

23 May 2017

Mr Charles Millsteed  
Chief Executive Officer  
Queensland Competition Authority

Dear Mr Millsteed

### **DBCT Incremental Expansion Study**

DBCT Management (**DBCTM**) is obligated under the Port Services Agreement (**PSA**) to accommodate prospective capacity increases at the terminal. In 2014, a number of Access Seekers expressed interest in incremental capacity at the terminal, and in response the DBCT Incremental Expansion Study (**the Study**) was conducted between November 2014 and February 2016.

DBCTM seeks approval for the Study costs of \$8.8m to be added to the RAB with effect from 1 July 2017. DBCTM advises in relation to the expenditure that:

- it was prudently incurred in accordance with DBCTM's obligations under the PSA and 2010 AU;
- it falls within the definition of Capital Expenditure, in that it relates to a capacity expansion at DBCT, and it is neither maintenance nor operating expenditure;
- it has not previously been added to the RAB or otherwise double-counted; and
- it includes an allowance for financing costs & interest during construction (**IDC**) consistent with existing practice, calculated in accordance with the AU.

On 2 February 2017, DBCTM submitted to the QCA a draft amending access undertaking (**DAAU**) relating to the Study, seeking the QCA's approval to include into the DBCT RAB the prudent cost of the Study. That Study DAAU was submitted in accordance with the provisions of the 2010 AU, which was in force at the time of submission. On 9 February 2017, DBCTM submitted the DBCT 2015 DAU in compliance with the secondary undertaking notice relating to that DAU. On 16 February 2017, the QCA approved the 2015 DAU (now the **2017 AU**), replacing the 2010 AU and effective immediately.

Due to timing issues, no transitional provisions for the Study were included in the 2017 AU. Accordingly, DBCTM has now prepared a Study DAAU to amend the 2017 AU to adjust the RAB, ARR and TIC..

The 2017 AU introduced a number of changes to the definition of feasibility studies and the proportion of costs allowed to be included in the RAB. In particular, the definition of a FEL 3 study includes a requirement for  $\pm 10\%$  accuracy of the estimated cost of an expansion, which was not contemplated at the time the Study was undertaken, and which would incur substantially higher costs than were included in the Study DAAU.

In accordance with s.142(1) of the QCA Act, DBCTM therefore seeks approval of the attached amendments to the 2017 AU, providing for the Study costs to be considered under the provisions of the 2010 AU that were in force at the time the Study was initiated, completed, and originally submitted to the QCA for consideration. These amendments to the 2017 AU provide for the costs of feasibility studies necessitated by the PSA to be included in the regulated asset base (**RAB**) in accordance with s.5.10(r) and the definition of Review Event (e)(6) of the AU. The DBCT User Group has been given an opportunity to review the proposed drafting amendments prior to submission. An amendment was made in response to comments from the User Group, and while feedback has not been received from all User Group members, at this stage DBCTM does not anticipate any objections to the amendments submitted.

DBCTM's ARR modelling has been provided to the QCA as part of this DAAU. DBCTM notes that approval of this DAAU will increase the RAB, ARR and TIC by \$8.8m, \$0.6m and \$0.0073/tonne respectively in the 2017-18 financial year.

Further details relating to the Study are contained in Attachment 1 – Supporting Material. The amended 2017 AU is included for the QCA's consideration in Attachment 2.

Please contact me on 3002 3113 if you have any related queries.

Yours sincerely



Jonathan Blakey  
General Manager – Commercial & Regulation  
**DBCT Management**

Attachment 1: Supporting Material for the Study

Attachment 2: Amendments to 2017 AU including transitional provisions for the Study

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## Supporting Material

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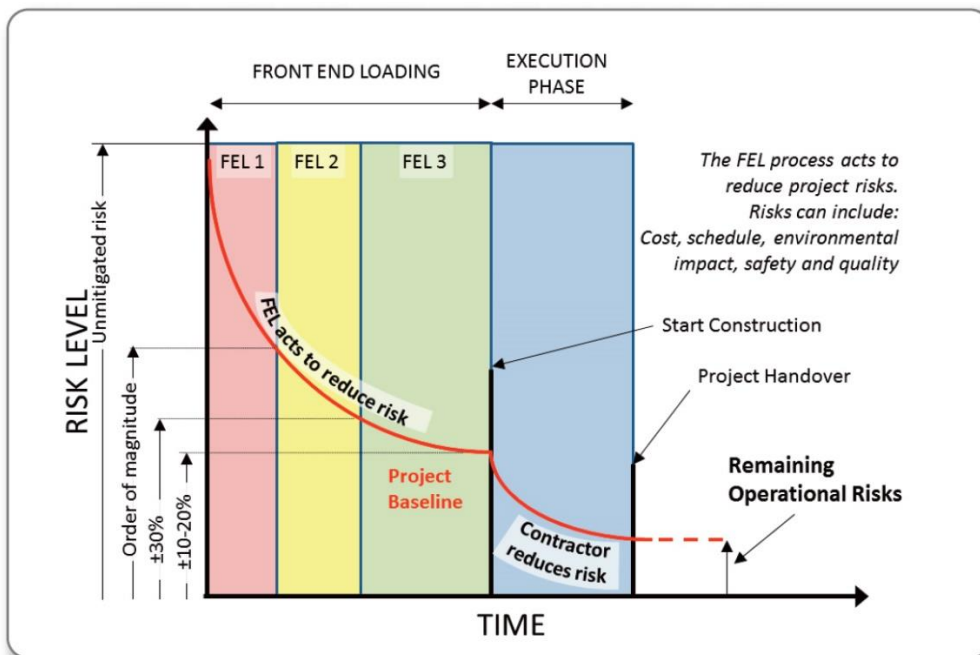
# 1. Study description

## The need for a feasibility study

DBCTM is obligated under the PSA<sup>1</sup> to accommodate the actual and reasonably anticipated future growth of demand for the use of DBCT by Users and prospective users. Existing and prospective users must formally notify DBCTM of their future capacity requirements at DBCT, in order to find a place in the queue for allocation of terminal capacity. Those requiring capacity at the terminal (**Access Seekers**) submit an Access Application in accordance with the AU, stating the required capacity, the source, and the expected period over which the capacity will be required. The peak capacity of all Access Applications combined forms the basis of the design of the terminal expansion<sup>2</sup>.

A feasibility study is an essential part of any proposed capital expenditure program. The study (or series of studies) is undertaken to identify options that will provide the required expansion capacity with regard to the timing of the mine development, at the lowest capital cost in consideration of whole-of-life terminal costs, safety, operating efficiency, the environment, construction standards, and other requirements of the PSA and other relevant regulations.

The DBCT Master Plan identifies the stages of development necessary to provide the additional capacity. Prior to undertaking any expansion at the terminal, the scope of work required to achieve the additional capacity is identified as the preferred option resulting from a feasibility study, which is then submitted to DBCT Holdings for approval for addition to the Master Plan. It is prudent to assess all feasible options prior to selection of the preferred option for the next stage of development. A feasibility study is considered best practice in the industry<sup>3</sup>, as it cost effectively mitigates the keys risks to stakeholders (including risks to capital cost, schedule, performance and operability). This is illustrated in the figure below<sup>4</sup>:



Therefore, a feasibility study is a prudent and necessary investment in the expansion and development of DBCT to support the efficient use of capital in the provision of the required services.

<sup>1</sup> PSA clause 11.1(a) Expansion of DBCT.

<sup>2</sup> Refer Appendix 1 Access applications

<sup>3</sup> A feasibility study is also known as pre-project planning, front-end planning/loading/engineering and design, etc. Relevant evidence includes: Edward W Merrow (IPA Independent Project Analysis) [Industrial Megaprojects: Concepts, Strategies, and Practices for Success](#); SH Lee et al [The relative impacts of selected practices on project cost and schedule](#); PMSA Knowledge Series [CII Best practices: front end planning and alignment](#); OTC [The Benefits of Good FEL \(Front-End Loading\)](#)

<sup>4</sup> ILOCA [Road to Success](#) Fig. 3 Reduction of project risks during the FEL and execution phases

## The existing terminal

DBCT's capacity was expanded to 85 Mtpa as part of the DBCT 7X Project (**7X**), completed in June 2009. The terminal comprises 3 inloading strings, a nominal 2.2 Mt capacity stockyard and 3 outloading strings feeding 3 shiploaders on 4 berths. The terminal and its supply chain operate on a cargo assembly model. A relatively short cargo assembly period provides a high throughput potential within a constrained stockyard footprint.

## Studies for incremental expansion options

Since 2012, the declining price of coal has impacted the coal industry to the extent that plans for new mining developments have been deferred or cancelled, and consequently major new terminals and expansions such as Dudgeon Point, Abbot Point T4 and Wiggins Island Phase 2 have also been deferred or cancelled. However, increased demand for metallurgical coal (as evidenced by record throughput at DBCT), and fully contracted capacity of DBCT at the time, created renewed interest in an incremental expansion of DBCT.

A number of other external factors at the time also favoured the incremental development of DBCT:

- The Queensland Ports Strategy<sup>5</sup> focused future coal export developments on incremental expansion of existing facilities within the Priority Port Development Areas of Gladstone, Hay Point and Abbot Point.
- A further expansion of DBCT was a cost competitive solution for northern and central Bowen Basin mines because of its proximity and competitive cost of freight.
- Large-scale expansions proposed for other terminals require large-scale dredging campaigns within the Great Barrier Reef Marine Park. However, incremental expansions at DBCT require significantly less berth dredging quantities, which can be accommodated within relatively small areas adjacent to DBCT.

In view of these factors, DBCTM confirmed current access applications of 99Mtpa<sup>6</sup> with Access Seekers. While DBCTM did not expect all of this demand to be realised, it was clear that an understanding of the incremental expansion pathway was necessary to satisfy DBCTM's obligations under the PSA and the AU.

In response to the confirmation of demand for additional capacity at DBCT, DBCTM developed a prudent program of works aimed at positioning DBCT for further incremental expansions. DBCTM committed to a full bankable feasibility study (**BFS**) for the development of Zone 4, which the ILC has confirmed would increase capacity at DBCT from 85Mtpa to 89Mtpa. DBCTM also undertook concept level (**FEL1**<sup>7</sup>) studies for 8X and 9X. 8X is a program of works within DBCT's existing footprint which increases system capacity from 89Mtpa to 100Mtpa. 9X is the addition of a new stockyard area at Louisa Creek which increases system capacity from 100Mtpa to 135Mtpa. DBCTM submits that these studies were a measured and reasonable response to 99Mtpa of access applications.

A summary of the Study scope and outcomes is shown in Table 1 below, with an overview of the expansion options in Appendix 2. The Study indicated that while the cost of Zone 4 was relatively high, it would provide a solid foundation for a much lower cost expansion in 8X.

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<sup>5</sup> Queensland Department of State Development, Infrastructure and Planning [Queensland Ports Strategy 2014](#)

<sup>6</sup> This is the sum of peak capacity of each Access Applications, in addition to the contracted capacity of 85Mtpa. Refer to Appendix 1

<sup>7</sup> Refer [KBR Front-End Loading Process](#) for description of FEL

Table 1 : Study summary							
Step	Scope	Capacity		Study		Project	
		Change	Total	Level	Budget	Capex	Cost/t
Zone 4	Completion of row 8 Vertical western wall New stacker and conveyor on Row 8 Replace RL2	4	89	FEL3	\$6.5m	\$356m	\$87/t
8X	Stockyard Augmentation Project (SAP) New rail receival pit 4 New inloading system 4 Replacement of ST1 Upgrades to IL2, ST2, OL2, R1, R2 New berth to the south	11	100	FEL1	\$0.9m	\$491m	\$45/t
9X	New Louisa Creek stockyard Upgrade to IL1 New outloading system 4 Up to 2 berths to the north	35	135	FEL1	\$0.7m	\$2,844m	\$81/t

### Zone 4 expansion FEL3

The Zone 4 scope was relatively well defined during the concept development phase (FEL1). In FEL2 a better understanding was gained of major cost and schedule drivers including geotechnical conditions, layout constraints, lease issues (additional land requirements) and potential project timing issues. Also during this phase, all of the significant alternatives were resolved leading to a single go-forward option which was then taken to the technical feasibility phase (FEL3). During FEL3, critical aspects of the detail design were completed and market pricing and timing was sought for some of the larger and more critical aspects. At the completion of FEL3, the design was approximately 20-25% complete and the cost and schedule was well understood.

### 8X expansion concept studies

The 8X FEL1 study examined the cost, capacity benefit and operational impact of several possible individual capacity elements that could be combined into the 8X Expansion. The goal of the 8X FEL1 study was to maximise system capacity utilising the existing terminal stockyard footprint and three existing outloading systems. Capacity assessments were undertaken by Aurecon Hatch for various combinations of expansion elements in parallel with dynamic capacity modelling being undertaken by Ausenco. The FEL1 deliverable identified the most efficient combination of elements to maximise the capacity of the terminal under the nominated constraints. More detailed system capacity modelling would be required early in future stages (FEL2) should they proceed.

### 9X expansion concept studies

The 9X concept was reasonably well understood prior to commencement of the studies because of knowledge gained from previous Post 85 Studies<sup>8</sup>. The study confirmed that the Louisa Creek stockyard provides the most efficient terminal expansion beyond 8X. The Louisa Creek stockyard concept was further developed to ensure that there was sufficient land adjacent to DBCT to suit the targeted capacity and operating mode. Various possible operating modes were identified during the study and suitable expansion solutions were identified for each.

<sup>8</sup> The [DBCT Post-85 Mtpa Expansion Study](#) was approved by the QCA on 24 April 2013. This study developed a number of options to satisfy Access Seeker requirements at the time, including the 8X upgrade to 90Mtpa, and the 9X upgrade to 153Mtpa. The study was discontinued in 2010 in favour of a new terminal at Dudgeon Point which would best serve Access Seeker requirements.

**Addition to DBCT RAB**

DBCTM submits that the cost incurred in the Study should be included in the DBCT RAB because:

- It was reasonably and prudently incurred in accordance with DBCTM's obligations under the PSA.
- It falls within the definition of Capital Expenditure, in that it relates to a capacity expansion at DBCT, and it is neither maintenance nor operating expenditure. The Study related entirely to expansions for DBCT.
- It has not previously been added to the RAB or otherwise double-counted.
- It includes an allowance for financing costs & interest during construction (**IDC**) consistent with existing practice, calculated in accordance with the AU.
- It was expended on behalf of Access Seekers (which includes a majority of existing Access Holders), in respect of formal Access Applications for additional capacity for their projected future demand. DBCTM formally checked the validity of the access applications before commencing the Study. On completion of the Study, Access Seekers determined not to proceed with any related expansion<sup>9</sup>.
- In accordance with s.5.10(r) of the AU, as the Access Seekers have not funded these study costs, DBCTM now seeks to include these costs in the RAB as part of a Review Event in accordance with the definition of Review Event (e)(6).

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<sup>9</sup> No Access Application had been updated or withdrawn at the time

## 2. Reasonableness of costs

The original budget approved by the DBCTM Board was \$8.1m, and the Study scope was completed 10% below budget at \$7.3m. Table 2 summarises the costs incurred during the Study.

Table 2 : Study Costs				
Activity	Aurecon Hatch	DBCTM	Others	Total
Study management	764,965	981,094	36,122	1,782,181
Capacity modelling			544,491	544,491
Geotechnical & survey	-		89,183	89,183
Preliminary studies	68,385		38,009	106,394
Zone 4 study	3,561,920		187,295	3,749,216
8X study	648,348			648,348
9X study	362,086			362,086
<b>Direct study costs</b>	<b>5,405,704</b>	<b>981,094</b>	<b>895,100</b>	<b>7,281,898</b>
Financing costs				177,467
Interest during construction (IDC)				1,326,134
<b>Total study costs</b>				<b>8,785,499</b>

The majority (74%) of the direct Study cost<sup>10</sup> was associated with concept design and options analysis by Aurecon Hatch, which has significant expertise in the area. The team involved in the Study work were also involved in 7X and in many other port and terminal projects on the Australian east coast. The requirements were scoped by DBCTM and performed by Aurecon Hatch personnel on a standard hourly rate basis, which is typical in the industry and appropriate for this type of work. All invoices were examined by DBCTM to ensure the charges were correctly calculated. The role of Aurecon Hatch was to:

- provide expertise in assessment of options for the terminal expansion
- develop plans, general arrangements and high-level engineering appraisals of each option
- identify relative capital cost, constructability and project duration
- identify environmental and community impacts.

Capacity modelling by ILC<sup>11</sup> and Ausenco, geotechnical investigations by Cardno, and miscellaneous other study requirements comprised 12% of the direct Study costs. ILC is the Dalrymple Bay Coal Chain (DBCC) central coordinator, and Ausenco (formerly Sandwell) is the independent expert appointed to determine terminal capacity in accordance with s.12.1(a) of the AU. Capacity modelling is a critical component of the expansion option development and analysis.

The Study management costs incurred by DBCTM over the 2 years of the Study duration comprised 13% of the direct Study costs. This is less than the previous study<sup>12</sup> approved by the QCA in 2013, due to the comparatively straightforward nature of this study and the shorter timeframe. The costs again included a majority of the Project Director's time, as well as labour and related costs for DBCTM technical specialists and administrative support staff. DBCTM's role was to direct and assess the work performed by Aurecon Hatch and other consultants, and analyse the commercial impact to the Access Holders.

The remaining costs were financing and IDC costs required for the funding of the study. These were calculated using existing methods in accordance with the AU, and its proportion (20%) of direct Study cost is reasonable considering the time from commencement to RAB addition (4 years). Also this is considerably lower than the previous study (44%) which was over a longer period.

DBCTM submits that the costs are reasonable in the context of the scope of the proposed expansions, the duration of the necessary study work, the level of expertise required, and the outcome provided by the Study. In addition, the costs were prudently expended on work essential to the scope of the Study.

<sup>10</sup> Direct study costs exclude financing and IDC

<sup>11</sup> Refer Integrated Logistics Company (ILC) history and background at <http://ilco.com.au/About-Us/History-Background>

<sup>12</sup> DBCT Post-85 Mtpa Expansion Studies [reports and papers at the QCA website](#). DBCTM costs were 25% of the direct Study cost.



### 3. Modelling

The Study costs were cut off at 30 June 2017 and include financing costs and IDC calculated in accordance with the 2017 AU. In accordance with the Review Event definition, the change in RAB, ARR & TIC will be effective from 1 July 2017, in the event the QCA approves the costs.

The method for calculation of ARR is consistent with existing practice. The modelling has been supplied to the QCA as part of this application, and the revenue building blocks are summarised in Table 3 below.

Note that the overall results block is based on the 2017-18 ARR roll forward currently under consideration by the QCA. This is included to provide context for the Study costs and does not request approval or preempt any QCA decision in regard to the roll-forward.

**Table 3 : Revenue Building Blocks for Study Costs**

Parameters	
Item	Value
Return on capital up to Jun-16	9.86%
Return on capital 2016-17	5.82%
Return on capital after Review Event	5.82%
Expected inflation	2.00%
Costs of raising equity (% of equity)	3.55%
Debt financing costs (% of debt)	1.00%
Review Event date	1 July 2017

Study cost summary	
Asset group	Cost (\$m)
Distributable Costs	7.282
Financing Costs	0.177
IDC	1.326
<b>Total Cost</b>	<b>8.785</b>

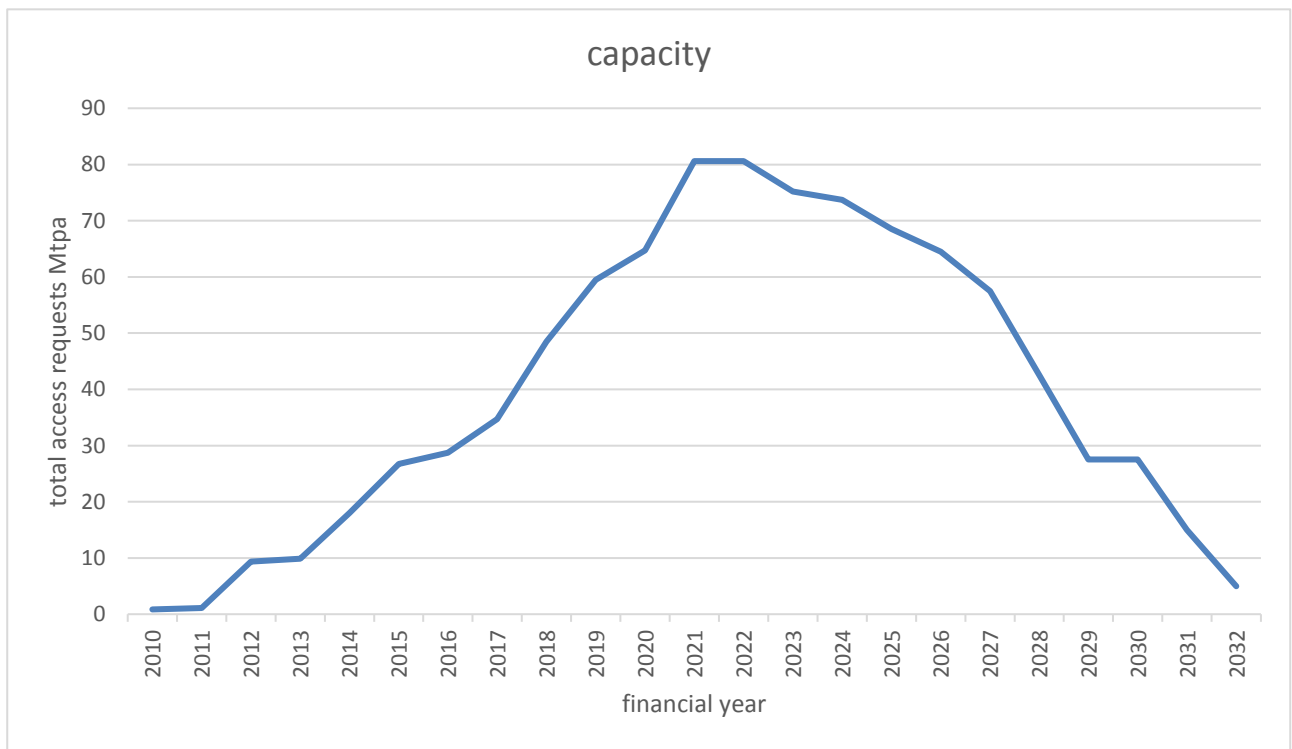
Study		2017-18
<b>RAB (\$m)</b>	<b>Opening RAB</b>	<b>8.785</b>
	Indexation	0.176
	Nominal depreciation	0.242
	Closing RAB	8.719
<b>Building Block Revenues (\$m)</b>	Opening RAB	8.785
	Working capital	0.047
	<b>Total Assets</b>	<b>8.833</b>
	Return on asset	0.500
	Return of asset	0.235
	Less inflationary gain	(0.171)
	Tax payable	0.010
	<b>ARR</b>	<b>0.575</b>

Overall for DBCT 2017-18			
Item	Existing	Study	Total
Opening RAB (\$m)	2,355.816	8.785	2,364.602
ARR (\$m)	193.933	0.575	194.507
NCT & ART (Mtpa)	78.700	-	78.700
TIC (\$/t)	2.4642	0.0073	2.4715

### Appendix 1: Access Applications – Confidential

Table 4 below shows the Access Applications categorised by existing DBCT Users, existing miners shipping through other Queensland coal ports, and potential new entrants to the market. Of the 53.05Mtpa of Access Applications lodged by existing Users of DBCT, 49.05Mtpa have a commencement date of 2019 or earlier.

Table 4 : Access Applications			
Access Seeker	Operating mines (DBCT user)	Operating mines (other port)	No operating mines
[Redacted]	[Redacted]		
[Redacted]	[Redacted]		
[Redacted]	[Redacted]		
[Redacted]	[Redacted]		
[Redacted]	[Redacted]		
[Redacted]	[Redacted]		
[Redacted]	[Redacted]		
[Redacted]	[Redacted]	[Redacted]	
[Redacted]	[Redacted]	[Redacted]	
[Redacted]	[Redacted]	[Redacted]	
[Redacted]	[Redacted]		[Redacted]
[Redacted]	[Redacted]		[Redacted]
[Redacted]	[Redacted]		[Redacted]
[Redacted]	[Redacted]		[Redacted]
<b>Total Mtpa</b>	<b>53.05</b>	<b>27.50</b>	<b>18.00</b>



Original conforming Access Applications are available to the QCA on request.

## Appendix 2: Options overview

DBCT Incremental Expansion Study Outcomes							
Step	Likely scope	Capacity		Study		Project	
		Change	Total	Level	Cost	Capex	Rate
Zone 4	Completion of row 8 Vertical western wall New stacker on Row 8 New conveyor on Row 8 Replace reclaimers RL2	4	89	FEL3	\$5.7m	\$356m	\$87/t
8X	Stockyard Augmentation Project (SAP) New rail receival pit 4 New inloading system 4 Replacement of ST1 Upgrades to IL2 Upgrade to ST2 Upgrade to OL2 Upgrade to R1 and R2 New berth to the south	11	100	FEL1	\$1.0m	\$491m	\$45/t
9X	New Louisa Creek stockyard Upgrade to IL1 New outloading system 4 Up to 2 berths to the north	35	135	FEL1	\$0.6m	\$2,844m	\$81/t



- Zone 4
- 8X
- 9X

## **Appendix 3: Deliverables**

A large quantity of documentation (some which is confidential) was issued to the QCA's consultant for assessment of the scope of work and reasonableness of costs, including:

- Study reports from Aurecon Hatch
- Presentations to Access Holders and Access Seekers
- Layout drawings of options
- Monthly status reports & meeting minutes
- Accounting ledger transactions, invoices & detail cost reports