QUEENSLAND COMPETITION AUTHORITY

Final Decision

QR Network's 2009-10 Capital Expenditure

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GLOSSARY

ABR	Armstrong Beach Road
ARMCO	American Rolling Mill Company
AT_5	Access Tariff for electrical infrastructure
ATM	Asynchronous Transfer Mode
Authority	Queensland Competition Authority
BMD	BMD Major Projects Pty Ltd
CoalRail	Queensland Rail Project Management Group
CPU	Capacity Planning Unit
CQCR	Central Queensland Coal Region
CRIMP	Coal Rail Infrastructure Master Plan
CSAJ	Coal Stream Alliance Jilalan
DBCT	Dalrymple Bay Coal Terminal
E&P	Evans & Peck
EGTK	Electric Gross Tonne Kilometre
EIS	Environmental Impact Statement
Est	Estimate
HPCT	Hay Point Coal Terminal
IDC	Interest During Construction
incl	Including
kg	Kilogram
km	Kilometre
km/h	Kilometre Per Hour
kv	Kilovolt
LAN	Local Area Network
MPLS	Multiprotocol Label Switching
mtpa	million tonnes per annum
MVM Rail	MVM Rail Pty Ltd (Macmahon's Subsidiary)

NANI	Network Assets Network Infrastructure Group
PAA	Project Alliance Agreement
PN	Pacific National Pty Ltd
Pty	Proprietary
QRail	Queensland Rail (which remains in public ownership)
QR National	QR National Limited
QRNational Coal	QR National Coal (QR National's above-rail operator)
QR Network	QR Network Pty Ltd (which operates a below rail business under the name of QR National Network)
RAB	Regulated Asset Base for the purposes of QR Network's current access undertaking
RSS	Rail System Services
tal	Tonne Axel Load
TOC	Target Outturn Cost
TSC	Track Section Cabin
WACC	Weighted Average Cost of Capital
WRSA	Westinghouse Rail Systems Australia

EXECUTIVE SUMMARY

QR Network Pty Ltd's (QR Network's) access undertaking provides for the Authority to annually review, and include in the regulated asset base (RAB) if appropriate, the capital expenditure that QR Network undertook in the Central Queensland Coal Region (CQCR) in the previous year.

QR Network originally sought to have $309.2 million of capital expenditure undertaken in 2009-10 included in the RAB. QR Network subsequently agreed to reduce its original application during the Authority's assessment due to:

(a) timing differences in QR Network's reporting systems (reduction of $6.7 million) – these costs will be included as part of the 2010-11 capital expenditure claim;

(b) removing five projects which were still in the developmental stages ($1.4 million) – these costs can be included in a future submission once the projects have been commissioned or have been formally discontinued; and

(c) removing $1.7 million from the Dalrymple Bay Coal Terminal (DBCT) 3rd loop feeder station's costs to avoid double-counting as some of feeder station's costs had previously been submitted and approved as part of the DBCT 3rd loop stage 1 project.

These reductions totalled $9.8 million and, as a result, QR Network's claim for 2009-10 effectively reduced to $299.5million.

The Authority's main concerns with the 2009-10 capital expenditure claim relate to some of the cost allocations associated with the Jilalan Rail Yard project. This was a joint below-rail and above-rail project that both increased the capacity of the Gooonyella system and provided QR National with new maintenance and provisioning facilities for its own trains.

While the Authority was satisfied with the prudency of scope, standard and costs of the below-rail facilities, it did not accept as reasonable the proposed 100% allocation to below-rail of the costs of some external roads and bridges. The Authority concluded that, as these costs are common to both the above- and below-rail aspects of the project, they should be shared between these two elements of the project.

In response to the Authority's December 2011 draft decision, QR Network:

(a) accepted that part of one external road had been constructed to a standard in excess of that required for below-rail purposes;

(b) identified that the Authority had inappropriately assessed the costs of dismantling an existing road bridge;

(c) argued that the cost of constructing some external bridges and realigning some of the external roads should:

  (i) be allocated 100% to below-rail; and

  (ii) if the Authority does not accept that proposition, be allocated between below- and above-rail on a [slightly] different basis to that proposed by the Authority which resulted in a higher below-rail share of the costs.

The Authority considered that QR Network did not make any compelling new arguments which would satisfy the Authority that QR Network's view that 100% of the external bridge and road costs should be allocated to below-rail was justified. Also, the Authority was not convinced that QR Network's alternative allocation principle was more appropriate than that set out in the draft decision. The Authority accepts QR Network's arguments in relation to the bridge demolition costs. On this basis, the Authority's final decision is to not approve the allocation to below-rail of $15.9 million of expenditure of the Jilalan Rail Yard project, which increases to $17.3 million when interest during construction is taken into account.

Accordingly, after adjusting for QR Network's agreed claim reductions of $9.8 million (as above), the Authority's final decision is to approve $282.2 million of capital expenditure undertaken in the central Queensland coal network in 2009-10 in QR Network's RAB (see Table 1 for details).

Table 1: Projects Assessed and Approved by the Authority

Name	*Initial Claim ($M)*	*Deductions ($M)*	*Approved Amount ($M)*
Capacity Enhancement			
Jilalan Rail Yard	193.5	24.0[1]	169.5
Grantleigh Tunnel Duplication	46.2		46.2
DBCT 3rd Loop Feeder Station	28.1	1.7[2]	26.4
Subtotal	*267.8*	*25.7*	*242.1*
Asset Replacement			
Pin Point Detector Upgrade	4.6		4.6
Turnout Replacement	3.4		3.4
Formation Strengthening	2.6		2.6
ARMCO Pipe Renewal	1.7		1.7
Other	6.5	1.4[3]	5.2
Subtotal	*18.9*	*1.4*	*17.5*
Post Commissioning			
Mindi Substation	3.4		3.4
Bollingbroke Feeder Station	2.2		2.2
Stanwell – Wycarbah Duplication	1.6		1.6
Broadlea – Malawa – Wotonga Duplication	1.2		1.2
Other	3.7		3.7
Subtotal	*12.2*		*12.2*
Telecommunications, System Wide Safety/Reliability			
QR Network Billing	1.0		1.0
ATM Backbone Replacement	0.7		0.7
Wireless LAN Deployment	0.4		0.4
Rangal Feeder Station	0.1		0.1
Other	4.3		4.3
Subtotal	*6.5*		*6.5*
Customer Specific			
Vermont Spur & Balloon Loop	3.8		3.8
Other	0.1		0.1
Subtotal	*3.9*		*3.9*
Total Submission	**309.2**	**27.0**	**282.2**

[1] The Jilalan Rail Yard deductions comprise of:

- $6.7 million for timing differences;
- $15.9 million for external roads and bridges; and
- $1.4 million for associated interest during construction.

[2] The sum of $1.7 million (including interest during construction) was deducted from the DBCT 3rd Loop Feeder Station project to avoid double-counting as it was already submitted and approved in previous claims.

[3] Five projects in early stages of works were removed from the claim for a total deduction of $1.4 million (including interest during construction).

1. BACKGROUND

1.1 Introduction

QR Network's access undertaking provides for it to submit to the Authority details of its previous year's capital expenditure in the central Queensland coal region (CQCR) network.

The Authority is required to assess the prudency of that capital expenditure and, if prudent, to include it in the regulated asset base (RAB).

In considering the prudency of QR Network's capital expenditure, the Authority assesses the prudency of the:

(a) scope of the works – i.e. whether the works are reasonably required;

(b) standard of the works – i.e. whether the works are of a reasonable standard to meet the scope requirements and are not over-designed; and

(c) cost of the works – i.e. whether the costs are reasonable for the scope and standard of the works done.

While the Authority has approved QR Network's 2010 access undertaking, the Authority is relying on the assessment criteria in the 2008 access undertaking to assess QR Network's 2009-10 capital expenditure claim. The Authority has adopted this approach as it was the 2008 undertaking that was in place at the time the relevant projects were completed. **Appendix A** provides a detailed explanation of the Authority's assessment process.

1.2 QR Network's 2009-10 Capital Expenditure Submission

QR Network applied to the Authority for approval of $309.2 million of capital expenditure for the 2009-10 year – this consisted of capacity expansion projects ($267.8 million); mine specific investments ($3.9 million); post-commissioning projects ($12.2 million); and asset replacement and other expenditure ($25.4 million).

The Jilalan Rail Yard project was commissioned during 2009-10. At the time, it was QR Network's largest single capital project and was undertaken as a joint below-rail/above-rail project with QR National. QR Network proposed to allocate $193.5 million to below-rail infrastructure. The Authority's assessment of this project focussed on the allocation of costs between above-rail and below-rail and on the use of an alliance contract (see section 2.2 for more details).

In total, QR Network's initial 2009-10 submission sought approval of 99 capital expenditure projects that comprised of $289.1 million in engineering costs and an additional $20.1 million in interest during construction (IDC).

The submission included supporting documentation on individual projects designed to demonstrate to the Authority the prudency of the expenditure. These documents included:

(a) summary sheets containing high level information about each project, such as the name and nature of the project, the location of the project, the commissioning date and the amount of expenditure being claimed; and

(b) detailed project specific information such as internal business cases, completion reports, and other source documents.

QR Network provided specific documentation for 62 of the 99 projects, with detailed information supplied for:

(a) all capacity expansion projects;

(b) all post-commissioning projects;

(c) all asset replacement and safety/reliability projects;

(d) none of the four customer specific projects;

(e) eight of the 27 telecommunications projects; and

(f) five of the 19 system wide projects.

The value of the projects not documented was $4.7 million, or 1.5% of the total capital expenditure claim. In considering these projects, the Authority relied on the information included in QR Network's submission and QR Network was not requested to provide further details on these projects due to their relatively low value.

1.3 Authority's Assessment of QR Network's 2009-10 Submission

QR Network's capital expenditure claim for 2009-10 was slightly less in total value than for 2008-09.

Given the number of projects that make up QR Network's 2009-10 capital expenditure claim, the Authority did not individually review all projects. Rather, it conducted a thorough review of a representative sample of projects, including all major projects (according to cost) and a selection of smaller projects (according to type).

In total, of the 99 projects included in QR Network's 2009-10 claim, the Authority thoroughly investigated 17 projects in detail. These projects accounted for around 95% of the total claim by value and covered at least one of each type of project including:

(a) the three largest projects;

(b) five asset replacement projects;

(c) four post-commissioning projects;

(d) two telecommunications projects;

(e) one mine specific project;

(f) one safety/reliability project; and

(g) one system-wide project.

The Authority engaged Evans & Peck (E&P) to conduct an engineering analysis of the projects selected for detailed review. E&P's advice is included in the project descriptions below.

As part of the assessment, staff from the Authority's rail team and E&P's team visited the sites of several projects that were either of high value or were difficult to assess, including:

(a) the Jilalan Rail Yard Project;

(b) Dalrymple Bay Coal Terminal (DBCT) 3rd loop feeder station;

(c) Blackwater – Grantleigh to Tunnel duplication; and

(d) general coal – replacement of steel culverts.

The visits were informative as, in several cases, the project managers provided detailed explanations of the issues that resulted in scope, standard or cost changes. This was particularly valuable where QR Network's original submission, and other sources of primary documentation, did not fully demonstrate how projects met the undertaking's assessment criteria.

Some of the projects assessed in detail by the Authority, especially the Jilalan Rail Yard project, suffered from significant information gaps. The Authority and its consultant spent considerable time and effort to obtain information from QR Network, including:

(a) the actual costs of particular sections of the project (i.e. road and rail bridges, rail formation and electrical works);

(b) details of the allocation between above- and below-rail infrastructure at the Jilalan Yard;

(c) a detailed explanation of the method of allocation of Jilalan Yard costs; and

(d) alliance costs and agreements.

As with past reviews of QR Network's capital expenditure, it is evident that improvements can be made in the provision of information by QR Network to support its capital expenditure claims and in the timeliness and usefulness of its responses to the Authority's information requests.

While the Authority will continue to work with QR Network to develop more effective mechanisms for dealing with these issues in the future, it is in QR Network's interests for it to clearly demonstrate the prudency of its capital expenditure.

1.4 Draft Decision

The Authority gave QR Network a preliminary notice (in the form of a draft decision) on 20 December 2011 proposing to approve $282.9 million of QR Network's claim of $309.2 million of capital expenditure undertaken in the central Queensland coal network in 2009-10.

In this regard, QR Network had agreed to reduce its original application during the Authority's assessment to remove:

(a) $6.7 million from the Jilalan Rail Yard project for expenditures that occurred after 30 June 2010 – these amounts will be included in the 2010-11 capital expenditure claim; and

(b) $1.4 million for a number of smaller projects that had not been commissioned and were at the very early stage of development. In such cases, it is difficult to determine the prudency of such expenditure. The Authority will consider this expenditure either after

the commissioning of the project or upon QR Network formally deciding not to proceed with the project; and

(c) $1.7 million for some costs in the 2009-10 capital expenditure claim on the DBCT 3rd loop feeder station that had already been included and approved by the Authority in its decision on the 2007-08 and 2008-09 claims, under the DBCT 3rd loop stage 1 project.

In its draft decision, the Authority found that the scope, standard and costs of the below-rail aspects of the Jilalan Rail Yard project were prudent. However, the Authority was concerned about the 100% allocation of some of the external roads and bridges to below-rail, in particular:

(a) Armstrong Beach Road overpass (east and west);

(b) Armstrong Beach Road;

(c) Gurnetts Road;

(d) Smyth's Road; and

(e) Smyth's Road underpass.

As a result, the Authority proposed that $18.3 million of the costs of the external infrastructure of the Jilalan Rail Yard project should not be allocated to below-rail and should, therefore, be removed from QR Network's claim for inclusion in the RAB.

1.5 QR Network's Response to the Draft Decision

On 3 February 2012, QR Network responded to the Authority's December 2011 draft decision. QR Network acknowledged that it had already accepted a number of the deductions including the $6.7 million reduction to Jilalan Yard and the removal of $1.3 million for non-commissioned projects. QR Network also agreed with the write down of costs related to the sealed section of Gurnetts Road ($3.2 million) in the Jilalan Yard project.

However, QR Network did not agree with the reduction in the bridge-related costs and external road works and in the road realignment costs for the Jilalan Yard project. QR Network's response included two positions:

(a) *position 1* – reiterated QR Network's view that 100% of the costs associated with external road works, realignment and bridges should be included as part of the below-rail costs; and

(b) *position 2* – indicated that, in the event the Authority did not accept the proposed allocation of costs under position 1, QR Network proposed an alternate methodology to allocating external road costs between the above and below rail aspects of the project. This option would see $15.3 million deducted from the below-rail part of the project, in comparison to the $18.3 million deduction proposed in the Authority's draft decision.

The remainder of this decision examines in detail QR Network's 2009-10 capital expenditure submission. Chapter 2 examines capacity expansion projects, Chapter 3 examines telecommunications and system-wide projects, Chapter 4 examines asset replacement projects and Chapter 5 examines post-commissioning works.

2. CAPITAL EXPANSION PROJECTS

2.1 Introduction

QR Network's 2009-10 submission included three capital expansion projects valued at $267.8 million (i.e. 86.6% of the total 2009-10 capital expenditure claim), namely:

(a) Jilalan Rail Yard ($193.5 million below-rail claim);

(b) Grantleigh to Tunnel duplication ($46.2 million); and

(c) DBCT 3rd Loop feeder station ($28.1 million).

Pre-approval of scope for each of the capital expansion projects was obtained in accordance with the customer voting process contained in QR Network's approved access undertaking. This process provides that, if at least 60% of affected customers by volume do not oppose a project, the project is considered to have scope approval. This 60% threshold was reached in relation to each of the three projects discussed in this section.

QR Network has separated the costs for each project between the engineering costs and interest during construction (see Table 2.1 for details).

The remainder of this section provides an analysis of each capital expansion project.

Table 2.1: Project Cost Breakdown for Capital Expansion Projects

Project Name ($M)	*Actual Expenditure*	*Interest During Construction (IDC)*	*Total Project Costs*	*Percentage of Total Capital Expenditure*
Jilalan Yard	178.8	14.7	193.5	61.6%
Grantleigh to Tunnel Duplication	42.7	3.5	46.2	14.7%
DBCT 3rd Loop – Feeder Station	26.7	1.4	28.1	9.0%
Total	**248.2**	**19.6**	**267.8**	**86.6%**

2.2 Jilalan Yard

Project Overview

The Jilalan Rail Yard is a large multipurpose facility located close to two major coal export terminals (Dalrymple Bay and Hay Point) at the end of the Goonyella coal rail system.

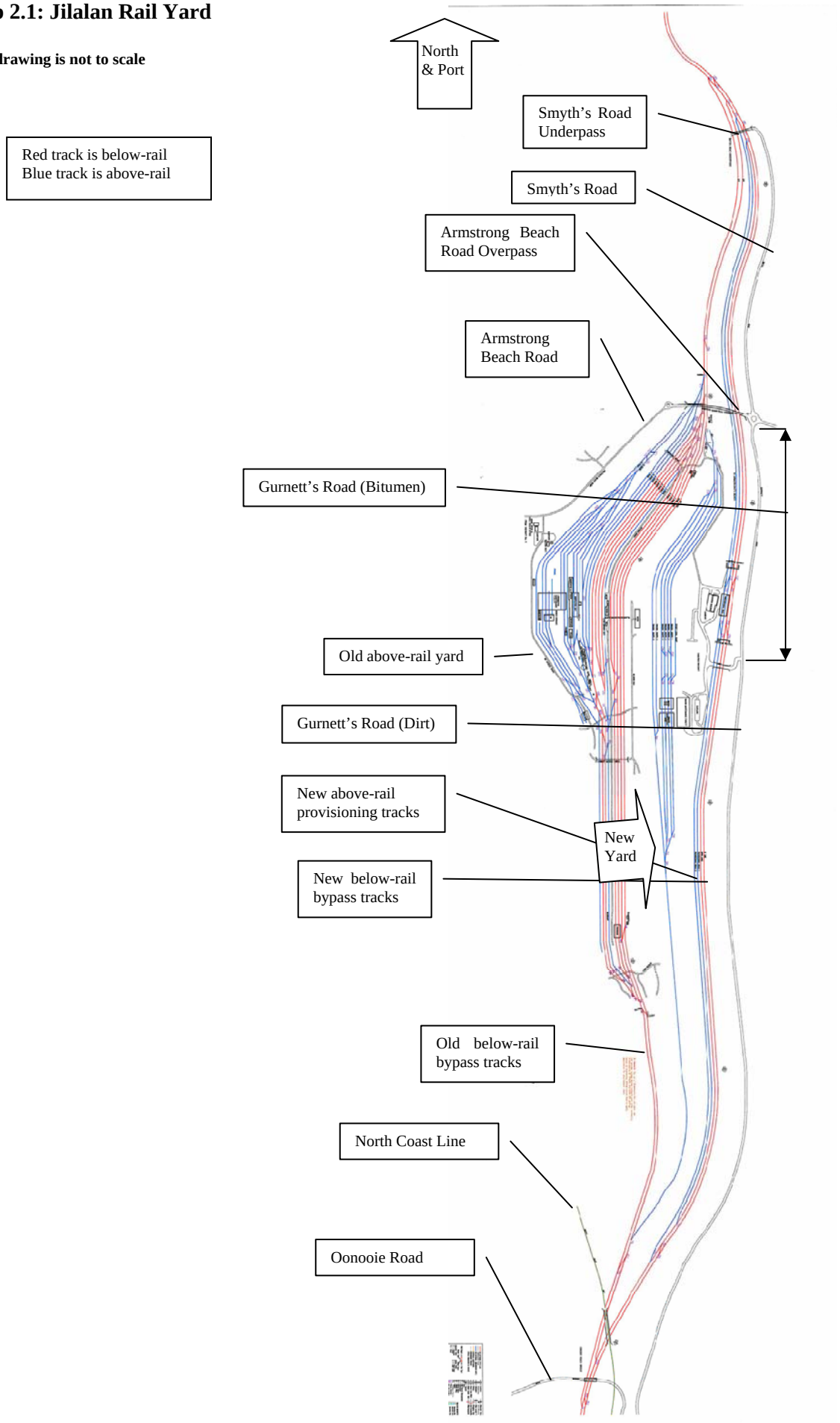
The project to upgrade the Jilalan Rail Yard was constructed as a joint above-rail and below-rail project, with QR Network funding the project in partnership with QR National, the associated above-rail operator, where:

(a) the below-rail works consisted of two 5.5 km bypass tracks and associated infrastructure enabling more flexibility; and

(b) the above-rail works consisted of two 4.5 km provisioning tracks, six yard tracks, a wagon maintenance facility, a wagon wash shed, a wagon maintenance shed, a station building and a provisioning shed.

Map 2.1: Jilalan Rail Yard

This drawing is not to scale



The Authority conducted an extensive review of the Jilalan Yard project. The combined nature of the project raised the issue of the appropriate allocation of costs between the below-rail and above-rail elements, in particular the road works undertaken as part of the joint project. A summary of the Authority's findings is set out below.

Project Management

QR Network and QR National Coal jointly established COALRail as an internal management group to project manage the Jilalan Rail Yard project on their behalf. QR Network indicated that COALRail had three main areas of responsibility, namely:

(a) nominating the key performance and quality requirements for the project and the project deliverables;

(b) managing the project implementation; and

(c) accepting project deliverables as finished upon practical completion.

COALRail was also responsible for selecting and engaging all primary subcontracted service providers.

Contracting Style

A key feature of the management of the Jilalan Rail Yard project was that QR Network and QR National (as clients) partnered with internal and external service providers through separate alliance contracts, namely:

(a) *Coal Stream Alliance Jilalan* (CSAJ) – responsible for coordinating the project and for delivering the civil works, which was by far the largest component of the project; and

(b) *Aspect 3 Alliance* – responsible for delivering the signalling component of the project.

In recent times, this style of contracting has been questioned in terms of its ability to deliver value for money to its clients, which is particularly relevant in terms of a monopoly enterprise that could seek to transfer inefficient costs to its customers. As a result, these alliance contracts were examined as part of the Authority's consideration of the prudency of the project's costs.

Scope

The Jilalan Rail Yard project was conceived and developed over a period of some uncertainty about the likely capacity requirements of the two terminals at Dalrymple Bay/Hay Point.

The Jilalan Rail Yard project was first proposed in April 2004 at an initial cost of $40.3 million to deliver network capacity up to 100 million tonnes per annum (mtpa) by the end of 2007-08[4]. These plans were subsequently revised over the course of 2005 and again in September 2006 as part of QR Network's 2006 Coal Rail Infrastructure Master Plan (CRIMP). The Jilalan Rail Yard project included in the 2006 CRIMP provided for a combined throughput of up to 129 mtpa at an estimated cost of $65 million. The works included two bypass tracks of approximately 4 km each and some flexibility in moving trains around the old yard. The 2006 CRIMP did not include modelling analysis to demonstrate that these works would deliver the projected capacity projections.

The Authority pre-approved the scope of this project in February 2007 following a customer vote that was held in late 2006.

[4] Source: QR April 2004 Capital Expenditure Program.

In September 2007, QR Network issued an addendum to its 2006 CRIMP. This addendum included a significant increase in the below-rail cost of the Jilalan Yard project with only minimal associated increase in predicted throughput. QR Network's new cost estimate was $160 million for delivery of 130 mtpa capacity.

The Authority pre-approved the amended scope of this project in December 2007 following another customer vote process.

Standard

The below-rail section of Jilalan Yard is built to the same specification as the adjoining infrastructure, namely:

(a) 26 tonne axel load (tal) heavy haul narrow gauge standard;

(b) 60 kg rail;

(c) grade A ballast; and

(d) full profile concrete sleepers.

E&P advised this standard is materially consistent with similar infrastructure under similar use elsewhere nationally and internationally.

The Jilalan Yard project included significant electrical work. E&P said the electrical work is designed and constructed to meet QR National and Australian standards. These standards are consistent with the standard of adjacent infrastructure.

This project also included significant expansion of the surrounding roads, road overbridges and a road underpass. E&P advised that the bridges are designed to comply with AS5100 to M270 standard and all elements are designed and constructed to meet the scope.

QR Network said the local Council set the standard of the road infrastructure surrounding the Jilalan Yard in accordance with Main Roads specifications.

The Authority had concerns about the standard of the works associated with Armstrong Beach Road and, in particular, Gurnetts Road. After investigating the issue further with QR Network, and with assistance from E&P, the Authority was satisfied that the Armstrong Beach Road standard was reasonable. However, the Authority formed the view that Gurnetts Road was above the standard required.

E&P indicated to the Authority that a reasonable estimate of the bitumen section of Gurnetts Road would be around $5.0 million to construct. E&P also indicated that, in contrast, a dirt road for the same section of road would cost around $1.5 million to construct.

Given this, in September 2011, the Authority proposed to QR Network that it optimise the estimated cost of Gurnetts Road to $1.5 million to reflect a dirt road and not the current built standard; that is, approximately $3.5 million should be deducted from an estimated cost of $5.0 million.

In November 2011, QR Network responded to the Authority's proposed optimisation. QR Network accepted that its initial proposed cost of Gurnetts Road should be reduced, but argued that the size of the reduction should be $3.2 million, and not the $3.5 million suggested by the Authority.

In its draft decision, the Authority accepted QR Network's $3.2 million optimisation given the uncertainties surrounding the estimates of the cost of constructing the existing road compared with constructing a dirt road.

Costs

The Authority's review of the reasonableness of the costs of the Jilalan Yard Project paid particular attention to the use of an alliance contracting approach for the delivery of key aspects of the project and the allocation of costs between the above- and below-rail aspects of the project. Each of these matters is separately dealt with below.

Alliance Contracting[5]

Contracting has traditionally been based on the concept of competitive and open bidding to ensure efficiency and equity in both the selection of the successful tenderer and in the supply of goods and services.

A range of contracting styles has developed that seek to share the various supply/construction risks between the principal and the contractor. Lump sum tendering and design and construct contracting styles place the majority of the construction risks onto the contractor. In contrast, schedule of rates contracts tends to place the uncertainties about volumes onto the principal and unit cost risks onto the contractor.

Ultimately, the assessed cost of the risk will either be added to, or deducted from, the tendered price depending on which of the two parties is expected to bear that risk. In a competitive market, it might be anticipated that risks will be allocated to those parties that are best able to manage those risks, as this will provide the principal with the lowest cost of completing the works.

Added to this are the various difficulties that occur over the life of any project associated with changes in design and scope of works that are necessary to successfully complete a project, but which also provide an opportunity for a contractor to seek additional compensation. While some of the claims out of such circumstances are reasonable, others are more debatable which can result in a quite adversarial relationship developing between the principal and the contractor.

To address these concerns, alliance contracting (which evolved out of a partnering model) developed with a view to preventing disputes and developing greater trust and cooperation between the principal and the contractor. The notion of 'what is best for the alliance is best for my organisation' emerged as the underlying principle of alliance contracting which was supported by new principles such as: tendering on factors other than price, the best people for each task, no blame, clear understanding of individual and group responsibilities and emphasis on business outcomes.

In Australia, alliance contracting emerged in the mid-1990s and grew in line with the growth of the infrastructure market, in particular in the mid to late 2000s. This growth was almost entirely concentrated in the public sector, and was particularly evident in Queensland relative to the other states.

[5] This section is based on the findings of an October 2009 report prepared by E&P and the University of Melbourne for the Victorian Department of Treasury and Finance (and other inter-state agencies including Queensland Treasury) entitled; In Pursuit of Additional Value: A benchmarking study into alliancing in the Australian Public Sector.

A recent review of the methodology, conducted by E&P and the University of Melbourne for the Victorian Department of Treasury and Finance (and other inter-state agencies including Queensland Treasury):

(a) noted that alliance contracting had been used to achieve early project commencement through the early involvement of the non-owner participants that helped to progress the project's development in parallel with project approvals; but

(b) questioned aspects of the alliance contracting methodology. In particular, where the non-owner participants were selected through non-price competition, the agreed target outturn cost tended to be significantly higher than the initial business case estimate (in the order of 35% to 45%) but the size in the saving between the final target outturn cost and the actual outturn cost was relatively modest (i.e. on average around 0.5%).

In this context, and as was noted above, the Jilalan Rail Yard project was delivered via two separate alliance contracts. QR Network said that alliance contracting was the best method for delivering the key elements of the Jilalan Rail Yard project as alliance contracting:

(a) provided a cooperative and flexible approach for delivering complex projects that have lengthy development periods associated with them;

(b) built stronger relationships with the private sector (noting that QR Network was a wholly State Government owned entity when the Jilalan project was commenced); and

(c) has the potential to achieve considerable savings in cost and delivery time, the benefits of which are shared by proponents and contractors.

The CSAJ alliance was established following the conduct of a traditional 'request for proposals' process, whereby prospective constructors and designers responded to a set of mandatory non-price criteria. CSAJ was selected because it was considered to be the best fit for the project's delivery.

The Aspect 3 Alliance was developed in response to a perceived shortage of suppliers for signalling services in Queensland. In early 2009, QR Network engaged TD Resources to review signalling delivery in the CQCR. As a result, TD Resources recommended that QR Network establish two alliance contracts to deliver signalling services in central Queensland.

The Aspect 3 Alliance was subsequently established as one of these alliances and it was first used to design and construct the Jilalan Rail Yard Project's signalling requirements. The alliance was established following a request for proposals process which generated three tenders, with the successful bid determined against selection criteria based on experience, capability and capacity to design and construct signalling to suit the rail system.

The two alliances established by QR National were responsible for delivering over 80% of the cost of the Jilalan Rail Yard Project. Internal QR National service providers were responsible for around a further 14% of the cost, with the remaining amount largely attributable to Laing O'Rourke who was responsible for overhead electrical wiring.

Authority's Analysis of the Alliance Contracts

The Authority and E&P reviewed the use of alliance contracting for delivery of the major parts of the Jilalan Rail Yard Project, both from the perspective of the initial decision to use alliance contracts as a delivery method and from the perspective of the outcomes achieved.

In particular, the Authority and its consultants focussed on whether:

(a) alliance contracts were the best form of contract; and

(b) the original outturn cost estimates were reasonable.

E&P accepted that alliance contracting was a reasonable model for completing the Jilalan Rail Yard Project for a number of reasons including:

(a) *time pressures* – there was considerable pressure on QR Network to commence the project and this was best achieved through an Alliance contract and the early involvement of the non-owner participants as it allowed planning and contract negotiations to occur concurrently;

(b) *risk management and owner's involvement* – the works for Jilalan Rail Yard Project had to be coordinated with the operations of a live network which required the type of specialist skills provided by QR Network; and

(c) *scarce resources* – at the time of contracting, the Queensland construction market was extremely tight and it was difficult for companies to hire civil construction contractors – E&P therefore questioned whether there was a viable alternative to Alliance contracting given the market conditions at the time.

QR National ran a competitive non-price tendering process to select the most suitable contractor for the job. Once an alliance proponent was selected, the chosen contractor generated a preliminary design and price (target outturn cost (TOC)) for approval by the owner (QR Network & QR National Coal). In the case of CSAJ, an independent estimator was engaged by the owners to validate the TOC as being a reasonable (value for money) estimate of the works scope to be undertaken.

From the Authority's perspective, the development of the TOC is a key part of its assessment of the reasonableness of the costs of the project as the alliance contracts have a risk/reward sharing mechanism for cost over-runs (under-runs) that may decrease (increase) the contract costs.

In the case of the Aspect 3 Alliance, this resulted in a small additional payment of less than $1.0 million for a cost over-run and in the case of CSAJ there was a cost under-run of around $40.0 million, of which the non-participant owner retained just under one half.

While the Authority has no concerns over such payments in the event of efficiently incurred costs, the Authority needs to be sure that they are not simply achieved on the basis of an over-inflated TOC that was not subject to market testing.

The Authority's investigations on this matter revealed that the majority of the cost savings were achieved in the project's cut and fill operations – i.e. not as much soil was imported to the site to be used as fill as initially anticipated as soil extracted from the site was used as fill in other areas of the site. The Authority was particularly interested in this matter as the CSAJ's forecast TOC was delivered after the Jilalan Yard EIS was completed which included a full topography, geology and soil assessment.

Ultimately, E&P was satisfied that the cost outcomes were not excessive. QR National had engaged an independent expert (Project Support Pty Ltd) to review the CSAJ's initial forecast final outturn cost. A review of the material provided to the Authority indicates that the independent expert identified a number of cost savings and that further scope and cost savings were identified by the CSAJ itself. This resulted in around $23 million in savings between the initial and final forecasts of the contract's outturn cost.

The independent expert also had available to it the information relating to the cut and fill operations and did not, at that time, identify cost savings in relation to this aspect of the contract.

As a result, E&P concluded that there was no evidence to suggest that the final outturn cost forecast was unreasonable. Further, E&P indicated that the gain share payment was not unreasonable in the context of alliance contracts undertaken elsewhere in Queensland and Australia.

Ultimately, E&P was satisfied that the cost outcomes were not excessive. As a result, E&P concluded that there was no evidence to suggest that the final outturn cost forecast was unreasonable.

Efficiency of Costs

As noted above, early in the life of this project, QR Network made significant increases in its estimate of cost for the below-rail section of the Jilalan Rail Yard Project.

The change in September 2007 to $160 million was the most significant increase (i.e. around 150%) and was attributed to unit cost increases and for additional external road and bridge infrastructure. These increases were included in the scope of works that was subject of a revised master plan and subsequent customer vote and scope approval by the Authority in December 2007.

In November 2007, there was a further increase, to $189.6 million, that was developed by the Alliance project team as an upper bound estimate. As far as the Authority is aware, this revised estimate was not provided to customers or to the Authority at that time.

QR Network's 2009-10 application included a claim of $193.5 million for the below-rail element of the Jilalan Rail Yard Project.

In August 2011, QR Network resubmitted its claimed costs for Jilalan Yard reducing its claim by $6.7 million saying the discrepancy was related to timing in a payment system. The claim is now for $172.1 million (excluding IDC). QR Network will include the $6.7 million deduction as part of the 2010-11 capital expenditure claim.

The information accompanying the submission included a broad breakdown of the below-rail costs with specific amounts identified for items such as track work, electric overhead and for signalling, but with the majority of the claimed costs ($110.9 million) being attributed to the CSAJ alliance contract.

The Authority undertook a detailed assessment of the prudency of these costs and requested further explanations from QR Network. The Authority notes there were delays in QR Network's responses; the information subsequently provided by QR Network did not always reconcile with the information included in its initial application; and not all of the information was in the form required by the Authority.

E&P concluded that, based on its analysis of the unit rate and cost breakdowns, the costs associated with the alliance contracts were reasonable as they fell within the expected industry range. More specifically, E&P concluded that:

(a) the costs associated with track work and the electrical overhead infrastructure fell within a reasonable range;

(b) the unit costs for the various bridges generally fell within a reasonable range but there were differences in their conclusions in relation to individual pieces of infrastructure, for

example the lowest unit rates were obtained for the Yard Access Bridges, Willy Creek Bridge and Armstrong Beach Road East Bridge whereas the unit rates for the Oonooie Coal Bridge and the NCL Tramway Bridge were 25% higher than what was considered a reasonable rate;

(c) unit costs for the road works were slightly above a reasonable range, but this assessment could be distorted as it was difficult to do a full like with like comparison; and

(d) the overall level of civil works was reasonable given the size of the project.

Given this, the Authority accepts that the works associated with the Jilalan Rail Yard Project were constructed at a reasonable cost. The remaining question, of whether the below-rail share of those costs is considered reasonable is discussed below.

Separation of Above- and Below-rail Costs

As the Jilalan Rail Yard Project was a joint project, at the commencement of the project, QR Network and QR National Coal developed principles to allocate costs between the above-rail and below-rail aspects of the project. The approach adopted was that the costs that were directly attributable to the construction of:

(a) below-rail facilities (e.g. "red track", safe working systems and train control) were allocated to QR Network; and

(b) above-rail facilities (e.g. "blue track", wagon maintenance, provisioning shed and station building) were allocated to QR National Coal.

This attribution approach applied to the various aspects of the track work, including formation, ballast, sleepers, rail, signalling and electrical overhead works.

However, there were other elements that were shared between QR Network and QR National Coal. The costs for these elements of the project were allocated on a pro-rata basis of the amount of the total works undertaken, for example:

(a) earthworks – costs were generally allocated based on an estimate of the proportion of the volume of earth moved in the above- and below-rail sections of the yard. For example, the rail earthworks were allocated on a 65/35 split between above- and below-rail. The capping layer costs were allocated on the proportion of embankment width; and

(b) drainage – based on a proportion of formation width, where rail drainage was allocated on a 28/72 split between above- and below-rail and internal road drainage on a 90/10 split between above- and below-rail;

Bridges and external road works were, in general, 100% allocated to below-rail – e.g. Armstrong Road Bridge (East and West), Smyth's Road underpass, NCL and tramway bridge, Oonooie Road Bridge and realignment of the Oonooie Road, Armstrong Road, Gurnetts Road and Smyth's Road.

General overhead costs that could not be allocated in this way were allocated on the basis of the ratio of direct costs.

Apart from a number of specific exceptions which are discussed below, the Authority does not have any significant in-principle objections to the way in which QR National has sought to allocate costs between the above- and below-rail elements of the facility. The Authority also has gained some confidence from an audit conducted by Ernst & Young that the costs have been attributed and allocated in accordance with the principles described by QR Network.

In particular, the Authority does not dispute QR Network's 100% allocation of the internal roads, bridges and underpass to above-rail. The Authority accepts QR Network's 50/50 allocation of the Willy Creek bridge to above-rail and below-rail on the basis of the number of above and below-rail tracks that traverse that bridge. The Authority also accepts the 100% allocation to below-rail of the North Coast Line and tramway bridge, the Oonooie Road overpass and realignment of the Oonooie Road on the basis that only below-rail tracks are located in the vicinity of these works.

However, the Authority had considerable concerns about the 100% allocation to below-rail of some of the external roads and bridges, in particular:

(a) Armstrong Beach Road overpass (east and west);

(b) Armstrong Beach Road;

(c) Gurnetts Road;

(d) Smyth's Road; and

(e) Smyth's Road underpass.

In its draft decision, the Authority concluded that the external bridges were constructed and the external roads were realigned as a result of the joint above-rail and below-rail nature of the project. The Authority proposed that the costs of the external roads and bridges be allocated between the two owners of the project. Specifically, it was proposed that the costs of these shared assets be allocated as follows:

(a) bridges, underpasses and overpasses be allocated on the percent of each owner's track that runs over or under it – this allocation method is the same as that used by QR Network for the Willy Creek bridge (see Table 2.2 for details); and

(b) the realignment costs of the Armstrong Beach Road, Gurnetts Road and Smyth's Road be allocated to above- and below-rail on the basis of the proportion of direct cost related to the above- and below-rail facilities (i.e. two thirds to above-rail and one third to below-rail) - see Table 2.3 for details. This allocation method is not dissimilar to the method QR Network used for allocating the project's common costs such as management overheads.

Table 2.2: Draft Decision Allocation of Bridge Costs

	QR Network's Cost Estimate ($M)	***E&P's Cost Estimate ($M)***	***Authority's Draft Cost Allocation to Below-rail (%)***	***Authority's Draft Cost Estimate to Below-rail ($M)***	***Amount Removed from QR Network's Application***
ABR Overpass East	5.2	5.2	60%	3.1	2.1
ABR Overpass West	8.6	8.6	50%	4.3	4.3
Smyth's Road Underpass	6.9	6.9	80%	5.5	1.4
Total	**20.7**	**20.7**		**13.0**	**7.8**

Table 2.3: Draft Decision Allocation of External Roads and Drainage Costs

	QR Network's Cost Estimate ($M)	*E&P's Cost Estimate ($M)*	*Authority's Cost Allocation to Below-rail (%)*	*Authority's Cost Estimate to Below-rail ($M)*	*Amount Removed from QR Network's Application*
ABR	Total Only	4.2	33%	1.4	2.8
Smyth's Road (Dirt)	Total Only	2.7	33%	0.9	1.8
Gurnetts Road (Optimised)	Total Only	1.8	33%	0.6	1.2
Oonooie Road	Total Only	7.0	100%	7.0	0.0
Total	**19.0**	**15.8**		**9.9**	**5.9**

To derive the cost allocation percentage for the Armstrong Beach Road, Gurnetts Road and Smyth's Road, the Authority used QR Network's latest cost estimates, and E&P's estimates where QR Network had not provided an estimate. The latest costs of the roads and bridges were removed from the below-rail costs. Then, the full direct costs of above-rail and below-rail were compared to give a percentage allocation.

In August 2011, the Authority provided QR Network with an initial assessment of its 2009-10 capital expenditure claim, in which the Authority detailed the aforementioned analysis.

In September 2011, QR Network responded to the Authority with an alternative position.

QR Network accepted the Authority's assessment of the Smyth's Road underpass, however it did not agree with the Authority's position on the other roads and bridges. Much of QR Network's argument for allocating costs to the below-rail part of this project was based on the view that QR Network should be allocated the full stand-alone costs of any works for the Jilalan project that were not specifically required for the above-rail facility. For example, in relation to the Armstrong Beach Road bridge west, QR Network said:

> *In the event that this was a stand-alone Network project to construct only the bypass roads then the existing bridge would still have been a requirement to be replaced in order to align with the new bridge required over the new infrastructure.*
>
> *As a result Network maintains that the realignment and construction of the ABR west bridge should be retained as 100% allocated to Network.*

QR Network said in relation to the Smyth's Road realignment:

> *In the event that this was a stand-alone project and only the bypass roads were constructed given the issues related to the original ABR bridge and the requirement for a new ABR East Bridge the stand-alone bypass lines would have been located in the same location as they are constructed.*
>
> *As a result the length of Smyth's road would have been required to be realigned to the northern regardless of the additional provisioning lines.*

The Authority notes that QR Network's 2008 access undertaking sets the access charge between stand-alone and incremental cost.

> *Access Charges in respect of Access which is able to be provided by virtue of Extensions should be determined in accordance with the pricing principles incorporated in the undertaking, (i.e. a uniform tariff that sits between incremental and stand-alone costs), unless the QCA considers, on application from QR Network, that an alternative approach is appropriate in the circumstances.*

The investments in the Jilalan Yard can most usefully be viewed as two distinct projects, albeit closely related in that they share costs – i.e. there are significant common or joint costs. One project is a below-rail project; the other is an above-rail project. The Authority's assessment of the Jilalan Yard project included a consideration of which portion of the project should be treated as the stand-alone portion. Stand-alone costs are defined in the undertaking as:

> *those costs that QR Network would incur if the relevant Train Service(s) was (were) the only Train Service(s) provided Access by QR Network, and where those costs are assessed as the Efficient Costs and on the basis of the assets reasonably required for the provision of Access*

Where there are two projects that share costs, the stand-alone cost of either of them will identify the upper cost limit, with the implication that the cost of the other project must be assessed according to its incremental cost, this being the lower cost limit.

The undertaking defines Incremental Costs as:

> *those costs of providing access, including capital (renewal and expansion) costs that would not be incurred (including the cost of bringing expenditure forward in time) if the particular Train Service or combination of Train Services (as appropriate) did not operate, where those costs are assessed as the Efficient Costs and based on assets reasonably required for the provision of Access*

For the purpose of assessing the two related Jilalan Yard projects, the project which is considered incremental should bear only those costs which are in addition to the stand-alone costs of the other project, where the two projects involve only efficient costs.

The Authority considered the case of QR National's Jilalan Yard project from both points of view: full stand-alone cost borne by the above-rail facility, with QR Network bearing only incremental costs; and vice versa. In its assessment, the Authority considered which party is the main beneficiary in order to choose which project would most justifiably bear its stand-alone costs. The main points that the Authority took into account in considering this matter were that:

(a) the vast majority of the new infrastructure is above-rail;

(b) QR National's internal business case lists the benefits of the Jilalan Yard project (six out of seven of which are above-rail);

(c) QR Network never considered a stand-alone below-rail project;

(d) E&P said it would not consider the Jilalan Yard project prudent if it was a stand-alone below-rail project; and

(e) QR Network's internal business case summary says:

> *The increased wagon yard infrastructure will allow for better stowage on the system, and reduce the effects of congestion by removing stowed wagons from network tracks. This is also necessary to cope with the additional wagons currently being acquired. The provisioning shed and upgrades of locomotive and wagon maintenance facilities will allow for better functionality of the system in maintaining the fleet, and improve the efficiency with which consists can be serviced and kept in operation.*

The Authority could consider this information to indicate the overwhelming reason for the development of a new rail yard in Jilalan is due to the above-rail operator's current and future requirements. One option is that stand-alone costs should be allocated to above-rail and incremental costs allocated to below-rail, in which case the amount of cost allowed into the regulated asset base would be significantly reduced.

However, the Authority went further and considered a 'with-or-without' comparison. In the Authority's with or without comparison, it looked at what infrastructure was in place at Jilalan

Yard before the development and what new below-rail infrastructure is available to QR Network post construction.

The two new bypass tracks and some flexibility in moving trains around the old yard are the two main elements of the project that are clearly below-rail. The previous facility available to the below-rail operator did include two bypass tracks; however, they only allowed a speed of 60km/h, while the new tracks allow for 80km/h. This 20km/h speed increase applies for approximately six kilometres, and could add to the capacity of the Goonyella system. However, without any capacity modelling, it is difficult to determine if the benefit justifies the size of the investment claimed as below-rail.

The Authority considers it is much clearer that the combination of the below- and above-rail facility provides the greatest benefit. There are two companies wanting to develop their facilities simultaneously. Both facilities rely on the other to create the greatest benefit to make each project a viable option.

Therefore, while each party should pay its incremental costs according to the specific parts of the project that were required for each party, they should also both make some contribution to the project's common costs. As set out above, the Authority relied on the relative proportion of below-rail and above-rail tracks to allocate external bridge costs and the ratio of the project's direct costs to allocate the road realignment costs.

In its response to the draft decision, QR Network presented two positions to the Authority. In its first position, QR Network reiterated that a 100% allocation of bridge-related costs and external road works to below rail was consistent with:

- *the scope of works which would have been necessary to provide the two bypass roads and provision of further expansion of the declared service without the need for future or further bridge or road construction;*
- *the need for the bypass roads was not specifically attributable to the inclusion of the above rail facilities in the joint project;*
- *with respect to the Armstrong beach overpass, either the current or alternate alignment of the bypass roads would have needed the overpass and associated roadwork's and accordingly would not have been avoided on a below rail only project; and*
- *with respect to the Smyth's road underpass the location and connection of the above rail roads is incidental to the alignment of the bypass roads and provide for a more efficient signalling configuration than would have been necessary an alternate connection point. Accordingly the underpass scope and design would not have been avoided on a below rail only project.*

QR Network's discussion of its first position also included responses to the five points the Authority made regarding whether incremental costs would be better allocated to the above-rail or below-rail elements of the project.

In response to the Authority's first point that the majority of the new infrastructure is above-rail, QR Network argued:

> *The analysis should necessarily be constrained to the respective cost drivers. The consideration of all above rail facilities has no relevance to the purpose, need, or cost of the nominated external roads and bridges.*

The Authority has considered this view. However, the Authority maintains its position that the Jilalan Rail Yard Project is a joint above-rail and below-rail project and that the extent of the external road realignments and bridges, and their associated costs, were driven by the joint nature of the above-rail and below-rail elements of the project. It is, therefore, reasonable to

consider these works as joint or shared costs which should be allocated between above-rail and below-rail on a reasonable basis.

In response to the Authority's second point that QR National's internal business case states a list of benefits of the Jilalan Yard project, six out of seven of which benefits are above-rail, QR Network argued:

> *(...) benefits will not always relate to cost causation which should be the primary focus of the assessment of prudency; that is the costs Network is seeking to include in the RAB should be commensurate [with] the prudent costs Network would have incurred had the bypass roads been required on a stand-alone basis.*
>
> *The provisioning roads also provide tangible benefits to the supply chain in that they allow, or provide, for resequencing of trains into coal unloading terminals which cannot be facilitated on the bypass roads. Accordingly, to the extent that consideration of benefits is relevant to the allocation of costs for the nominated external roads and bridges then this suggests that a greater proportion of these costs should be allocated to below rail.*

Again, the Authority has considered QR Network's arguments in this area, and accepts that the primary reason for allocating costs should be cost causation, and that this has been the primary reason why the Authority has sought to allocate the shared and common costs of the external infrastructure between the above-rail and below-rail elements of the project. The result of doing so is that shared costs will be allocated reasonably in such a way as to ensure total costs sit between stand-alone and incremental, which is appropriate for a joint above-rail and below-rail project such as the Jilalan Rail Yard project. The Authority has simply added the additional observation that the benefits of the project largely appear to be of an above-rail nature so it would not be reasonable to adopt a cost allocation methodology whereby above-rail bears its incremental costs and below-rail bears all other costs.

In response to point (c) made by the Authority that QR Network never considered a stand-alone below-rail project, QR Network responded:

> *(...)early master planning did consider the provisioning roads as to whether they should form part of the declared service.*
>
> *(...)providing the costs Network is seeking to include in the Regulatory Asset Base represent a lower cost than would been incurred for a stand alone project then Network should have some discretion in how those costs are allocated.*
>
> *The bypass is not installed because it has a higher speed limit (...) a key objective of the Jilalan bypass roads is to reduce congestion and remove a bottle neck in the supply chain due to increased train movements in and around the Jilalan yard*
>
> *(...)the need for the Jilalan bypass roads was not contingent upon the above rail facility. They were necessary to achieve operational efficiency and increase the capacity of the Goonyella coal system associated with the need to manage increasing variability associated in terminal loading requirements*

The Authority notes these arguments, but considers that they do not establish a compelling reason for shifting away from its draft position that there should be a reasonable allocation of shared costs between the above-rail and below-rail elements of the project.

In response to the Authority's point 4, QR Network asked the Authority to clarify the basis of E&P's view that it would not consider the Jilalan Yard project prudent if it was a stand-alone below-rail project. This clarification, which was provided to QR Network on 30 January 2012, noted that:

> *(a) the statement made was specifically in response to QR's statement alleging that the requirements for construction of the major structures (such as Armstrong Bridge and associated roadworks) was due wholly to the constraints imposed by the below rail requirements (i.e. alignment, design, length of the bypass lines) and hence costs should be allocated 100% below rail.*
>
> *(b) from the analysis it was considered that there were constraints posed by both above (i.e. Jilalan Yard entry/exit roads) and below rail (2 bypass lines). Constraints and requirements from both of these (both during the construction period and to optimise future utilisation) dictated the construction and design requirements of the major structural components in question, and hence it is considered a reasonable approach that the cost be apportioned accordingly*
>
> *The qualification around the statement was based upon the context of the choice of alignment that led to a) bridge of a certain location and certain span and b) associated roadworks, that satisfied the constraints and requirements of the chosen bypass and yard works. From the information provided substantiating the choice of alignment, observations were made that:*
>
> *(a) one could reasonably assume that if the yard was not required and the same amount of adjacent works were necessary to achieve the alignment and design for that section track, further scrutiny would have been applied at the CBA/evaluation stage of the project and the expenditure required would have been more difficult to justify. This possibly would have made other options (even those that may not have yielded as optimum an alignment but resulted in significant cost reductions in associated works) feasible.*
>
> *(b) however it is off note that this statement is in relation to the current information known and is not based on results of any capacity analysis which may, if applied in a CBA/MCA evaluation, provide evidence that the expenditure is justified for the capacity and revenue gained wholly from the chosen alignment.*
>
> *Essentially, from the information provided to date, it is considered reasonable to assume that, without the constraints and requirements for the yard, the increased flexibility would have allowed an alignment to be selected that required less roadworks and a shorter bridge span.*

To this, QR Network's response was:

> *The length, alignment and cut in of the bypass roads is necessary to provide this capability in that they are able to hold a full Goonyella length coal train. This capability delivers significant capacity benefits and below rail flexibility to the Goonyella system. It also avoids potentially more costly duplication of and additional holding roads at the relevant coal unloading facilities.*
>
> *It is for these reasons that provision has been made in the initial design to accommodate a third bypass road. This delivers significant below rail efficiency for future access seekers as it avoids the costs associated with demolition and reconstruction of bridges to provide or meet future expansion requirements. Cost allocations should therefore at a minimum be representative of current and future benefits and not based solely on current asset configurations.*
>
> *(...)the existing Jilalan yard was inadequate to support expansion of the Goonyella supply chains and the two old main lines would not have had sufficient capacity to manage traffic numbers for the coordination of two rail operator's services and sequencing / resequencing to the ports, particularly to meet the cargo assembly and stockyard operating requirements at DBCT. Accordingly the two bypass roads are essential to deliver the increased capacity.*
>
> *(...)in the absence of the Jilalan project the nominated external roads and bridge works would certainly have been necessary on a stand alone below rail basis where triplication of the mainline become necessary. In this regard it is not unreasonable that allocated above rail costs for the nominated external roads and bridges would be set-aside and rolled forward with the written down asset values included in the RAB at that point in time when triplication would be deemed necessary. This ensures future users of the declared services make a contribution commensurate with the avoided costs.*

Again, the Authority accepts that the bypass roads provide additional below-rail flexibility and the Authority's draft decision did not question the prudency of the below-rail costs. Moreover, the Authority has taken into account the scope for a third below-rail track when reviewing the cost allocation of the external infrastructure between the above-rail and below-rail aspects of the project.

The point that E&P was making was a relatively simple point, that the design of the below-rail infrastructure at the Jilalan Yard would be different if there was not an above-rail facility there. The efficient cost of constructing that alternate, hypothetical infrastructure is likely to be lower than the stand alone cost that QR Network was proposing be allocated to below-rail. There was nothing in the material QR Network provided in response to the draft decision that clearly refutes this relatively simple proposition.

The Authority therefore maintains the view that there were constraints posed by both above-rail and below-rail infrastructure that dictated the realignment of the external roads and construction of the bridges, which is why the Authority is of the view the costs involved are shared and should be appropriately allocated between above-rail and below-rail.

With regard to the Authority's fifth point, which cited QR Network's internal business case summary regarding benefits to above-rail operations, QR Network responded:

> *...it could also be argued, as E&P have done that on a 'with and without' basis the provisioning road alignment and length may have differed if the bypass roads did not form part of the project design.*
>
> *...consideration should be given to the legitimate business interests of the access holder/access seeker who has entered into commercial positions based on an expectation of its balance sheet commensurate with those allocations.*
>
> *The definition of incremental and stand-alone costs within the access undertaking relates only to the pricing limits for an individual or combination of train services. It is not intended to be applied to the allocation of costs between the declared service and other markets. Had these assets been pre-existing and Network was seeking to include these assets into the Regulatory Asset Base the appropriate cost definition would be DORC. This value would be substantially in excess of the below rail amounts claimed as it would not include any efficiencies associated with the joint project. It is not clear why a different test should apply where Network is seeking to include existing assets into the RAB compared to the consideration of prudent costs in the capital expenditure claim.*

The Authority accepts QR Network's point that the references to incremental and stand-alone costs in the 2010 undertaking are in relation to pricing limits. However, the Authority does not accept QR Network's argument that it is not intended to apply to cost allocations. This decision relates to what expenditures should be included into the RAB. The RAB in turn is then used to establish reference tariffs. It logically follows that for a reference tariff to sit within the undertaking's pricing limits, the costs upon which those tariffs are based (e.g. the RAB) must also sit within the incremental and stand-alone cost pricing principles.

After taking these matters into account, the Authority maintains its position that the Jilalan Rail Yard project should be considered as a joint above-rail and below-rail project and that it is appropriate that shared costs should be allocated on a reasonable basis between above-rail and below-rail.

The Authority, therefore, rejects position 1 as set out in QR Network's response to the Authority's draft decision.

In its alternate position 2, QR Network stated that:

> *In the event that the QCA does not accept the proposed allocation of costs under Position 1 detailed above, Network is proposing to apply the simplified allocation methodology to External Road costs as was applied to bridges in the QCA Draft Decision based on the number of tracks.*

> *In the case of External Roads the requirement to move or realign an external road was directly related to the installation of additional track infrastructure. Therefore the number of tracks should have a direct impact on the allocation of costs.*

The Authority accepts that position 2 in QR Network's response to the draft decision is not an unreasonable allocation methodology. However, the Authority considers that QR Network has not established a convincing case that its position 2 approach is was more appropriate than the approach set out in the draft decision. As a consequence, the Authority has decided to retain the allocation method it proposed in the draft decision to be applied to the cost of the realignment of external roads. That is, external bridge costs are allocated on the relative proportion of associated below-rail and above-rail tracks and road realignment costs are allocated on the basis of the ratio of the direct costs of the above-rail and below-rail elements of the project.

The Authority notes that, in its response to the draft decision, QR Network said that the value of the Armstrong Beach Road East and West bridges was overstated by $1.0 million each as the Authority had included the cost of demolishing the existing Armstrong Beach Road bridge in the cost of building the new bridges. The Authority has subsequently confirmed with QR Network the correct value of bridge structures as derived from the CSAJ Alliance Cost Workbook as at June 2010. The Authority has therefore amended its costings and thus the amount that has to be deducted from the 2009-10 capital expenditure claim (see Tables 2.4 for details).

Table 2.4: Final Decision Allocation of Bridge Costs

	QR Network's Cost Estimate ($M)	***E&P's Cost Estimate ($M)***	***Approved Cost Allocation to Below-rail (%)***	***Approved Cost Estimate to Below-rail ($M)***	***Amount Removed from QR Network's Application***
ABR Overpass East	4.2	4.2	60%	2.5	1.7
ABR Overpass West	7.6	7.6	50%	3.8	3.8
Smyth's Road Underpass	6.9	6.9	80%	5.5	1.4
Total	**18.7**	**18.7**		**11.8**	**6.9**

Conclusion on Jilalan Yard Upgrade Project

The Authority considers that QR Network should remove a total of $24.0 million from its claimed cost of $193.5 million for the below-rail element of the Jilalan Rail Yard project. This is comprised of:

(a) $6.7 million for timing differences;

(b) $15.9 million for cost allocation changes, comprising

  (i) $3.2 million for the sealed section of Gurnetts Road;

  (ii) $6.9 million for bridge costs;

  (iii) $5.8 million for external roads; and

(c) $1.4 million of interest during construction related to the various cost changes.

2.3 Grantleigh to Tunnel Duplication

Project Overview

This project duplicated 8.6 km of track between Grantleigh and Tunnel on the Blackwater main line and it is the final duplication in a series of eight to make a total of 121 km of duplicated track from Stanwell to Dingo.

QR Network estimated that this duplication will allow demand on this section of track to be more secure at 68 mtpa with a decrease in the average cycle time. QR Network commissioned this project in September 2009.

Authority's Analysis

Scope

QR Network's 2007 Addendum to the 2006 Coal Infrastructure Master Plan (2006 Master Plan Addendum) proposed this project at a cost of $53.5 million to deliver an increase in capacity due to a 2% reduction in system cycle time. Customers supported this project through the customer pre-approval voting process and the Authority subsequently pre-approved the scope of this project in December 2007.

The Authority has reviewed and accepts that the scope of the completed works is as stated in QR Network's Master Plan and as approved by customers.

Standard

The 2008 undertaking (schedule FB cl. 2.3.3 (b)(ii)) provides for QR Network to build new track to the same standard as adjoining infrastructure. This duplication is part of the main Blackwater line. E&P advised that QR Network's Blackwater mainline standard is fit for purpose. E&P also advised that this duplication was designed and constructed for the suitable running of trains at the Blackwater system track standard of 26 tal at 80 km/h.

The Authority has sighted QR Network's commissioning certificates, which are signed by its engineers as meeting the required standard.

Accordingly, the Authority accepts E&P's recommendation and the commissioning certificates as evidence that QR Network constructed this project to a reasonable standard, and the project is assessed as prudent.

Cost

The final actual cost of this project was $42.7 million plus $3.5 million in IDC ($46.2 million in total). This is approximately $5.5 million per kilometre. E&P noted that this is at the high end of what is considered the reasonable range, but which could be attributable to a range of factors including its location on a hilly section of land, a three span duplicated bridge 44.6 metres long and over 6 metres high, 17 minor culverts and bidirectional signalling.

QR Network used a private contractor to complete over 60% of this project. The contractor was selected through a competitive tender process to complete the civil work for seven other QR Network capital projects. QR Network said the contractor's offer to complete this project was at similar unit prices as previous projects.

E&P reviewed the costs of this project and concluded it is prudent.

The Authority accepts that the cost of this project is prudent given the information provided by QR Network and E&P's assessment.

2.4 DBCT 3rd Loop Feeder Station

Project Overview

The DBCT 3rd Loop project was commissioned in two stages, namely:

(a) stage 1 – constructing the 3rd rail loop including rail, civil, overhead and signalling ($100.1 million); and

(b) stage 2 – which included constructing:

  (i) the feeder station;

  (ii) track section cabin (TSC) at Grasstree;

  (iii) associated electrical works located around the feeder station; and

  (iv) the feeder supply between DBCT feeder station and Grasstree ($28.1 million).

The first stage of this project was approved in QR Network's 2007-08 capital expenditure claim. This year's claim refers to stage 2 of the project only.

The objective of the DBCT feeder station project was to increase the capacity of the rail network by increasing the reliability of electricity supply to the port area, reducing the load on the Oonooie feeder station and allowing for contingency feeding from the port to Oonooie feeder station.

Authority's Assessment

Scope

QR Network first proposed the DBCT 3rd loop project (at a value of $83.4 million) in its 2006 Master Plan (September 2006) which included a brief outline of the scope of the project; i.e. to 'undertake upgrades to strengthen the overhead system by 2009'.

The Authority pre-approved the scope of this project on 21 February 2007 following a customer vote that was completed in late 2006.

In 2007, QR Network approved an extra $26.2 million for the DBCT 3rd loop project which was due, in part, to an "increase in the cost to construct the electrical feeder station to best suit short and long term traffic volumes".

As mentioned as part of the assessment of the scope of the Jilalan Rail Yard project, the Authority has concerns that QR Network's descriptions of projects as supplied to the customer voting process are too brief and subject to change after the vote has taken place. This practice brings into question the validity of the customer vote and the Authority's subsequent pre-approval of scope. The stage 2 DBCT 3rd loop project is another example of the Authority's concerns in this regard.

Given this, the Authority and E&P assessed the entire scope of the DBCT feeder station project.

The DBCT feeder station supplies electricity to seven separate lines servicing DBCT, Hay Point and all track past Jilalan Rail Yard to Oonooie feeder station.

QR Network has departed from its usual connection arrangement and provided improved versatility, minimised network disruptions and reduced costs. The improved connection now enables QR Network to discriminate between electrical sections for fault analysis, repair and improvements. This has reduced the requirement for track possessions in a critical area of the network.

The new feeder station also allows for a fall back source of power for the port area of the rail network. Before the introduction of the DBCT feeder station, if the Oonooie feeder station broke down, needed repair or maintenance, the entire track section of the port unloading facility would be un-operable.

E&P's investigations led it to conclude the DBCT feeder station scope is reasonable due to the large increase in tonnes in this part of the network. Given the above and E&P's advice, the Authority also concludes the scope of this project is reasonable.

Nevertheless, the Authority also notes that as a consequence of the DBCT 3rd loop project, the Oonooie feeder station now has extra capacity which is being used to supply electricity to QR National Coal's above-rail Jilalan Yard. The Jilalan Yard draws its power from Oonooie and QR National Coal pays for the energy used but it does not pay for the use of the asset. Train operators pay for the use of electrical assets through the AT_5 tariff, which is calculated by the use of electric gross tonne kilometres (egtks) – as assessed by mainline, and not yard, operations.

In this regard, it is noted that the Oonooie feeder station and associated electrical assets were installed in 1987 and were included into the RAB with an average asset life of 25 years. There is, therefore, not a material issue associated with the reasonableness of the allocation of costs between the above-rail and below-rail services provided by the Oonooie feeder station.

However, this may become a material issue in the event that the Oonooie feeder station, and associated electrical infrastructure, was replaced at the end of their economic life.

Standard

QR Network reviewed the general standard of its electrical network in its working paper 4.6 entitled 'Rationale for Electric Traction System Upgrades in the CQCR'. The paper noted that the economic life of many of the electric system assets had expired and no longer met modern standards. The paper added that the age and low standard of the electrical equipment had adverse impacts on the Powerlink grid and were not consistent with the National Electricity Rules.

There is increasing demand for electric powered locomotives in the port end of the Goonyella system and QR Network's expansion plans are a reasonable response. More traffic and higher tonnes per train increases the risk of a power failure which, in this part of the network near the port, would cause significant disruption to coal exports from Queensland.

E&P said the new feeder station was constructed to the latest standards using contemporary technologies and integrated protection. E&P also said the standard is consistent with industry developments meeting contractual loading and regulatory requirements.

The Authority has sighted QR Network's commissioning certificates for the DBCT feeder station and Grasstree track section cabin. The certificates are signed by QR Network Power Systems Manager to certify the project meets the required standards.

Considering QR Network's commissioning certificates backed by E&P's assessment, the Authority finds the DBCT feeder station and associated works are of a reasonable standard.

Cost

In 2007, the scope and cost of the DBCT 3rd loop project was increased to $109.6 million. According to QR Network, the power strengthening part of the project had to be altered due to Powerlink and Ergon development plans. QR Network considered four options for the power strengthening and decided to construct the new DBCT feeder station in a new location. This option had the added benefit of removing the need for further power strengthening for the Jilalan Rail Yard project. QR Network estimated the change in location of the feeder station would cost an extra $6.1 million.

QR Network's revised claim for the DBCT feeder station is for $25.3 million in construction costs and $1.2 million of accumulated IDC. E&P advised the Authority that the cost increases during the development of this project were due to tight market conditions.

In addition, QR Network advised that the equipment and alliance costs, which made up 83% of the total cost of the project, were decisions made through open tender processes.

The Trackstar Alliance was formed by QR Network to complete a set of expansion projects over a few years, including the DBCT 3rd loop project. QR Network contracted the Trackstar Alliance at a similar time to the Jilalan Alliances. At the time of contracting, the Queensland construction market was extremely tight. Construction costs were running at very high levels and it was difficult for companies to hire civil construction contractors. In relation to the Jilalan Yard Alliances, E&P said alliance contracting is considered a reasonable form of contract given the market conditions at the time.

E&P advised the DBCT feeder station equipment costs are in line with expectations given the market conditions at the time of construction. E&P said its final conclusion is this project's costs are prudent.

As part of its review, the Authority identified that $1.4 million (before interest) of expenditure on the electricity feeder station had been incorrectly included as part of stage 1 of the DBCT 3rd loop project. As the error relates to previous years' claims which have already been rolled forward into the electric assets in the RAB, QR Network suggested correcting this error by making an appropriate adjustment to the 2009-10 capital expenditure claim. The Authority considers this approach to be reasonable, and amounts to a $1.7 million deduction once the applicable interest during construction has been removed.

The Authority accepts E&P's assessment that the cost of this project is reasonable and prudent.

3. TELECOMMUNICATIONS, SYSTEM WIDE, SAFETY AND RELIABILITY PROJECTS

3.1 Introduction

QR Network's submission included 27 telecommunications projects totalling $2.6 million, 19 system-wide projects ($2.9 million) and four safety and reliability projects ($1.0 million), which together represent around 2.1% of the total 2009-10 capital expenditure claim.

The Authority completed a detailed investigation into the two largest telecommunications projects, the largest system-wide project and the largest safety and reliability project, namely:

(a) safety and reliability:

  (i) Rangal feeder station reconfiguration ($0.1 million).

(b) telecommunications:

  (i) asynchronous transfer mode (ATM) backbone replacement ($0.7 million); and

  (ii) corporate wireless LAN deployment ($0.3 million); and

(c) system wide:

  (i) QR Network billing ($1.0 million).

The Authority also conducted a high level review of the remaining telecommunication, system wide and safety and reliability projects.

In undertaking this assessment, the Authority noted that QR Network's expenditure on these assets is broadly consistent with past years.

QR Network advised that many of its telecommunications projects were brought forward or increased due to QR National's separation and privatisation. The separation of telecommunications between Queensland Rail (QRail) and QR National is estimated to be completed by July 2012 and the costs are shared through a written agreement. Currently, there are Multiprotocol Label Switching (MPLS) devices (a device that separates electronic messages on the one line) in place to separate the telecommunications sent on the shared backbone. QR Network advised the new backbone infrastructure will provide a more secure network.

The Authority's assessment of the main projects is summarised below.

3.2 Statewide – ATM Backbone Replacement

Project Overview

This project is a five-year staged replacement of obsolete backbone data telecommunications infrastructure. The previous infrastructure was suffering from stability and maintenance issues due to its age and unavailability of technical support.

Authority's Analysis

The scope of this project involved decommissioning the old ATM switches at nine locations across the state, and replaced them with new MPLS backbone switches at the nine previous sites, as well as adding three new sites including Callemondah.

This project also included an upgrade of some transmission nodes at microwave sites and major centres to include gigabit ethernet optical interfaces (a form of optical fibre technology).

E&P said the new MPLS infrastructure is a current generation industry accepted technology that is known to provide greater efficiencies in cost and operations.

The works were designed, developed and delivered by internal resources in the Network Assets, Network Infrastructure (NANI) and Rail Systems Services (RSS) groups.

E&P said that these telecommunications assets provide the underlying backbone capability and individual channel capacity to support all communications, data and information systems across the rail network. QR Network requires the appropriate established safety standards and good practice guidelines to develop and implement all telecommunication assets and systems. QR Network said that the standard of work was as required to complete the complex scope of works.

Although the relevant standards have not been sighted by E&P, from the information given and subsequent discussions with relevant QR Network personnel, E&P concluded that the standard was prudent for the scope of the works.

QR Network said that this project is an ongoing effort to improve its telecommunications in central Queensland. The total project costs are currently $1.7 million from a budget of $1.9 million and the project is now closed.

QR Network said it allocated 43% of the project costs to the below-rail operator in accordance with the approved costing manual. Therefore, QR Network's submission is for $0.7 million in the 2009-10 year.

On reviewing the information provided by QR Network, E&P concluded that the project's cost was prudent.

Considering E&P's assessment, the Authority has concluded that the scope, standard and cost of this project is reasonable and prudent.

3.3 Corporate Wireless LAN Deployment

Project Overview

This project will provide six sites of wireless Local Area Network (LAN) within the Brisbane CBD. QR Network said this project provides staff with portability around the CDB and the ability for staff visiting the CBD to log onto both the Brisbane and regional based servers. This project will also develop wireless LANs in Rockhampton, Townsville and Cairns. QR Network said that these developments are necessary to facilitate future technology advances such as wireless video conferencing, wireless and portable printers, data projectors and smart boards.

QR Network advised this project is currently on hold due to the separation of QR National from QRail. Currently, the responsibility for this project has transferred to QRail. QR Network has claimed $0.3 million for this project as part of its 2009-10 capital expenditure claim.

Authority's Analysis

The scope of this project was to install six wireless LAN networks within the Brisbane CBD and some in regional areas.

E&P considered the scope of the project to be prudent as it considered that wireless LAN technology was a necessity to facilitate current and future business practices and requirements.

QR Network advised that these works were carried out by NANI and RSS telecommunication groups (an internal contractor for Telecommunications services). E&P said:

> *Although the relevant standards have not been sighted by Evans & Peck, it is considered that the standard of work was as required to interface with existing IT systems and equipment. As the system is currently functional within the broader QR system, in Evans & Peck opinion the standard is considered prudent for the scope of works.*

QR Network said this project is ongoing and its costs to 30 June 2010 were $0.8 million.

QR Network said it allocated 43% of the project costs to the below-rail operator as specified in the Authority's approved Costing Manual. Therefore, QR Network's submission is for $0.3 million in the 2009-10 year.

E&P concluded that, based on its review, the costs of this project were prudent.

Considering E&P's assessment, the Authority has concluded that the scope, standard and cost of this project is reasonable and prudent.

3.4 Network Billing

Project Overview

This is an on-going project that involves implementing a computer system designed to read QR Network's ViziRail computer system and report via its SAP reporting system. ViziRail is a QR Network specific program used to manage train movements on the CQCR network. SAP reporting system is QR Network's program used to account for cash flows. QR Network said that a new billing system was needed following the introduction of two operators on the network. The new system is designed to allow transparency for the operators.

Authority's Analysis

The scope of this project was to replace the old billing system that was based on spreadsheets, databases and other systems. The previous system was reliant on manual processes creating a risk of error and relied on data from the operators.

This project scope was considered prudent in the 2008-09 capital expenditure assessment undertaken by E&P in March 2010.

E&P said the proposed new billing system uses proven technologies as it is SAP-based which is a widely used information technology platform including in QR National and many other state and national industries. E&P concluded that as the project sought to integrate QR Network's SAP system with its ViziRail train management system, this ensured interoperability with existing systems. On this basis, E&P concluded that the project was a prudent and efficient approach.

The Authority approved $0.2 million for this project in the 2008-09 capital expenditure assessment. This year, a further $2.3 million was spent on this project.

QR Network said it allocated 43% of the project costs to the below-rail operator as specified in the Authority's approved Costing Manual. Therefore, QR Network is requesting a further $1.0 million be approved for this project.

While the project was still on-going as at June 2010, it was closed in November 2010 with only minor expenditure being incurred in the 2010-11 year. QR Network has indicated that the system is functioning and has been welcomed by QR Network users and customers.

E&P noted the greatest costs in the project were during the implementation stage. This aligns with the expected expenditure of most IT projects, where high costs are incurred during training and testing stages. E&P said that the costs of the project were prudent.

Considering E&P's assessment, the Authority has concluded that the scope, standard and cost of this project is reasonable and prudent.

4. ASSET REPLACEMENT PROJECTS

4.1 Introduction

QR Network's submission included 27 asset replacement projects valued at $18.9 million, which represents around 6.1% of the total 2009-10 capital expenditure claim.

The Authority completed a detailed investigation into the five largest projects, namely:

(a) Blackwater pin point detector upgrade ($4.6 million);

(b) CQCR turnout replacement – stage 2 & 3 ($3.4 million);

(c) CQCR formation strengthening ($2.6 million);

(d) American Rolling Mill Company (ARMCO) pipe renewals ($1.7 million); and

(e) Goonyella traction distribution asset replacement – stage one ($1.0 million).

The Authority notes that QR Network's expenditure on asset replacement projects is broadly consistent with previous years (e.g. $16.6 million in 2008-09).

E&P reviewed each of the aforementioned asset replacement projects and concluded that the scope, standard and costs of the projects were prudent. In particular, E&P noted that the assets were replaced with the modern equivalent asset.

It is also noted that QR Network removed a number of these projects from its application as they were in the early stages of development so a proper assessment of their prudency of scope, standard and cost could not be completed. These projects included the Goonyella traction distribution asset replacement project, Callemondah motorising 283 points, Blackwater and Goonyella power system asset renewal and the CQCR level crossing projects. QR Network can seek to have this expenditure included in the RAB either once the project has been completed or QR Network has formally decided to discontinue the project.

4.2 Blackwater Pin Point Detector Upgrade

Project Overview

Pin point detectors are used to operate level crossing and signal controls.

The existing pin point detectors used in the Blackwater system are only compatible with DC traction locomotives. However, both QR National Coal and Pacific National Pty Ltd (PN) have placed orders for new AC traction locomotives (renewed 3700 Class and new 3800 Class) which they intend to operate on the Blackwater system. As the existing pin point detectors are not compatible with the new AC locomotives, QR Network has indicated that it will not allow the new AC locomotives to operate on the Blackwater system until after the existing pin point detectors are replaced.

Authority's Analysis

E&P concluded that the scope of the project was prudent as it is critical to the safe working operations of the network given that train operators have chosen to purchase AC traction locomotives.

QR Network said the completed works are consistent with QR Network standards, Australian standards and adjacent infrastructure.

E&P said this project was delivered by Westinghouse Rail Systems in accordance with alliance signalling arrangements and standards utilised for a number of duplications in the Blackwater System. E&P, therefore, concluded that the standard of this project is prudent.

QR Network has claimed $4.6 million, which compares to a project forecast of $5.3 million in QR Network's October 2008 Master Plan.

E&P said that on the basis of QR Network's advice that this claim was for the replacement of all 40 units in the Blackwater System, this represented an average unit cost of around $115,000, which E&P said was reasonable and represented a significant saving. On this basis, E&P assessed the costs as prudent.

Considering E&P's assessment, the Authority has concluded that the scope, standard and cost of this project are reasonable and prudent.

4.3 CQCR Turnout Replacement Stages 2 & 3

Project Overview

This project is stage 2 & 3 of a CQCR-wide project to replace all the old technology turnouts, where a turnout is an intersection on the rail line that allows a train to move from one line to another. Stages 1, 2 & 3 of this project were for the replacement of 68 turnouts throughout the CQCR. Stage 1 of this project included the replacement of 37 turnouts.

Stage 2 & 3 turnout replacement requires the replacement of a further 31 turnouts. In 2010, the Authority approved the final turnouts for Stage 1 of the turnout replacement program.

Authority's Analysis

This is an on-going project and the Authority accepted elements of stage 1 of the project as part of its reviews of QR Network's capital expenditure in 2005-06 and 2006-07.

The scope of this project was to replace the remaining 31 turnouts in the CQCR rail network.

E&P said these turnouts were identified as life-expired and in some cases severely corroded due to coal fouling. The change to the new technology (SNX) turnouts is consistent with current national and international industry trends where higher axle loads and/or speeds are required. E&P said that replacing the turnouts was prudent, as rehabilitating the original RBN turnouts, would involve higher maintenance costs, additional safety risks and increased risk of failure of the components on RBN turnouts under higher load capacities.

QR Network said this project required:

(a) replacing aging 47 kg/m and 53 kg/m RBN type turnouts on timber sleepers with new 60 kg/m SNX (swing nose) type turnouts on concrete sleepers;

(b) timber sleepers to be upgraded to concrete sleepers; and

(c) older turnouts in good condition to be transferred for use in low risk locations, e.g. yards.

E&P said the upgrades were consistent with supply chain elements in relation to transferring to proven technologies for high capacity heavy haul railways. E&P said that all works appeared to have been carried out to the relevant QR Network standards, and national and federal legislative requirements. E&P, therefore, concluded that the project standard was prudent.

QR Network claimed $3.4 million for this project in the 2009-10 year and said its estimated cost per turnout is $725,000 each.

QR Network said the individual turnout costs have increased from the Stage 1 (2007-08) costs of approximately $225,000 per turnout to $725,000 per turnout in Stage 2 and 3. For Stages 2 & 3, the turnouts will often be in different configurations or constructed to differing specifications to the existing turnouts to better meet the business requirements of the systems.

The higher costs are also attributed to:

(a) cost increases in raw materials;

(b) additional changes to overhead and signalling systems required to accommodate these stage 2 turnouts which were not required in stage 1; and

(c) all turnouts are replacements whereas a number of the stage 1 projects were only upgrades.

E&P advised the Authority that from the information provided by QR Network it has assessed this project as reasonable.

Considering the information provided by QR Network and E&P's assessment, the Authority has concluded that this project is considered reasonable and prudent.

4.4 CQCR Formation Strengthening

Project Overview

The Bowen Basin coal reserves are located in an area of widespread reactive clays. These clays exhibit a tendency to shrink and swell as moisture content varies, causing failures when the clays are saturated. A large percentage of speed restrictions on the coal network are attributable to formation failure.

This project aims to strengthen the track formation through a combination of reconstruction and lime-slurry injection work. These works have both a proactive and reactive element. Lime-slurry injection works are carried out to reduce the amount of formation reconstruction works that may be required. Reconstruction works can be undertaken either in sections that are prone to formation failure or are in high risk areas. Reconstruction works can also seek to recover affected track sections back to standard to remove imposed speed restrictions.

This is a multi-stage project that has been on-going across central Queensland since 2004.

Authority's Analysis

The Authority has approved the scope of these works as part of previous reviews of capital expenditure. E&P's review again supported the scope of the works indicating that the work method appears to be prudent in specification for the site, engineering requirements and system operational capacities.

E&P also added that the standard of the project was prudent as formation strengthening results in overall improvement of track alignment and stability that is proven to provide better ride for vehicles and minimises wear on track and wheel profiles.

In reviewing the costs of the project, E&P indicated that the unit rate of the works (i.e. the cost per metre) is consistent with an average rate for similar works over the 2005-10 period. On this basis, E&P has assessed the costs as prudent.

The Authority accepts this project is reasonable.

4.5 ARMCO Pipe Renewal

Project Overview

ARMCO steel culverts, or pipes, provide drainage around the rail formation for natural water courses and for flood mitigation.

The pipes to be replaced by this project were installed as one of the preferred methods of drainage at the time of coal system track construction in the mid-1980s, and at around 25 years old are approaching the end of their serviceable life. Over time, the use of metal pipes has been phased out due to an increased preference for reinforced concrete culverts and pipes as they provide a longer asset life as they are not susceptible to corrosion.

Routine structure inspections have revealed that a number of steel culverts exhibited a random pattern of spot corrosion associated with surface contact with backfill that contains high concentrations of corrosive salts.

Authority's Analysis

The scope of this project was to replace the life expired and corroded metal pipes with reinforced concrete pipes or a suitable alternative at several locations in the Goonyella system.

E&P considered that the scope of this project was prudent, as the replacement of the corroded pipes will:

(a) reduce the risk of derailment and speed restrictions due to track alignment and, in some cases, potential catastrophic failure of the structure;

(b) reduce the percentage of inspections at the locations chosen;

(c) decrease the maintenance required at the structures; and

(d) improve the overall track condition in line with adjacent and existing infrastructure.

In support of its application, QR Network said the completed works were consistent in all material respects with the existing standard and configuration of adjacent infrastructure as reinforced concrete pipes and culverts are the modern engineering standard for drainage throughout the CQCR.

E&P said that the information supplied by QR Network confirms compliance with QR standards and legislative requirements. The new culverts are designed and constructed to design loading 300A. E&P considers the standard of this project is prudent.

E&P said that at an average costing of $600,000 per site, the costs are considered reasonable given the complexity of works in close proximity to track and the requirement for rapid resourcing and planning given the critical nature of the works.

E&P noted that a number of options were considered and it concluded that QR Network's preferred option was optimal in terms of providing a sustainable solution that minimised disruption to operations during construction. On this basis, E&P assessed the costs as prudent.

The Authority accepts this project is reasonable.

5. POST-COMMISSIONING WORKS

5.1 Introduction

Many of QR Network's large projects are constructed over several years and have several stages of development. QR Network often commissions a project before the final stages of the project have been completed, with the remaining works generally completed in the year following commissioning. This part of QR Network's capital expenditure claim seeks to include these final stages of work in the RAB.

The capital expenditure application had 15 post-commissioning projects valued at $12.2 million, which represents around 3.9% of the total 2009-10 capital expenditure claim. The Authority has investigated in detail four of these projects valued at $8.5 million. The projects investigated were:

(a) Mindi substation ($3.4 million);

(b) Bollingbroke feeder station ($2.2 million);

(c) Stanwell to Wycarbah duplication ($1.6 million); and

(d) Broadlea – Mallawa – Wotonga duplication ($1.2 million).

In addition, QR Network's submission included four customer specific projects valued at $3.9 million, which represent 1.3% of the total 2009-10 capital expenditure claim. The largest of these three customer specific projects was the Vermont spur and balloon loop ($3.8 million). As the expenditure associated with this project is post-commissioning works, it is discussed here.

5.2 Mindi Substation

Project Overview

This project involved post-commissioning works for the Mindi substation on the Goonyella system. Associated electrical and track section cabin works are located at and between South Walker and Braeside.

The Mindi substation works were required to ensure that the supply of electricity to the railway network is sufficient, sustainable and secure to cater for increased loading of over 83 mtpa on the track section and in compliance with regulatory and network service provider requirements.

Authority's Analysis

E&P said the scope of post-commissioning works for this project is in line with the project objectives and satisfies legislative requirements. E&P concluded that the scope of this project was prudent.

The standard to which the post-commissioning works have been constructed is in line with current Australian, QR Network and industry standards and has incorporated the latest technology to achieve a predicted long asset life. In E&P's opinion the standard is considered prudent.

The Authority approved $14.7 million for the main part of this project in its 2008-09 capital expenditure decision. The major portion of QR Network's claim for this project for 2009-10 related to the two Hail Creek Capacitor Banks ($3.2 million).

E&P said on the basis of the information provided it considers the costs as prudent.

Considering E&P's assessment, the Authority has concluded that this project is reasonable and prudent.

5.3 Bolingbroke Feeder Station

Project Overview

This project involved post-commissioning works for the Bolingbroke feeder station on the Goonyella system and associated electrical and track section cabin works between Balook and Black Mountain.

The Bolingbroke feeder station works were required to ensure that the supply of electricity to the railway network is sufficient, sustainable and secure in catering for increased loading of over 83 mtpa on the track section and, in compliance with regulatory and network service provider requirements.

Authority's Analysis

E&P said the scope of post-commissioning works for this project is in line with the project objectives and satisfies legislative requirements.

E&P added that the post commissioning works have been constructed to a standard that is in line with current Australian, QR Network and industry standards and has incorporated the latest technology to achieve a predicted long asset life.

Accordingly, E&P concluded that the scope and standard of this project was prudent.

The Authority approved $28.8 million for the main part of this project in its 2008-09 capital expenditure decision. The major portion of the Bolingbroke substation in QR Network's 2009-10 capital expenditure submission relates to late invoicing for the autotransformer, site services and the harmonic filters – as these works are ongoing, it is anticipated that QR Network will include a further claim as part of its 2010-11 submission.

E&P said on the basis of the information provided it considers the costs as prudent.

Considering E&P's assessment, the Authority has concluded that this project is reasonable and prudent.

5.4 Stanwell to Wycarbah Duplication

Project Overview

This project involved post-commissioning works for the duplication of 10.9 km of mainline track between Stanwell and Wycarbah on the Blackwater system. This was the last component of a series of duplications designed to increase capacity to approximately 68 mtpa, with this project adding around 2 mtpa to capacity on the Blackwater system.

Authority's Analysis

The Authority had previously approved the scope of this project as part of its assessment of QR Network's 2008-09 capital expenditure claim.

E&P said QR Network's completion report stated that all certificates of practical completion, safety validation and certifications for all completed components of work have been obtained

and confirmed all required quality standards were obtained. On this basis, E&P concluded that the standard of these works was prudent.

The Authority approved $28.8 million for the main part of this project in its 2008-09 capital expenditure decision with the costs of the post-commissioning works in the 2009-10 claim totalling $1.6 million (excluding IDC).

E&P said on the basis of the information provided it considers the costs as prudent.

Considering E&P's assessment, the Authority has concluded that this project is reasonable and prudent.

5.5 Broadlea – Mallawa – Wotonga Duplication

Project Overview

This project involved post-commissioning works for the duplication between Broadlea, Mallawa and Wotonga in the Goonyella system. The duplication project consisted of the duplication of 13.7 km of mainline track to increase the capacity of the coal rail network.

Authority's Analysis

The Authority had previously approved the scope of this project as part of its assessment of QR Network's 2008-09 capital expenditure claim.

E&P concluded that the post-commissioning works were prudent as they were consistent with the mainline track for the Goonyella system.

A total of $70.2 million for the works was assessed by the Authority as part of its review of QR Network's 2008-09 capital expenditure submission and the project was considered prudent in scope, standard and cost. The costs relating to the post-commissioning claim totalled $1.2 million (excluding IDC):

(a) final contract payments to the overhead wiring contractor;

(b) overhead power supply systems including costs of the power supervisory system;

(c) signalling design and construction works completed post commissioning;

(d) rail grinding costs; and

(e) land acquisition, civil, telecommunications and project management costs.

This claim is lower than the estimated claim for 2009-10 of $1.6 million detailed in QR Network's 2008-09 capital expenditure submission, however the project has not yet reached its financial close and QR Network will seek to submit a further claim for costs in the 2010-11 period.

The final cost for the project is estimated at approximately $73 million, giving a rate of $5.3 million per kilometre. In consideration of the additional costs of bidirectional signalling required on this section, E&P assessed this as a reasonable rate in QR Network's 2008-09 capital expenditure submission review. As post-commissioning works are still within the final cost forecast, the rate remains unchanged.

E&P concluded that QR Network's grinding costs were reasonable and that the costs of post-commissioning signalling and power works are consistent with prevailing market conditions and expectations.

E&P said on the basis of the information provided it considers the costs as prudent.

Considering E&P's assessment, the Authority has concluded that this project is reasonable and prudent.

5.6 Lake Vermont spur – post-commissioning works

Project Overview

The Vermont spur and balloon loop project is a 16.5 km mine spur & balloon loop to service the Lake Vermont mine and connect onto the South Goonyella Branch of the CQCR. The Authority approved $54.9 million for this project as part of QR Network's 2008-09 capital expenditure submission – this application relates to $3.8 million for post-commissioning works.

The largest element of this claim relates to the finalisation of signalling works. The track infrastructure was commissioned in November 2008 and trains operated under direct train control procedures until the signalling works were completed in mid-2009.

Authority's Analysis

This project was requested and accepted by the customer, a matter that the Authority confirmed as part of its 2008-09 assessment. E&P reviewed the scope and said the project is below-rail infrastructure completed in the 2009-10 period. Accordingly, the Authority re-confirms the scope of this project is reasonable.

E&P advised that the major elements of this project (i.e. finalisation of signalling and track works) are consistent with the existing standards in the Goonyella and Blackwater systems. Also, the post-commissioning works are consistent with the original standard specifications and requirements.

The Authority is satisfied the standard of this project is reasonable.

The majority of the post-commissioning costs are related to signalling works, with other costs relating to overhead power supply, electrical earthing system and track work (e.g. rail grinding).

E&P advised that the original cost assessment of this project in the 2008-09 submission used a rate estimate of $3.6 million per kilometre, which included post-commissioning costs. The total cost per kilometre is currently $3.5 million per kilometre, which E&P considers is reasonable.

Considering E&P's assessment and the customer's acceptance of the project, the Authority considers this project is reasonable and prudent.

APPENDIX A: THE AUTHORITY'S ASSESSMENT PROCESS

In assessing the prudency of QR Network's capital expenditure, the Authority conducted a detailed review and analysis of all significant capital expenditure projects. The Authority also reviewed a sample of smaller projects. The review criteria are set out in QR Network's 2008 approved undertaking - Schedule FB (clause 2.3). The Authority's assessment focused on the prudency of the scope, standard and cost of works.

Scope

The assessment framework outlined in Schedule FB also provides for regulatory pre-approval of the scope of capacity expansion capital expenditure, prior to QR Network constructing capital expansion assets. This is conditional on at least 60% of customers (by tonnage) not voting against the scope of the project (clause 2.2). Regulatory pre-approval of scope provides QR Network with a level of certainty prior to committing to investment.

Where QR Network has obtained regulatory pre-approval for a project, the Authority does not overturn the acceptance of the prudency of scope for the project. Instead, the Authority reviews the scope of the project but focuses on assessing the prudency of the standard and cost.

Where QR Network has not obtained regulatory pre-approval for the capital expenditure, or where the project is asset replacement in nature, the Authority assesses the prudency of the scope, standard and cost of the works.

The Authority assesses scope of works as prudent if QR Network can demonstrate it had reasonable grounds for proceeding with a project given the circumstances relevant when making the investment decision. In assessing the scope, the Authority considered:

(a) the coal system Master Plan;

(b) the need to accommodate access agreements;

(c) the need to meet reasonable demand;

(d) the age and condition of existing assets;

(e) QR Network's legislative requirements;

(f) the appropriateness of QR Network's processes in proposing capital projects;

(g) the capital evaluation and selection process; and

(h) consultation with stakeholders.

Standard

When assessing the standard of works, the Authority assesses whether the works are of a reasonable standard to meet the requirements of the scope, and are not over- or under-designed. The Authority will approve the standard of works as prudent where QR Network can demonstrate it had reasonable grounds for the design of the infrastructure standard or the works are consistent with existing standard of adjacent infrastructure, or its modern engineering equivalent. These conditions only hold to the extent the Authority has previously accepted the standard of adjacent or existing infrastructure as prudent.

Where QR Network proposes to depart from the requirements above, the Authority will have regard to:

(a) the requirements of operators;

(b) current and likely future usage levels;

(c) the National Codes of Practice;

(d) other Australian design and construction standards;

(e) QR Network's design standards in its safety management system; and

(f) all relevant legislation.

Cost

When assessing the prudency of cost, the Authority assesses whether the costs are reasonable for the scope and standard of works. In assessing the reasonableness of the cost of works undertaken, the Authority will have regard to:

(a) the coal system Master Plan;

(b) the level of costs relative to the scale, nature, and complexity of the project;

(c) the circumstances prevailing in the markets for engineering, equipment supply and construction;

(d) QR Network's procurement policy; and

(e) the manner in which the capital works have been managed.