



**Baralaba South Project
Environmental Impact Statement**

Table of Contents

Table of Contents

- ES.0 Executive Summary 1**
 - ES.1 Project proponent 1
 - ES.2 Project summary 5
 - ES.3 Public consultation process 5
 - ES.4 Project description 6
 - ES.5 Environmental assessment 7
 - ES.6 General environmental management commitments 21

- 1 Introduction 1-1**
 - 1.1 Project proponent 1-3
 - 1.2 Environmental impact assessment process 1-4
 - 1.3 Public consultation process 1-8
 - 1.4 Project approvals 1-9

- 2 Project Description 2-1**
 - 2.1 Proposed development 2-1
 - 2.2 Site description 2-27
 - 2.3 Climate 2-48
 - 2.4 Construction activities 2-59
 - 2.5 Operations 2-65
 - 2.6 Infrastructure 2-83
 - 2.7 Environmentally relevant activities 2-92
 - 2.8 Notifiable activities 2-93
 - 2.9 Project alternatives 2-94

- 3 Rehabilitation 3-1**
 - 3.1 Relevant policy and legislation 3-1
 - 3.2 Key influencing ecosystem processes and functions 3-2
 - 3.3 Post-mining land use 3-4
 - 3.4 Rehabilitation strategy 3-11
 - 3.5 Rehabilitation methods and controls 3-44
 - 3.6 Rehabilitation indicators and completion criteria 3-48
 - 3.7 Rehabilitation monitoring and measurement 3-50
 - 3.8 Closure and relinquishment 3-51

- 4 Surface Water 4-1**
 - 4.1 Environmental objectives and performance outcomes 4-1

4.2	Description of environmental values	4-2
4.3	Water management system.....	4-40
4.4	Potential impacts	4-62
4.5	Mitigation measures, management, and monitoring	4-75
5	Groundwater	5-1
5.1	Environmental objectives and performance outcomes.....	5-1
5.2	Description of environmental values	5-2
5.3	Potential impacts	5-37
5.4	Monitoring, mitigation and management measures	5-62
6	Flooding and Regulated Dams	6-4
6.1	Environmental objectives and performance outcomes.....	6-4
6.2	Description of environmental values	6-4
6.3	Potential impacts	6-16
6.4	Mitigation measures, management and monitoring.....	6-37
6.5	Regulated structures.....	6-38
7	Flora and Fauna.....	7-1
7.1	Environmental objectives and performance outcomes.....	7-1
7.2	Regional and local setting	7-3
7.3	Study areas and methodology	7-4
7.4	Terrestrial ecological values.....	7-20
7.5	Aquatic ecological values	7-51
7.6	Groundwater dependent ecosystem ecological values	7-75
7.7	Stygofauna ecological values	7-82
7.8	Potential impacts to flora and fauna values	7-83
7.9	Mitigation and management measures.....	7-98
7.10	Residual impacts	7-106
7.11	Proposed biodiversity offsets.....	7-170
8	Biosecurity	8-1
8.1	Environmental objectives	8-1
8.2	Existing biosecurity risk.....	8-1
8.3	Potential impacts	8-3
8.4	Mitigation and management measures.....	8-5
9	Matters of National Environmental Significance	9-6
9.1	Introduction	9-6
9.2	Objective of the action.....	9-15
9.3	Location of the action	9-15

- 9.4 Description of the action..... 9-26
- 9.5 Relationships to other Projects..... 9-55
- 9.6 Project alternatives and consequence of not proceeding 9-55
- 9.7 Environment and water management policies and regulations..... 9-68
- 9.8 Surface water 9-71
- 9.9 Flooding and geomorphology 9-151
- 9.10 Groundwater..... 9-184
- 9.11 Terrestrial ecology 9-244
- 9.12 Aquatic ecology..... 9-305
- 9.13 Stygofauna 9-327
- 9.14 Groundwater dependent ecosystems..... 9-331
- 9.15 Social matters..... 9-343
- 9.16 Economic matters 9-379
- 9.17 Ecologically sustainable development considerations..... 9-385
- 9.18 Consideration of the Project against the objectives of the EPBC Act 9-388
- 9.19 Environmental offsets 9-389
- 9.20 Conclusion..... 9-396

- 10 Land and Visual Amenity 10-1**
- Land 10-1**
- 10.1 Environmental objectives and performance outcomes..... 10-1
- 10.2 Local planning context 10-2
- 10.3 Description of existing values 10-3
- 10.4 Potential impacts 10-27
- 10.5 Mitigation and management measures..... 10-36

- Visual amenity..... 10-39**
- 10.6 Description of existing environmental values..... 10-39
- 10.7 Potential impacts 10-39
- 10.8 Mitigation and management measures..... 10-45

- 11 Air Quality..... 11-1**
- 11.1 Environmental objectives and performance outcomes..... 11-1
- 11.2 Existing air environment 11-4
- 11.3 Potential impacts 11-14
- 11.4 GHG emissions 11-41
- 11.5 Mitigation and management measures..... 11-51

- 12 Noise and Vibration..... 12-1**
- 12.1 Environmental objectives and performance outcomes..... 12-1

12.2	Existing environment	12-5
12.3	Potential impacts	12-12
12.4	Mitigation measures, management and monitoring	12-26
13	Transport	13-1
13.1	Environmental objectives	13-1
13.2	Total transport task.....	13-1
13.3	Road transport	13-2
13.4	Rail transport	13-18
13.5	Air transport.....	13-19
13.6	Sea transport.....	13-20
14	Waste Management	14-1
14.1	Environmental objectives and performance outcomes.....	14-1
14.2	Waste generation.....	14-1
14.3	Potential impacts	14-3
14.4	Waste management principles	14-4
14.5	Non-mineral waste management	14-16
14.6	Mineral waste management	14-18
14.7	Performance monitoring and review	14-22
15	Cultural Heritage	15-1
15.1	Environmental objective	15-1
15.2	Description of existing values	15-1
15.3	Potential impacts	15-5
15.4	Mitigation and management measures.....	15-5
16	Social and Economic.....	16-1
16.1	Environmental objectives	16-1
16.2	Social values.....	16-1
16.3	Economics	16-40
17	Hazards and Safety	17-1
17.1	Environmental objectives and performance outcomes.....	17-1
17.2	Risk assessment requirements.....	17-1
17.3	Sensitive receptors.....	17-4
17.4	Potential hazards and risks	17-4
17.5	Risk analysis and evaluation.....	17-10
17.6	Mitigation and management measures.....	17-11
18	Proposed Environmental Management and Monitoring Commitments	18-1

- 19 Proposed Environmental Authority Conditions 19-1**
 - 19.1 Schedule A – General Conditions..... 19-1
 - 19.2 Schedule B – Air 19-3
 - 19.3 Schedule C – Waste management 19-4
 - 19.4 Schedule D – Noise..... 19-6
 - 19.5 Schedule E - Groundwater 19-7
 - 19.6 Schedule F - Water 19-12
 - 19.7 Schedule G – Sewage treatment..... 19-21
 - 19.8 Schedule H – Land and Rehabilitation 19-22
 - 19.9 Schedule I – Regulated Structures 19-31
 - 19.10 Definitions 19-35
- 20 Reference List..... 20-1**
- 21 Abbreviations, Acronyms and Glossary..... 21-1**

List of Figures

Figure 1.1	EIS process flow chart	1-7
Figure 2.1:	Location of structural and quality boreholes within the Project	2-5
Figure 2.2:	Regional Project location	2-8
Figure 2.3:	Project locality	2-9
Figure 2.4:	Local government areas	2-10
Figure 2.5:	Brigalow Belt South Bioregion	2-11
Figure 2.6:	Regional water catchments	2-12
Figure 2.7:	Groundwater areas	2-13
Figure 2.8:	Regional interest areas	2-14
Figure 2.9:	Strategic cropping land trigger area.....	2-15
Figure 2.10:	Gaangalu Nation People native title claim area.....	2-16
Figure 2.11:	Properties underlying the Project.....	2-28
Figure 2.12:	Reserve land.....	2-30
Figure 2.13:	Adjacent and overlapping coal tenements	2-32
Figure 2.14:	Adjacent petroleum tenements.....	2-33
Figure 2.15:	Main transport routes.....	2-36
Figure 2.16:	Existing energy infrastructure network	2-37
Figure 2.17:	Benleith Water Scheme pipeline network	2-39
Figure 2.18:	Local topography.....	2-41
Figure 2.19:	Solid geology of the Project area	2-43
Figure 2.20:	Typical stratigraphy of the Project.....	2-44
Figure 2.21:	Seam sub-crop and section orientation plan for the Project.....	2-45
Figure 2.22:	Typical cross-sections through the Project (refer Figure 2.1 for cross-section locations).....	2-46
Figure 2.23:	Local weather stations	2-49
Figure 2.24:	Project regional average monthly rainfall.....	2-53
Figure 2.25:	Wind rose: Baralaba Mine weather station data	2-55
Figure 2.26:	Stacked proportions of stability classes by time of day (Trinity, 2023)	2-56
Figure 2.27:	Bushfire hazard areas.....	2-58
Figure 2.28:	Moura-Baralaba Road—concept design of diverted section (Stantec, 2023).....	2-62
Figure 2.29:	Map of road closures and realignments	2-63
Figure 2.30:	MIA indicative layout	2-64
Figure 2.31:	Indicative life of mine period progress plot.....	2-67
Figure 2.32:	Mine stage plan—year 1	2-68
Figure 2.33:	Mine stage plan – year 3	2-69
Figure 2.34:	Mine stage plan—year 6	2-70
Figure 2.35:	Mine stage plan—year 11	2-71
Figure 2.36:	Mine stage plan—year 14	2-72
Figure 2.37:	Mine stage plan—year 19	2-73
Figure 2.38:	Mine stage plan – year 23	2-74
Figure 2.39:	ROM and raw coal handling.....	2-78
Figure 2.40:	CHPP dense, medium circuits	2-79
Figure 2.41:	CHPP spiral circuits.....	2-80
Figure 2.42:	CHPP flotation circuit	2-81
Figure 2.43:	CHPP fine tailings circuit	2-81
Figure 2.44:	Conceptual mine layout	2-84
Figure 2.45:	Proposed energy infrastructure	2-86
Figure 2.46:	Alternative 1 - Conceptual mine layout 5 Mtpa mine operation.....	2-95
Figure 2.47:	Alternative 2 - Conceptual mine layout 2.5 Mtpa mine operation	2-96
Figure 3.1:	PMLU alternative 1: improved pasture grazing with natural ecosystem.....	3-6
Figure 3.2:	PMLU alternative 2: improved pasture grazing	3-10
Figure 3.3:	Mine stage plan—year 1	3-13
Figure 3.4:	Mine stage plan – year 3	3-14

Figure 3.5:	Mine stage plan—year 6	3-15
Figure 3.6:	Mine stage plan—year 11	3-16
Figure 3.7:	Mine stage plan—year 14	3-17
Figure 3.8:	Mine stage plan—year 19	3-18
Figure 3.9:	Mine stage plan – year 23	3-19
Figure 3.10:	Proposed final landform	3-20
Figure 3.11:	Final landform 3D visualisation, looking south, if MIA pad retained	3-21
Figure 3.12:	0.1% AEP flood extent and the mine developed case.....	3-25
Figure 3.13:	Final landform catchment.....	3-27
Figure 3.14:	WEPP analysis, modelled slope location.....	3-30
Figure 3.15:	Average annual soil loss (t/ha/yr) and vegetation cover, maximum slope.....	3-31
Figure 3.16:	Average annual soil loss rates (t/ha/year) with vegetation cover, 234 m slope.....	3-32
Figure 3.17:	Average annual soil loss rates (t/ha/year) with vegetation cover, 117 m slope.....	3-32
Figure 3.18:	Rehabilitation areas	3-34
Figure 3.19:	Rehabilitation schedule plan—Year 1 mine plan	3-37
Figure 3.20:	Rehabilitation schedule plan—Year 6 mine plan	3-38
Figure 3.21:	Rehabilitation schedule plan—Year 11 mine plan	3-39
Figure 3.22:	Rehabilitation schedule plan—Year 14 mine plan	3-40
Figure 3.23:	Rehabilitation schedule plan—Year 19 mine plan	3-41
Figure 3.24:	Rehabilitation schedule plan—Year 23 mine plan	3-42
Figure 3.25:	Rehabilitation schedule plan – Year 28 post-mining.....	3-43
Figure 4.1:	Regional context	4-3
Figure 4.2:	Regional catchments.....	4-4
Figure 4.3:	Environmental values—Lower Dawson River Sub-basin—WQ1309.....	4-5
Figure 4.4:	Waterways within the MLA and surrounds	4-15
Figure 4.5:	Water quality monitoring locations	4-17
Figure 4.6:	Dawson River at Beckers (130322A) and Dawson River at Bindaree (130374A)	4-18
Figure 4.7:	Baralaba North Mine water quality monitoring sites	4-20
Figure 4.8:	Station 130322A (Dawson River at Beckers) streamflow and water quality time series	4-21
Figure 4.9:	HES and GES wetland locations.....	4-39
Figure 4.10:	Overflow pathways for water management infrastructure.....	4-42
Figure 4.11:	Proposed release and extraction pipeline	4-47
Figure 4.12:	Water management schematic.....	4-50
Figure 4.13:	Final void arrangement	4-54
Figure 4.14:	Final void groundwater recovery relationship.....	4-56
Figure 4.15:	Annual controlled release volumes.....	4-63
Figure 4.16:	Number of release events per year	4-64
Figure 4.17:	Duration of release events per year	4-64
Figure 4.18:	Final void water level (improved catchment inflow scenario).....	4-72
Figure 4.19:	Year 1 Water management infrastructure.....	4-77
Figure 4.20:	Year 3 Water management infrastructure.....	4-78
Figure 4.21:	Year 6 Water management infrastructure.....	4-79
Figure 4.22:	Year 11 Water management infrastructure.....	4-80
Figure 4.23:	Year 14 Water management infrastructure.....	4-81
Figure 4.24:	Year 19 Water management infrastructure.....	4-82
Figure 4.25:	Year 23 Water management infrastructure.....	4-83
Figure 5.1:	Environmental values—Lower Dawson River Sub-basin—WQ1309.....	5-3
Figure 5.2:	Environmental values—Fitzroy Basin Groundwater Zones—WQ1310.....	5-4
Figure 5.3:	Structural geology setting	5-6
Figure 5.4:	Conceptual model of conditions during mining.....	5-11
Figure 5.5:	Inferred water table elevation and flow direction.....	5-13
Figure 5.6:	Depth to observed groundwater table / interpreted unsaturated depth	5-14
Figure 5.7:	Section A-A: groundwater levels and likely groundwater interaction at wetlands	5-31
Figure 5.8:	Section B-B: groundwater levels and likely groundwater interaction at wetlands.....	5-32
Figure 5.9:	Ecohydrogeological model of the Dawson River flood plain at its confluence with Banana Creek – surface flow conditions	5-34

Figure 5.10:	Ecohydrogeological model of the Dawson River flood plain at the confluence of Banana Creek - bank overflow conditions	5-35
Figure 5.11:	Ecohydrogeological model of the Dawson River flood plain at the confluence of Banana Creek – low/no flow conditions	5-36
Figure 5.12:	Modelled hydraulic conductivity parameters	5-45
Figure 5.13:	Modelled storage parameters	5-46
Figure 5.14:	Modelled recharge and drain conductance	5-47
Figure 5.15:	Estimated groundwater inflow to the project	5-49
Figure 5.16:	Maximum predicted drawdown in Permian strata during mining (2030-2054)	5-51
Figure 5.17:	Maximum predicted drawdown in the water table during mining (2030-2054)	5-53
Figure 5.18:	Modelled drawdown in surficial deposits	5-54
Figure 5.19:	Post-mining equilibrium water table elevation and drawdown (in 2500)	5-61
Figure 6.1:	Nearby infrastructure and roads.....	6-7
Figure 6.2:	Gauging station locations and sub-catchments	6-8
Figure 6.3:	December 2010 validation of model against landholder flood observations.....	6-11
Figure 6.4:	Local drainage characteristic.....	6-14
Figure 6.5:	0.1% AEP peak flood depth (mine developed case).....	6-17
Figure 6.6:	PMF peak flood depth (mine developed case)	6-18
Figure 6.7:	10% AEP peak flood depth (existing case)	6-20
Figure 6.8:	10% AEP peak flood depth (mine developed case).....	6-21
Figure 6.9:	10% AEP change in peak flood depth (mine developed case—existing case)	6-22
Figure 6.10:	2% AEP change in peak flood depth (mine developed case—existing case)	6-23
Figure 6.11:	1% AEP change in peak flood depth (mine developed case—existing case)	6-24
Figure 6.12:	2% AEP change in peak flood velocity (mine developed case—existing case)	6-26
Figure 6.13:	1% AEP change in peak flood velocity (mine developed case—existing case)	6-27
Figure 6.14:	2% AEP change in inundation duration (mine developed case—existing case)	6-29
Figure 6.15:	1% AEP change in inundation duration (mine developed case—existing case)	6-30
Figure 6.16:	Mining pit extent relative to 0.1% AEP pre-mining flood extent	6-36
Figure 6.17:	Preliminary mine water dam break assessment results— MWD	6-45
Figure 6.18:	Preliminary mine water dam break assessment results— Enviro Dam	6-46
Figure 7.1:	Terrestrial ecology study area.....	7-7
Figure 7.2:	Flora survey sites.....	7-8
Figure 7.3:	Fauna survey sites.....	7-9
Figure 7.4:	Aquatic ecology survey sites	7-13
Figure 7.5:	GDE assessment areas targeted for field assessment	7-16
Figure 7.6:	Bore locations within and around the Project area	7-19
Figure 7.7:	Field validated regional ecosystem mapping within the terrestrial ecology study area	7-24
Figure 7.8:	Field validated TEC within the terrestrial ecology survey area	7-26
Figure 7.9:	Threatened flora records within the terrestrial ecology study area.....	7-30
Figure 7.10:	Ornamental Snake (<i>Denisonia maculata</i>) records and habitat	7-36
Figure 7.11:	Koala (<i>Phascolarctos cinereus</i>) records and habitat.....	7-38
Figure 7.12:	Squatter Pigeon (Southern) (<i>Geophaps scripta scripta</i>) records and habitat.....	7-40
Figure 7.13:	Australian Painted Snipe (<i>Rostratula australis</i>) potential habitat.....	7-42
Figure 7.14:	Greater Glider (<i>Petauroides volans</i>) records and habitat.....	7-46
Figure 7.15:	Yellow-bellied Glider (south-eastern (<i>Petaurus australis australis</i>)) records and habitat	7-47
Figure 7.16:	Short-beaked Echidna (<i>Tachyglossus aculeatus</i>) records and habitat.....	7-49
Figure 7.17:	White-throated Needletail habitat	7-50
Figure 7.18:	Mapped watercourses and drainage features, Project area and surrounds	7-53
Figure 7.19:	Referrable wetland mapping	7-54
Figure 7.20:	Aquatic habitat bio-assessment scores.....	7-56
Figure 7.21:	Waterway Barrier Works mapping	7-59
Figure 7.22:	Ground-truthed mapping of waterways in the mine disturbance footprint	7-60
Figure 7.23:	Taxonomic richness for edge habitat at each site.....	7-67
Figure 7.24:	Taxonomic richness for bed habitat at each site	7-67
Figure 7.25:	PET richness for edge habitat at each site	7-68
Figure 7.26:	PET richness for bed habitat at each site	7-68
Figure 7.27:	Occurrence records and distribution of listed turtle species.....	7-72

Figure 7.28: Occurrence records of Platypus within the Project area and surrounds 7-74

Figure 7.29: Location of the extent of potentially groundwater dependent vegetation 7-78

Figure 7.30: Ecohydrogeological conceptual model of the Dawson R. flood plain at its confluence with
Banana Ck. – surface flow conditions 7-79

Figure 7.31: Ecohydrogeological conceptual model of the Dawson R. flood plain at the confluence of
Banana Ck. - bank overflow conditions..... 7-80

Figure 7.32: Ecohydrogeological conceptual model of the Dawson R. flood plain at the confluence of
Banana Ck. – low/no flow conditions 7-81

Figure 7.33: Location of known and high potential GDE areas relative to predicted groundwater drawdown
..... 7-93

Figure 7.34: Proximity of wetland areas including HES wetlands to proposed Project area 7-150

Figure 7.35: Location of potential offset properties 7-174

Figure 9.1: Baralaba Coal Company Environmental Policy 9-10

Figure 9.2: Baralaba Coal Company Community Policy 9-11

Figure 9.3: Baralaba Coal Company Health and Safety Policy 9-12

Figure 9.4: EIS process for Baralaba South Project 9-14

Figure 9.5: Regional Project location 9-19

Figure 9.6: Project locality 9-20

Figure 9.7: Brigalow Belt South Bioregion 9-21

Figure 9.8: Regional water catchments 9-22

Figure 9.9: Groundwater areas 9-23

Figure 9.10: Regional interest areas 9-24

Figure 9.11: Strategic cropping land trigger area..... 9-25

Figure 9.12: Gaangalu Nation People native title claim area..... 9-26

Figure 9.13: Local topography..... 9-27

Figure 9.14: Indicative life of mine period progress plot 9-32

Figure 9.15: Mine stage plan—Year 1 9-33

Figure 9.16: Mine stage plan—Year 3 9-34

Figure 9.17: Mine stage plan – Year 6..... 9-35

Figure 9.18: Mine stage plan—Year 11 9-36

Figure 9.19: Mine stage plan—Year 14 9-37

Figure 9.20: Mine stage plan—Year 19 9-38

Figure 9.21: Mine stage plan – Year 23..... 9-39

Figure 9.22: Conceptual mine layout 9-42

Figure 9.23: Proposed energy infrastructure 9-44

Figure 9.24: Moura-Baralaba Road—concept design of diverted section 9-45

Figure 9.25: Map of road closures and realignments 9-47

Figure 9.26: Water Management Infrastructure 9-49

Figure 9.27: Alternative 1 - Conceptual mine layout 5 Mtpa mine operation 9-59

Figure 9.28: Alternative 2 - Conceptual mine layout 2.5 Mtpa mine operation 9-60

Figure 9.29: Overflow pathways for water management infrastructure..... 9-76

Figure 9.30: Proposed release and extraction pipeline 9-78

Figure 9.31: Water management schematic..... 9-80

Figure 9.32: Final void arrangement 9-84

Figure 9.33: Final void groundwater recovery relationship 9-85

Figure 9.34: Waterways with the MLA and surrounds 9-98

Figure 9.35: Water quality monitoring locations 9-100

Figure 9.36: Gauging Station 130322A (Dawson R. Beckers) streamflow and water quality 9-102

Figure 9.37: Dawson R. Beckers (130322A) and Dawson R. Bindaree (130374A): flow duration curves . 9-117

Figure 9.38: HES and GES wetland locations..... 9-119

Figure 9.39: Annual controlled release volumes..... 9-120

Figure 9.40: Number of release events per year 9-121

Figure 9.41: Duration of release events per year 9-121

Figure 9.42: Final void water level (improved catchment inflow scenario)..... 9-128

Figure 9.43: Year 1 Water management infrastructure..... 9-132

Figure 9.44:	Year 3 Water management infrastructure.....	9-133
Figure 9.45:	Year 6 Water management infrastructure.....	9-134
Figure 9.46:	Year 11 Water management infrastructure.....	9-135
Figure 9.47:	Year 14 Water management infrastructure.....	9-136
Figure 9.48:	Year 19 Water management infrastructure.....	9-137
Figure 9.49:	Year 23 Water management infrastructure.....	9-138
Figure 9.50:	Nearby infrastructure and roads.....	9-156
Figure 9.51:	Streamflow gauging station locations and catchments	9-157
Figure 9.52:	Local drainage characteristic.....	9-161
Figure 9.53:	0.1% AEP peak flood depth (mine developed case).....	9-164
Figure 9.54:	PMF peak flood depth (mine developed case)	9-165
Figure 9.55:	10% AEP peak flood depth (existing case)	9-167
Figure 9.56:	10% AEP peak flood depth (mine developed case).....	9-168
Figure 9.57:	10% AEP change in peak flood depth (mine developed case—existing case)	9-169
Figure 9.58:	2% AEP change in peak flood depth (mine developed case—existing case)	9-170
Figure 9.59:	1% AEP change in peak flood depth (mine developed case—existing case)	9-171
Figure 9.60:	2% AEP change in peak flood velocity (mine developed case—existing case)	9-173
Figure 9.61:	1% AEP change in peak flood velocity (mine developed case—existing case)	9-174
Figure 9.62:	2% AEP change in inundation duration (mine developed case—existing case)	9-176
Figure 9.63:	1% AEP change in inundation duration (mine developed case—existing case)	9-177
Figure 9.64:	Mining pit extent relative to 0.1% AEP pre-mining flood extent	9-183
Figure 9.65:	Environmental values—lower Dawson River Sub-basin—WQ1309	9-187
Figure 9.66:	Environmental values—Fitzroy Basin Groundwater Zones—WQ1310	9-188
Figure 9.67:	Structural geology setting	9-190
Figure 9.68:	Conceptual model of conditions during mining.....	9-194
Figure 9.69:	Inferred water table elevation and flow direction.....	9-196
Figure 9.70:	Depth to observed groundwater table/interpreted unsaturated depth	9-197
Figure 9.71:	Cross-section A-A: groundwater levels and likely groundwater interaction at wetlands.....	9-213
Figure 9.72:	Cross-section B-B: groundwater levels and likely groundwater interaction at wetlands	9-214
Figure 9.73:	Modelled hydraulic conductivity parameters	9-221
Figure 9.74:	Modelled storage parameters	9-222
Figure 9.75:	Modelled recharge and drain conductance	9-223
Figure 9.76:	Estimated groundwater inflow to the Project	9-225
Figure 9.77:	Maximum predicted drawdown in Permian strata during mining (2030-2054)	9-228
Figure 9.78:	Maximum predicted drawdown in the water table during mining (2030-2054)	9-229
Figure 9.79:	Modelled drawdown in surficial deposits	9-230
Figure 9.80:	Post-mining equilibrium water table elevation and drawdown (2500)	9-236
Figure 9.81:	Terrestrial ecology study area.....	9-249
Figure 9.82:	Flora survey sites.....	9-250
Figure 9.83:	Fauna survey sites	9-251
Figure 9.84:	Field validated Regional Ecosystems in the terrestrial ecology study area	9-255
Figure 9.85:	Field validated threatened ecological communities in the terrestrial ecology survey area	9-257
Figure 9.86:	Threatened flora records within the terrestrial ecology study area.....	9-277
Figure 9.87:	Ornamental Snake records and habitat within the terrestrial ecology study area.....	9-281
Figure 9.88:	Australian Painted Snipe potential habitat within the terrestrial ecology study area.....	9-288
Figure 9.89:	Koala records and habitat within the terrestrial ecology study area.....	9-293
Figure 9.90:	Squatter Pigeon (southern) records and habitat within the terrestrial ecology study area.....	9-300
Figure 9.91:	Aquatic ecology survey sites	9-314
Figure 9.92:	Aquatic habitat bio-assessment scores.....	9-315
Figure 9.93:	Occurrence records and distribution of listed turtle species: Project area and surrounds	9-318
Figure 9.94:	Bore locations within and around the Project area	9-332
Figure 9.95:	GDE assessment field locations	9-336
Figure 9.96:	Known and high potential GDE areas relative to predicted groundwater drawdown.....	9-337
Figure 9.97:	Ecohydrogeological model of the Dawson R. at its confluence with Banana Ck: surface flow conditions	9-338
Figure 9.98:	Ecohydrogeological model of the Dawson R. at the confluence of Banana Ck: bank overflow conditions	9-339

Figure 9.99:	Ecohydrogeological model of the Dawson R. at the confluence of Banana Ck: low/no flow conditions	9-339
Figure 9.100:	SIA study area and regional communities.....	9-346
Figure 9.101:	Services available within local communities.....	9-348
Figure 9.102:	Map of EIA local catchment	9-382
Figure 9.103:	Map of EIA regional catchment.....	9-383
Figure 9.104:	Location of proposed offset properties	9-396
Figure 10.1:	Topography of the study area.....	10-5
Figure 10.2:	Surface geology.....	10-7
Figure 10.3:	Distribution of soil management units	10-9
Figure 10.4:	Proposed Energy Transmission Line (ETL) Corridor	10-15
Figure 10.5:	Baralaba South Project Surface water infrastructure	10-17
Figure 10.6:	Areas of regional and state interest.....	10-19
Figure 10.7:	Strategic cropping land trigger mapped area	10-22
Figure 10.8:	Strategic cropping land underlying the maximum Project disturbance footprint	10-24
Figure 10.9:	Final landform 3D visualisation – looking south, if MIA pad retained	10-40
Figure 10.10:	Vantage points and visual receptor locations.....	10-42
Figure 10.11:	Visual simulation at vantage point VA1	10-46
Figure 10.12:	Visual simulation at vantage point VA2	10-46
Figure 10.13:	Visual reference site VA3	10-47
Figure 10.14:	Visual simulation at vantage point VA4	10-47
Figure 10.15:	Visual simulation at vantage point VA5	10-48
Figure 10.16:	Visual simulation at vantage point VA6	10-48
Figure 10.17:	Visual simulation at vantage point VA7	10-49
Figure 10.18:	Visual simulation at vantage point VA8	10-49
Figure 10.19:	Visual simulation at vantage point VA9	10-50
Figure 10.20:	Visual simulation at vantage point VA10	10-50
Figure 11.1:	Wind rose: Baralaba Mine weather station data.....	11-5
Figure 11.2:	Stacked proportions of stability classes by time of day - Project site.....	11-6
Figure 11.3:	Stacked proportions of stability classes by time of day – TLO site	11-7
Figure 11.4:	Local topography.....	11-9
Figure 11.5:	Sensitive receptors near Project	11-11
Figure 11.6:	Sensitive receptors near TLO	11-13
Figure 11.7:	Predicted max. 24-hour average PM10 ($\mu\text{g}/\text{m}^3$) incl. background—Year 1.....	11-22
Figure 11.8:	Predicted max. 24-hour average PM10 ($\mu\text{g}/\text{m}^3$) incl. background—Year 3.....	11-23
Figure 11.9:	Predicted max. 24-hour average PM10 ($\mu\text{g}/\text{m}^3$) incl. background—Year 11.....	11-24
Figure 11.10:	Predicted max. 30-day dust deposition levels ($\text{mg}/\text{m}^2/\text{day}$) incl. background —Year 1	11-28
Figure 11.11:	Predicted max. 30-day dust deposition levels ($\text{mg}/\text{m}^2/\text{day}$) incl. background —Year 3	11-29
Figure 11.12:	Predicted max. 30-day dust deposition levels ($\text{mg}/\text{m}^2/\text{day}$) incl. background —Year 11	11-30
Figure 11.13:	TLO predicted annual average PM2.5 concentrations ($\mu\text{g}/\text{m}^3$) incl. background	11-33
Figure 11.14:	TLO Predicted max. 24-hour PM10 concentrations ($\mu\text{g}/\text{m}^3$) incl. background	11-34
Figure 11.15:	TLO Predicted max. 30-day dust deposition levels ($\text{mg}/\text{m}^2/\text{day}$) incl. background	11-36
Figure 12.1:	Windrose: Baralaba Mine weather station data.....	12-5
Figure 12.2:	Stacked proportions of stability classes by time of day	12-6
Figure 12.3:	Local topography.....	12-7
Figure 12.4:	Project receptors—mining operations.....	12-10
Figure 12.5:	Noise contours – Scenario 1a: Year 1 (night-adverse)	12-19
Figure 12.6:	Noise contours – Scenario 1b: Year 1 (night-adverse)	12-20
Figure 12.7:	Noise contours – Scenario 2: Year 3 (night-adverse)	12-21
Figure 12.8:	Noise contours – Scenario 3: Year 11 (night-adverse)	12-22
Figure 12.9:	Benleith Water Scheme infrastructure in the vicinity of the Project.....	12-24
Figure 13.1:	Road network.....	13-4
Figure 13.2:	Study intersections.....	13-7
Figure 13.3:	Rural left-turn treatment proposed for the south access (Austroads 2010a)	13-15
Figure 13.4:	Channelised right turn treatment proposed for the south access (Austroads, 2010a)	13-15
Figure 13.5:	Rural basic left turn treatment proposed for the north access	13-16

Figure 13.6: Channelised right turn treatment proposed for the north access 13-16

Figure 14.1: Conceptual mine layout 14-22

Figure 15.1: Location of non-Indigenous cultural heritage sites..... 15-4

Figure 16.1: SIA nearby regional communities 16-2

Figure 16.2: SIA study area and regional communities..... 16-4

Figure 16.3: Services available within local communities..... 16-6

Figure 16.4: Economic Impact Assessment local catchment 16-41

Figure 16.5: Economic Impact Assessment regional catchment..... 16-41

List of Tables

Table 1.1:	Relevant commonwealth and state government legislation and policies	1-10
Table 1.2:	Threshold values	1-13
Table 1.3:	ERAs and notifiable activities applicable to the Project	1-18
Table 1.4:	Human rights considerations	1-34
Table 1.5:	Summary of legislative considerations	1-36
Table 2.1:	Summary of resources within the MLA by coal seam (Boyd 2017).....	2-4
Table 2.2:	Affected persons – underlying and adjacent tenure.....	2-19
Table 2.3:	Affected persons	2-20
Table 2.4:	Interested persons	2-21
Table 2.5:	Land and landholders underlying the Project	2-27
Table 2.6:	Regional mineral, coal and petroleum tenements.....	2-31
Table 2.7:	Key local road network	2-34
Table 2.8:	Soil landscapes and soils of the study area.....	2-47
Table 2.9:	Meteorological weather stations.....	2-50
Table 2.10:	Meteorological long-term summary—average rainfall and evaporation	2-51
Table 2.11:	Meteorological long-term summary—average temperature and humidity.....	2-52
Table 2.12:	Regional average monthly (9.00 am and 3.00 pm) wind speed (km/hr)	2-54
Table 2.13:	Atmospheric stability classes	2-55
Table 2.14:	Construction materials transport.....	2-60
Table 2.15:	Construction equipment fleet.....	2-61
Table 2.16:	Annual coal and waste production quantities	2-66
Table 2.17:	Major mining equipment list.....	2-77
Table 2.18:	CHPP processing specifications.....	2-79
Table 2.19:	Indicative list of hazardous substances.....	2-82
Table 2.20:	Mine water dams	2-89
Table 2.21:	Sediment dams	2-89
Table 2.22:	Clean water structures.....	2-91
Table 2.23:	Applicable ERAs for the Project	2-93
Table 2.24:	Notifiable activities for the Project	2-93
Table 2.25:	Project alternatives assessment summary	2-97
Table 3.1:	Estimated topsoil volumes available for rehabilitation	3-4
Table 3.2:	Projected final void physical parameters.....	3-24
Table 3.3:	Rehabilitation areas for the Project	3-33
Table 3.4:	Indicative progressive rehabilitation by mine stage plan year	3-35
Table 3.5:	Provisional species list and sowing rates for a PMLU of improved pasture grazing	3-46
Table 3.6:	Seed species suited for native ecosystem establishment.....	3-47
Table 4.1:	Environmental values—surface waters relevant to the Project	4-6
Table 4.2:	Base flow environmental flow objectives identified for the Project	4-6
Table 4.3:	Annual medium to high environmental flow objectives identified for the Project	4-7
Table 4.4:	Daily medium to high flow environmental flow objectives identified for the Project.....	4-7
Table 4.5:	First post-winter flow environmental flow objectives identified for the Project	4-7
Table 4.6:	Receiving environment water quality objectives and other local criteria	4-9
Table 4.7:	Surface water quality monitoring locations.....	4-16
Table 4.8:	Water quality data (Gauging station 130322A—Dawson River at Beckers)	4-22
Table 4.9:	Project surface water quality data collected by Aquatic Ecology Surveys.....	4-24
Table 4.10:	Project surface water quality data June 2019—July 2023 DR1.....	4-27
Table 4.11:	Project surface water quality data June 2019—July 2023 D/S DR1.....	4-29
Table 4.12:	Project surface water quality data June 2019—July 2023 U/S DR1.....	4-31
Table 4.13:	Project surface water quality data June 2019—July 2023 MP1 BC.....	4-33
Table 4.14:	Project surface water quality data June 2019—July 2023	4-35
Table 4.15:	Water management infrastructure—Mine water dams.....	4-41
Table 4.16:	Water management infrastructure—sediment dams	4-44
Table 4.17:	Water management infrastructure—clean water infrastructure	4-46
Table 4.18:	Water management system operation of storages	4-48

Table 4.19:	Monthly average climate data	4-51
Table 4.20:	Average annual water balance (ML/year).....	4-57
Table 4.21:	CHPP and dust suppression water demands by year.....	4-59
Table 4.22:	End-of-pipe mine affected water release limits.....	4-60
Table 4.23:	Release point conditions.....	4-61
Table 4.24:	Receiving waterway release limits.....	4-61
Table 4.25:	Dawson River streamflow impact summary (Beckers Gauging Station).....	4-67
Table 4.26:	Impacts to sediment loads and DIN loads on Great Barrier Reef catchment waters	4-71
Table 4.27:	Cumulative release water quality (Dawson River EC High Flow WQO)	4-74
Table 4.28:	Cumulative release water quality (90th percentile background Dawson River EC).....	4-74
Table 4.29:	Proposed water quality monitoring locations.....	4-84
Table 4.30:	Proposed water quality indicators.....	4-85
Table 4.31:	Receiving waters contaminant trigger levels	4-92
Table 4.32:	Receiving water upstream background sites and downstream monitoring points	4-92
Table 4.33:	Mine water storages monitoring program.....	4-93
Table 5.1:	Environmental values—surface waters and groundwaters relevant to the Project.....	5-5
Table 5.2:	Physico-chemical parameters and major ion hydrochemistry (2012)—alluvium.....	5-15
Table 5.3:	Physico-chemical parameters and major ion hydrochemistry (2012)—Permian coal meas ..	5-15
Table 5.4:	Groundwater quality sampling results—alluvium (pH, EC and TDS).....	5-17
Table 5.5:	Groundwater quality sampling results—Permian coal measures (pH, EC and TDS).....	5-19
Table 5.6:	Statistical analysis of groundwater quality sampling results—alluvium (metals conc.)	5-20
Table 5.7:	Statistical analysis of groundwater quality sampling results—alluvium (metal conc.).....	5-22
Table 5.8:	Statistical analysis of groundwater quality sampling results—Permian (metals conc.).....	5-24
Table 5.9:	Statistical analysis of groundwater quality sampling results—Permian (metals conc.).....	5-26
Table 5.10:	Simulated water balance average 2005 - 2023.....	5-43
Table 5.11:	Associated water take (ML/year).....	5-49
Table 5.12:	Predicted maximum drawdown at private landholder bores due to the Project.....	5-55
Table 5.13:	Groundwater predicted baseflow/enhanced leakage	5-57
Table 5.14:	Initial stage groundwater inflows to the final void	5-59
Table 5.15:	Proposed bore monitoring network	5-65
Table 6.1:	Flood timing and travel times impact summary	6-28
Table 6.2:	HES wetland flood impacts	6-32
Table 6.3:	Flood impact objectives	6-32
Table 6.4:	Flood impacts to nearby infrastructure and towns	6-33
Table 6.5:	Proposed water management dam design.....	6-40
Table 6.6:	Dam breach assessment results.....	6-43
Table 6.7:	Preliminary consequence category assessment summary	6-47
Table 6.8:	Regulated structure design criteria requirements (DES, 2016a).....	6-48
Table 7.1:	Summary of fauna survey effort	7-6
Table 7.2:	Summary of aquatic ecology survey effort	7-11
Table 7.3:	Aquatic ecology survey site locations, names, coordinates and ecological indicators.....	7-12
Table 7.4:	Stygofauna assessment sites.....	7-18
Table 7.5:	Field validated remnant and high-value regrowth REs, terrestrial ecology study area.....	7-22
Table 7.6:	Flora species of conservation significance identified in database searches	7-28
Table 7.7:	Threatened and special least concern (non-migratory) fauna species	7-31
Table 7.8:	Migratory fauna species.....	7-33
Table 7.9:	Habitat for Ornamental Snake within terrestrial ecology study area and Project area.....	7-35
Table 7.10:	Squatter Pigeon (Southern) habitat within the terrestrial ecology study area.....	7-39
Table 7.11:	Australian Painted Snipe habitat.....	7-41
Table 7.12:	Water quality surrounding the Project area	7-62
Table 7.13:	Water quality within the Project area.....	7-64
Table 7.14:	Summary of remnant and high-value regrowth vegetation impacts.....	7-85
Table 7.15:	Assessment of significance of impacts for the Brigalow	7-109
Table 7.16:	Risk assessment for potential impacts to GDEs and residual risk scores.....	7-111
Table 7.17:	Assessment of significance of impacts for Xerothamnella herbacea.....	7-115
Table 7.18:	Assessment of significance of impacts for the Ornamental Snake	7-119
Table 7.19:	Assessment of significance of impacts for the Squatter Pigeon (Southern)	7-125

Table 7.20:	Assessment of significance of impacts for the Australian Painted Snipe.....	7-130
Table 7.21:	Assessment of significance of impacts for the Koala	7-135
Table 7.22:	Assessment of significance of impacts for the Fitzroy River Turtle	7-142
Table 7.23:	Assessment of significance of impacts for the Glossy Ibis and Latham’s Snipe.....	7-146
Table 7.24:	Assessment of significance of residual impacts for wetlands.....	7-151
Table 7.25:	Assessment of significance of residual impacts for Solanum elachophyllum	7-155
Table 7.26:	Assessment of significance of residual impacts for the Greater Glider	7-158
Table 7.27:	Assessment of significance of residual impacts for the Yellow-bellied Glider.....	7-161
Table 7.28:	Assessment of significance of residual impacts for the Short-beaked Echidna	7-163
Table 7.29:	Assessment of significance of residual impacts for the White-throated Needle-tail.....	7-165
Table 7.30:	Assessment of significance of residual impacts for the Platypus.....	7-167
Table 7.31:	Assessment of significance of residual impacts for waterways providing fish passage.....	7-169
Table 7.32:	MNES to be offset	7-170
Table 7.33:	Comparison of MNES on each offset investigation area.....	7-171
Table 7.34:	Percentage of total offset requirement for each MNES	7-171
Table 7.35:	MSES matters to be offset	7-172
Table 7.36:	Sections, areas and matter groups used in financial settlement offset calculator	7-173
Table 8.1:	Introduced fauna species.....	8-1
Table 8.2:	State declared exotic flora in the study area	8-2
Table 8.3:	Introduced aquatic flora and fauna	8-3
Table 9.1:	Mining schedule.....	9-31
Table 9.2:	CHPP processing specifications.....	9-41
Table 9.3:	Mine water dams	9-50
Table 9.4:	Sediment dams	9-51
Table 9.5:	Clean water structures.....	9-53
Table 9.6:	Project alternatives assessment summary	9-58
Table 9.7:	Water management system operation of storages	9-79
Table 9.8:	Monthly average climate data	9-81
Table 9.9:	Average annual water balance (ML/year).....	9-87
Table 9.10:	End-of-pipe mine-affected water release limits	9-89
Table 9.11:	Release point conditions.....	9-89
Table 9.12:	Receiving waterway release limits.....	9-89
Table 9.13:	Environmental values—surface waters relevant to the Project	9-90
Table 9.14:	Base flow environmental flow objectives identified for the Project	9-90
Table 9.15:	Annual medium to high environmental flow objectives identified for the Project	9-91
Table 9.16:	Daily medium to high flow environmental flow objectives identified for the Project.....	9-91
Table 9.17:	First post-winter flow environmental flow objectives identified for the Project	9-91
Table 9.18:	Receiving environment WQOs and other local criteria for the Dawson River.....	9-93
Table 9.19:	Surface water quality monitoring locations.....	9-99
Table 9.20:	Water quality data (Gauging station 130322A—Dawson River at Beckers)	9-102
Table 9.21:	Project surface water quality data collected by Aquatic Ecology Surveys.....	9-104
Table 9.22:	Project surface water quality data June 2019—July 2023 DR1	9-107
Table 9.23:	Project surface water quality data June 2019—July 2023 D/S DR.....	9-109
Table 9.24:	Project surface water quality data June 2019—July 2023 U/S DR.....	9-111
Table 9.25:	Project surface water quality data June 2019 - July 2023 MP1 BC	9-113
Table 9.26:	Project surface water quality data June 2019—July 2023	9-115
Table 9.27:	Dawson River streamflow impact summary (Beckers Gauging Station).....	9-123
Table 9.28:	Cumulative release water quality (Dawson River EC High Flow WQO)	9-129
Table 9.29:	Cumulative release water quality (90th percentile background Dawson River EC).....	9-130
Table 9.30:	Proposed water quality monitoring locations.....	9-139
Table 9.31:	Proposed water quality indicators	9-140
Table 9.32:	Receiving waters contaminant trigger levels	9-143
Table 9.33:	Receiving water upstream background sites and downstream monitoring points	9-144
Table 9.34:	Mine water storages monitoring program.....	9-145
Table 9.35:	Assessment of significant impact on changes to hydrological characteristics.....	9-151
Table 9.36:	Assessment of significant impacts on changes to water quality.....	9-152
Table 9.37:	Flood timing and travel times impact summary	9-175

Table 9.38:	HES wetland flood impacts	9-179
Table 9.39:	Flood impact objectives	9-179
Table 9.40:	Assessment of properties against flood impact objectives.....	9-181
Table 9.41:	Environmental values—surface waters and groundwaters relevant to the Project.....	9-189
Table 9.42:	Physico-chemical parameters and major ion hydrochemistry (2012)—alluvium.....	9-198
Table 9.43:	Physico-chemical parameters and major ion chemistry (2012): Permian coal measures	9-199
Table 9.44:	Groundwater quality sampling results—Alluvium (pH, EC and TDS)	9-200
Table 9.45:	Groundwater quality sampling results—Permian coal measures (pH, EC and TDS).....	9-202
Table 9.46:	Statistical analysis of groundwater quality results: Alluvium (metals)	9-203
Table 9.47:	Statistical analysis of groundwater quality results: Alluvium (metals)	9-204
Table 9.48:	Statistical analysis of groundwater quality results—Permian (metals)	9-206
Table 9.49:	Statistical analysis of groundwater quality results—Permian (metals)	9-209
Table 9.50:	Groundwater database searches and other private landholder bores.....	9-211
Table 9.51:	Simulated water balance average 2005 - 2023.....	9-220
Table 9.52:	Associated water take (ML/year).....	9-226
Table 9.53:	Predicted maximum drawdown at private landholder bores due to the Project.....	9-231
Table 9.54:	Groundwater predicted baseflow/enhanced leakage	9-233
Table 9.55:	Initial stage groundwater inflows to the final void	9-234
Table 9.56:	Proposed bore monitoring network	9-240
Table 9.57:	Significant impact on changes to hydrological characteristics	9-244
Table 9.58:	Assessment of significant impacts on changes to groundwater quality	9-245
Table 9.59:	Summary of fauna survey effort	9-248
Table 9.60:	Field validated remnant, high value regrowth vegetation: terrestrial ecology study area...	9-253
Table 9.61:	EPBC listed flora species identified in database searches: likelihood of occurrence.....	9-258
Table 9.62:	Threatened and special least concern (non-migratory) fauna species (database searches)	9-259
Table 9.63:	Migratory fauna species (non-threatened) identified in database searches.....	9-260
Table 9.64:	Weeds of National Significance.....	9-261
Table 9.65:	Introduced fauna.....	9-261
Table 9.66:	Assessment of significance of impacts: Brigalow (A.harpophylla dominant and codominant)	
Table 9.67:	Assessment of significance of impacts for the Xerothamnella herbacea	9-278
Table 9.68:	Assessment of significance of impacts for the Ornamental Snake	9-283
Table 9.69:	Assessment of significance of impacts for the Australian Painted Snipe.....	9-289
Table 9.70:	Assessment of significance of impacts for the Koala	9-295
Table 9.71:	Assessment of significance of impacts for the Squatter Pigeon (southern)	9-301
Table 9.72:	Assessment of significance of impacts for the Glossy Ibis and Latham’s Snipe.....	9-307
Table 9.73:	Summary of aquatic ecology survey effort	9-309
Table 9.74:	Aquatic ecology survey site locations: ecological indicators assessed	9-311
Table 9.75:	Referral guidelines summary of survey efforts—aquatic fauna	9-313
Table 9.76:	Assessment of significance of impacts for the Fitzroy River Turtle	9-328
Table 9.77:	Stygofauna assessment sites.....	9-330
Table 9.78:	Risk assessment for potential impacts to GDEs and residual risk scores.....	9-343
Table 9.79:	Summary of social impact management commitment.....	9-354
Table 9.80:	Community and stakeholder engagement action plan.....	9-356
Table 9.81:	Community health and wellbeing action plan	9-359
Table 9.82:	Housing and accommodation action plan.....	9-367
Table 9.83:	Workforce employment and training action plan.....	9-370
Table 9.84:	Workforce behaviour management action plan	9-373
Table 9.85:	Local business and industry procurement action plan	9-377
Table 9.86:	Summary of beneficial economic impacts of the Project	9-384
Table 9.87:	Summary of potential adverse economic impacts of the Project	9-385
Table 9.88:	MNES significant impacts summary	9-393
Table 9.89:	Offset summary.....	9-394
Table 9.90:	Comparison of MNES on each offset investigation area.....	9-395
Table 9.91:	Potential offset supply areas.....	9-395
Table 9.92:	Existing threats to MNES to be managed in offset sites	9-397
Table 10.1:	Soil landscapes and soils of the study area.....	10-10

Table 10.2:	Soil erodibility, sodicity and dispersibility.....	10-11
Table 10.3:	Summary of suitability classes of SMUs.....	10-20
Table 10.4:	Summary strategic cropping land assessment.....	10-21
Table 10.5:	Stock routes	10-25
Table 10.6:	Resource tenements and regional interests	10-36
Table 10.7:	Description of vantage points	10-41
Table 10.8:	Visual impact matrix	10-44
Table 10.9:	Overall visual impact.....	10-44
Table 11.1:	Project objectives.....	11-2
Table 11.2:	Sensitive receptors.....	11-10
Table 11.3:	Sensitive receptors - TLO	11-12
Table 11.4:	Background concentrations	11-14
Table 11.5:	Total controlled emission inventory for Year 1.....	11-16
Table 11.6:	Total controlled emission inventory for Year 3.....	11-17
Table 11.7:	Total controlled emission inventory for Year 11.....	11-18
Table 11.8:	Predicted annual average TSP ($\mu\text{g}/\text{m}^3$)	11-19
Table 11.9:	Predicted annual average PM10 ($\mu\text{g}/\text{m}^3$).....	11-20
Table 11.10:	Predicted maximum 24-hour average PM10 ($\mu\text{g}/\text{m}^3$).....	11-21
Table 11.11:	Predicted maximum 24-hour average PM2.5 ($\mu\text{g}/\text{m}^3$).....	11-25
Table 11.12:	Predicted annual average PM2.5 ($\mu\text{g}/\text{m}^3$).....	11-26
Table 11.13:	Predicted dust deposition levels ($\text{mg}/\text{m}^2/\text{day}$).....	11-27
Table 11.14:	TLO emission inventories.....	11-31
Table 11.15:	Predicted cumulative suspended particulate concentrations	11-32
Table 11.16:	Predicted cumulative dust deposition levels	11-35
Table 11.17:	Metals from dust in water tanks.....	11-38
Table 11.18:	Scope 1, 2 and 3 emissions	11-42
Table 11.19:	Vegetation in the study area that may have crown cover >20%	11-44
Table 11.20:	Carbon emissions from vegetation clearing.....	11-44
Table 11.21:	Liquid fuel greenhouse gas emission factors	11-45
Table 11.22:	Estimated on-site fuel combustion emission summary	11-45
Table 11.23:	Estimated off-site (on-road) product transport fuel combustion emission summary.....	11-46
Table 11.24:	Estimated purchased electricity (Scope 2) emission summary.....	11-46
Table 11.25:	Estimates fuel combustion (Scope 3) emission summary.....	11-46
Table 11.26:	Predicted overall GHG emissions (prior to decarbonisation measures)	11-47
Table 11.27:	Predicted yearly GHG emissions (prior to decarbonisation measures)	11-48
Table 11.28:	Predicted overall GHG emissions with decarbonisation measures	11-55
Table 12.1:	Calculated outdoor acoustic quality objectives for residences	12-2
Table 12.2:	Noise limits adopted for the Project.....	12-3
Table 12.3:	Airblast overpressure and ground vibration limits adopted for the Project.....	12-4
Table 12.4:	List of receptors within 5 km of the Project MLA	12-9
Table 12.5:	Rating background noise levels.....	12-11
Table 12.6:	Dwellings identified within 300 m of the haul route	12-11
Table 12.7:	Summary of existing vehicular noise along the haul route.....	12-12
Table 12.8:	Predicted A-weighted noise levels.....	12-15
Table 12.9:	Predicted un-weighted (low frequency) noise levels.....	12-17
Table 13.1:	Level of service definitions.....	13-5
Table 13.2:	Anticipated traffic generation.....	13-1
Table 13.3:	Predicted baseline and Project traffic volumes	13-1
Table 14.1:	Waste categories detailed in other EIS chapters	14-3
Table 14.2:	Anticipated waste generation and management strategies.....	14-6
Table 14.3:	Wastewater quality estimations	14-17
Table 15.1:	Significance ratings for the Project area	15-3
Table 16.1:	Summary of social impact management commitment.....	16-12
Table 16.1:	Community and Stakeholder Engagement Action Plan (Appendix T).....	16-14
Table 16.2:	Draft Community health and wellbeing action plan (Appendix U)	16-17
Table 16.3:	Draft Housing and accommodation action plan (Appendix V).....	16-25
Table 16.4:	Draft Workforce employment and training action plan (Appendix W)	16-29

Table 16.5:	Draft Workforce behaviour management action plan (Appendix W).....	16-32
Table 16.6:	Draft Local business and industry procurement action plan (Appendix X).....	16-36
Table 16.7:	Summary of beneficial economic impacts of the Project	16-43
Table 16.8:	Summary of potential adverse economic impacts of the Project.....	16-44
Table 17.1:	Likelihood of exposure to the hazard	17-2
Table 17.2:	Severity and consequence of hazard occurring	17-3
Table 17.3:	Risk level ranking matrix	17-3
Table 17.4:	Risk level actions	17-3
Table 17.5:	Anticipated hazardous materials and dangerous goods.....	17-8
Table 17.6:	Class III assessed risks	17-11
Table 17.7:	Key elements of the Emergency Response Plan	17-13
Table 17.8:	Consequence classification	17-15
Table 17.9:	Summary of identified risks and mitigation measures.....	17-17
Table 18.1:	Summary of Project Commitments.....	18-2
Table D1:	Noise Limits.....	19-7
Table D2:	Airblast Overpressure and Vibration Limits	19-7
Table E1:	Groundwater monitoring locations and frequency	19-8
Table E2:	Groundwater Quality Triggers and Limits	19-11
Table E3:	Groundwater Level Triggers.....	19-12
Table F1:	Mine affected water release points, sources and receiving waters	19-14
Table F2:	Mine affected water release limits	19-14
Table F3:	Release contaminant trigger investigation levels, potential contaminants.....	19-14
Table F4:	Mine affected water release during flow events	19-16
Table F5:	Receiving waters contaminant trigger levels	19-18
Table F6:	Receiving water upstream background sites and downstream monitoring points	19-18
Table G1:	Contaminant release limits to land	19-21
Table H1:	Rehabilitation objectives and completion criteria	19-25
Table H2:	Final land use	19-30
Table H3:	Significant residual impacts to prescribed environmental matters	19-3