out Queensland Rail's approach and processes related to Prudency of Scope of projects.
- **Section 6** sets out Queensland Rail's approach and processes related to Prudency of Standard of projects.
- **Section 7** sets out Queensland Rail's approach and processes related to Prudency of Cost of projects.
- **Attachment 1** provides detailed information regarding each individual project contained in this capital expenditure report relating to the prudency of each project. Additional documents are provided by Queensland Rail to assist the QCA in its prudency assessments including Business Cases, Project Handover Reports, Project Completion Reports, Asset Under Construction (**AUC**) forms, the Fixed Asset Register (**FAR**) and other key documents. Additionally, where the QCA considers appropriate, a site inspection of the West Moreton System is undertaken by the QCA. If undertaken, this will involve visiting individual projects and relevant sites.

2. The Capital Expenditure Report Process

2.1 Capital expenditure report requirements

Clause 1.3 of Schedule E of AU2 provides that, unless otherwise agreed between Queensland Rail and the QCA Queensland Rail will, within six months after the end of each year, submit to the QCA an annual capital report (**Capital Expenditure Report**). The Capital Expenditure Report is to include details of the capital expenditure that "*Queensland Rail considers should be included in a Regulatory Asset Base*" (**RAB**). To be included in the Capital Expenditure Report the assets must have been commissioned in the '*subject financial year*', which is the previous financial year, and must wholly or partly relate to coal services.

This Capital Expenditure Report relates to assets that were commissioned in the 2023-24 financial year (**2023-24 Capital Expenditure Report**). No incremental coal related capital expenditure has been identified for the Metropolitan System for 2023-24. As such, the 2023-24 Capital Expenditure Report relates solely to coal related assets in the West Moreton System.

Clause 1.3(c), Schedule E of AU2 requires that the information provided to the QCA be accompanied by a statement signed by Queensland Rail's CEO confirming that the information is, in all material respects, correct.

2.2 Other capital

In addition to the capital expenditure included in a Capital Expenditure Report, Schedule E of AU2 provides for Queensland Rail to separately apply to have included in the RAB capital commissioned prior to the subject year (and therefore that wouldn't be included in the Capital Expenditure Report). For example, an asset commissioned in 2020-21 that hasn't been added to the RAB cannot be included in the 2023-24 Capital Expenditure Report. However, Queensland Rail can make a separate application to have this expenditure included in the relevant RAB (i.e. the West Moreton System or the Metropolitan System coal related RABs) at any time.

Queensland Rail is not seeking additional capital to be included in the RAB under these provisions (i.e. not seeking this in relation to capital that is not included in this 2023-24 Capital Expenditure Report).

2.3 QCA acceptance of capital expenditure into the RAB

Clause 1.3, Schedule E of AU2 sets out the requirements that the QCA is required to consider in relation to the assessment of whether the information in the Capital Expenditure Report should be accepted into the RAB:

"2.1 Requirements for acceptance of capital expenditure into the Regulatory Asset Base

- a) *The QCA will accept capital expenditure into a Regulatory Asset Base if that capital expenditure:*
 - (i) *is or has been accepted by the QCA as:*
 - A. **prudent in scope** in accordance with clause 3;
 - B. **prudent in standard** of works in accordance with clause 4; and
 - C. **prudent in cost** in accordance with clause 5; and
 - (ii) *has been incurred; and*
 - (iii) *either:*
 - A. *the capital expenditure project has been commissioned; or*
 - B. *formally discontinued.*" (emphasis added)

In accordance with the above, the QCA will assess whether the commissioned projects in the 2023-24 Capital Expenditure Report should be included in the RAB including by applying the prudence tests.

Schedule E of AU2 requires that Queensland Rail provide the following details (unless otherwise agreed):

- the name of the project;

- the location of the project;
- the amount of the capital expenditure; and
- information, where applicable, to support the QCA’s assessment of the prudence of the capital expenditure (except to the extent that the QCA has already accepted that capital expenditure as prudent in scope, standard or cost).

In relation to the above, Queensland Rail has provided the following documents (where relevant):

- Business Cases;
- Project Handover Reports;
- Project Completion Reports;
- Asset Under Construction (**AUC**) forms;
- The Fixed Asset Register (**FAR**); and

2.4 2023-24 Capital Expenditure Report summary

Queensland Rail’s 2023-24 Capital Expenditure Report includes 9 capital expenditure projects and is seeking the QCA’s approval for:

- **\$19,610,237** excluding interest during construction (**IDC**); and
- **\$20,198,826** including IDC.

The projects in question are set out in **Table 1** and **Table 2** below. All assets were commissioned during the 2023-24 financial year.

Table 1: Commissioned Assets 2023-24 — excluding interest during construction

Project Number	Project Name	2023-24
100% WEST MORETON PROJECTS		
B.05649	Bridge Renewal West Moreton 20/21-24/25	1,061,939
B.05653	Culvert Renewal West Moreton	1,552,821
B.05655	Level Crossing Upgrades West Moreton	999,824
B.06154	Toowoomba Range Slope Stability Stage 2	13,291,683
B.06159	Sleepers with gauge issue & Range rerail	492,005
SYSTEM WIDE / REGIONAL WIDE PROJECTS — INCLUDE WEST MORETON		
B.04530	Regional Radio Replacement Program	364,128
B.04764	RMS2 LX System Wide	308,001
B.05016	NCL Asset Protection Stage 2	355,969
OTHER		
Ballast Undercutting	Ballast Undercutting	1,183,868
TOTAL		19,610,237

Table 2: Commissioned Assets 2023-24 — including interest during construction

Project Number	Project Name	2023-24
100% WEST MORETON PROJECTS		
B.05649	Bridge Renewal West Moreton 20/21-24/25	1,048,997
B.05653	Culvert Renewal West Moreton	1,694,969
B.05655	Level Crossing Upgrades West Moreton	1,013,095
B.06154	Toowoomba Range Slope Stability Stage 2	13,614,495
B.06159	Sleepers with gauge issue & Range rerail	503,412
SYSTEM WIDE / REGIONAL WIDE PROJECTS — INCLUDE WEST MORETON		
B.04530	Regional Radio Replacement Program	424,662
B.04764	RMS2 LX System Wide	335,133
B.05016	NCL Asset Protection Stage 2	380,195
OTHER		
Ballast Undercutting	Ballast Undercutting	1,183,868
TOTAL		20,198,826

Interest During Construction

AU2 is silent on the methodology to be used for the calculation of IDC. The QCA has advised that it will use the S-curve methodology, consistent with the calculation methodology used by Aurizon Network.

To obtain the IDC amount, the S-curve approach uses monthly cash flow values, multiplied by the applicable interest rate. These cash flows are extracted from Queensland Rail's financial accounting system (**SAP**). The applicable interest rate is the Weighted Average Cost of Capital (**WACC**) for the relevant regulatory period. Approved capital expenditure is included into the RAB as at 1 January in the year of commissioning. To do this, the IDC calculation must be conducted to the mid-point in the year the project was commissioned.

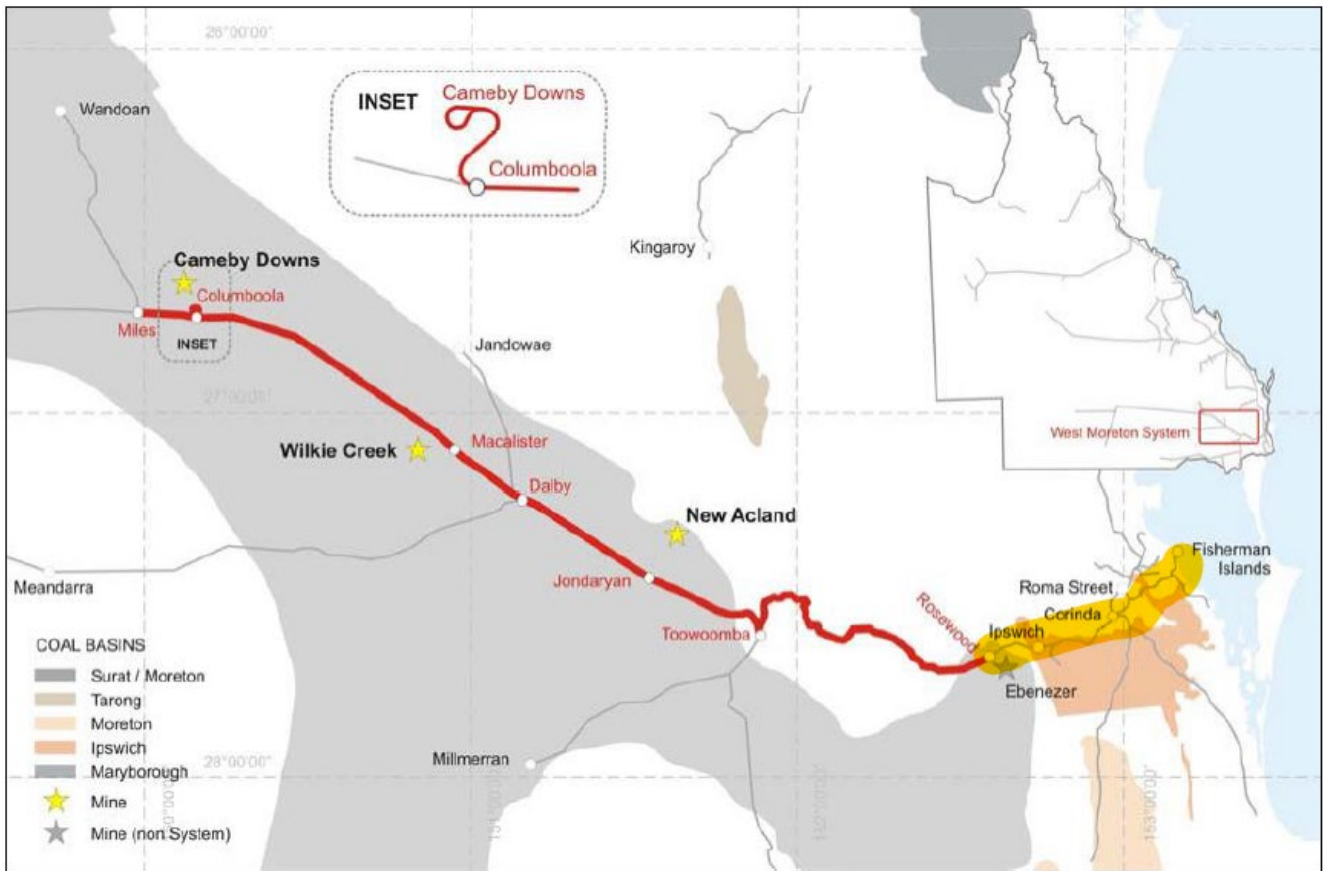
3. The West Moreton System

3.1 Introduction

Coal carrying train services traverse Queensland Rail's West Moreton System, which spans approximately 321 route kilometres from Rosewood to Miles, and through the Metropolitan System¹ along approximately 80 route kilometres from Rosewood to the Port of Brisbane (Fisherman Islands). Both the West Moreton System and the Metropolitan System have QCA approved reference tariffs for coal carrying train services.

¹ The Metropolitan System means that part of the Network bounded to the north by (and including) Nambour station and to the west by (and including) Rosewood and including all branch lines comprised in that part of the Network. Coal trains travel on the System between Rosewood and the Port of Brisbane.

Figure 1: Map of Miles to the Port of Brisbane



3.1.1 History and characteristics

Historically the West Moreton System catered for passenger, livestock, freight and agricultural products (e.g. grain and cotton) with the first section of railway line in Queensland, between Ipswich and Grandchester, opening in 1865 the railway reaching Toowoomba in 1867 and Roma in 1880.

While coal carrying train services commenced in 1982 from mines located just west of Ipswich (in the Metropolitan System), heavy haul coal railings began on the West Moreton System from the Wilkie Creek mine in 1994, with Macalister as the loading point. The Wilkie Creek mine ceased railings in 2013 during a time of low international thermal coal prices but was reopened by New Wilkie Energy in 2023, with first railings on 20 July 2023. New Wilkie Energy was placed into administration on 27 December 2023. Railings from the Wilkie Creek Mine (loading from the Macalister siding) had recommenced during Administration on 2 April 2024 but ceased again on 4 May 2024. On 25 September 2024, Creditors voted on a Deed of Company Arrangement (DOCA) under which New Wilkie Energy will restart operations at the Wilkie Creek coal mine, subject to the fulfilment of certain conditions.

Following the development of the New Acland mine, railings from Jondaryan commenced in 2002 but ceased in 2022 due to the depletion of the Stage 2 coal resource. However, New Acland Stage 3 resource was subsequently developed and railings out of Jondaryan commenced in October 2023.

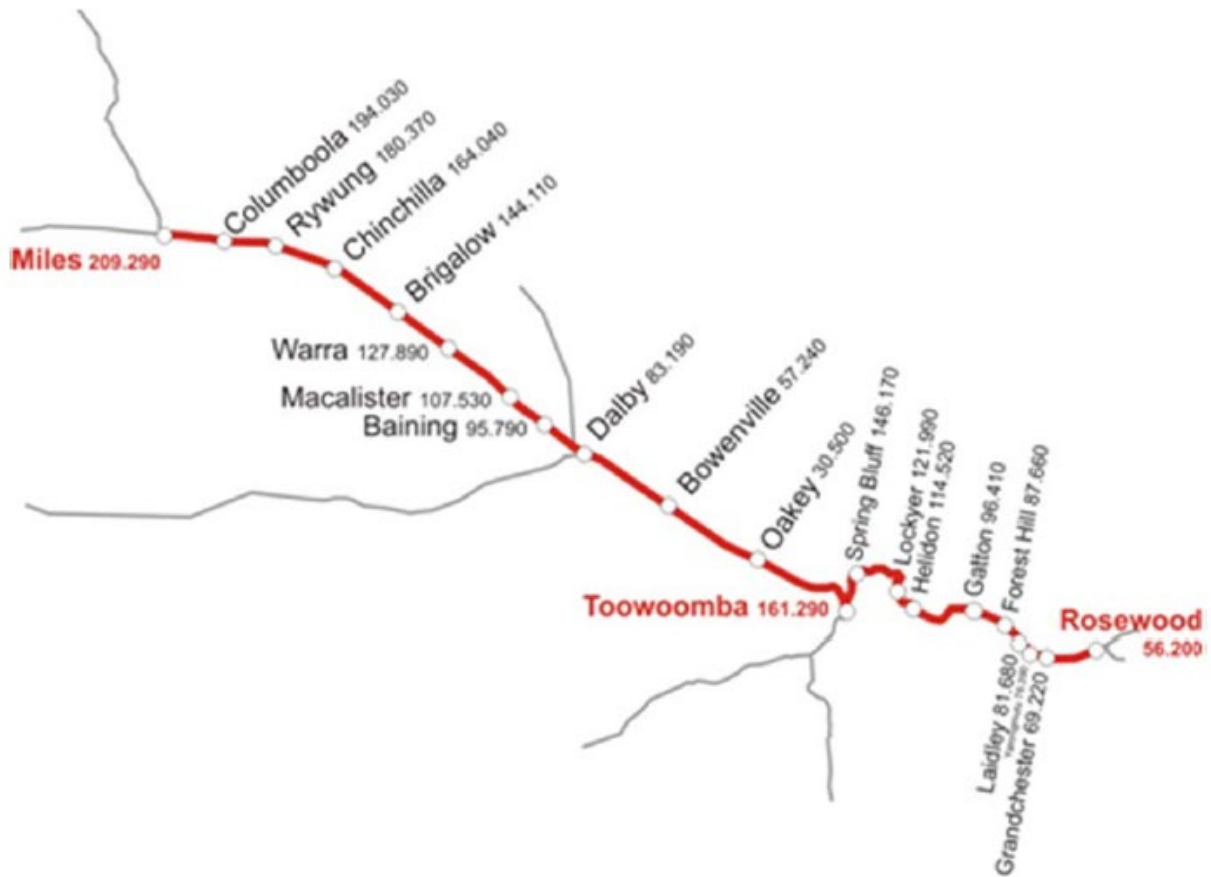
West Moreton System Capital Expenditure Report 2023–24

The final Surat Basin mine utilising the West Moreton System, Cameby Downs, began operations in late 2010 transporting coal from Columboola.

The West Moreton System is unique as a coal system, with the Toowoomba Range section, originally constructed in the 1880s, and the majority of the railway from Rosewood to Columboola, being founded on expansive black clays which, if not addressed through effective maintenance and capital strategies at a time of increasing tonnages, will remain unstable requiring mitigation such as speed restrictions.

As the West Moreton System was initially designed to cater for non-coal traffics, this environment has meant that investment in infrastructure improvements, by both Queensland Rail and West Moreton System end-users, has been necessary to accommodate coal carrying train services. It also requires a substantial maintenance effort. Queensland Rail maintains fit for purpose maintenance and capital programs that take account of the West Moreton System’s unique characteristics, and tonnage levels, ensuring a safe and reliable network.

Figure 2: Map of the West Moreton System



3.2 Rail capacity

Current traffics on the West Moreton System include train services carrying thermal coal from the three mines, freight trains carrying grain (and sometimes livestock) and the Westlander long distance passenger services.

The Toowoomba Range is the capacity constraint on the West Moreton System, with a maximum capacity of 113 return train paths per week on average over a year. Of these, 14 return train paths per week are preserved for non-coal freight² and two return train paths per week are preserved for the Westlander³. The coal mines and their rail operators can contract up to 97 return train paths per week across the Range (as these are not preserved) and can also run ad hoc train services for the remaining 16 return preserved paths (if they are not being used by freight and passenger train services).

The Metropolitan System is not otherwise capacity constrained and can accommodate the 113 train services as well as any coal or freight services that originate in the Metropolitan System and travel between Rosewood and the Port of Brisbane.

AU2 was developed in an environment where forecast tonnages were 2.1 million tonnes per annum (mtpa). In contrast, Queensland Rail's Draft Access Undertaking 3 (DAU3) submitted to the QCA in November 2023 had forecast West Moreton coal tonnages to reach 9.6mtpa by 2027/28. **The current AU3 forecast is between 7.5mtpa and 9.6mtpa, subject to the restarting of the Wilkie Creek coal mine.** Queensland Rail's purpose is to provide a safe, reliable, on-time, value for money and customer focussed rail service that benefits the community, supports industry and is integrated with the public transport system.

4. Queensland Rail's Investment Framework

Queensland Rail is a statutory authority that undertakes numerous projects annually to ensure the safe and reliable working, and growth, of the rail network for the people of Queensland. The following processes are applicable to the 2023-24 Capital Expenditure Report. Queensland Rail has revised its processes, which will be reflected in the 2023-24 Capital Expenditure Report.

The Queensland Rail project management methodology relevant to the Capital Expenditure Report is based on the OnQ Project Management Framework developed by the Queensland Government Department of Transport & Main Roads (DTMR). The OnQ Project Management Framework provides a consistent, reliable and transparent approach to the management and delivery of projects across Queensland Rail and has been applied to all projects undertaken by the organisation in this report.

This methodology provides a structured and consistent approach to the management of projects and enables Queensland Rail to successfully deliver the right project outputs, on time and within budget, and

² These train paths are preserved under section 266A of the *Transport Infrastructure Act 1994*.

³ These train paths are preserved under section 266A of the *Transport Infrastructure Act 1994*.

meet quality and safety parameters. It also provides structured governance for authorising and approving projects.

The generic methodology is divided into four phases known as the Project Life Cycle. The Project Life Cycle provides the basic framework for managing the project, regardless of the specific work involved. Each phase has several project management and work management activities.

Figure 3: Project Life Cycle

	GATE 1	GATE 2	GATE 3	
OBJECTIVES	<p>CONCEPT</p> <ul style="list-style-type: none"> Confirm Proposal Develop Options Options Analysis (What) Develop and Agree on the Preferred Option Present Business Case 	<p>DEVELOPMENT</p> <ul style="list-style-type: none"> Project Administration Project Planning Preliminary Design Requirements Definition Detailed Design Present Project Plan Establish Contracts 	<p>IMPLEMENTATION</p> <ul style="list-style-type: none"> Manager the Project Plan Produce Outputs Test and Review Commission Handover 	<p>FINALISE</p> <ul style="list-style-type: none"> Review and Evaluate Close-out Ready the business for Post Implementation Review
PROJECT MANAGEMENT	<ul style="list-style-type: none"> Appoint Project Manager Appoint Project Team Scope Statement Evaluate Options and Prepare Options Analysis Prepare Business Case Develop Primary Schedule Develop Estimate Develop Risk Register 	<ul style="list-style-type: none"> Re-confirm Scope Develop Project Management Plans Develop Schedule Develop Risk Management Plan Develop Estimate & Cash Flow Prepare Project Plan (Update Business Case as required) 	<ul style="list-style-type: none"> Monitor Progress Manage Change Manage Issues Report Progress <ul style="list-style-type: none"> Confirm Physical Completion Confirm Receipt of Documentation Confirm Maintenance Arrangements Prepare Handover Report 	<ul style="list-style-type: none"> Evaluate against Success Criteria Prepare Project Completion Report Close Project Office/Files Close Financial Accounts Complete AUC Transfers Disband Team
WORK MANAGEMENT	<ul style="list-style-type: none"> Develop Primary Functional Requirements Identify Options Develop Options Develop Preferred Option Prepare Preliminary Specification 	<ul style="list-style-type: none"> Options Analysis (How) Agree Business Requirements Prepare Requirements Specification Detail Work Packages Detail Design Specs 	<ul style="list-style-type: none"> Establish workplace or site Delivery Project Outputs Test and Review (incl. User Acceptance Testing) Commission 	

Source: Framework – Project management methodology

Project delivery at Queensland Rail has four levels of oversight applied to it:

- **Operational Project Control** — the day to day guidance that provides accountability for project delivery and outcomes and advises on the impacts that the project will/may have on business operations and the impacts of business operations on the project.
- **Assurance** — independent assessment of how a project is performing with regard to scoping, planning, resourcing, expectations and alignment with strategy.
- **Governance** — key decisions and direction to allow projects to progress along a defined route that achieves benefits.
- **Financial** — endorsement and approval at relevant stages of progressive financial commitment, that the funding and financial resources are both available and appropriate.

These levels of oversight inform endorsement and approval, at relevant stages of progressive financial commitment, that the funding and financial resources are both available and appropriate. Financial Approvals may be subject to Assurance Reviews and Governance Decisions, or these may be used for a condition of approval.

The following sections set out Queensland Rail's approach to:

- Prudence of Scope;
- Prudence of Standard; and
- Prudence of Cost.

5. Prudence of Scope

The QCA is required to consider the prudence of capital projects submitted in the 2023-24 Capital Expenditure Report under the requirements of Schedule E in AU2. In making its assessment, the QCA is to have regard to a range of factors as set out in Schedule E in AU2 being prudence of scope (Clause 3), prudence of standard of works (Clause 4) and prudence of cost (Clause 5).

5.1 Access Holder Requirements

The major business for the West Moreton System is the transportation of coal from the Surat Basin to the Port of Brisbane.

To ensure the supply chain delivers the product to the Port of Brisbane on time, the above rail operator's services are timetabled to meet the requirements of the Metropolitan System. Delays in coal carrying train services can result in trains waiting for a new time slot in the Metropolitan System and delaying delivery of product to the port.

Queensland Rail seeks to minimise the below rail transit time including through efficient capital and maintenance expenditure. However, access holders also seek:

- a known cap on the number, location and time interval between track possessions;
- best possible response times to any network disruption (including force majeure events);
- some spare capacity for peak production rates, or catch-up capacity; and
- coordinated supply chain shutdowns and track possessions.

Queensland Rail aims to meet access holder / rollingstock operator / supply chain requirements by reasonably limiting the number of speed restrictions and the total number of unavailable days for rail traffic. However, transit times can also be impacted by factors that are not within the control of Queensland Rail, including due to weather conditions, major projects not in the control of Queensland Rail and above rail reasons.

5.2 Demand Forecasts

AU2 was developed with considerable uncertainty around potential future coal volumes likely to be moved on the West Moreton System. For this reason, Queensland Rail submitted two tonnage scenarios in its original August 2018 DAU2 submission to the QCA:

- a low tonnage 2.1 mtpa scenario - assuming that only Yancoal's mine at Cameby Downs is producing coal and hauling on the West Moreton System; and

- a high tonnage 9.1 mtpa scenario - assuming New Acland Stage 3 (NAS3) mine is developed and produces 7 mtpa of coal for hauling from Jondaryan, in addition to the 2.1 mtpa from Cameby Downs.

In the absence of the approval of NAS3 at the time of AU2’s approval, Queensland Rail proposed, and the QCA accepted, a forecast of 2.1mtpa for AU2.

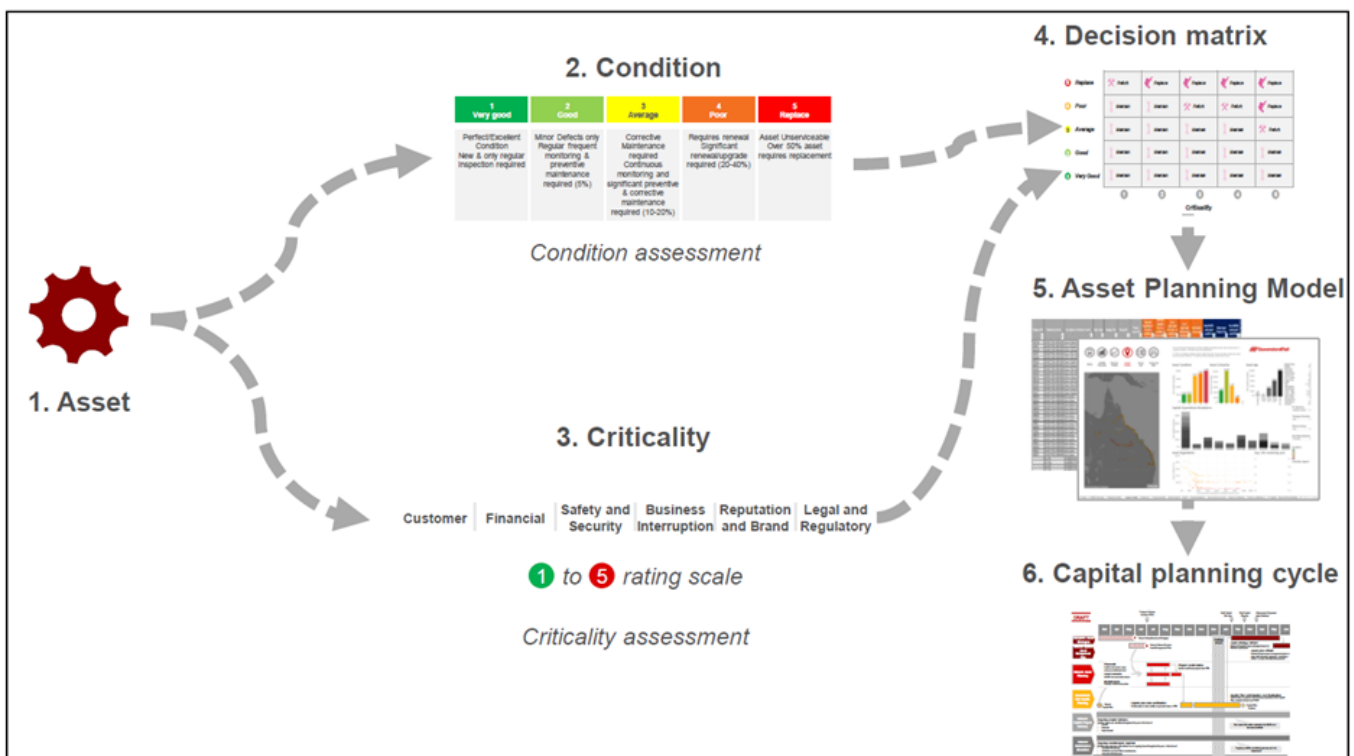
However, as highlighted earlier in this submission Queensland Rail is moving toward record tonnage levels. Queensland Rail’s capital programs are developed to ensure that its infrastructure is appropriate for expected tonnages. This report relates to projects commissioned in 2023-24, which is during the AU2 period.

5.3 Asset Planning Framework

The 2023-24 Capital Expenditure Report is based upon the Asset Planning Framework (APF). One of the key components of asset management is understanding the type of intervention (i.e. operational, maintenance or capital investment) needed to keep an asset operating at its required level of service. The APF provides a bottom-up view of capital renewal requirements based on an asset’s condition and associated risk profile, its criticality, its typical degradation lifecycle, and current asset management strategies and plans to guide asset planning and capital spend decision making.

The APF then leverages asset-specific decision matrices to aid this decision-making process. Decision matrices bring an asset’s condition and criticality together to guide the typical intervention to undertake based on its current state. **Figure 4** below illustrates the functioning of the APF.

Figure 4 — Asset Planning Framework



The APF uses the asset data stored in the Queensland Rail Enterprise Asset Management System (**EAMS**) as the baseline dataset from which decisions are made, influenced by the asset's condition, criticality, design/planned service life, and replacement cost.

An asset's condition rating is a key indicator of the health of the asset and provides an estimation of where the asset sits in its lifecycle. As shown in the figure above, under the AFP the asset's condition is measured against a five point scale, tailored for each asset type. This reflects the likelihood of failure of an asset — the worse the condition rating the higher the likelihood of failure. It provides the basis on which maintenance and capital interventions can be determined.

Within EAMS, asset conditions are measured using one of the following:

- **surveyed condition:** manually entered by Queensland Rail staff following observation of the assets through either visual inspections or engineering assessments; and
- **calculated condition:** calculated based on an asset's age, its planned service life, and the asset's typical degradation curve.

The next step in the framework is understanding the impact that an asset failure would have on Queensland Rail; i.e. an asset's criticality. How critical an asset is to the organisation can help determine the type of maintenance or capital intervention required. Organising assets according to criticality can identify those requiring immediate replacement or maintenance interventions and those where interventions can be postponed. Postponement may occur due to a constrained budget for that financial year or where grouping the replacement of assets aligns to the network business's overall asset management strategies and plans.

The asset criticality dimensions were based on Queensland Rail's Corporate Risk framework and have been assessed in accordance with an associated consequence of failure of an asset. Each asset criticality dimension comprises a five-point rating scale. A score of 1 means the impact of an asset failure is deemed to be insignificant to the business, whereas a score of 5 means the impact of an asset failure is deemed to be catastrophic. The asset condition and criticality rating were used as inputs to decision matrices, which assist in establishing the preferred intervention action for an individual asset. Decision matrices provide guidance on when an asset should be inspected, maintained, replaced or renewed based on the network business's asset strategies and plans. A generic decision matrix is shown below for illustrative purposes.

Figure 5 — Decision Making Matrix

Condition	5 Replace	Overhaul	Replace	Replace	Replace	Replace
	4 Poor	Maintain	Maintain	Overhaul	Overhaul	Replace
	3 Average	Maintain	Maintain	Maintain	Maintain	Overhaul
	2 Good	Maintain	Maintain	Maintain	Maintain	Maintain
	1 Very Good	Maintain	Maintain	Maintain	Maintain	Maintain
		1	2	3	4	5
		Criticality				

The APF Model leverages EAMS asset data to form the foundational profile of the assets to be included in the capital plan for renewals. An asset’s decision matrix and degradation lifecycle are then used to forecast the expected asset intervention methods and expected capital spend per year for interventions requiring asset renewal or refurbishment.

Lastly, the AFP utilises information from the sources discussed above to forecast capital spend for the next fiscal year. Ongoing project delivery and maintenance programs provide updates on existing and new asset conditions to ensure that all asset data is current.

5.4 Evaluation of Options

The 2023-24 Capital Expenditure Report was based on TMR’s *OnQ Project Management Framework* which provides the basic framework for managing the project, regardless of the specific work involved. Projects range in type, size, scope, cost and time from large projects costing millions of dollars and implemented over many years, to small projects with a small budget and taking just a few weeks to complete.

Consistent with OnQ, the projects in the 2023-24 Capital Expenditure Report were classified as Type 1, 2 or 3 according to the level of risk and complexity of the project. The higher the complexity and risk, the greater the level of management and control that is required. Below is a high level description of the three project types.

Figure 6: Project Type Definitions

Project Type	Description
Type 1	Complex/extreme or high risk projects, requiring high levels of investigation, management and control.
Type 2	Straightforward/medium risk projects, requiring moderate levels of investigation, management and control
Type 3	Simple/low risk projects, requiring low levels of investigation, management and control.

All projects in the 2023-24 Capital Expenditure Report are considered Type 3 projects.

5.5 Consultation with Stakeholders

Where relevant, Queensland Rail consults with access holders and rollingstock operators about individual capital expenditure projects as set out in Schedule E of AU2.

Queensland Rail does not typically consult on the detail of routine capital renewal projects, such as re-railing, re-sleepering and culvert replacement, with projects of this nature undertaken to ensure the continued provision of a safe rail network, consistent with Queensland Rail's obligations as an accredited Rail Infrastructure Manager (**RIM**) under the *Rail Safety National Law (RSNL)*.

Notwithstanding the above, as part of the QCA AU2 consultation process, Queensland Rail provided the unredacted AU2 West Moreton System reference tariff model to key West Moreton stakeholders under a deed of confidentiality, including to Aurizon, New Hope and Yancoal, enabling stakeholders to assess Queensland Rail's capital claim. Queensland Rail also set out its capital claim for industry consultation in *Queensland Rail's Draft Access Undertaking 2 (DAU2) Explanatory Document (14 August 2018)* and its *DAU2 West Moreton System low volume coal reference tariff 22 November 2019* submission.

6. Prudency of Standard

The QCA is required to consider the prudency of standard of projects submitted in the 2023-24 Capital Expenditure Report under Clause 4.2(a) of Schedule E in AU2. In making this assessment, the QCA is to have regard to a range of factors as set out in Clause 4 of Schedule E in AU2.

6.1 Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems

As an accredited RIM under the RSNL, Queensland Rail must ensure, so far as is reasonably practicable (**SFAIRP**), the safety of its railway operations including the movement of rollingstock on a railway track.^[1]

^[1] RSNL section 52

Accreditation is granted by the Office of the National Rail Safety Regulator (**ONRSR**) on the basis that Queensland Rail has the competence and capacity to manage the risks to safety of persons arising, or potentially arising, from its railway operations, and to implement its safety management system (which Queensland Rail refers to as its Safety and Environmental Management System (**SEMS**)) for railway operations. The content of a safety management system is prescribed under the Rail Safety National Law. The SEMS is the basis for Queensland Rail's accreditation. Without its accreditation, Queensland Rail cannot operate its business.

To fulfil its obligation to manage risks SFAIRP, Queensland Rail must *eliminate* risks to safety so far as is reasonably practicable.^[2] In assessing what is reasonably practicable, the cost associated with available ways of eliminating or minimising risk may be taken into account *only* after assessing the extent and available ways of doing so.^[3]

The means by which Queensland Rail assesses whether risks are managed SFAIRP is by the application of its SEMS. Queensland Rail must not, without reasonable excuse, contravene its SEMS. In fact, to do so is an offence under the RSNL. Queensland Rail's SEMS includes:

- Civil Engineering Track Standard (**CETS**) — MD-10-575; and
- Civil Engineering Structures Standard (**CESS**) — MD-10-586.

Queensland Rail's renewal capital program has been developed in accordance with CETS and CESS.

7. Prudence of Costs

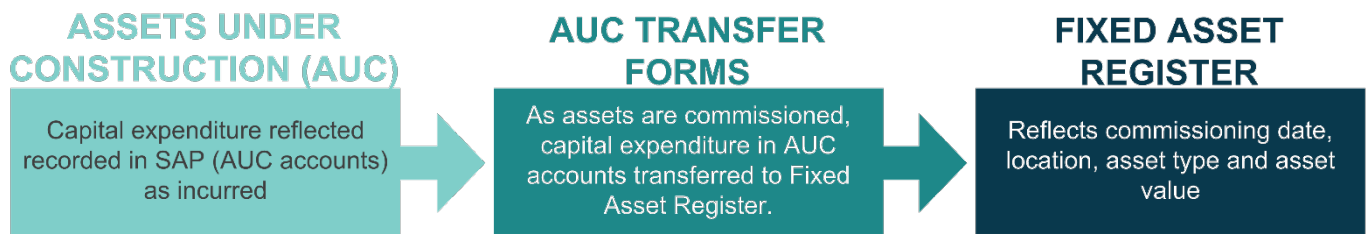
The QCA is required to consider the prudence of the costs of projects submitted in the 2023-24 Capital Expenditure Report under Clause 5.3(a) of Schedule E in AU2. In making this assessment, the QCA is to have regard to a range of factors as set out in Clause 5.3(b) and (c) of Schedule E in AU2.

Queensland Rail's *Project Management Methodology MD-14-781* sets out the framework used for the management of all Queensland Rail capital expenditure projects, including the business case and financial approval requirements for new projects.

Queensland Rail uses SAP as its accounting and reporting platform for projects from initial funding, budget allocation and project delivery. As projects are completed, costs transfer from AUC to the FAR. Assets which have been recognised on the FAR (commissioned assets) are included in the 2023-24 Capital Expenditure Report.

^[2] RSNL section 46

^[3] RSNL section 47(e)



Queensland Rail considers that its internal processes support prudence of cost for capital expenditure, having regard to:

- the Queensland Rail *Project Management Methodology (MD-14-781)* and *Portfolio and Program Management Methodology (MD-16-29)*;
- external cost benchmarks for components such as rail, sleepers and ballast – where Queensland Rail is able to use its purchasing power for the cost-effective sourcing of materials; and
- use of external contractors for projects suited to this method of procurement – including projects subject to open tenders.

Attachment 1: Detailed Capital Project Assessments

B.04530 Regional Radio Replacement Program - Stage 1

Claim: **\$424,662** (including IDC)

The objective of this project is to have a reliable regional radio system that meets legislative compliance and supports the safe operation of the rail network.

The Queensland Rail radio network consists of base and link radios, as well as a telecommunications backbone network that provides communications for train operations, shunting, maintenance, and asset protection and monitoring systems.

The Australian Communication and Media Authority (**ACMA**) revised the 400 MHz and 800 MHz band plans in 2010 and 2015, respectively. ACMA mandated Queensland Rail make mandatory changes at ■ Telecommunication sites and ■ level crossings to the Regional Radio Network. The required changes ACMA mandated that are relevant to Queensland Rail's Regional Radio Network were:

- Migrate from the Harmonised Government Spectrum (**HGS**) band to the Rail Industry Only (**RIO**) band in low density/remote density (regional) areas by 31 December 2018.
- Transition 800 MHz link radios from 76MHz to 45MHz duplex split by 30 June 2021.

The key business benefits are:

- Compliance to the 400MHz Band Plan in the Western and South Western systems;
- Compliance to the 800MHz Band Plan in the Regional Network;
- Reduction in proportion of end-of-support and aging equipment in the regional radio network;
- Eliminates use of unsupported custom-built components in the system.

The project successfully met compliance with the new standards and achieved practical completion on 22 February 2024 by:

- Updating to 400MHz Band Plan in the Western and Southwestern Corridor.
- Updating to 800MHz Band Plan in the Regional network.
- Renewing end-of-support and aging equipment in the regional radio network.
- Building two new radio towers at Toobeah and Gradule.
- All system components are now fully supported.
- Removing all Queensland Rail Telecommunication assets from GrainCorp third-party sites.

All rail operators migrated to the new channels in September 2023.

Assessment Criteria	Queensland Rail Response
Prudency of scope – criteria to be considered	
The need to accommodate what is reasonably required to comply with Access Agreements.	This project is safety related due to the regulators ((ACMA) mandating the changes related to this project. Due to the requirement for the changes, this project will assist to continue to provide a reliable, safe network.
The extent of Reasonable Demand, and the need for new capital expenditure projects to accommodate that demand.	The outputs in this projected were mandated by the regulator ACMA and therefore are a legal requirement.
The age and condition of existing assets and the need for replacement capital expenditure projects.	ACMA, the regulator, revised the 400 MHz and 800 MHz band plans in 2010 and 2015, respectively, mandating Queensland Rail make mandatory changes at ■ Telecommunication sites and ■ level crossings to the Regional Radio Network. The changes are mandated by ACMA the relevant regulator and therefor are legally required to be undertaken. Queensland Rail’s processes are located at Queensland Rail’s Investment Framework Prudency of Scope Prudency of Standard Prudency of Costs

Assessment Criteria

Queensland Rail Response

Queensland Rail’s obligations under any Laws, including health, safety and environmental Laws.

ACMA, the regulator, revised the 400 MHz and 800 MHz band plans in 2010 and 2015, respectively, mandating Queensland Rail make mandatory changes at ■ Telecommunication sites and ■ level crossings to the Regional Radio Network. The changes are mandated by ACMA the relevant regulator and therefore required by law.

As an accredited RIM Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP).

For greater detail refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#)

The appropriateness of Queensland Rail’s processes to evaluate and select proposed capital expenditure projects, including the extent to which alternatives are evaluated as part of the process.

The Regional Radio Replacement Program is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is a standard repetitive process (nothing unique).

The project is appropriate as its works are mandated by ACMA the relevant regulator, and therefore required by law.

The extent to which the capital expenditure project was subjected to Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.

ACMA, the regulator, revised the 400 MHz and 800 MHz band plans in 2010 and 2015, respectively, mandating Queensland Rail make mandatory changes at ■ Telecommunication sites and ■ level crossings to the Regional Radio Network. The changes are mandated by ACMA the relevant regulator and therefor legally are required to be undertaken.

The extent to which consultation has occurred with relevant stakeholders about the capital expenditure project.

Relevant internal stakeholders have been involved and notified of the progress throughout the lifecycle of this project. Issues raised by key stakeholders were addressed and resolved (refer to page 8 of the handover report).

ACMA, the regulator, revised the 400 MHz and 800 MHz band plans in 2010 and 2015, respectively, mandating Queensland Rail make mandatory changes at ■ Telecommunication sites and ■ level crossings to the Regional Radio Network. The changes are mandated by ACMA the relevant regulator and therefor legally required to be undertaken.

Assessment Criteria

Queensland Rail Response

Prudency of standard – criteria to be considered

The requirements of Rolling Stock Operators and what is reasonably required to comply with Access Agreements.

ACMA, the regulator, revised the 400 MHz and 800 MHz band plans in 2010 and 2015, respectively, mandating Queensland Rail make mandatory changes at [redacted] Telecommunication sites and [redacted] level crossings to the Regional Radio Network. The changes are mandated by ACMA the relevant regulator and therefor legally required to be undertaken.

Current and likely future usage levels.

ACMA, the regulator, revised the 400 MHz and 800 MHz band plans in 2010 and 2015, respectively, mandating Queensland Rail make mandatory changes at [redacted] Telecommunication sites and [redacted] level crossings to the Regional Radio Network. The changes are mandated by ACMA the relevant regulator and therefor legally required to be undertaken.

The requirements of the codes developed by the Rail Industry Safety and Standards Board (RISSB) Limited ACN 105 001 465 in relation to the standards required for rail infrastructure in Australia.

ACMA, the regulator, revised the 400 MHz and 800 MHz band plans in 2010 and 2015, respectively, mandating Queensland Rail make mandatory changes at [redacted] Telecommunication sites and [redacted] level crossings to the Regional Radio Network. The changes are mandated by ACMA the relevant regulator and therefor legally required to be undertaken.

The requirements of other relevant Australian design and construction standards.

Queensland Rail’s design standards contained within the Safety Management System.

As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP). The SEMS includes standards for timber sleepers as prescribed in CETS.

All relevant Law and the requirements of any Authority (including the Safety Regulator).

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

Assessment Criteria

Queensland Rail Response

Prudency of cost — criteria to be considered

The level of such costs relative to the scale, nature, cost and complexity of the project.

ACMA, the regulator, revised the 400 MHz and 800 MHz band plans in 2010 and 2015, respectively, mandating Queensland Rail make mandatory changes at ■ Telecommunication sites and ■ level crossings to the Regional Radio Network. The changes are mandated by ACMA the relevant regulator and therefor legally required to be undertaken.

Queensland Rail’s processes are located at [Queensland Rail’s Investment Framework Prudency of Scope Prudency of Standard Prudency of Costs](#)

The project uses both internal resources.

The circumstances prevailing in the markets for:

- A. engineering, equipment supply and construction;
- B. labour; and
- C. materials.

The project uses both internal resources.

Where the QCA has approved a procurement strategy for the capital expenditure project under clause 6.1(b), the extent to which Queensland Rail has achieved compliance with that procurement strategy.

Not applicable.

Assessment Criteria

The manner in which the capital expenditure project has been managed by Queensland Rail given the circumstances at the time when relevant management decisions and actions were made or undertaken, including Queensland Rail's balancing of:

- A. safety during construction and operation;
- B. compliance with environmental requirements during construction and operation;
- C. compliance with Laws and the requirements of Authorities;
- D. minimising disruption to the operation of Train Services during construction;
- E. accommodating reasonable requests of Access Holders (and, if applicable, their Customers) to amend the scope and sequence of works undertaken to suit their needs;
- F. minimising whole of asset life costs including future maintenance and operating costs;
- G. minimising total project cost which may at times not be consistent with minimisation of individual contract costs;
- H. aligning other elements in the supply chain; and
- I. meeting contractual timeframes and dealing with external factors.

Queensland Rail Response

Queensland Rail has comprehensive processes in place to manage safety and environmental compliance. For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

Queensland Rail is committed to the achievement of its safety goals and to further its safety vision of Safety Comes First always. To demonstrate duty of care the project implemented processes, tools and guidance as defined by Queensland Rail's Safety and Environment Management System (SEMS).

Following a Safety Risk Workshop during the Implementation Stage a Safety Management Plan was developed for those activities required.

Safe Work Method Statements (**SWMS**) were received for all investigation and construction activities and reviewed to ensure Rail Safety Compliance is achieved.

The project was undertaken to ensure legal compliance with the regulator's requirements.

B.04764 RMS2 LX System Wide

Claim: **\$335,133** (including IDC)

The Level Crossing Remote Monitoring program is an Integral part of an overall Open Level Crossing Protection Strategy for Queensland Rail. At the start of the project there were approximately 390 active level crossings that are remotely monitored by the Remote Level Crossing Monitoring System. By having a remote monitoring system at active level crossings, level crossing equipment such as power supply, lamp and boom mechanism operation and health can be monitored, allowing Queensland Rail to identify faults and failures in real time and respond appropriately. This adds to the safety and reliability of the rail network.

The existing Remote Level Crossing Monitoring System version 1 (**RMS1**) technology is reaching the end of its supportable life. The senders and receivers can no longer be manufactured, there are limited spares, and the RMS1 server has unsupported software. The field equipment communicates with the system via 400 MHz radio which is subject to changes to the 400 MHz band plan by the Australian Communications and Media Authority (**ACMA**). Queensland Rail must narrowband or decommission the frequencies in use. This project aims to meet compliance requirements and replace life-expired equipment by adopting the following strategy:

- Replacing RMS1 with RMS2 in the higher density areas; and
- Implementing RMS1 narrowband in the outer areas.

The objective of this project is to replace life-expired RMS1 level crossing monitors with RMS2, and narrowband 18 RMS1 level crossing monitors, enabling the existing wideband analogue radio to be decommissioned. This project aims to:

- meet current compliance requirements.
- replace life-expired equipment.

This project will:

- Address the 400 MHz compliance issue by moving to RMSv2 operating on the Telstra mobile network.
- Replace the life-expired RMSv1 equipment with RMSv2. The internally developed RMSv1 systems is obsolete.
- Replace life-expired FT lamp flashers with SafeFlash. This will improve the reliability, maintainability and visibility of the level crossings.

This is an essential project to ensure required compliance obligations, as well to maintain the safety and reliability of the rail network.

This program was also assessed as part of Queensland Rail’s 2022-23 Capital Expenditure Report and found by the QCA’s consultants and the QCA to be prudent in cost, scope and standard. The work has been carried out in the same manner.

Assessment Criteria	Queensland Rail Response
Prudency of scope – criteria to be considered	
<p>The need to accommodate what is reasonably required to comply with Access Agreements.</p>	<p>This project is safety critical providing a reliable, safe network meeting the requirements for Train Service Entitlements contained in the Access Agreements. This project will result in maintaining a reliable, safe network.</p>
<p>The extent of Reasonable Demand, and the need for new capital expenditure projects to accommodate that demand.</p>	<p>This project is safety critical providing a reliable, safe network for customers.</p> <p>The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the New Acland stage 3 Mine (NAS3) mine being approved by Government.</p> <p>Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its AU2 Final Decision.</p> <p>Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, the railings were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (AU3) to between 7.5mtpa and 9.6mtpa (refer to Rail capacity).</p> <p>These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages in AU3.</p> <p>For information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to Queensland Rail’s Investment Framework in this submission.</p>

Assessment Criteria

Queensland Rail Response

The age and condition of existing assets and the need for replacement capital expenditure projects.

The current RMS1 is obsolete and is required to be upgraded. The senders and receivers can no longer be manufactured, there are limited spares, and the RMS1 server has unsupported software.

The RMS2 LX System Wide Project works are essential for the safety and reliability of the rail network. This is particularly important with the higher tonnages forecast to come onto the network resulting in higher rail traffic.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#).

Queensland Rail’s obligations under any Laws, including health, safety and environmental Laws.

This project is replacing obsolete equipment which is required to be upgraded. This project supports the safety and reliability of Queensland Rail’s network. The RMS2 LX System Wide Project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework.

The Business Case and AUC forms are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR.

As an accredited RIM Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP).

For greater detail refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

The appropriateness of Queensland Rail’s processes to evaluate and select proposed capital expenditure projects, including the extent to which alternatives are evaluated as part of the process.

This project is replacing obsolete equipment which is required to be upgraded. This project supports the safety and reliability of Queensland Rail’s network.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

The extent to which the capital expenditure project was subjected to Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.

This project has been through Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.

Assessment Criteria

Queensland Rail Response

The project is a Type 3 project, as set out in Queensland Rail's Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the

Business Case and AUC forms are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR.

The project supports the safety and reliability of the rail network.

For further information on Queensland Rail's processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail's Investment Framework](#) in this submission

The extent to which consultation has occurred with relevant stakeholders about the capital expenditure project.

Queensland Rail uses the South West User Group (**SWUG**) process to discuss closure and other major maintenance and timetabling issues with rolling stock operators.

Prudency of standard – criteria to be considered

The requirements of Rolling Stock Operators and what is reasonably required to comply with Access Agreements.

This project provides a reliable, safe network meeting the requirements for Train Service Entitlements contained in the Access Agreements.

Current and likely future usage levels.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3's approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (**AU3**) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa.

Assessment Criteria	Queensland Rail Response
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The requirements of the codes developed by the Rail Industry Safety and Standards Board (RISSB) Limited ACN 105 001 465 in relation to the standards required for rail infrastructure in Australia.

The requirements of other relevant Australian design and construction standards.

Queensland Rail’s design standards contained within the Safety Management System.

All relevant Law and the requirements of any Authority (including the Safety Regulator).

As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP). The SEMS includes standards for timber sleepers as prescribed in CETS.

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

Prudency of cost — criteria to be considered	
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The level of such costs relative to the scale, nature, cost and complexity of the project.

The RMS2 LX System Wide Project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined and low risk of any change. Work is standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The assets included in this 2023-24 Capital Expenditure Report were commissioned in 2023-24. Queensland Rail has added these assets to Queensland Rail’s FAR. The Business Case and AUC forms have been provided to the QCA as part of this 2023-24 Capital Expenditure Report. The Handover Report and Completion Reports are developed at the completion of the project and will be provided to the QCA at that stage.

The project is safety related.

The project uses both internal officers as well as external resources.

The project has been undertaken using the [Queensland Rail’s Investment Framework](#)

The circumstances prevailing in the markets for:

- A. engineering, equipment supply and construction;
- B. labour; and
- C. materials.

The upgraded equipment is specialised and required due to compliance obligations as well as to maintain the safety and reliability of the rail network.

The project uses both internal officers as well as external resources.

Assessment Criteria

Queensland Rail Response

Where the QCA has approved a procurement strategy for the capital expenditure project under clause 6.1(b), the extent to which Queensland Rail has achieved compliance with that procurement strategy.

Not applicable.

The manner in which the capital expenditure project has been managed by Queensland Rail given the circumstances at the time when relevant management decisions and actions were made or undertaken, including Queensland Rail’s balancing of:

- A. safety during construction and operation;
- B. compliance with environmental requirements during construction and operation;
- C. compliance with Laws and the requirements of Authorities;
- D. minimising disruption to the operation of Train Services during construction;
- E. accommodating reasonable requests of Access Holders (and, if applicable, their Customers) to amend the scope and sequence of works undertaken to suit their needs;
- F. minimising whole of asset life costs including future maintenance and operating costs;
- G. minimising total project cost which may at times not be consistent with minimisation of individual contract costs;
- H. aligning other elements in the supply chain; and
- I. meeting contractual timeframes and dealing with external factors.

Queensland Rail has comprehensive processes in place to manage safety and environmental compliance. For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

The upgraded equipment is specialised and required due to compliance obligations as well as to maintain the safety and reliability of the rail network.

B.05016 NCL Asset Protection Stage 2⁴

Claim: **\$380,195** (including IDC) for the West Moreton System

This project applies to the North Coast Line (**NCL**), Mount Isa Line (**MIL**), Central West System (**CWS**) and West Moreton System (**WMS**). The principles are the same for each system. This is both a safety and reliability project.

The purpose of the Asset Protection Stage 2 project is to install wayside detection including Hot Bearing Detectors/ Hot Wheel Detectors (**HBD/HWD**); Dragging Equipment Detectors (**DED**); Remote Monitoring Stations (**RMS**), Level Crossing Cameras (**LX CCTV**) and Structural Monitoring and Alert Systems the NCL, MIL, CWS and WMS.

Wayside asset protection and condition monitoring systems are used to identify rollingstock defects such as bearing faults, brakes left on, dragging equipment, overloaded or imbalanced wagons, trailable facing points failures and over height vehicle rail bridge strikes as well as monitoring assets to identify adverse conditions. This provides timely warnings to Network Control and above rail operators of potential defects that could adversely affect the rail infrastructure and the subsequent operational effectiveness (In the instance of a derailment or wheel failure) and the safe running of services.

Current wayside asset protection and condition monitoring equipment installed on the NCL, MIL, CWS and WMS comprises of:

- **Hot Bearing Detection/Hot Wheel Detection (HBD/HWD)**

Hot Bearing and Hot Wheel Detection systems are used for the immediate identification and remote alarming of rollingstock with high in-service bearing and wheel temperatures.

- **Wheel Impact Load Detection/Overload Imbalance Load Detection (WILD/OILD)**

The WILD/OILD system obtains real-time information about the state of different aspects of passing vehicles, such as weight distributions, wheel loads and wheel defects. This allows for notification to operators of potential issues that may cause damage to infrastructure or rollingstock.

- **Dragging Equipment Detection (DED)**

DEDs are fixed in the track to monitor for any equipment dragging from a passing train or to alarm when a collapsed/derailed wagon impacts the sensor.

- **Remote Monitoring Stations (RMS)**

⁴ While this project is called x in SAP it is also known as B.05016 Asset Protection Stage 2 (Implementation Stage)

RMS sites provide the ability to monitor local environmental conditions such as air and rail temperatures, humidity, rainfall, water heights and generally have cameras installed to provide Network Control and asset maintenance staff with the ability to remotely visually verify local conditions, especially flooding. The installations are flexible in what can be monitored so may vary from site to site. The flexibility also allows other conditions to be monitored; this may include the state of trailable points, angle of tilt to look for ground movement, rock or soil movement.

- **Level Crossing Cameras (LX CCTV)**

These cameras are used to monitor road user behaviour at level crossings especially post-incident. They do not provide alarms but constantly record video of the road/rail interface.

Implementation stage of this project proposes to install additional HBD/HWD, OILD/WILD, OED, RMS, SMAS and LX CCTV systems at numerous locations on the NCL, MIL, CWS and WMS. The wayside asset protection and conditioning monitoring systems output different alarms based on the severity of event or defect detected. These include:

- Category 1 - Stop train in the provided stopping zone and visually inspect. Voice alarm sent to train crew and alarm sent to Network Controllers.
- Category 2 - Stop train at next siding and inspect. Alarm sent to Network Controllers.
- Category 3 - Inspect train at next scheduled stop (business decision to be made by the Rollingstock operator).
- Category 4 - Below rail operational alarm. Indicates a fault with the trackside system or equipment hut such as loss of power, loss of communication, intruder alerts etc. Alarm is sent to Queensland Rail maintenance personnel.
- Category 5 - Rollingstock Maintenance Alarm. A non-critical alarm which provides early indication of a rollingstock defect.

Detection of a condition that could present a high risk of failure or derailment enables remedial action to be taken which can mitigate the risk of damage to rail infrastructure or rollingstock, and /or remove a fire hazard in dry areas. Remedial options available include detaching affected wagons, running at reduced speed to a nominated point, or other arrangements designed to limit the impact on the infrastructure as well as prevent any further incidents. Locations that do not have monitoring equipment in place are unable to detect rollingstock component defects, which has the potential to cause significant safety incidents and delays.

Other Wayside Monitoring Systems provide visibility of the day to day of operations requirement to assess the risks of operational running.

Benefits of installing this technology include (but are not limited to):

- Assisting with the protection of below rail assets and condition monitoring of above rail components through remote, isolated and challenging geographies.
- Assisting in reducing short/long term below rail asset operational and maintenance costs. Customers will benefit via improved network reliability, availability and improved safety of the rail network.
- Improvement in the reliability of existing infrastructure (through reduction in rail head damage from irregular wheels).
- A reduction in breakdown maintenance and improved On Time Running (**OTR**) of trains, leading to greater availability of the NCL, MIL, CWS and the WMS.
- Secondary protection from known fault situations that can cause derailments and significant asset damage.

The installation of a number of these systems will also protect critical assets vital to the continued operation of services on the specified lines.

The project aligns with organisational commitments by getting our customers safely to their destination on time, investing in safe, reliable infrastructure and technology to ensure resilience and responsiveness in our service delivery, and optimising our Regional Business Line service offerings to lift our customer experience whilst managing the railway infrastructure to prevent a major avoidable event, achieving passenger, train, and freight operator capacity and performance expectations and optimising asset management and major project investment.

Implementation of strategically located HBD/HWD, WILD/OILD, DED, RMS, SMAS and LX CCTV systems on the NCL, MIL, WMS and CWS will allow Network Control and above rail operators to take a proactive approach and prevent asset damage and improve rail safety of services travelling through the network. Benefits of installing this technology include (but are not limited to) assisting with the protection of below rail assets and condition monitoring of above rail components through remote, isolated and challenging geographies, assisting in reducing short/long term below rail asset operational and maintenance costs, customers will benefit via improved network reliability, availability and improved safety of the rail network.

The work specifically done on the West Moreton System is listed in the AUC forms provided with this submission.

Assessment Criteria

Queensland Rail Response

Prudency of scope – criteria to be considered

The need to accommodate what is reasonably required to comply with Access Agreements.

This project is essential to maintaining a safe system and a reliable network.

The project aligns with organisational commitments by getting our customers safely to their destination on time, investing in safe, reliable infrastructure and technology to ensure resilience and responsiveness in our service delivery, and optimising our Regional Business Line service offerings to lift Queensland Rail’s customer experience whilst managing the railway infrastructure to prevent a major avoidable event, achieving passenger, train, and freight operator capacity and performance expectations and optimising asset management and major project investment.

The extent of Reasonable Demand, and the need for new capital expenditure projects to accommodate that demand.

This is a safety critical project. However, it also makes for a more reliable network which facilitates greater throughput.

The age and condition of existing assets and the need for replacement capital expenditure projects.

These new assets will enhance the safety and reliability of the network.

Queensland Rail’s obligations under any Laws, including health, safety and environmental Laws.

This project is a safety project and therefore is critical. As an accredited RIM Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP).

Refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

The appropriateness of Queensland Rail’s processes to evaluate and select proposed capital expenditure projects, including the extent to which alternatives are evaluated as part of the process.

This project is safety critical providing in maintaining a reliable, safe network. This project will, for example, assist in avoiding derailments and will identify potential areas of track that is deteriorating for a number of reasons.

Refer to [Queensland Rail’s Investment Framework](#)

The project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is a standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

Assessment Criteria

Queensland Rail Response

The extent to which the capital expenditure project was subjected to Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.

This project has been through Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.

The project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is a standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The Business Case and AUC forms are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR. The Handover Report and Completion Report are completed at the end of the project and will be provided to the QCA at that stage.

The project supports the safety and reliability of the rail network.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to Queensland Rail’s Investment Framework in this submission [Queensland Rail’s Investment Framework](#)

The extent to which consultation has occurred with relevant stakeholders about the capital expenditure project.

Queensland Rail uses the SWUG process to discuss closure and other major maintenance and timetabling issues with rolling stock operators.

Prudency of standard – criteria to be considered

The requirements of Rolling Stock Operators and what is reasonably required to comply with Access Agreements.

This project is safety critical providing a reliable, safe network. This project is essential to maintaining a safe system result and a reliable network.

The project aligns with organisational commitments by getting our customers safely to their destination on time, investing in safe, reliable infrastructure and technology to ensure resilience and responsiveness in our service delivery, and optimising our Regional Business Line service offerings to lift Queensland Rail’s customer experience whilst managing the railway infrastructure to prevent a major avoidable event, achieving passenger, train, and freight operator capacity and performance expectations and optimising asset management and major project investment.

Assessment Criteria

Queensland Rail Response

Current and likely future usage levels.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (**AU3**) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa.

The requirements of the codes developed by the Rail Industry Safety and Standards Board (RISSB) Limited ACN 105 001 465 in relation to the standards required for rail infrastructure in Australia.

As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP). The SEMS includes standards for timber sleepers as prescribed in CETS.

The requirements of other relevant Australian design and construction standards.

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

Queensland Rail’s design standards contained within the Safety Management System.

All relevant Law and the requirements of any Authority (including the Safety Regulator).

Assessment Criteria

Queensland Rail Response

Prudence of cost — criteria to be considered

The level of such costs relative to the scale, nature, cost and complexity of the project.

The project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is a standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The assets included for this 2023-24 Capital Expenditure Report were commissioned in 2023-24. Queensland Rail has added these assets to Queensland Rail’s FAR. The Business Case, AUC forms, Handover Report and Completion Report are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR.

The circumstances prevailing in the markets for:

- A. engineering, equipment supply and construction;
- B. labour; and
- C. materials.

The project was predominantly undertaken by Queensland Rail resources with some work being outsourced.

Where the QCA has approved a procurement strategy for the capital expenditure project under clause 6.1(b), the extent to which Queensland Rail has achieved compliance with that procurement strategy.

Not applicable.

Assessment Criteria

The manner in which the capital expenditure project has been managed by Queensland Rail given the circumstances at the time when relevant management decisions and actions were made or undertaken, including Queensland Rail's balancing of:

- A. safety during construction and operation;
- B. compliance with environmental requirements during construction and operation;
- C. compliance with Laws and the requirements of Authorities;
- D. minimising disruption to the operation of Train Services during construction;
- E. accommodating reasonable requests of Access Holders (and, if applicable, their Customers) to amend the scope and sequence of works undertaken to suit their needs;
- F. minimising whole of asset life costs including future maintenance and operating costs;
- G. minimising total project cost which may at times not be consistent with minimisation of individual contract costs;
- H. aligning other elements in the supply chain; and
- I. meeting contractual timeframes and dealing with external factors.

Queensland Rail Response

Queensland Rail has comprehensive processes in place to manage safety and environmental compliance.

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

B.05649 Bridge Renewal West Moreton 20/21-24/25

Claim: **\$1,048,997** (including IDC)

The objective of the Bridge Renewal West Moreton project is to undertake replacement works i.e. bridge pier replacement and full bridge structure replacement on priority timber bridges (21 in total) in the West Moreton System.

Queensland Rail has over 1,000 timber bridges across Regional Queensland requiring a major maintenance budget. These aging timber bridges have structural elements that have life-expiring components including piers and girders.

Condition inspections of all timber bridges on the West Moreton System have been carried out by Queensland Rail's inspectors to identify the existing defects. The inspection data has been used to undertake a comprehensive condition analysis which enabled a replacement priority list to be produced. In many instances speed restrictions have been put in place in order to continue operations across these bridges. These speed restrictions impact on sectional running times especially at a time where Queensland Rail is estimating record tonnages increasing in AU3 up to between 7.5 mtpa and 9.6mtpa. Some bridges are also prone to flooding which further affects the structural integrity of these aging structures. If a bridge were to be damaged by flooding it would close the line for a considerable period while repairs are undertaken.

The first tranche of priority timber bridge replacements commenced in 2016/17 through project B.04636, and the final bridge (18 in total) was completed in October 2019.

This project is to undertake replacement works i.e. bridge pier replacement and full bridge structure replacement on the next tranche of priority timber bridges (21 in total) in the West Moreton System over financial years 2020/21 to 2023/24. Defects on these bridges include bridge/rail misalignment, termite damage, cracked girders, perishing girders, loose screws, split spans, rotten transoms and rotten headstocks.

The benefits/outcomes of the project are:

- reducing maintenance costs, due to the lower maintenance (primarily inspection) requirements and longer life of the new structures;
- improving asset reliability due to the higher standard of bridging structure compared with existing timber structures;
- improving flood recovery by providing flood protection to embankments and designing the structure to withstand flood events which the existing timber structures may not;
- improving asset availability due to the reduced maintenance requirements for structures on the West Moreton System; and

- improved safety.

This project is essential to maintain the safety and reliability of the West Moreton System.

This program was also assessed as part of Queensland Rail’s 2022-23 Capital Expenditure Report and found by the QCA’s consultants and the QCA to be prudent in cost, scope and standard. The work has been carried out in the same manner.

Assessment Criteria	Queensland Rail Response
<p>Prudency of scope – criteria to be considered</p> <p>The need to accommodate what is reasonably required to comply with Access Agreements.</p>	<p>Condition inspections of all timber bridges on the West Moreton System have been carried out by Queensland Rail’s inspectors to identify the existing defects. The inspection data has been used to undertake a comprehensive condition analysis which enabled a replacement priority list to be produced.</p> <p>In many instances speed restrictions have been put in place in order to continue operations across these bridges. These speed restrictions impact on sectional running times especially at a time where Queensland Rail is estimating record tonnages going up to 9.6mtpa. Some bridges are also prone to flooding which further affects the structural integrity of these aging structures. If a bridge were to be damaged by flooding it would close the line for a considerable period while repairs are undertaken.</p> <p>This project ensures that the network performs safely and, in particular, reliably. The reliability assists customers with the throughput of their train services.</p> <p>This project provides a reliable, safe network meeting the requirements for Train Service Entitlements contained in the Access Agreements by enabling train services to achieve greater throughput.</p>

Assessment Criteria

Queensland Rail Response

The extent of Reasonable Demand, and the need for new capital expenditure projects to accommodate that demand.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (AU3) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa.

For information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

The age and condition of existing assets and the need for replacement capital expenditure projects.

Condition inspections of all timber bridges on the West Moreton System have been carried out by Queensland Rail’s inspectors to identify the existing defects. The inspection data has been used to undertake a comprehensive condition analysis which enabled a replacement priority list to be produced.

In many instances speed restrictions have been put in place in order to continue operations across these bridges. These speed restrictions impact on sectional running times especially at a time where Queensland Rail is estimating record tonnages going up to 9.6mtpa. Some bridges are also prone to flooding which further affects the structural integrity of these aging structures. If a bridge were to be damaged by flooding it would close the line for a considerable period while repairs are undertaken.

This project ensures that the network performs safely and, in particular, reliably. The reliability assists customers with the throughput of their train services.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

Assessment Criteria	Queensland Rail Response
<p>Queensland Rail’s obligations under any Laws, including health, safety and environmental Laws.</p>	<p>The Bridge Renewal West Moreton 20/21-24/25 Project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined and low risk of any change. Work is a standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.</p> <p>Bridge renewal is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. The assets included in this submission for this project have been commissioned and are included in Queensland Rail’s FAR. The Business Case and AUC forms are provided.</p> <p>As an accredited RIM Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP).</p> <p>For greater detail refer to Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems in this submission.</p>
<p>The appropriateness of Queensland Rail’s processes to evaluate and select proposed capital expenditure projects, including the extent to which alternatives are evaluated as part of the process.</p>	<p>The Bridge Renewal West Moreton 20/21-24/25 Project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined and very low risk of any change. Work is standard repetitive process (nothing unique) i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.</p> <p>For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to Queensland Rail’s Investment Framework.</p>
<p>The extent to which the capital expenditure project was subjected to Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.</p>	<p>This project has been through Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.</p> <p>The project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.</p> <p>The Project Plan and AUC forms have been provided to the QCA with this submission. The assets were commissioned in 2023-24 and have been added to the FAR. The Handover Report</p>

Assessment Criteria

Queensland Rail Response

and Completion Report are completed at the end of the project and will be provided to the QCA at that stage.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

The extent to which consultation has occurred with relevant stakeholders about the capital expenditure project.

Queensland Rail uses the SWUG process to discuss closure and other major maintenance and timetabling issues with rolling stock operators.

Prudency of standard – criteria to be considered

The requirements of Rolling Stock Operators and what is reasonably required to comply with Access Agreements.

This project provides a reliable, safe network meeting the requirements for greater throughput for access holders.

Current and likely future usage levels.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (**AU3**) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa.

The requirements of the codes developed by the Rail Industry Safety and Standards Board (RISSB) Limited ACN 105 001 465 in relation to the standards required for rail infrastructure in Australia.

As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP). For greater detail refer to section refer to [Design](#)

The requirements of other relevant Australian design and construction standards.

Assessment Criteria

Queensland Rail Response

Queensland Rail’s design standards contained within the Safety Management System. All relevant Law and the requirements of any Authority (including the Safety Regulator).

[Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

Prudency of cost — criteria to be considered

The level of such costs relative to the scale, nature, cost and complexity of the project.

The assets included for this 2023-24 Capital Expenditure Report were commissioned in 2023-24. Queensland Rail has added these assets to Queensland Rail’s FAR. The Business Case and AUC forms have been provided as part of this submission, which contain the relevant information. Also refer to [Queensland Rail’s Investment Framework](#).

The circumstances prevailing in the markets for:

- A. engineering, equipment supply and construction;
- B. labour; and
- C. materials.

The project was undertaken by both Queensland Rail resources and external contractors.

The delivery strategy for this project comprises of a blended delivery utilising Queensland Rail internal resources and contractor support in the form of equipment supply and installation.

Internal resources are utilised for the installation of any pits, conduits, enclosures and electrical works and wayside equipment. Internal resources also undertake testing of communications connectivity, protection and perform operational system integration activities with Queensland Rail’s wayside detection and asset protection systems. The resources utilised are primarily Telecoms Maintainer teams throughout the regions, with support from structural, track and civil gangs if required to enable minor enabling works (concrete pours, minor earthworks and sensor installations on-track).

Where internal resources are unavailable, existing vendor panel arrangements will be utilised.

Wayside detection equipment will be procured from an external supplier. General equipment component supply will be coordinated and procured through existing Infrastructure Material Logistics (IML) arrangements.

Where the QCA has approved a procurement strategy for the capital expenditure project under clause 6.1(b), the extent to which Queensland Rail has achieved compliance with that procurement strategy.

Not applicable.

Assessment Criteria

The manner in which the capital expenditure project has been managed by Queensland Rail given the circumstances at the time when relevant management decisions and actions were made or undertaken, including Queensland Rail's balancing of:

- A. safety during construction and operation;
- B. compliance with environmental requirements during construction and operation;
- C. compliance with Laws and the requirements of Authorities;
- D. minimising disruption to the operation of Train Services during construction;
- E. accommodating reasonable requests of Access Holders (and, if applicable, their Customers) to amend the scope and sequence of works undertaken to suit their needs;
- F. minimising whole of asset life costs including future maintenance and operating costs;
- G. minimising total project cost which may at times not be consistent with minimisation of individual contract costs;
- H. aligning other elements in the supply chain; and
- I. meeting contractual timeframes and dealing with external factors.

Queensland Rail Response

Queensland Rail has comprehensive processes in place to manage safety and environmental compliance.

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

B.05653 Culvert Renewal West Moreton

Claim: **\$1,694,969** (including IDC)

The objective of this project is to replace seven culverts and upgrade two culverts between Laidley and Chinchilla on the West Moreton System that are considered to be a high risk of causing track failure.

Inspections have identified nine culverts as requiring renewal due to their poor condition. These drains are deteriorating and pose an increasing risk of collapse under operations and of being washed out in flood. Unless replaced, serviceability will be reduced with the eventual imposition of speed restrictions, and recoverability after flooding will be more problematic and prolonged. The failure of a culvert under the track and resulting track buckle would impact on Queensland Rail's ability to meet our customer requirements, therefore the replacement of these life-expired culverts is recommended.

Culverts allow the flow of water from one side of the corridor to the other. They are typically concrete or steel pipes or concrete boxes of size generally ranging from 450mm diameter to 3m x 3m boxes. The culvert can have a single opening or multiple barrels depending on the size of the watercourse and the height of the embankment.

If the waterway provided by the culvert is inadequate for a particular flood event, the height of the upstream water will rise above the roof of its inlet. This increases the pressure and forces more water through its outlet, and eventually the track overtops. If the downstream embankment and ballast is not protected with rock or other armouring the overtopping will wash out the ballast and embankment leaving the track unsupported.

Culverts and subways are becoming increasingly high maintenance assets as they reach their design life or are affected by route tonnage/loading increases. Culverts and subways are inspected in accordance with CETS. All defects found are allocated priority for monitoring, repair, renewal and/or temporary support. Increased monitoring and attention to top and line defects increase confidence in deferring expenditure and testing capabilities. Culvert replacement will maintain serviceability and reduce the eventual imposition of speed restrictions and recoverability after flooding.

Scope

Replace nine culverts considered to be a high risk of causing track failure using open trench construction:

- Laidley (78.080km);
- Helidon (110.060km);
- Murphy's Creek (143.300km);

- Spring Bluff (146.160km);
- Spring Bluff (146.760km);
- Harlaxton (4.340km);
- Harlaxton (4.635km);
- Oakey (34.810km); and
- Chinchilla (163.770km).

Undertake the re-construction of track.

Undertake the resurfacing of the track with spot tamper once reinstated and track certifications.

Project Benefits

Benefits that this project will deliver include:

- Improved flood resilience by providing scour protection to drain Inlets/outlets and designing the structure to withstand flood events which the existing dilapidated culverts may not.
- Improved asset reliability due to the higher standard of culvert compared with existing dilapidated culverts.
- Reduced potential for Temporary Speed Restrictions due to base asset condition, minimising section times and optimising customer revenue.
- The proposed capital replacement of the culverts that are in scope will avoid unplanned, urgent, temporary repairs to these dilapidated culverts. The cost of temporary repairs would be comparable to replacing the culverts with new, more resilient structures with extended design life, while still requiring replacement in <10 years.
- Reduced likelihood of train derailment caused by the culverts in this project's scope.

This program was also assessed as part of Queensland Rail's 2022-23 Capital Expenditure Report and found by the QCA's consultants and the QCA to be prudent in cost, scope and standard. The work has been carried out in the same manner.

Assessment Criteria

Queensland Rail Response

Prudency of scope – criteria to be considered

The need to accommodate what is reasonably required to comply with Access Agreements.

Culvert renewals are required to replace life expired/deteriorated culverts to ensure a continued safe and reliable operation of trains on the network.

The extent of Reasonable Demand, and the need for new capital expenditure projects to accommodate that demand.

This project improves flood mitigation and network resilience on the West Moreton System. This is important to both Queensland Rail and its customers.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (**AU3**) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa.

For information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

The age and condition of existing assets and the need for replacement capital expenditure projects.

Inspections undertaken by Queensland Rail have identified nine culverts as requiring renewal. These drains pose an increasing risk of collapse during washout from flood (as well as under current train operations). Unless replaced, serviceability will be reduced with the eventual imposition of speed restrictions, and recoverability after flooding will be more problematic and prolonged.

Culverts and subways are becoming increasingly high maintenance assets as they reach their design life or are affected by route tonnage/loading increases. Culverts and subways are inspected in accordance with CETS. All defects found are allocated priority for monitoring, repair, renewal and/or temporary support. Increased monitoring and attention to top and line defects increase confidence in deferring expenditure and

Assessment Criteria

Queensland Rail Response

testing capabilities. Culvert replacement will maintain serviceability and reduce the eventual imposition of speed restrictions and recoverability after flooding.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

Queensland Rail’s obligations under any Laws, including health, safety and environmental Laws.

As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is SFAIRP. The SEMS includes standards for conditioning as prescribed in CETS.

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

The appropriateness of Queensland Rail’s processes to evaluate and select proposed capital expenditure projects, including the extent to which alternatives are evaluated as part of the process.

The Culvert Renewal West Moreton Project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The Project Plan and AUC forms are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR. This project is ongoing. The Handover Report and Completion Report are completed at the end of the project and will be provided to the QCA at that stage.

Queensland Rail considered the following three options in relation to this project:

Option 1: Do nothing

The "Do Nothing" option does not address the desired safety, operational and business requirements. This is not the preferred option.

Option 2: Replace/ refurbish nine deteriorated culverts (Preferred Option)

Seven culverts require complete replacement with new concrete structures designed for the waterways. Two culverts that may be impacted by future Inland Rail will be upgraded to reduce the total option 2 cost by re-lining a large culvert at Helidon and upgrading the inlet of a heritage drain at Spring Bluff.

Option 3: Lower cost, shorter design life

Assessment Criteria

Queensland Rail Response

The extent to which the capital expenditure project was subjected to Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.

The Culvert Renewal West Moreton Project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is standard repetitive process (nothing unique) — i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The Project Plan and AUC forms are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR. As the project is ongoing, the Handover Report and Completion Report are written at the completion of the project and will be provided to the QCA at that stage.

The culvert inspections have determined the condition rating and scope required, Failure to replace/refurbish the culverts in a timely manner may increase the risk of track failure or accelerate the deterioration of the asset.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

The extent to which consultation has occurred with relevant stakeholders about the capital expenditure project.

Queensland Rail uses the SWUG process to discuss closure and other major maintenance and timetabling issues with rolling stock operators.

Assessment Criteria

Queensland Rail Response

Prudency of standard – criteria to be considered

The requirements of Rolling Stock Operators and what is reasonably required to comply with Access Agreements.

This Culvert Renewal West Moreton Project is required to improve safety and reliability at priority locations on the West Moreton System. Culvert renewals are required to replace life expired/deteriorated culverts to ensure the continued safe operation of trains on the network. This assists with train throughput which is particularly important with material increases in coal tonnages in AU3.

Queensland Rail uses the SWUG process to discuss closure and other major maintenance and timetabling issues with rolling stock operators.

Current and likely future usage levels.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3's approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (**AU3**) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa.

The requirements of the codes developed by the Rail Industry Safety and Standards Board (**RISSB**) Limited ACN 105 001 465 in relation to the standards required for rail infrastructure in Australia.

The requirements of other relevant Australian design and construction standards.

Queensland Rail's design standards contained within the Safety Management System.

As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed SFAIRP. For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

This project will result in maintaining a safe and reliable network.

Assessment Criteria

Queensland Rail Response

All relevant Law and the requirements of any Authority (including the Safety Regulator).

Prudence of cost — criteria to be considered

The level of such costs relative to the scale, nature, cost and complexity of the project.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

The assets included for this 2023-24 Capital Expenditure Report were commissioned in 2023-24. Queensland Rail has added these assets to Queensland Rail’s FAR. The Project Plan and AUC forms have been provided to the QCA as part of this 2023-24 Capital Expenditure Report. The Project is ongoing. The Handover Report and Completion Reports are developed at the completion of the project.

The circumstances prevailing in the markets for:

- A. engineering, equipment supply and construction;
- B. labour; and
- C. materials.

The culvert replacements are undertaken by internal resources using open trench construction.

Where the QCA has approved a procurement strategy for the capital expenditure project under clause 6.1(b), the extent to which Queensland Rail has achieved compliance with that procurement strategy.

Not applicable.

Assessment Criteria

Queensland Rail Response

The manner in which the capital expenditure project has been managed by Queensland Rail given the circumstances at the time when relevant management decisions and actions were made or undertaken, including Queensland Rail's balancing of:

- A. safety during construction and operation;
- B. compliance with environmental requirements during construction and operation;
- C. compliance with Laws and the requirements of Authorities;
- D. minimising disruption to the operation of Train Services during construction;
- E. accommodating reasonable requests of Access Holders (and, if applicable, their Customers) to amend the scope and sequence of works undertaken to suit their needs;
- F. minimising whole of asset life costs including future maintenance and operating costs;
- G. minimising total project cost which may at times not be consistent with minimisation of individual contract costs;
- H. aligning other elements in the supply chain; and
- I. meeting contractual timeframes and dealing with external factors.

Queensland Rail has comprehensive processes in place to manage safety and environmental compliance. Queensland Rail is happy for the QCA to request a presentation on its overall governance and compliance processes.

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

B.05655 Level Crossing Upgrades West Moreton

Claim: \$1,013,095 (including IDC)

This project has been developed to improve safety and minimise the risks associated with the interface between rail and road at level crossings. As the level crossing structure is subject to the combination of both rail and road traffic, any deterioration of the formation affects efficient operations and safety for both rail and road users.

There are 127 level crossings including public level crossings, occupational and maintenance level crossings (87, 36 and 4 respectively) in the West Moreton System between Rosewood and Miles. The service life of a level crossing will vary between 10 and 25 years depending on rail traffic, road traffic, road/rail orientations/alignment, road surface, drainage and climatic conditions.

23 level crossings in the West Moreton System have been identified as requiring reconditioning in the five years from 2021-22 to 2024-25, with the upgrading of these level crossings being the subject of this project. The level crossings were identified via track recording data and subsequently verified through inspections by qualified track staff. The infrastructure at the locations identified for upgrade was classed as being life-expired and/or in poor condition. Engineering resources were also utilised to verify and prioritise needs prior to the current work being planned.

The current version of the CETS addresses transitions between track structures at level crossings where rail breaks have occurred in the past as a result of inadequate transition. Maintaining flangeway⁵ clearance at level crossings can be difficult with deteriorated or inadequate road surfaces, and inadequate flangeway clearance has caused derailments in the West Moreton System. This project is a "modern equivalent type" replacement of the track and level crossing infrastructure, ensuring these components have improved safety and are compliant with the current standards, including transitions between track structures and flangeway clearance.

This will be achieved via reconditioning rail track panels and providing new road surfaces. The purpose of the project is to mitigate the risks associated with level crossings by focusing on:

- Asphalt surface replacement when road traffic is adversely impacted.
- Providing or improving drainage systems in level crossings as they are reconditioned.
- Design, install, operate and maintain level crossings in compliance with Queensland Rail standards for level crossings.

⁵ Flangeway: The passageway for the flange of a wheel running on rails. Flange - a projecting flat rim, collar, or rib on an object, serving for strengthening or attachment or (on a wheel) for maintaining position on a rail.

Project Scope

This project involves the reconditioning of 23 level crossings in the West Moreton System between Rosewood and Miles and includes the following tasks:

- Upgrade of track structure to 50kg rail, full depth concrete sleepers and A Grade ballast.
- Upgrade of formation, typically 600mm deep and 4 metres wide, with a layer of laminated geofabric/grid and a layer of geogrid Formation treatment to be determined from site investigation.
- Improved surface drainage and subsoil drainage.
- Designed and monumented alignment (designed alignment will typically be a regression of the existing alignment).
- Transitions between track structure complying with CETS.
- Asphalt road surface and formed flangeway complying with CETS.
- Resurfacing.
- Restressing.

Project Benefits

The benefits of the project are:

- Improved safety for road users.
- Improved safety via replacement with heavier track structure, reducing risk of buckles / misalignment, and pavement failure.
- Transitions between track structures compliant with CETS, reducing the risk of rail breaks.
- Formed flangeway clearances compliant with CETS, reducing the risk of derailment.
- Reduced potential for TSRs and impacts to operations such as derailment via improved track stability and improved formation strength (eliminated risk of sleeper / rail failure; improved top and line and road surface).
- Improved track condition and track quality as measured by the OTCI.
- Reduced future track maintenance requirements at the 23 level crossings.

- Improved reliability and service delivery on the West Moreton System.

Level Crossings

Table 4 below lists the 23 level crossings covered by the level crossing upgrade project.

Table 4: Level Crossing Upgrades for Project B.05655

Level Crossing Name	Location	Upgrade Description
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

QCA Assessment

This project involves both level crossing reconditioning and level crossing transitions. In assessing Queensland Rail’s AU2 West Moreton System Capital Indicator claim for the level crossing upgrades project during the QCA’s AU2 approval process, QCA consultant **SYSTRA** states:

“Queensland Rail does, however, have a responsibility as the accredited Rail Infrastructure Manager to ensure that it is performing the maintenance and capital expenditure necessary to ensure that rail infrastructure in use is safe and reliable, and meets the requirements of Queensland Rail’s Safety Management System... After review SYSTRA concurs with Queensland Rail in regard to level crossing reconditioning, transitions and concrete sleepers for tight curves on the Toowoomba Range.... SYSTRA accepts that the level crossing reconditioning and transitions are required because of the critical safety aspect of these assets.”⁶ (emphasis)

The QCA confirmed the above findings by SYSTRA in its Final Decision stating:

“Queensland Rail’s proposed budgets for a number of works were assessed by Systra as reasonable, including formation renewal, level crossing reconditioning, minor signalling renewal and remote monitoring systems roll-out.”⁷ (emphasis)

⁶ SYSTRA Update to West Moreton System Costs and Investment Forecasts, February 2020, pp.25-27.

⁷ The QCA’s Final Decision on Queensland Rail 2020 draft access undertaking, February 2020, p.72.

In addition, as part of the QCA’s review of Queensland Rail’s 2020-21 Capital Expenditure Report, QCA Consultants Arcadis⁸ and the QCA⁹ found that the commissioned assets were prudent in terms of scope, standard and cost. The QCA also found the works undertaken through this project to be prudent in its assessment of the 2021-22 Capital Expenditure Report. Queensland Rail has continued to use prudent practices.

B.04794 Level Crossing Upgrades, West Moreton 16/17 - 19/20 Project is a predecessor to this project and was included in Queensland Rail’s 2019-20 Capital Expenditure Report.

As highlighted above, this program was also assessed as part of Queensland Rail’s 2022-23 Capital Expenditure Report and found by the QCA’s consultants and the QCA to be prudent in cost, scope and standard. The work has been carried out in the same manner.

Assessment Criteria	Queensland Rail Response
<p>Prudency of scope – criteria to be considered</p>	
<p>The need to accommodate what is reasonably required to comply with Access Agreements.</p>	<p>The Level Crossing Upgrade Project is replacing level crossing infrastructure that is life-expired and/or in poor condition. The key benefit of this safety project is that Queensland Rail will continue to be able to provide a safe, reliable network and meet the requirements for Train Service Entitlements in terms of throughput for coal and non-coal services that utilise the West Moreton System.</p> <p>The investment in this project will ensure fit for purpose assets are provided. The proposed work will limit the need for TSRs and reduce maintenance required, both of which will assist the operational performance of train services.</p>
<p>The extent of Reasonable Demand, and the need for new capital expenditure projects to accommodate that demand.</p>	<p>The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.</p> <p>Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.</p>

⁸ Arcadis’ Report ‘Queensland Rail 2020 -21 Capital Expenditure Claim. 18 August 2022’, p7

⁹ Queensland Competition Authority Decision Notice, 29 August 2022

Assessment Criteria

Queensland Rail Response

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (AU3) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa. As stated above in this submission, both SYSTRA and the QCA Final Decision recognised the need for this safety related project. The QCA accepted Queensland Rail’s proposed budget for the level crossing replacement project in its Capital Indicator.

For information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

The age and condition of existing assets and the need for replacement capital expenditure projects.

The required work was identified via track recording data and subsequently verified through inspections by qualified track staff. The infrastructure at the locations identified for upgrade was classed as being life-expired and/or in poor condition, noting that the West Moreton System is an old system. Engineering resources were also utilised to verify and prioritise needs prior to the current work being planned.

QCA consultant SYSTRA recognised the need for and importance of this project during the AU2 QCA approval process as did QCA consultant Arcadis in their assessment of Queensland Rail’s 2020-21 Capital Expenditure Report.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

Queensland Rail’s obligations under any Laws, including health, safety and environmental Laws.

As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed SFAIRP. The SEMS includes standards for level crossings as prescribed in CETS.

For greater detail refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

The appropriateness of Queensland Rail’s processes to evaluate and select proposed capital expenditure projects, including the extent to which alternatives are evaluated as part of the process.

The Level Crossing Upgrade Project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change.

Assessment Criteria	Queensland Rail Response
	<p>Work is standard repetitive process (nothing unique) — i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.</p> <p>The Project Plan and AUC forms are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR. The Project is ongoing. The Handover Report and Completion Reports are developed at the completion of the project and will be provided at that stage.</p> <p>Queensland Rail considered a ‘do nothing’ option, however this option was not considered as acceptable due to safety considerations.</p> <p>For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to Queensland Rail’s Investment Framework in this submission.</p>
<p>The extent to which the capital expenditure project was subjected to Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.</p>	<p>The level crossing upgrade project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. The assets included as part of this report were commissioned in 2023-24. The Business Case and AUC forms have been provided to the QCA as part of this 2023-24 Capital Expenditure Report. These assets have been added to the FAR. The Project is ongoing. The Handover Report and Completion Reports are developed at the completion of the project and will be provided at that stage.</p> <p>For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to Queensland Rail’s Investment Framework in this submission.</p>
<p>The extent to which consultation has occurred with relevant stakeholders about the capital expenditure project.</p>	<p>This project combines the following two projects reviewed by the QCA as part of their approval of AU2: the Level Crossing Reconditioning Project and the Level Crossing Transitions Project.</p> <p>The project was included in the following documents as part of the QCA’s consultation on AU2:</p> <ul style="list-style-type: none"> • Queensland Rail’s Draft Access Undertaking 2 (DAU2) Explanatory Document (14 August 2018); • QCA Draft Decision on Queensland Rail 2020 draft access undertaking April 2019; • SYSTRA, Review of Proposed Maintenance, Capital & Operations Expenditure Review, Draft Access Undertaking 2 (DAU2), April 2019; • Queensland Rail’s DAU2 West Moreton System low volume coal reference tariff 22 November 2019; • The QCA Final Decision on Queensland Rail 2020 draft access undertaking, February 2020. <p>As part of the QCA AU2 approval process, Queensland Rail provided the unredacted AU2 West Moreton System reference tariff model to key West Moreton stakeholders under a deed of confidentiality, including to</p>

Assessment Criteria

Queensland Rail Response

New Hope and Yancoal as part of the QCA AU2 consultation process, enabling stakeholders to assess the claim. The B.05655 Level Crossing Upgrades West Moreton Project and its forecast expenditure was included in the model (as Level Crossing Reconditioning and Level Crossing Transitions Projects). This also enabled the release of the unredacted QCA SYSTRA Draft Decision and Final Decision reports to these stakeholders which included this project.

Consultation was undertaken in terms of closures. Queensland Rail uses the SWUG process to discuss closure and other major maintenance and timetabling issues with rolling stock operators.

Prudency of standard – criteria to be considered

The requirements of Rolling Stock Operators and what is reasonably required to comply with Access Agreements.

The level crossing upgrade project is replacing level crossing infrastructure that is life-expired and/or in poor condition. The key benefit of this safety project is that Queensland Rail will continue to be able to provide a safe, reliable network.

The investment in this project will ensure fit for purpose assets are provided. As a result of the proposed work there will be an avoidance temporary speed restrictions (**TSRs**) and reduced maintenance required, both of which will assist the operational performance of train services. This project will contribute to continuing to maintain a safe and reliable network.

Queensland Rail uses the SWUG process to discuss closure and other major maintenance and timetabling issues with rolling stock operators.

Assessment Criteria

Queensland Rail Response

Current and likely future usage levels.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (**AU3**) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa.

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety.

The requirements of the codes developed by the Rail Industry Safety and Standards Board (**RISSB**) Limited ACN 105 001 465 in relation to the standards required for rail infrastructure in Australia.

As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP). The SEMS includes standards for level crossings as prescribed in CETS.

The requirements of other relevant Australian design and construction standards.

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

Queensland Rail’s design standards contained within the Safety Management System.

All relevant Law and the requirements of any Authority (including the Safety Regulator).

Assessment Criteria

Queensland Rail Response

The level of such costs relative to the scale, nature, cost and complexity of the project.

Both the QCA consultant SYSTRA¹⁰ and the QCA in its AU2 Final Decision Capital Indicator¹¹ accepted Queensland Rail’s forecast expenditure of \$8.082M for this project (i.e. the Level Crossing Reconditioning Project \$6.241M and the Level Crossing Transitions Projects \$1.841M).

The assets included for this Report were commissioned in 2023-24. Queensland Rail has added these assets to Queensland Rail’s FAR. The Project Plan and AUC forms have been provided to the QCA as part of this 2023-24 Capital Expenditure Report. The Project is ongoing. The Handover Report and Completion Reports are developed at the completion of the project.

The circumstances prevailing in the markets for:

- A. engineering, equipment supply and construction;
- B. labour; and
- C. materials.

The required work was identified via track recording data and subsequently verified through inspections by qualified track staff. The infrastructure at the locations identified for upgrade was classed as being life-expired and/or in poor condition. Engineering resources were also utilised to verify and prioritise needs prior to the current work being planned.

The delivery strategy for this project is to deliver the scope of works using both Queensland Rail internal staff and external wet hired plant and services.

With regard to materials, consultation was undertaken with supply vendors to ensure vendors were aware of the proposed program of works. Agreements for when these materials were to/will be delivered were reached with the relevant vendors.

Prudency of cost — criteria to be considered

Where the QCA has approved a procurement strategy for the capital expenditure project under clause 6.1(b), the extent to which Queensland Rail has achieved compliance with that procurement strategy.

Not applicable.

¹⁰ SYSTRA Update to West Moreton System Costs and Investment Forecasts, February 2020, p.27
¹¹ The QCA’s Final Decision on Queensland Rail 2020 draft access undertaking, February 2020, p.73

Assessment Criteria

The manner in which the capital expenditure project has been managed by Queensland Rail given the circumstances at the time when relevant management decisions and actions were made or undertaken, including Queensland Rail's balancing of:

- A. safety during construction and operation;
- B. compliance with environmental requirements during construction and operation;
- C. compliance with Laws and the requirements of Authorities;
- D. minimising disruption to the operation of Train Services during construction;
- E. accommodating reasonable requests of Access Holders (and, if applicable, their Customers) to amend the scope and sequence of works undertaken to suit their needs;
- F. minimising whole of asset life costs including future maintenance and operating costs;
- G. minimising total project cost which may at times not be consistent with minimisation of individual contract costs;
- H. aligning other elements in the supply chain; and
- I. meeting contractual timeframes and dealing with external factors.

Queensland Rail Response

Queensland Rail has comprehensive processes in place to manage safety and environmental compliance. Queensland Rail is happy for the QCA to request a presentation on its overall governance and compliance processes.

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

B.06154 Toowoomba Range Slope Stability Stage 2

Claim: **\$13,614,495** (including IDC)

Background

The West Moreton System to Brisbane line carries up to 113 return paths per week and is a major link for coal transport to the Port of Brisbane and passenger services from Brisbane to South-West Queensland via the Westlander service.

The Toowoomba Range section of the West Moreton System is located in areas with steeply sloping natural terrain, and the track is located in numerous cuts and fills. In recent years, geotechnical failures have occurred resulting in temporary closures of track to rail traffic. In January 2011 the corridor was closed for three months, and again in 2013 the line closed for six weeks, due to slope failure during severe weather events. In a 2013 incident, the slopes supporting the rail track on the Range encountered instability and either partially or fully failed leading to temporary closure to rail traffic. Emergency works at the time did not significantly improve the resilience of the two sites to further slips. After the 2013 incident, Queensland Rail implemented specific monitoring controls to mitigate risks and allow for the safe operations of rail traffic.

A further corridor closure of 19 days occurred after a major wet weather event in February/ March 2022. The Toowoomba Range is subject to geotechnical stability issues that are adversely affected during times of wet weather and storm events. Geotechnical monitoring and assessments have been undertaken on the Toowoomba Range which have shown that additional investment is required to reduce the risk of further landslides. This project will reduce the likelihood of track outages, injuries and train derailments and improve the reliability of the West Moreton System.

As a result of the January 2011 and January 2013 rainfall events, Queensland Rail undertook a geotechnical analysis of the Toowoomba Range Rail Corridor with the aim of identifying and prioritising geotechnical hazards. As a result of this analysis, Queensland Rail has already undertaken extensive maintenance, rectification and ongoing monitoring to ensure the continued serviceability of the rail corridor.

In its Decision dated 18 April 2019 the QCA, in accordance with the requirements of Schedule E clauses 3.1 (b) and 4.1(b) of AU1, preapproved the scope and standard of the Toowoomba Range Slope Stabilisation Project as *prudent.

In Queensland Rail's *West Moreton System Capital Expenditure Report 2019-20*, which was submitted to the QCA on 19 February 2021, Queensland Rail sought QCA approval of \$20,180,899 excluding interest during construction (\$20,538,040 including interest during construction) for the B.04042 Toowoomba Range Slope Stabilisation (TRSS) Project's assets that had been commissioned in 2019-20. The QCA approved this amount as prudent.

In the 2020-21 Capital Report included a claim for slope stabilisation works. In its Final Decision dated 29 August 22 the QCA found the works to be prudent.

Project

Summary

Geotechnical monitoring and assessment conducted on the Toowoomba Range identified landslide concern at 8 locations, with the potential to impact safe operations within the rail corridor.

The Toowoomba Range geotechnical assessment at 141.070km was identified a high safety risk with potential to impact rail operations.

The project scope consists of two packages of works:

- Package one: Involved stabilisation of the embankment at the 141.070km.
- Package two: Involved the installation of monitoring devices at seven high risk sites.

Details

The project was aligned with the strategy outlined in MD-19-222 Asset Management Plan – West Moreton System (2021):

- Improve safety outcomes for customers, employees and contractors;
- Sustain On-Time Running and reliability; and
- Improve customer satisfaction.

Major project benefits include reduction in the risk of derailment, passenger and staff injuries caused by embankment failures or rock falls, and increased supply chain reliability and confidence that due diligence is being exercised in the management of geotechnical risk.

Queensland Rail has conducted detailed geotechnical analysis of the Toowoomba Range to identify high-risk areas susceptible to future failure. Stage 1 of this program involved remediation of two locations which were deemed to-present the highest risk to rail traffic. Stage 2 of this program (this project) proposes remediation of the next highest risk embankment, geotechnical investigations and monitoring equipment installation at seven other high-risk embankment sites.

Progress during the Development stage has included:

- Development of a detailed design for embankment remediation at 141.070km;
- Geotechnical investigations including boreholes and test pits at seven high risk embankment sites, risk assessment; and
- Detailed cost estimate for the works; and development of the Implementation stage Business Case and Project Plan.

The following project options were considered:

- Option 1: Do nothing.
- Option 2: Slope stabilisation of all identified high-risk embankments.
- Option 3: Slope stabilisation of embankment at 141.070km and monitoring of seven other high-risk sites.
- Option 4: Track realignment at 141.070km.

The recommended option (Option 3) proposed slope stabilisation of embankment at 141.070km, geotechnical investigations and installation of monitoring equipment at seven other high- risk sites. Other options considered do not meet business objectives or are not justified due to the excessive cost.

Assessment Criteria	Queensland Rail Response
<p>Prudency of scope – criteria to be considered</p>	
<p>The need to accommodate what is reasonably required to comply with Access Agreements.</p>	<p>This project will sustain safe, reliable and on-time performance by reducing the number and frequency of unplanned network disruptions (including force majeure events) and temporary speed restrictions due to embankment and cutting slips.</p> <p>This project will reduce/manage the following Key Corporate Risks on the Toowoomba Range:</p> <ul style="list-style-type: none"> • Safeguard our people, customers and the environment. • Prevent and recover from disruptive events. • Achieve stakeholder and customer service standards and expectations.

Assessment Criteria

Queensland Rail Response

- Optimise asset management and investment.

This project mitigates risks to operational performance as the remediation works reduce embankment and cutting instability which cause service disruptions.

The extent of Reasonable Demand, and the need for new capital expenditure projects to accommodate that demand.

This is a safety critical project. However, it also makes for a more reliable network which facilitate greater throughput and will result is less closures due to weather events.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (**AU3**) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

The age and condition of existing assets and the need for replacement capital expenditure projects.

These remediation works will enhance the safety and reliability of the network.

Queensland Rail’s obligations under any Laws, including health, safety and environmental Laws.

This project is a safety and network reliability project and therefore is critical. As an accredited RIM Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (SFAIRP).

Refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

Assessment Criteria

Queensland Rail Response

The appropriateness of Queensland Rail’s processes to evaluate and select proposed capital expenditure projects, including the extent to which alternatives are evaluated as part of the process.

This project is safety critical providing in maintaining a reliable, safe network and less closures during weather events.

Refer to [Queensland Rail’s Investment Framework](#)

The project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The extent to which the capital expenditure project was subjected to Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.

Queensland Rail has conducted detailed geotechnical analysis of the Toowoomba Range to identify high-risk areas susceptible to future failure. Stage 1 of this program involved remediation of two locations which were deemed to-present the highest risk to rail traffic. Stage 2 of this program (this project) proposes remediation of the next highest risk embankment, geotechnical investigations and monitoring equipment installation at seven other high-risk embankment sites.

This project has been through Queensland Rail’s processes to evaluate and select proposed capital expenditure projects.

The project is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The Business Case, Project Completion Report and AUC forms are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR.

The project supports the safety and reliability of the rail network.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to Queensland Rail’s Investment Framework in this submission [Queensland Rail’s Investment Framework](#)

The extent to which consultation has occurred with relevant stakeholders about the capital expenditure project.

Queensland Rail uses the SWUG process to discuss closure and other major maintenance and timetabling issues with rolling stock operators.

Assessment Criteria

Queensland Rail Response

Prudency of standard – criteria to be considered

The requirements of Rolling Stock Operators and what is reasonably required to comply with Access Agreements.

This project will sustain safe, reliable and on-time performance by reducing the number and frequency of unplanned network disruptions (including force majeure events) and temporary speed restrictions due to embankment and cutting slips.

This project will reduce/manage the following Key Corporate Risks on the Toowoomba Range:

- Safeguard our people, customers and the environment.
- Prevent and recover from disruptive events.
- Achieve stakeholder and customer service standards and expectations.
- Optimise asset management and investment.

This project mitigates risks to operational performance as the remediation works reduce embankment and cutting instability which cause service disruptions.

Current and likely future usage levels.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (**AU3**) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa.

The requirements of the codes developed by the Rail Industry Safety and Standards Board (RISSB) Limited ACN 105 001 465 in relation to the standards required for rail infrastructure in Australia.

As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed

Assessment Criteria

The requirements of other relevant Australian design and construction standards.
Queensland Rail’s design standards contained within the Safety Management System.
All relevant Law and the requirements of any Authority (including the Safety Regulator).

Queensland Rail Response

so far as is reasonably practicable (SFAIRP). The SEMS includes standards for timber sleepers as prescribed in CETS.
For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

Assessment Criteria

Queensland Rail Response

Prudency of cost — criteria to be considered

The level of such costs relative to the scale, nature, cost and complexity of the project.

Queensland Rail has conducted detailed geotechnical analysis of the Toowoomba Range to identify high-risk areas susceptible to future failure. Stage 1 of this program involved remediation of two locations which were deemed to-present the highest risk to rail traffic. Stage 2 of this program (this project) proposes remediation of the next highest risk embankment, geotechnical investigations and monitoring equipment installation at seven other high-risk embankment sites.

The project is a Type 3 project, as set out in Queensland Rail's Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The Business Case, Project Completion Report and AUC forms are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR.

This a safety and track reliability project.

The circumstances prevailing in the markets for:

- D. engineering, equipment supply and construction;
- E. labour; and
- F. materials.

External resources were utilised during Development phase for geotechnical investigations, monitoring, and the detailed design. Internal project management and design review resources are being utilised.

SMEC was engaged for the detailed design of the embankment slope stabilisation works at 141.CSI7CSI-141.17CSIkm. An external geotechnical specialist, WSP Australia Ltd, was engaged for the geotechnical investigation and monitoring at the additional high-risk embankments, which had monitoring equipment installed during the development stage.

An external construction contractor was contracted after the Implementation stage approval through an open tender process following Queensland Rail's procurement process. The contractor was responsible for undertaking the slope stabilisation works. Internal contract and project management resources were utilised during construction..

Where the QCA has approved a procurement strategy for the capital expenditure project under clause 6.1(b), the extent to which Queensland Rail has achieved compliance with that procurement strategy.

Not applicable.

Assessment Criteria

The manner in which the capital expenditure project has been managed by Queensland Rail given the circumstances at the time when relevant management decisions and actions were made or undertaken, including Queensland Rail's balancing of:

- J. safety during construction and operation;
- K. compliance with environmental requirements during construction and operation;
- L. compliance with Laws and the requirements of Authorities;
- M. minimising disruption to the operation of Train Services during construction;
- N. accommodating reasonable requests of Access Holders (and, if applicable, their Customers) to amend the scope and sequence of works undertaken to suit their needs;
- O. minimising whole of asset life costs including future maintenance and operating costs;
- P. minimising total project cost which may at times not be consistent with minimisation of individual contract costs;
- Q. aligning other elements in the supply chain; and
- R. meeting contractual timeframes and dealing with external factors.

Queensland Rail Response

Queensland Rail has comprehensive processes in place to manage safety and environmental compliance.

For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

B.06159 Sleepers with gauge issue & Range rerail

Claim: \$503,412 (including IDC)

Project description

This project will replace all full-depth concrete sleepers and tighten gauges in [REDACTED] nominated curves over a track length of [REDACTED] in the West Moreton System between Rosewood and Toowoomba.

Asset condition

There are 337 curves in the track between Rosewood and Toowoomba on the West Moreton System with 135 of these curves having a very tight radius of less than 160 metres.

There are [REDACTED] tight radius curves between Rosewood and Toowoomba that have been identified by track geometry recording, track inspection and engineering staff as having recurring and persistent wide gauge defects which have required frequent intervention to ensure compliance with CETS and continued safe operation of rail traffic.

In these [REDACTED] particular curves, the High Density Poly Ethylene (HDPE) pad, spacers, and fasteners have been replaced numerous times, and there are instances where the rail has been replaced prematurely (before it is condemned for rail wear) to return the gauge to within tolerance. The rails will continue to wear under traffic, and the gauge in these curves will further increase.

The root cause of the gauge issue is the concrete sleepers; accumulation of dimension tolerance in their manufacture has resulted in the persistent gauge issue being realised midway through their design life. The concrete sleepers in these curves have been in service for in excess of two decades and are typically early production gauge-widened concrete sleepers for tight radius curves. Replacement of these concrete sleepers is required to resolve the ongoing issue.

The [REDACTED] curves in scope of this project have a radius less than [REDACTED], with a corresponding design gauge of [REDACTED]. As the rails, sleepers and fasteners wear under traffic, the gauge dimension increases. The critical dimension for wide gauge defects is [REDACTED] which is the maximum safe width for rollingstock. CETS immediate action for continued operation of rail traffic when this defect level is exceeded. This low tolerance for wear (15mm) in combination with the persistent wide-gauge defects due to sleeper inadequacies requires high levels of reactive repair to maintain track safety.

Scope summary

The scope of this project is to replace all full-depth concrete sleepers in the [REDACTED] nominated curves, over a track length of [REDACTED] in the West Moreton System between Rosewood and Toowoomba. The project activities include:

- Replacing new full-depth concrete sleepers with a reduced spacing of 550mm (normally 685mm). This will result in the required design gauge complying with construction tolerance.
- Replacing rail on six of the [REDACTED] nominated curves with new 50kg HH (head-hardened) rail due to the existing rail wear approaching defect limits.
- Installing concrete checkrail sleepers on three of the [REDACTED] nominated curves.
- Installing new A grade ballast on all [REDACTED] nominated curves.
- Site clean-up works including dismantling, relocation and/or scrapping. The rails will be sold to SIMS Metal under current scrap contract. SIMS Metal will remove rails from the corridor.
- Resurfacing and restressing.
- Monumented alignment survey and design.
- Erecting and removing temporary speed restrictions (TSRs).
- Job plans, project planning. Site safety planning and management.
- Environmental approvals as required.

This program was also assessed as part of Queensland Rail's 2022-23 Capital Expenditure Report and found by the QCA's consultants and the QCA to be prudent in cost, scope and standard. The work has been carried out in the same manner.

Assessment Criteria

Queensland Rail Response

Prudency of scope – criteria to be considered

The need to accommodate what is reasonably required to comply with Access Agreements.

This project is safety related providing a reliable, safe network meeting the requirements for Train Service Entitlements contained in the Access Agreements.

There are ■ tight radius curves between Rosewood and Toowoomba that have been identified by track geometry recording, track inspection and engineering staff as having recurring and persistent wide gauge defects which have required frequent intervention to ensure compliance with CETS and continued safe operation of rail traffic.

The extent of Reasonable Demand, and the need for new capital expenditure projects to accommodate that demand.

The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.

Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.

Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (AU3) to between 7.5mtpa and 9.6mtpa (refer to [Rail capacity](#)).

For information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#) in this submission.

The age and condition of existing assets and the need for replacement capital expenditure projects.

There are ■ tight radius curves between Rosewood and Toowoomba that have been identified by track geometry recording, track inspection and engineering staff as having recurring and persistent wide gauge defects which have required frequent intervention to ensure compliance with CETS and continued safe operation of rail traffic.

In these ■ particular curves, the High Density Poly Ethylene (HDPE) pad, spacers, and fasteners have been replaced numerous times, and there are instances where the rail has been replaced prematurely (before it is condemned for rail wear) to return the gauge to within tolerance. The rails will continue to wear under traffic, and the gauge in these curves will further increase.

Assessment Criteria

Queensland Rail Response

The root cause of the gauge issue is the concrete sleepers; accumulation of dimension tolerance in their manufacture has resulted in the persistent gauge issue being realised midway through their design life. The concrete sleepers in these curves have been in service for in excess of two decades and are typically early production gauge-widened concrete sleepers for tight radius curves. Replacement of these concrete sleepers is required to resolve the ongoing issue.

The [redacted] curves in scope of this project have a radius less than [redacted], with a corresponding design gauge of [redacted]. As the rails, sleepers and fasteners wear under traffic, the gauge dimension increases. The critical dimension for wide gauge defects is 1,095mm which is the maximum safe width for rollingstock. CETS MD-10-575 requires immediate action for continued operation of rail traffic when this defect level is exceeded. This low tolerance for wear (15mm) in combination with the persistent wide-gauge defects due to sleeper inadequacies requires high levels of reactive repair to maintain track safety.

For further information on Queensland Rail’s processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail’s Investment Framework](#).

Queensland Rail’s obligations under any Laws, including health, safety and environmental Laws.

This is a safety and reliability project.

This is a Type 3 project, as set out in Queensland Rail’s Project Management Framework. Type 3 projects include projects that are well defined and low risk of any change. Work is standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The Business Case and AUC forms are provided as part of this submission. The assets were commissioned in 2032-24 and have been added to the FAR. This project is ongoing. The Handover Report and Completion Report are completed at the end of the project and will be provided to the QCA at that stage.

As an accredited RIM Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practicable (**SFAIRP**).

For greater detail refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#).

Assessment Criteria

Queensland Rail Response

The appropriateness of Queensland Rail's processes to evaluate and select proposed capital expenditure projects, including the extent to which alternatives are evaluated as part of the process.

This project is a Type 3 project, as set out in Queensland Rail's Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is standard repetitive process (nothing unique) i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The project is appropriate as it is a safety critical project which there are [redacted] tight radius curves between Rosewood and Toowoomba that have been identified by track geometry recording, track inspection and engineering staff as having recurring and persistent wide gauge defects which have required frequent intervention to ensure compliance with CETS and continued safe operation of rail traffic.

For further information on Queensland Rail's processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail's Investment Framework](#) in this submission.

The extent to which the capital expenditure project was subjected to Queensland Rail's processes to evaluate and select proposed capital expenditure projects.

This project has been through Queensland Rail's processes to evaluate and select proposed capital expenditure projects.

The project is a Type 3 project, as set out in Queensland Rail's Project Management Framework. Type 3 projects include projects that are well defined, very low risk of any change. Work is standard repetitive process (nothing unique) - i.e. scope will not change from that detailed in the funding submission and this scope was clear and specific.

The project is appropriate as it is a safety critical project which there are [redacted] radius curves between Rosewood and Toowoomba that have been identified by track geometry recording, track inspection and engineering staff as having recurring and persistent wide gauge defects which have required frequent intervention to ensure compliance with CETS and continued safe operation of rail traffic.

The Business Case and AUC forms are provided as part of this submission. The assets were commissioned in 2023-24 and have been added to the FAR. This project is ongoing. The Handover Report and Completion Report are completed at the end of the project and will be provided to the QCA at that stage.

For further information on Queensland Rail's processes to evaluate and select proposed capital expenditure projects refer to [Queensland Rail's Investment Framework](#) in this submission

Assessment Criteria	Queensland Rail Response
<p>The extent to which consultation has occurred with relevant stakeholders about the capital expenditure project.</p>	<p>Queensland Rail uses the South West User Group (SWUG) process to discuss closure and other major maintenance and timetabling issues with rolling stock operators.</p>
<p>Prudency of standard – criteria to be considered</p>	
<p>The requirements of Rolling Stock Operators and what is reasonably required to comply with Access Agreements.</p>	<p>This project ensures that the network performs safely and reliably. This project provides a reliable, safe network meeting the requirements for Train Services.</p>
<p>Current and likely future usage levels.</p>	<p>The QCA approval process for the AU2 West Moreton System coal reference tariff was extensive with the QCA and stakeholders considering both a 9.1mtpa scenario and a 2.1mtpa scenario, the higher tonnage level being dependent upon the NAS3 mine being approved by Government.</p> <p>Industry, the QCA and Queensland Rail all supported a 2.1mtpa scenario at the end of 2019 as the best forecast until/if NAS3’s approval progresses, with the QCA using a 2.1mtpa forecast for contracted coal train paths in its Final Decision.</p> <p>Since that assessment NAS3 has been approved and commenced railings in October 2023. The Wilkie Creek mine commenced railings in July 2023, however, were suspended in May 2024. This has resulted in increased coal railings in DAU2 with Queensland Rail forecasting railings will increase in the next undertaking (AU3) to between 7.5mtpa and 9.6mtpa (refer to Rail capacity).</p> <p>These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety and reliability. This is ever more important with the increase in tonnages from 2.1mtpa to between 7.5mtpa and 9.6mtpa.</p> <p>These upcoming increased tonnages will require safe and reliable infrastructure. This project improves this safety.</p>
<p>The requirements of the codes developed by the Rail Industry Safety and Standards Board (RISSB) Limited ACN 105 001 465 in relation to the standards required for rail infrastructure in Australia.</p> <p>The requirements of other relevant Australian design and construction standards.</p> <p>Queensland Rail’s design standards contained within the Safety Management System.</p>	<p>As an accredited RIM, Queensland Rail has a comprehensive SEMS. The SEMS sets out the means by which Queensland Rail assesses whether risks of its railway operations are managed so far as is reasonably practical (SFAIRP). The SEMS includes standards for timber sleepers as prescribed in CETS.</p> <p>For greater detail refer to section refer to Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems in this submission.</p>

Assessment Criteria

Queensland Rail Response

All relevant Law and the requirements of any Authority (including the Safety Regulator).

Prudency of cost — criteria to be considered

The level of such costs relative to the scale, nature, cost and complexity of the project.

The assets included in this 2023-24 Capital Expenditure Report were commissioned in 2023-24. Queensland Rail has added these assets to Queensland Rail’s FAR. The Business Case and AUC forms have been provided to the QCA as part of this 2023-24 Capital Expenditure Report. The Project is ongoing. The Handover Report and Completion Reports are developed at the completion of the project.

The project is safety related.

The project uses both internal officers as well as external resources

The circumstances prevailing in the markets for:

- A. engineering, equipment supply and construction;
- B. labour; and
- C. materials.

The delivery stage for this project comprises the utilisation of primarily internal Queensland Rail resources. All works will be managed and delivered under the direction and control of Queensland Rail management and construction team supervisors. External resources such as plant and labour hire will be contracted when sufficient Queensland Rail resources are not available or where specialised equipment is required and cannot be sourced internally. This project will utilise current Queensland Rail Panel Arrangements to procure external contractors, as required. These Panel Arrangements have agreed terms and conditions and therefore should not require further contract departure.

Where the QCA has approved a procurement strategy for the capital expenditure project under clause 6.1(b), the extent to which Queensland Rail has achieved compliance with that procurement strategy.

Not applicable.

Assessment Criteria

Queensland Rail Response

The manner in which the capital expenditure project has been managed by Queensland Rail given the circumstances at the time when relevant management decisions and actions were made or undertaken, including Queensland Rail's balancing of:

- A. safety during construction and operation;
- B. compliance with environmental requirements during construction and operation;
- C. compliance with Laws and the requirements of Authorities;
- D. minimising disruption to the operation of Train Services during construction;
- E. accommodating reasonable requests of Access Holders (and, if applicable, their Customers) to amend the scope and sequence of works undertaken to suit their needs;
- F. minimising whole of asset life costs including future maintenance and operating costs;
- G. minimising total project cost which may at times not be consistent with minimisation of individual contract costs;
- H. aligning other elements in the supply chain; and
- I. meeting contractual timeframes and dealing with external factors.

Queensland Rail has comprehensive processes in place to manage safety and environmental compliance. For greater detail refer to section refer to [Design Standards and Codes – Queensland Rail Safety and Environmental Safety Systems](#) in this submission.

The project of works has been based on the risk ranking determined using ALCAM which is a transport industry accepted safety assessment tool used to assist in the prioritisation of safety control upgrades at level crossings according to their comparative safety risk.

Ballast Undercutting

For AU1 and AU2, the QCA final decisions ballast undercutting (track lowering) was *track reconditioning* involving lowering of the track by removing the track and grading the ballast and that these costs should be capitalised.¹²

In 2023-24, Queensland Rail is seeking approval for \$1,183,868 in track lowering for inclusion in the RAB, consistent with the methodology applied by the QCA.

As a note, as track lowering activities are part of Queensland Rail's normal maintenance activities, it does not have business cases, assets included on the Fixed Asset Register or a Completion/Handover Report for works undertaken. Distances have been sourced from Queensland Rail's EAMS system, with [REDACTED] of work completed.

Queensland Rail's track lowering maintenance activities are associated with managing excessive ballast depth, which affect track stability and poor vertical alignment. Track lowering is not a substitute for formation repairs. This activity predominantly reuses existing ballast and removes excessive ballast depth to regain stability of the track structure—it is not an extension of the ballast life, but simply a reduction in top and line and track stability issues. Track lowering includes all works involved in either undercutting of track sections or lowering of excessively ballasted sections of track.

Undercutting works are performed in the district using an excavator mounted undercutter bar. Track lowering is generally carried out in large sections and is done by removing the track and grading ballast away and then replacing the track. Ballast during track lowering is generally reused, although some new ballast is required for undercutting works.

For Queensland Rail, track lowering is part of the routine maintenance required to provide safe and reliable services on the West Moreton System. Unlike track reconditioning, there is no new asset components involved, with ballast, sleepers and rail all placed back into position after the track has been lowered. Track lowering does not improve the service quality of the existing asset, with this maintenance undertaking to ensure the asset remains 'fit for purpose'.

Notwithstanding this Queensland Rail has respected the QCA's Decisions.

¹² B&H Supplementary Report Master relating to submissions by stakeholders in response to the QCA's Draft Decision of Queensland Rail DAU 2015 (May 2016), p 14.