

Supplementary Report to the Environmental Impact Statement for South of Embley Project

This Supplementary Report to the Environmental Impact Statement has been prepared to meet the assessment requirements for the Project under the *State Development and Public Works Organisation Act 1971* (QLD).
February 2012

Rio Tinto Alcan

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Section 1

Introduction

1. INTRODUCTION

1.1 Purpose of the Supplementary Report

RTA Weipa Pty Ltd (RTA) prepared an Environmental Impact Statement (EIS) to meet the assessment requirements for the South of Embley (SoE) Project ('the Project') under the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act), the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and the *Environment Protection (Sea Dumping) Act 1981* (Cth) (Sea Dumping Act). The content of the EIS reflects the Terms of Reference (ToR) issued by the Queensland Coordinator-General (CG) and the Tailored EIS Guidelines issued by the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities (the Minister).

On 18 November 2011 the CG requested RTA to prepare a Supplementary report to address the issues raised in submissions received during the public consultation period of the EIS. The purpose of the Supplementary report is not to duplicate the original EIS, but to provide further clarification of specific issues raised in submissions.

Under the EPBC Act, RTA is required to finalise the "draft EIS", taking account of and summarising comments received within the submission period, and stating how such comments are addressed in the "final EIS". To avoid duplication and inconsistency between the State and Commonwealth assessment processes, this Supplementary report will form part of the "final EIS".

The Supplementary report will be provided to the CG and the Minister for consideration.

Since release of the EIS the Project has conducted further feasibility study and identified a number of refinements to elements of the Project. The Supplementary report provides an opportunity to describe and assess these refinements for the CG and the Minister. The refinements are described in **Section 2**. Any corresponding environmental impact assessment and mitigation is provided in **Sections 3 to 20** of this Supplementary report.

1.2 Consultation Process Since Release of the EIS

The consultation process leading up to the submission of the EIS was described in the EIS. The EIS was released for public comment on 1 August 2011 and closed 12 September 2011. During the public display period RTA undertook a range of consultation activities as summarised below:

- placed hardcopies of the EIS at 12 locations for viewing (including Weipa (3 locations), Aurukun, Napranum, Mapoon, Bamaga, Cooktown, Brisbane, Canberra (2 locations));
- distributed 50 copies on CD ROM;
- distributed additional 10 hardcopies of EIS;
- distributed Newsletter 4 to more than 2,000 stakeholders;
- held public information sessions at Weipa (6), Napranum (4), Aurukun (4), Mapoon (1) and Bamaga (1);
- held 2 community forums in Weipa and 1 each at Aurukun and Napranum;
- held agency briefings in Canberra, Brisbane and Cairns and a site visit for regulatory agencies; and
- maintained the Project web site and 1800 number.

Further detail on consultation is provided in **Section 15** and **Appendix 6**.

The primary contact for the Project is detailed below:

Manager – South of Embley Project	
Rio Tinto Aluminium Limited	
GPO Box 153, Brisbane Qld 4001	
Telephone:	1800 308 938 (freecall)
Facsimile:	+ 61 7 3328 6990
Email:	external.affairs@riotinto.com

1.3 Analysis of Submissions

Twenty-four submissions on the EIS were received by the Coordinator-General. These comprised 4 from individuals, 10 from organisations, 3 from local government (including the Weipa Town Authority), and 7 from State government agencies. The source of submissions is summarised in **Table 1-A**. It is noted that for privacy, the identity of private submitters is not provided.

Table 1-A Source of Submissions

Submission number	Submitter
1	Private
2	Private
3	Weipa Town Authority
4	Department of Transport and Main Roads
5	Department of Community Safety
6	Western Cape Communities Coexistence Agreement
7	Private
8	Private
9	Western Cape York Turtle Conservation Project
10	Western Cape Sustainable Futures
11	Western Cape Chamber of Commerce
12	Private
13	Gulf Alumina
14	Private
15	Department of Communities
16	The Wilderness Society
17	Cook Shire Council
18	Queensland Health
19	Queensland Seafood Industry Association
20	Department of Employment, Economic Development and Innovation
21	Queensland Police Service
22	Gulf of Carpentaria Commercial Fishermen's Association
23	Department of Environment and Resource Management
24	Aurukun Shire Council

1.4 Methodology for Response to Submissions

Each submission was reviewed to identify issues raised. The issues were recorded in an issues database. Each issue was allocated an individual identification number comprised of the submission number and the issue number within that submission. For example, issue 4.13 is the thirteenth issue identified in Submission 4.

A comprehensive list of the issues raised in each submission and response by RTA is provided in **Appendix 1**. Where possible, a full response is provided to each issue raised and may provide reference to information presented in the EIS. However, where detailed information on impact assessment or mitigation is required, a cross reference is provided to the relevant section in this Supplementary report.

The Supplementary report provides technical responses to the issues raised in submissions and provides conclusions with regards to the key issues raised in the submissions. As previously discussed, the purpose of the Supplementary Report is not to duplicate the original EIS, having already prepared an EIS in accordance with the ToR and Tailored EIS Guidelines, but to provide further clarification of specific issues raised in submissions.

Some points raised in submissions represented information provided for the proponent or government benefit but were not an issue that required a response from RTA. All submitters who provided such information are thanked and the relevant information will be used at the appropriate time should the Project proceed.

Some submissions represent the respondent's view on broad issues, such as opposition to mining, or contained general statements that the EIS was inadequate. If the submitter did not specifically identify in what way the EIS was inadequate, such as offering an alternative assessment methodology, identifying an overlooked report or finding a technical error in a calculation, then a response is not possible other than restating what is already in the EIS.

1.5 Structure of the Supplementary Report

The Supplementary report has been structured to complement the EIS as follows:

- **Section 1** – provides an introduction to the Supplementary report, describes the EIS consultation process, and methodology for response to submissions.
- **Section 2** – provides a description of project refinements.
- **Section 3 to Section 20** – provides additional detail, above that provided in the response table in **Appendix 1**, where required for impact assessment and mitigation measures. Impact assessment and mitigation measures related to project refinements (described in **Section 2**) are also provided in relevant sections.
- A full list of issues raised by submissions and responses is provided in **Appendix 1**.
- An updated Summary of Commitments is provided in **Appendix 2**.
- An updated Environmental Management Plan is provided in **Appendix 3**.
- Draft Dredge Management Plans for the Port and River Facilities are provided in **Appendix 4** and **Appendix 5**, respectively.
- A “standalone” Social Impact Management Plan is provided in **Appendix 6**.

Where figures and tables have been updated from the EIS, they are identified by the original EIS figure or table number to allow direct comparison to the original. For example, Figure 1-3 presented in the EIS has been updated and is presented as Figure 1-3(sup.) in this report. New figures and tables are numbered sequentially A, B, C and so on throughout this report.

1.6 Legislative Framework and Project Approvals

The submission from the Queensland Department of Environment and Resource Management (DERM) provided feedback regarding a number of permits and licences. For simplicity, only the approvals, permits and licences for various components of the development that have been amended are provided in **Table 1-2(sup.)**.

Table 1-2(sup.) Amended Project Approvals, Permits and Licences

Permit/Approval/Licence	Legislation	Authority	Comments
Project Wide			
Environmental Authority (amendment to MIN100939109)	<i>Environmental Protection Act 1994</i> (Qld) (EP Act)	Department of Environment and Natural Resources (DERM)	Covers mining and associated activities as per operational and environmental requirements of an environmental authority (mining activities).
Humbug and Hornibrook Terminals, Tug Berths			
Evidence of resource entitlement	<i>Sustainable Planning Act 2009</i> (Qld) (SP Act) and <i>Sustainable Planning Regulation 2009</i> (Qld) (SP Reg)	DERM	Required for development applications involving state resources on areas outside the mining lease.
Development Approval for operational work for barge and ferry terminals	SP Act and <i>Coastal Protection and Management Act 1995</i> (Qld) (CPM Act)	North Queensland Bulk Ports (NQBP) (assessment manager)	Required for operational work involving reclaiming land under tidal water and operational works in tidal areas of NQBP Strategic Port land (DERM is a concurrence agency for operational works in tidal waters).
Development approval for material change of use for an environmentally relevant activity (ERA) 16 and associated registration certificate.	SP Act, EP Act and <i>Environment Protection Regulation 2008</i> (Qld) (EP Reg)	NQBP and DERM	Queensland government approvals required for dredging in State waters outside a mining lease.
Temporary Seaborne Access			
Minor amendment to Environmental Authority MIN100939109	EP Act	DERM	Infrastructure associated with temporary seaborne access would be within the lease boundary. An application would be made to amend the existing EA where required, to enable use of the temporary access during the construction phase, prior to grant of the environmental authority for the Project.
Upgrade of Beagle Camp and Pera Head Access Roads (outside of ML7024)			
Evidence of resource entitlement	SP Act and SP Reg	DERM	Required for development applications involving state resources on areas outside the mining lease.
Development approval for operational work to clear vegetation	SP Act and <i>Vegetation Management Act 1999</i> (Qld)	DERM	Maybe required if road needs to be realigned or widened.

Table 1-2(sup.) Amended Project Approvals, Permits and Licences

Permit/Approval/Licence	Legislation	Authority	Comments
Port			
Evidence of resource entitlement	SP Act and SP Reg	DERM	Required for dredging in State waters outside the mining lease.
Development approval for material change of use for an environmentally relevant activity (ERA) 16 and associated registration certificate.	SP Act, EP Act and EP Reg	DERM	Queensland government approvals required for dredging in State waters outside a mining lease.

An Environmental Authority (EA) (MIN100939109) was issued for Mining Lease (ML) 7024 and ML6024 on 30 August 2011 (following the publication of the South of Embley Project EIS). The Environmental Management Plan, including the proposed conditions, has been reviewed in light of the issued EA and is provided in its entirety in **Appendix 3**.

An amendment to the Sea Dumping Permit application was submitted to the Department of Sustainability, Environment, Water, Population and Communities (DSEWPac) on 31 October 2011 for minor changes to dredge volumes at the Humbug barge terminal and the Hey River barge/ferry terminal, as well as the realignment of Stage 1 of the Port. A separate Sea Dumping Permit application would be sought, if required, for the tug berth at Lorim Point and Stage 2 of the Port.

Section 2

Project Description

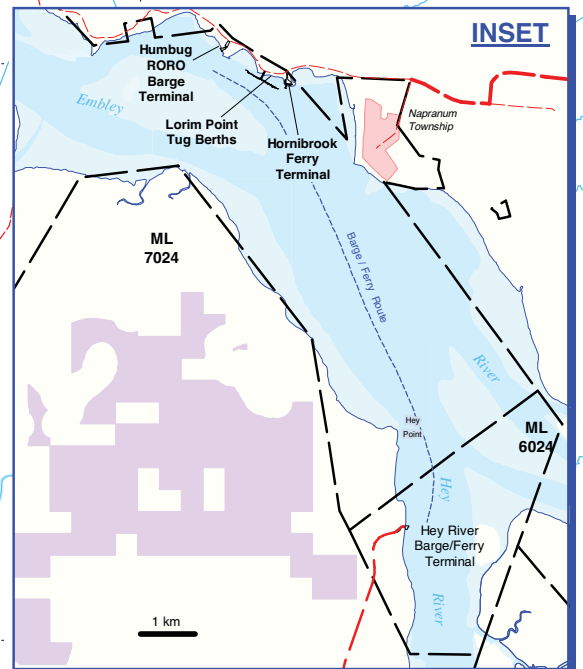
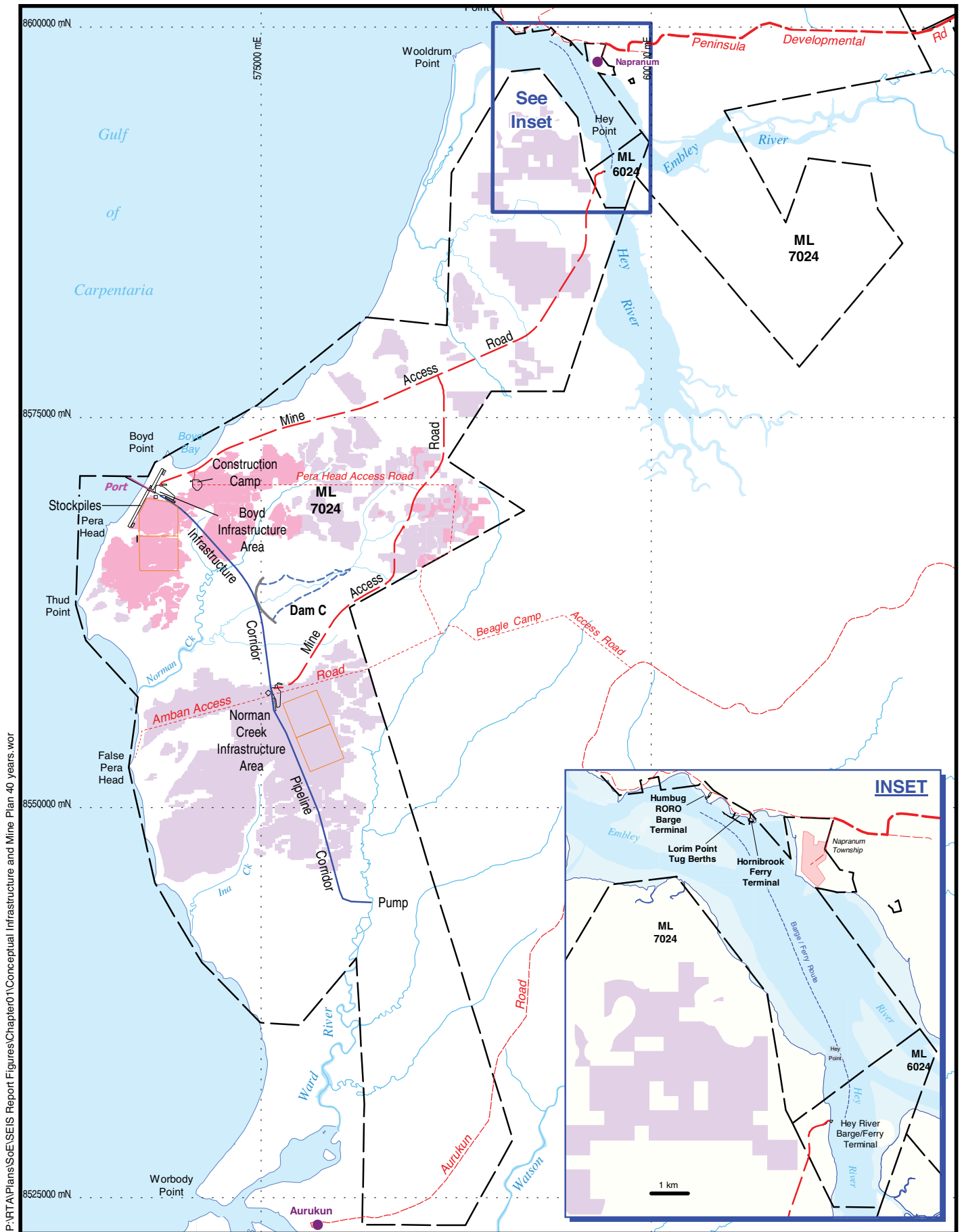
2. PROJECT DESCRIPTION

2.1 Project Refinements

Since the EIS was submitted to the State and Commonwealth governments for adequacy review in early 2011, further detailed feasibility and design work has been undertaken. This section of the Supplementary report describes these Project refinements. The refinements generally relate to:

- Production is likely to start at 22.5 million dry product tonnes per annum (Mdtpa) and two grades of bauxite produced. This has resulted in some minor changes to the initial infrastructure requirements and the overall mine plan. The Project still involves a staged increase in production up to 50Mdtpa. Actual production rates and the timing and size of capacity expansions would depend on market conditions. However, as the EIS assessed operational impacts from a minimum of 15Mdtpa to a maximum of 50Mdtpa, there is minimal associated change required to the environmental impact assessment of the Project.
- Delays in the approvals time frame has resulted in a likely construction start close to the 2012/13 wet season and a shortened overall construction schedule as well as a requirement for alternate access over the initial wet season.
- Feedback received during consultation.
- Additional detailed Project investigations and design.

The revised infrastructure and conceptual mine plan (up to 40 years, depending on market conditions) is provided in **Figure 1-3(sup.)**.



South of Embley Project

Fig. 1-3(sup.): Infrastructure and Conceptual Mine Plan (up to 40 years)

- RTA Mining Lease boundary
- Township
- Road/track
- - - Freshwater dam
- Tailings storage facility
- - - Barge / Ferry route
- Mining Years 1 -13
- Mining Years 14 - 40



5 0 5km

Datum/Projection: GDA94/MGA Zone 54

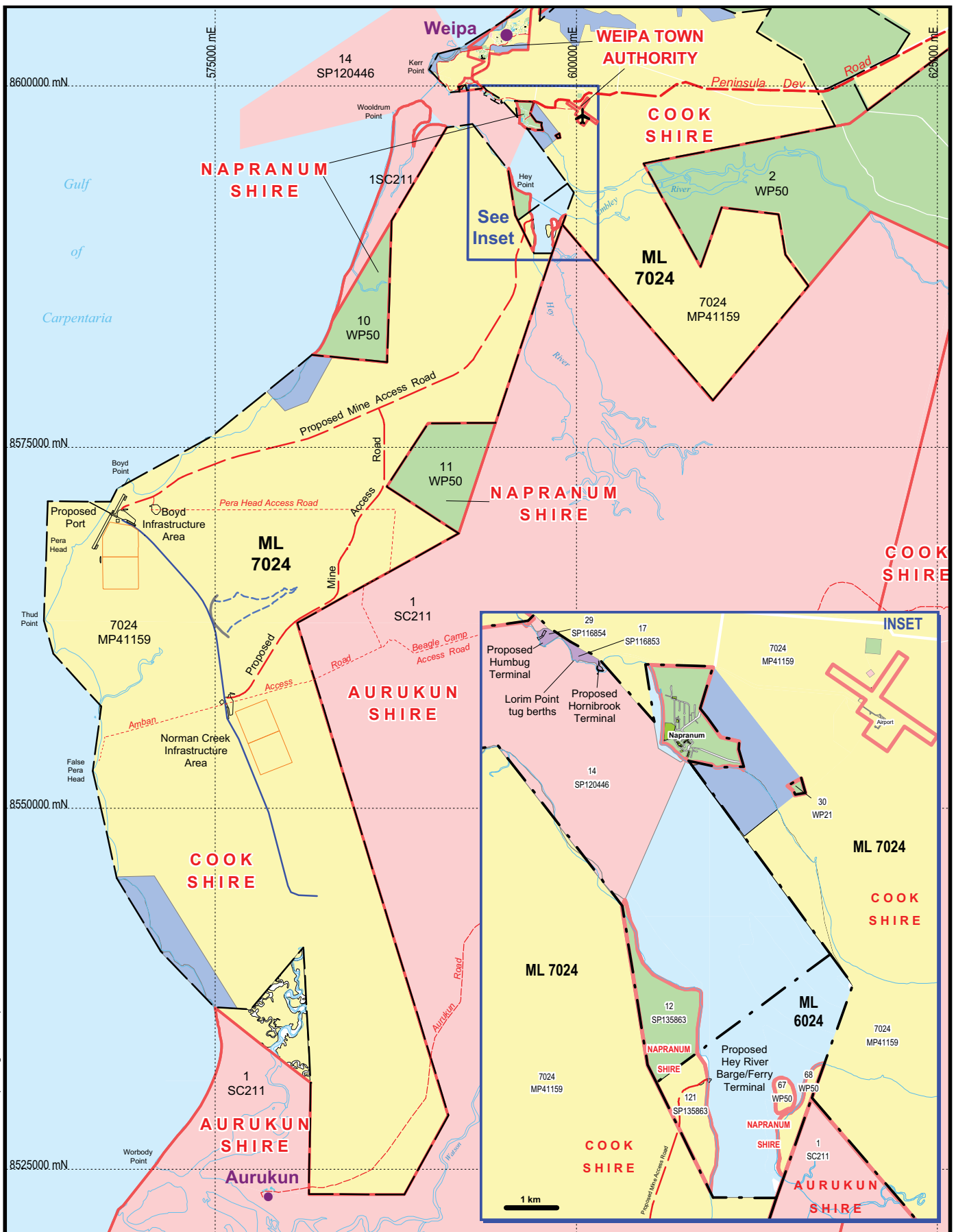
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2.2 Tenure

The tenure figure in the EIS contained a minor error and is presented again in **Figure 2-1(sup.)**. In addition, the Lorim Point tug berth has been added to **Table 2-1(sup.)**.

Table 2-1(sup.) Land Parcels and Tenure

Aspect	Mining Tenement	Land Parcel	Background Tenure	Ownership
Mine, Port and Infrastructure	ML7024 (RTA)	Lot 7024 MP41159	State land	The State of Queensland
Hey River Barge/ Ferry Terminal	ML6024 (RTA)	Lot 121 SP135863	State land	The State of Queensland
		Lot 67 WP50	State land	The State of Queensland
		Lot 68 WP50	State land	The State of Queensland
Humbug Barge Terminal	Not applicable. Located within Strategic Port Land	Lot 29 SP116854	Freehold	North Queensland Bulk Ports Corporation Limited (RTA has held lease since 23 July 1973)
		Lot 14 SP120446	Perpetual Lease	North Queensland Bulk Ports Corporation Limited
Hornibrook Ferry Terminal	Not applicable. Located within Strategic Port Land	Lot 17 SP116853	Freehold	North Queensland Bulk Ports Corporation Limited (RTA has held lease since 22 May 1968 and 23 July 1973)
		Lot 14 SP120446	Perpetual Lease	North Queensland Bulk Ports Corporation Limited
Lorim Point tug berth	Not applicable. Located within Strategic Port Land			North Queensland Bulk Ports Corporation Limited
Adjacent Properties	Not Applicable. (former MDL378, now a designated "restricted area" pursuant to part 188 of the <i>Mineral Resources Regulation</i> 2003).	1 SC211	Land leased to the Aurukun Shire Council under the <i>Local Government (Aboriginal Land) Act 1978</i>	The State of Queensland
	Not Applicable.	11 WP50	Deed of Grant in Trust (DOGIT)	Napranum Aboriginal Shire Council
		10 WP50	Deed of Grant in Trust (DOGIT)	Napranum Aboriginal Shire Council
		Lot 15 SP116851	Perpetual Lease	North Queensland Bulk Ports Corporation Limited
		2 SP161882	State Land	The State of Queensland



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- RTA Mining Lease boundary
 - Shire Boundary
 - ✈ Weipa Airport
 - Road/track
- Tenure**
- Freehold
 - Lands Lease
 - Deed of Grant in Trust
 - State Land
 - In Process of Relinquishing Mining Lease

South of Embley Project

Fig. 2-1(sup.): Land Tenure and Local Government Boundaries



5 0 5km

Datum/Projection: GDA94/MGA Zone 54 Date: 13/12/2011

2.3 Construction

During planning for construction activities, RTA has identified a number of areas that would be temporarily disturbed during construction for equipment and material laydown areas, contractor offices, and associated facilities (refer **Figure A**). These areas predominantly fall within mining or infrastructure areas and therefore cause very minor additional disturbance (<10ha) (refer **Section 7.1** for vegetation disturbance). Previously disturbed areas near the existing operations north of the Embley River would also be utilised for temporary construction laydown areas.

In the EIS, RTA identified that some deliveries would be made directly to the proposed Port area. If construction commences in the latter half of the dry season or early in the wet season there will be insufficient time to establish all-weather access to allow construction to continue over the wet season. To mitigate this impact to the construction schedule, temporary seaborne access may be established on the mining lease near the proposed Port and used for approximately the first 12 months of the construction period. If all required approvals are received prior to the 2012 wet season, the access is required for camp establishment and start up activities over the wet season including:

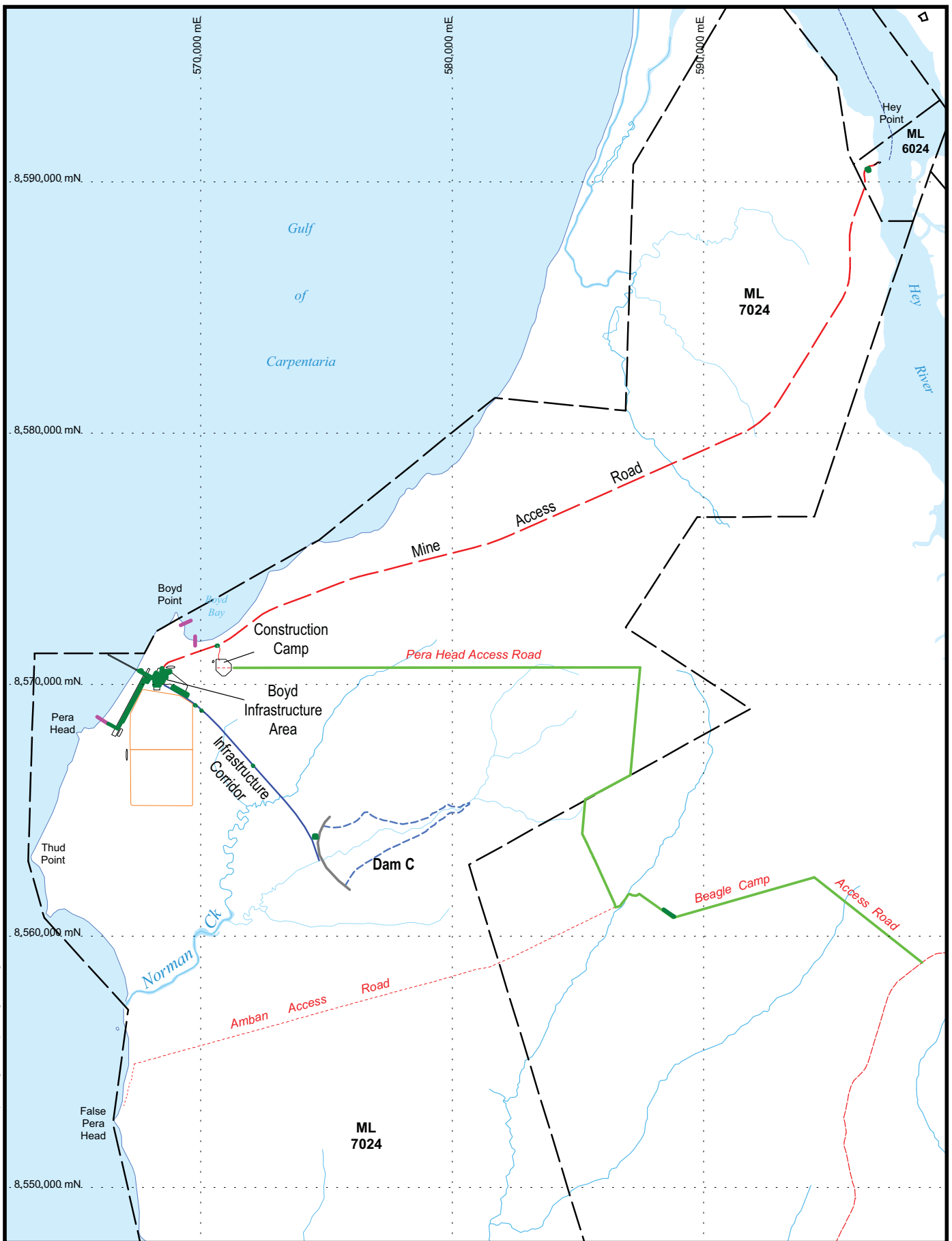
- transfer of personnel;
- delivery of camp modules;
- fuel, food and consumable deliveries and sewage and waste removal; and
- delivery of earthmoving equipment.

There are several location options that are under consideration (refer **Figure A**) and feasibility studies are yet to be completed. Prior to selecting the preferred option, RTA will undertake field surveys to confirm the absence of seagrass and coral and engage Traditional Owners to assist with cultural heritage assessments in any areas that have not previously been assessed. There is flexibility in the choice of final location to avoid/minimise impacts.

The following temporary seaborne access infrastructure is proposed:

- Landing area for barges – The preferred location for the barge landing area would be between 200m and 400m north of Pera Head, dependent on the results of further consultation and surveys (refer **Figure A**). The landing area would consist of a pontoon (or “dumb” barge) held in position with anchors and/or piles and 7.5m wide pre-cast concrete matting laid on the beach. The matting would extend from the pontoon to a cutting in the bauxite plateau, where it would also be anchored in position (**Figure B**). Some rock may need to be placed on the concrete matting between high tide and pontoon to keep equipment out of salt water. Six 900mm diameter piles would also be installed for safe mooring of the barge. The landing area would receive up to 4 deliveries a day with some night operation to suit the tides. Personnel may also be transferred here dependant on weather conditions.
- Passenger jetty – Two locations are being considered for the passenger jetty – one near Boyd Point and one in Boyd Bay, dependent on the results of further consultation and surveys (refer **Figure A**). The jetty would be 2m wide and consist of steel trusses supported on one 900mm pile or two piles at the end of each 24m span (up to a maximum of 32 piles) (refer **Figure B**). There would be a floating pontoon at the end of the jetty for all tide operation. The length is dependent on the distance from the shore to 2m water depth. At the locations shown in **Figure A**, the length would range from 95m to 362m. Up to 2 transfers per day would occur, based on a 150 passenger ferry. This facility would not operate at night unless in an emergency.

All infrastructure from these temporary facilities would be removed when no longer required and the bauxite plateau at the barge landing area would be reinstated as close as possible to original contours.



South of Embley Project

Fig. A:
Temporary Construction
Disturbance Areas



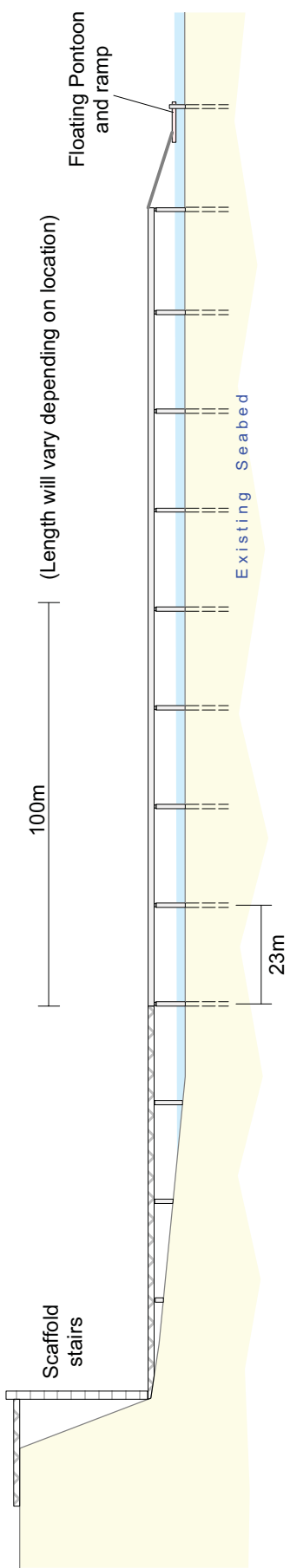
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5km

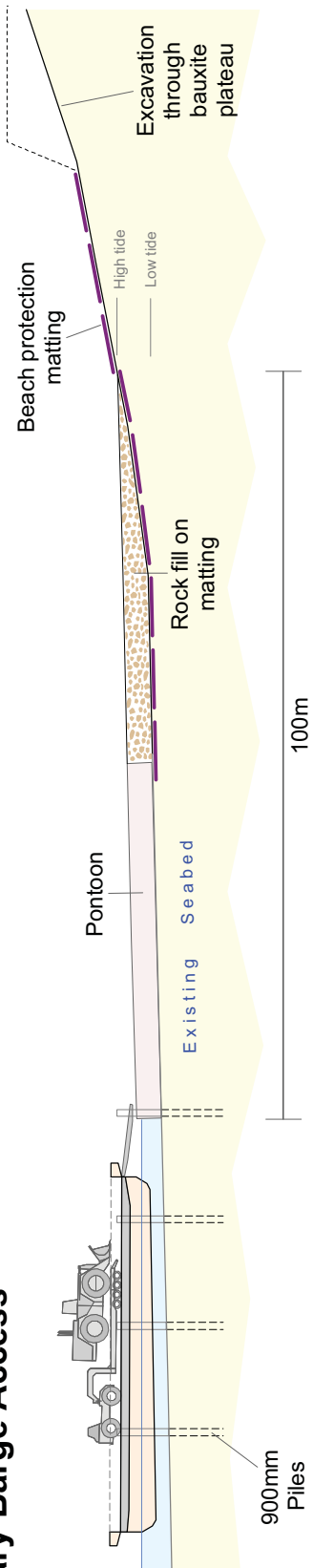
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Date: 15/12/2011

Temporary Passenger Jetty



Temporary Barge Access



South of Embley Project

Not to scale.

Fig. B: Temporary Seaborne Access
(Conceptual Plan)

RTA will still need to use the Aurukun Road and Beagle Camp Access Track for dry season road access during construction (as described in the EIS). The existing tracks would be upgraded for trucks and equipment to traverse, particularly for aggregate deliveries from Archer River quarry.

RTA will also still construct the ferry and barge terminals and the Mine Access Road as described in the EIS and these will be the primary access points for both construction and operations once they are commissioned.

Section 14 of the EIS discussed deliveries of some aggregate material from Archer River Quarry to the site via the Peninsula Development Road. The predicted number of deliveries was based on the assumption that most aggregate and sand material could be sourced within the Project area. However, further geotechnical investigations have concluded that most material will need to be sourced from Archer River Quarry and consequently the predicted number of trucks hauling aggregate from Archer River Quarry to the Project area has increased. The traffic impact assessment has been updated for the relevant roads and is presented in **Section 14.1**. RTA has committed to monitoring road condition and repairing any Project-related damage in Section 14.1.7 of the EIS. RTA would prepare a Road Management Plan in consultation with the Queensland Department of Transport and Main Roads.

2.4 Bauxite Mining

The mine plan has been amended to reflect likely change in startup production to 22.5Mdtpa. Mining areas over the duration of the life of the mine would increase slightly to 28,128ha (refer **Figure 1-3(sup.)**). However, this increase in mining footprint is partially offset by a decrease in disturbance due to the relocation of the Norman Creek tailings storage facility into an area that has been mined (refer to **Section 7.1** for assessment of vegetation disturbance). The EIS assessed the impact of mining up to 50Mdtpa and therefore this change is well within the range that has been assessed.

2.5 Bauxite Processing (Beneficiation)

The Boyd infrastructure areas would be constructed to meet the likely initial production capacity of 22.5Mdtpa and allow provision of two bauxite products (refer to **Figure 2-7(sup.)**). Initial infrastructure changes from that identified in the EIS include:

- Run of mine crude ore storage would be increased to a maximum of 1Mt;

- The production capacity of the beneficiation plant has been increased to 4,800 wet crude tonnes (wct) per hour;
- Initial product stockpile capacity would be increased to 850,000 wet product tonnes (wpt) occupying 21ha; and
- The Boyd tailings storage facility (TSF) would be 1,100ha to allow additional drying area and increase the density of the tailings. The Boyd TSF would continue to be located within an area of bauxite reserve and economic bauxite reserves would be either pre-mined or used for dam construction.

The maximum stockpile footprint shown in **Figure 2-7(sup.)** has increased to 70ha with a capacity of 2.85Mwpt to facilitate storage and shipping of two bauxite products at maximum production. The stockpile facilities have been designed by RTA so as not to preclude a third party developer from the construction and operation of an additional stockpile, stacker, reclaimers, and conveyor. Expansion of the stockpile area could be carried out for a third party, if a suitable commercial agreement is reached with RTA and port capacity is available as discussed in **Section 2.6** below.

The Boyd TSF would be up to 25m high upon completion to provide ultimate capacity of approximately 216Mt for expected production over the proposed mine plan. Alternatively, the Boyd TSF may be constructed over 800ha and would be up to 30m high upon completion. The Norman Creek TSF would have a capacity of approximately 234Mt, and be a similar area and height (refer **Figure 2-8(sup.)**). The Norman Creek TSF has been relocated so that it is also fully within an area of bauxite reserve. Economic bauxite would be pre-mined so the total area of vegetation clearing associated with the construction of this infrastructure (above that which would have been cleared for mining) has decreased from that reported in the EIS.

2.6 Port Facility and Shipping

The proposed Port infrastructure and dredge channel have been realigned two degrees south (refer **Figure 2-6(sup.)**). The proposed realignment reduces, but does not eliminate, impact to the “Three Mile” recreational and charter fishing area. Stage 1 capital dredging would not directly impact any soft coral-sponge habitat. A navigational aide would be placed on the edge of the habitat to guide ships entering and leaving the southern berth. Later, should Stage 2 of the Port be constructed (should market conditions allow), approximately 6ha of soft coral-sponge habitat containing 5-10% live cover would be dredged to provide a turning area for ships. Further information on marine impacts of the Project refinements is provided in **Section 6.5**.

The EIS assessed an initial capital dredge volume of 6.5 million cubic metres for Stage 1 of the wharf (berths 1 and 2), a volume which would provide 2 berths for vessels up to 185,000dwt and a shipping channel to a depth of 20.2m LAT, allowing sailing on all tides. This was a conservative scenario to ensure that the maximum possible impact of a single capital dredge campaign was assessed. However, further feasibility studies have indicated that RTA is likely to only dredge 2.5 million cubic metres in the initial construction stage, providing 1 berth for a dedicated post-panamax vessel (DPPV) vessel and 1 berth for a 185,000 dead weight tonnage (dwt) vessel and a shipping channel to a depth of 17.3m LAT, providing capacity for the proposed startup capacity of 22.5Mdtpa. Following the initial construction, additional capital dredge campaigns would be undertaken as required up to a total of 6.5 million cubic metres, to increase the capacity of the Port as market conditions allow. Further, an additional maximum 2.4 million cubic metres would need to be dredged as part of the addition of berths 3 and 4 (Stage 2 of the wharf). Separate sea dumping permits would be sought as required for capital dredge campaigns.

Stage 1 of the wharf would be designed and constructed by RTA to permit a future extension to provide additional berths. The proposed port facility would not preclude expansion for a third party, if a suitable commercial agreement were reached between the third party and RTA and subject to the additional capacity not being required by RTA. The EIS has assessed the impact of Stage 1 and 2 of the wharf with a maximum RTA production capacity of 50Mdtpa and the cumulative impact of the operation of the Port up to 63Mdtpa.

Pile spacing has been discussed with marine contractors in response to questions raised during public consultation in relation to access under the jetty for recreational and charter boats. Spans between piles for the jetty over the beach would be a minimum of 16.8m and below lowest astronomical tide (LAT) would be a minimum of 20m apart. Further information on the impact of pile spacing is provided in **Section 6.5.2** (turtle nesting habitat) and **Section 16.3.2** (access for recreational and charter fishermen).

An Aids to Navigation Management Plan (ANMP) would be prepared in accordance with the *Maritime Safety Queensland guidelines for major development proposals*. The plan will be developed in consultation with Maritime Safety Queensland (MSQ) and the Regional Harbour Master and implemented prior to commissioning the proposed Port. It is likely that two marine navigational aids would be installed on the top of the cliffs – one near Boyd Point and one between Pera Head and the Port. Further information on port operation is provided in **Section 14.2**.

Some deliveries of fuel to the Port area would need to occur during construction activities (e.g. to the operating dredge and via the temporary seaborne access) (refer **Section 19.1** for further information on hazardous substances). However, bulk carriers would not be refuelled at the SoE operating port.

Following discussions with the Harbour Master, the proposed mooring area has been removed. The Harbour Master has indicated that the preferred arrival and anchorage area for bulk carriers to the SoE Port would be the existing anchorage area for the Port of Weipa (see **Figure 2-9(sup.)**). The anchorage area is in Commonwealth waters outside of the Port of Weipa limits. The location of the anchorage areas is subject to the direction of the Harbour Master. A new departure area for vessels up to 185,000dwt would be required in water with 20m draft directly seaward of the arrival area. The departure area is required to allow the pilot to disembark and anchorage is generally not required. Bulk carriers would not use buoy moorings.

2.7 Associated Infrastructure

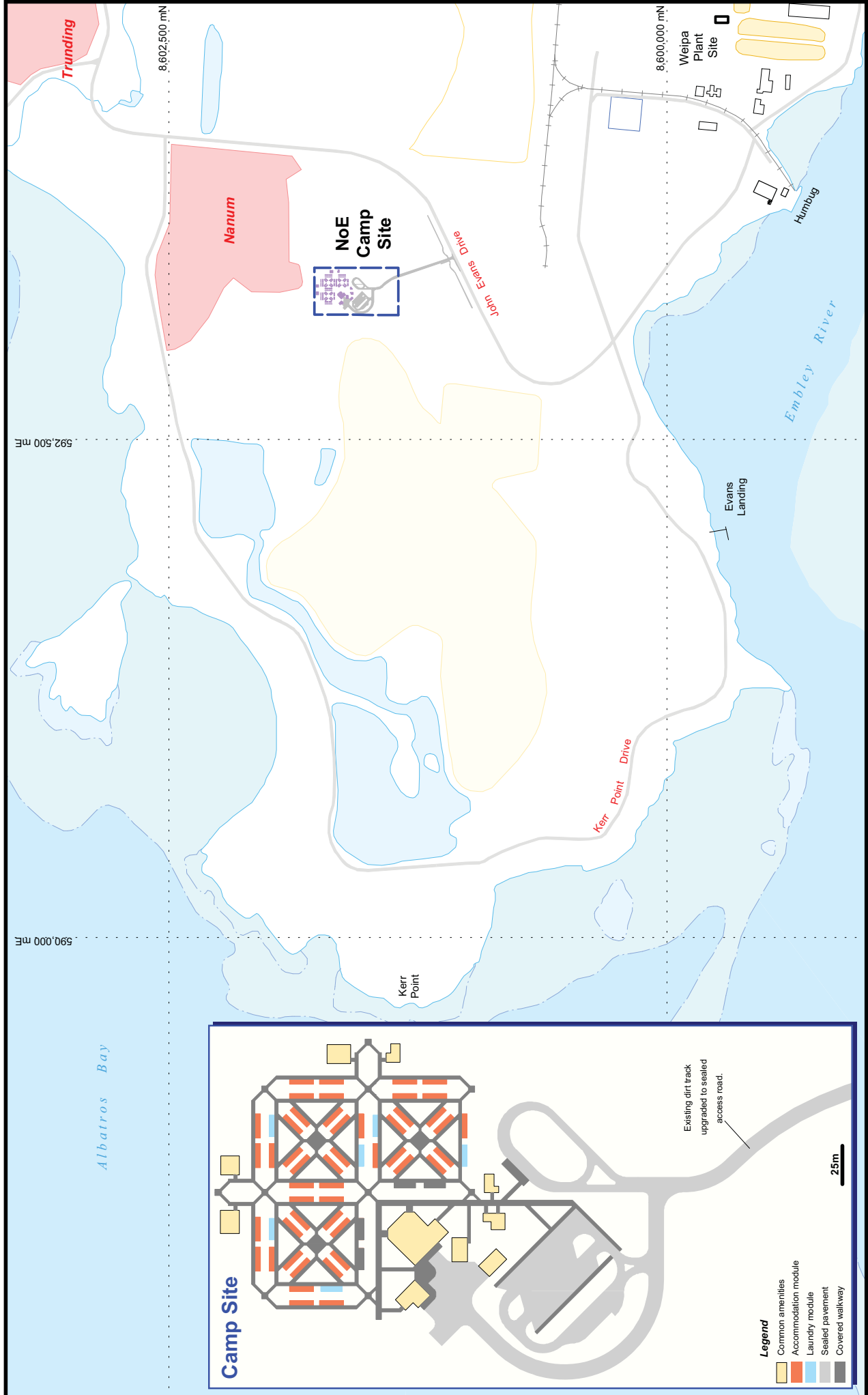
2.7.1 Workforce and Accommodation

The proposed SoE construction camp would increase from a peak occupancy of 630 to 1,400 (with an average of 740 in 2013 and 1,220 in 2014), due to shortened construction period, change in work roster requiring more workers, and increase in required earthworks. The camp will be designed to provide up to 2,000 beds, so that long-term workers can return to their own rooms after breaks, rather than “motelling” rooms (refer **Figure 2-10(sup.)**). The footprint of the construction camp is still relatively small (30ha) and remains within the area which would later be mined, therefore the increase in camp size does not increase the overall disturbance area (refer to **Section 7.1** for vegetation disturbance). The average increase in occupancy will result in an approximate pro-rata average increase in annual potable water, sewage, electricity, and transport requirements, however in absolute terms the impact is considered to remain low. Services and facilities will be designed to meet peak demand.

The EIS included the use of the existing Evans Landing camp north of the Embley River for accommodation of contractors involved in construction of the Humbug barge terminal, the Hornibrook ferry terminal and logistical activities. A recent external factor reducing accommodation in Weipa has been the introduction of about 200 Commonwealth government staff and contractors to support the operations of use of the Scherger RAAF Base as a detention centre for asylum seekers. This resulted in shortage of accommodation and the existing Evans Landing camp is being used for contractors associated with the existing Weipa operations. Therefore it is proposed that a new camp, with up to 200 beds, be constructed if required on previously disturbed land adjacent to Nanum (or another site as agreed with relevant stakeholders) to help alleviate short term accommodation pressures associated with construction (refer **Figure C**). The camp would use existing electricity, potable water and sewage services provided by RTA. The road into and out of the proposed site would be improved. The new camp would be utilised for the SoE Project during the construction period and the infrastructure may be used following the construction phase, depending on the future of the Scherger RAAF base or to replace existing contractor accommodation at Rocky Point. Further information on housing and accommodation pressures is included in **Section 16.1** and the Social Impact Management Plan (refer **Appendix 6**).

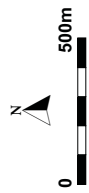
2.7.2 Power Generation

The EIS proposed a single power generation facility at the Boyd infrastructure area with transmission lines running to Norman Creek infrastructure area. RTA may split power generation between the Boyd and the Norman Creek infrastructure areas to reduce transmission line losses providing higher efficiency. Larger generating units have been selected for the power stations increasing installed capacity to 20.8MW at 22.5Mdtpa and 58.2MW at 50Mdtpa however peak demand remains the same as in the EIS. Air quality impacts would be lower for a split facility than for a single facility (refer to **Section 9.2** for further discussion of air quality impacts).



South of Embley Project

Fig. C: North of Embley Camp



2.7.3 Ferry and Barge Terminals

An increase in the size of the barge required has resulted in minor increases in dredging for the Humbug and Hey River barge terminals. Dredging at the Humbug barge terminal has increased to 12,990m³ (refer **Figure 2-3(sup.)**) and at the Hey River ferry/barge terminal to 37,380m³ (refer **Figure 2-5(sup.)**). The increase at the Hey River terminal is also influenced by the rotation of the barge berth parallel to current to improve operational safety. The overall dredging in the Hey and Embley Rivers remains low. **Section 6.5.3** (Humbug terminal) and **Section 6.5.4** (Hey River terminal) provide further impact assessment and mitigation measures.

The land-based infrastructure at the Hornibrook ferry terminal is being redesigned and will be provided in detail in the Development Approval application required for this facility. The EIS identified a 1,900m² area of reclaim at Hornibrook ferry terminal. The area of fill for the carpark area in the revised design is above Highest Astronomical Tide and therefore no reclaim is required. The amended footprint (refer **Figure 2-4(sup.)**) also avoids impacts to mangroves which were not previously mapped (refer to **Section 7.4**). In response to public feedback during the public consultation period, once operational this revised design would provide public access and parking to the foreshore to the east of the terminal, which is utilised for recreational fishing. There will be some necessary restrictions during the construction period for safety reasons. Refer to **Section 16.3.2** for further discussion on social impacts.

2.7.4 Tug Berths

The EIS identified that tugs would return to the Lorim Point wharf during inclement weather. The tugs for the SoE Project will be larger than the existing tugs used for the Port of Weipa (suitable for handling 185,000dwt bulk carriers) and up to 76,500m³ dredging is required in the tug berth pocket to provide sufficient draft (refer **Figure 2-4(sup.)**). Alternatively, and subject to further feasibility study, two berths may be constructed adjacent to the Hornibrook ferry facility for the tugs. Under this alternative, dredging would still be carried out within the footprint shown and the volume would not increase. Dredged material would be disposed of at the existing Albatross Bay spoil ground utilised by NQBP. Dolphins will also be installed via piling for mooring the additional tugs. Impact assessment and mitigation measures are provided in **Section 6.5.5**. The dredging would be carried out prior to operations commencing and a separate Sea Dumping Permit would be sought, if required.

2.7.5 Airport

The EIS identified that the Project would not require improvements to the airport as the current airport has capacity to accept additional flights. Improvements are currently being considered to improve screening and security requirements as part of the existing RTA operations. Some improvements to pavement and carparking may also be undertaken in existing disturbed areas.

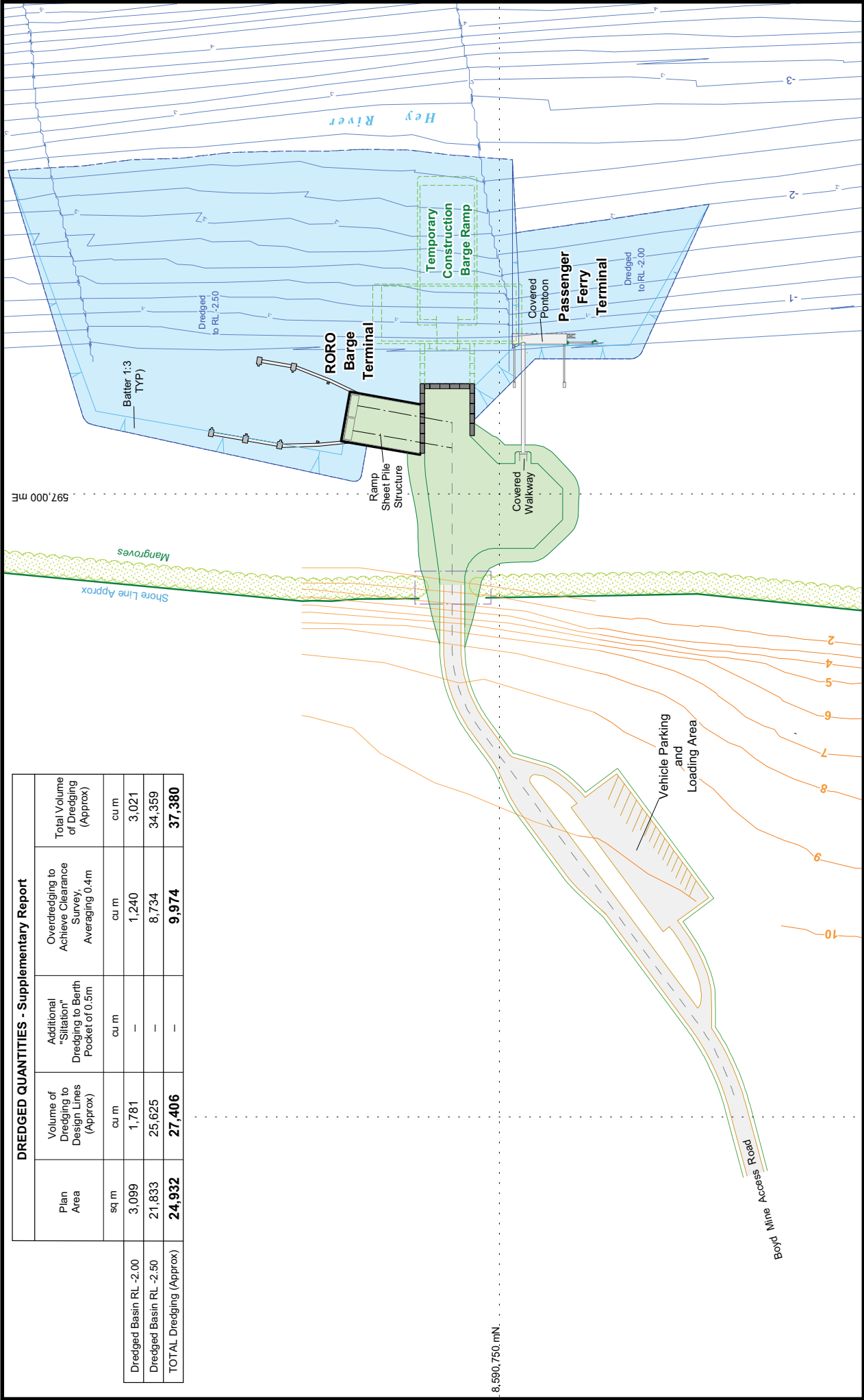
2.8 Decommissioning and Rehabilitation

As stated in Section 3.10 of the EIS, the overall objective of the rehabilitation program would be to return the land to a post-mining land use that will be stable, self-sustaining, requires minimal maintenance, and protects downstream water quality. Specifically, the objectives for the rehabilitation of areas disturbed by mining activities would be:

- to establish a self-sustaining vegetation community using appropriate local native tree, shrub and grass species; and
- to ensure land is made stable – in both geotechnical and erosion terms – to ensure post-mine land use is not compromised by site instability.

At the request of the Western Cape Communities Coordinating Committee (WCCCC), RTA may establish post-mining land use options other than those required by regulation, subject to obtaining all necessary government approvals.

Further information on rehabilitation is provided in **Section 3.1**.

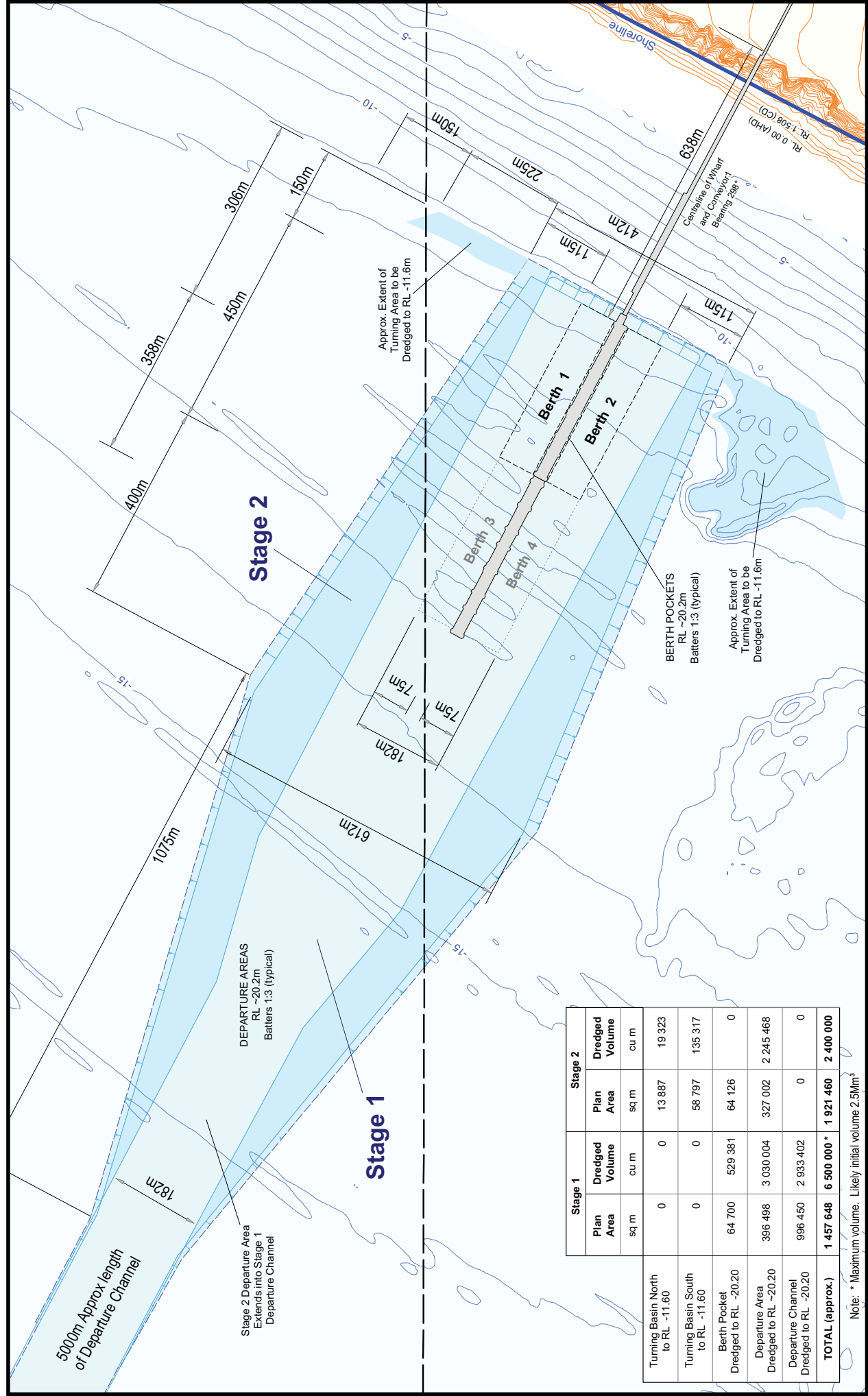


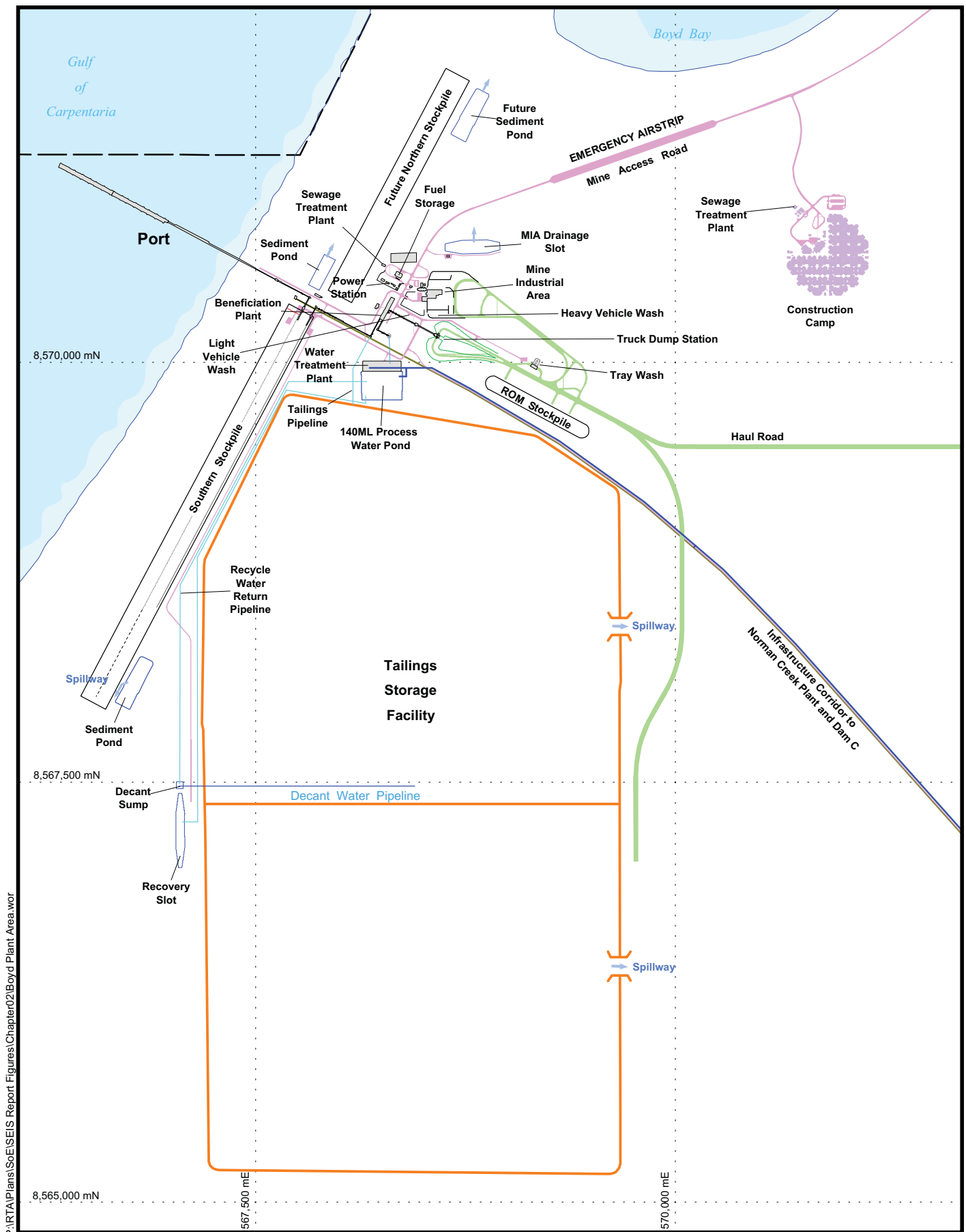
DREDGED QUANTITIES - Supplementary Report					
	Plan Area	Volume of Dredging to Design Lines (Approx)	Additional "Siltation" Dredging to Berth Pocket of 0.5m	Overdredging to Achieve Clearance Survey, Averaging 0.4m	Total Volume of Dredging (Approx)
	sq m	cu m	cu m	cu m	cu m
Dredged Basin RL -2.00	3,099	1,781	—	1,240	3,021
Dredged Basin RL -2.50	21,833	25,625	—	8,734	34,359
TOTAL Dredging (Approx)	24,932	27,406	—	9,974	37,380

South of Embley Project
Fig. 2-5(sup.): Hey River Barge/Ferry Terminal

NOTES:
Vertical Datum:
Depths are in metres and are reduced to chart datum (CD) which is approximately the level of lowest astronomical tide (LAT).
CD (LAT) is 1.508m below AHD.

Reclaimed area
Dredged area





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Rio Tinto Alcan

— Lease boundary

South of Embley Project

Fig. 2-7(sup.): Boyd Infrastructure Area

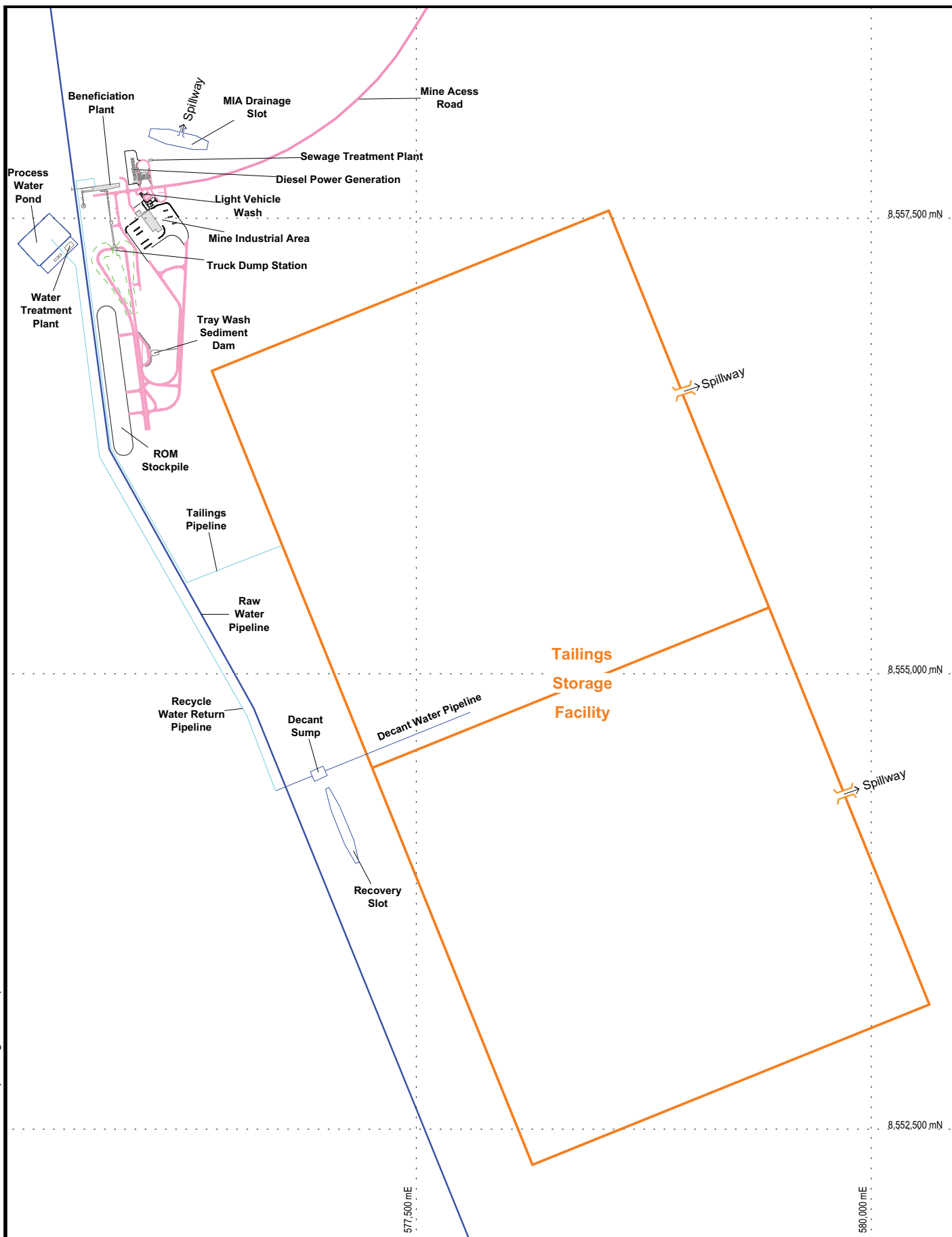


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1000m

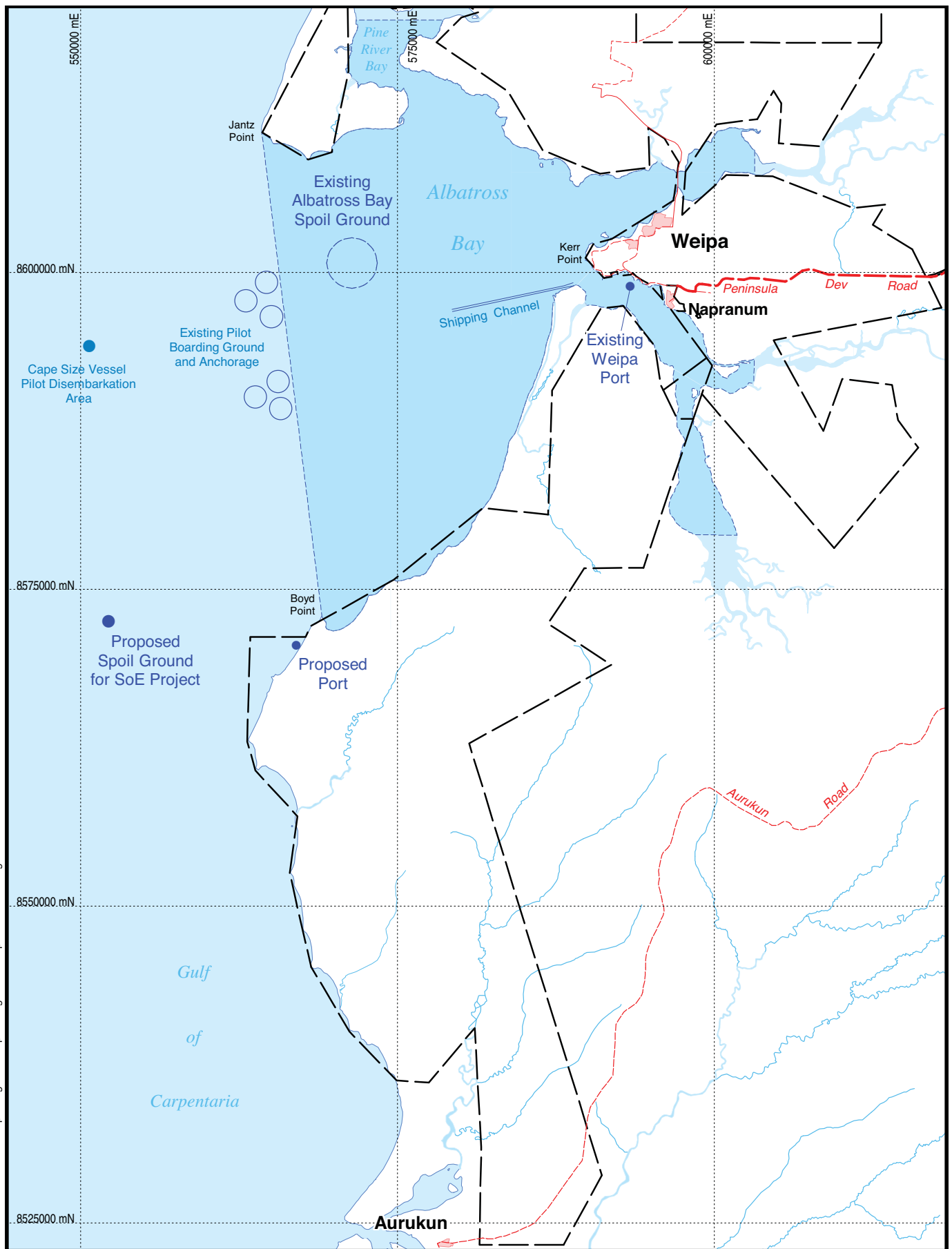
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Date: 15/12/2011



South of Embley Project

Fig. 2-8(sup.): Norman Creek Infrastructure Area



South of Embley Project

Fig. 2-9(sup.): Port, Spoil Ground and Anchorage Locations

- RTA Mining Lease boundary
- Township
- Drainage
- Road/track
- Weipa Port Limits



0 5 10 15km

Datum/Projection: GDA94/MGA Zone 54

Date: 12/12/2011

