

Appendix B

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Darwin 10 MTPA LNG Facility
Notice of Intent

Prepared for
Wickham Point Pty Limited

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1. INTRODUCTION

1.1 THIS DOCUMENT

This document is a Notice of Intent (NOI) submitted by Wickham Point Pty Limited, as designated affiliate of Phillips Oil Company Australia, (Phillips or the Proponent) relating to the proposed construction and operation of a 10 MTPA Liquefied Natural Gas facility on Wickham Point near Darwin, Northern Territory.

The NOI is submitted to the Minister for Lands, Planning and the Environment in accordance with the Northern Territory (NT) Environmental Assessment Act (1982) and the Environmental Assessment Administrative Procedures (1984).

1.2 THE PROPONENT

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1.3 BACKGROUND

1.3.1 Previous Assessment

The Proponent has previously (August 1997) submitted a Draft EIS to the NT DLPE and Environment Australia (EA) for evaluation of a proposal to construct a 3 million tonnes per annum (MTPA) LNG Plant at Wickham Point in Darwin, linked by a subsea pipeline from the Bayu-Undan gas field in Area A of the Timor Gap Zone of Cooperation.

Submissions were received from government departments of both Commonwealth and Northern Territory and the public in mid October 1997, and a response prepared by Phillips as a Supplement to the Draft EIS was filed with the governments on 12 January 1998. The Supplement together with the Draft EIS constitute the Final EIS for the project, and are the basis for government decisions regarding the environmental implications of that project.

The Supplement provided detailed responses to comments made and questions raised in the submissions on the Draft EIS and presented information on changes to the project arising from the consultation process. In particular, it included a revised site development plan for a possible future 9 MTPA LNG plant on Wickham Point, information relating to the probable impacts from such expanded plant, an updated draft of the Preliminary Environment Management Plan (EMP) and a summary of Proponent commitments.

Environment Australia and NT DLPE responded to the Supplement in February and March, 1998, respectively, by issuing separate Environment Assessment Reports which concluded that the 3 MTPA LNG Plant could proceed subject to Phillips' implementing the proposed project in accordance with commitments made in the Supplement and the additional recommendations made by EA and NT DLPE. Letters from both the Commonwealth and Northern Territory Ministers for the Environment confirmed project acceptance. Information regarding a possible 9 MTPA plant was considered during the review process as indicative of the effects of a larger manufacturing facility but approval was limited to the 3 MTPA plant.

The principal recommendations in the NT DLPE Assessment Report (Nos 1 and 2) are reproduced below. Environment Australia issued essentially identical recommendations.

"Recommendation 1

The proponent shall ensure that the proposal is implemented in accordance with environmental commitments and safeguards identified in the Darwin LNG Plant draft Environmental Impact Statement, as modified in the Supplement to the draft EIS and as recommended in this assessment report."

"Recommendation 2

In preparing the Environmental Management Plan the proponent shall include any additional measures for environmental protection and monitoring contained in recommendations made by the Commonwealth and Northern Territory Governments with respect to the proposal. The EMP shall be referred to Environment Australia and relevant NT agencies for review prior to finalisation, after which it shall become a public document. The EMP shall form the basis for any approvals and licences issued under the forthcoming Waste Management and Pollution Control Act."

In April 1998, a meeting was convened by NT DLPE involving the Proponent and all major government agencies associated with the project. The purpose of the meeting was to develop an Implementation Strategy for the recommendations made by the NT and Commonwealth

governments. At the meeting, the NT Department of Mines and Energy (NTDME) tabled their comments on the recommendations. The principal comment was that Phillips will be required as a Pipeline Licence condition to develop and submit an Environment Plan (EP) acceptable to the NT Director of Energy. Furthermore, the EP (when accepted) will become the legally binding document between Phillips and the Government and, as such, must be structured according to Draft Guidelines provided by NTDME. Phillips responded by presenting a conceptual Environmental Management Plan restructured to incorporate the Pipeline EP into the EMP as a stand-alone section of the document.

The meeting attendees agreed to the following:

- (1) The conceptual Environmental Management Plan tabled by Phillips was accepted on the basis it will adequately address the requirements and objectives of all applicable legislation and the recommendations.
- (2) The NT Department of Mines and Energy will be the principal and approving/accepting agency for the pipeline and related matters.
- (3) The NT Department of Lands, Planning and Environment will be the principal agency for the plant and related matters.
- (4) Environment Australia will be the principal agency for Greenhouse Gas matters.
- (5) The Proponent, Phillips, will deal directly with the principal agencies (DLPE, DME and Environment Australia) on their respective responsibilities.
- (6) The principal agencies will liaise with and refer all relevant matters to the other agencies prior to any determinations or issuing of licences.

Subsequent to the above meeting, the Preliminary EMP was updated in November 1998 and expanded to capture all NT DLPE and EA recommendations, and to include EA's comments, identify the responsible and advisory authorities for each recommendation, and provide clarification of interpretation for each recommendation as required.

The final EMP has not been submitted to regulatory authorities. In its present form, its purpose is to describe in broad terms the structure of the final EMP and to provide a guideline for completing the document to the stage of submitting it to the NT Department of Lands, Planning and Environment (NT DLPE) for approval prior to commencement of construction. It is anticipated the EMP will be completed in stages describing and incorporating the appropriate environmental commitments for the individual phases of construction and operation. The completion of this EMP to the satisfaction of the NT DLPE and Environment Australia (EA) is a condition of project approval. Once accepted by the NT DLPE and EA, the EMP will become a public document and shall form the basis for any approvals and licences issued under the NT Waste Management and Pollution Control Act 1998 and under applicable NT and Commonwealth Petroleum Submerged Lands Act and NT Pipeline Act requirements.

1.3.2 The Approved Project

In broad terms the project approved by regulatory authorities in 1998 included the construction and operation of the following major components (Figure 1):

- a subsea pipeline up to 36 inches in diameter from the Bayu-Undan field to an LNG plant on Wickham Point in Darwin Harbour;
- a three million tonnes per annum (MTPA), air cooled LNG plant (Figure 2) which comprises:
 - gas processing facilities to treat and liquefy the natural gas and to recover LPG product,
 - product storage tanks,
 - plant infrastructure and utilities,
 - three plant flares, and
 - on-site power generation facilities.
- a loading jetty on the west side of Wickham Point to transfer product to tankers for shipping to market;
- a construction dock on the north-east side of Wickham Point for transfer of building materials and heavy equipment that may not be suitable for road transport to the plant site;
- an access road through the Middle Arm Peninsula to the plant site; and
- the transportation of LNG and other products to markets using a number of large ships (95 - 135,000 m³ capacity).

1.3.3 Brief History of Project since Approval obtained in 1998

Shortly after environmental approvals were issued for the 3 MTPA plant at Wickham Point, the LNG market underwent a dramatic downturn in 1998. Phillips stopped work on the LNG project and concentrated its effort on developing the Bayu-Undan gas recycle project. During the intervening period, Phillips concentrated gas marketing efforts on domestic opportunities but also continued to seek LNG customers for a Darwin plant. Phillips also continued to progress development of the necessary gas pipeline infrastructure to deliver Timor Sea gas to customers in Australia.

In September 2000, Phillips entered into a Letter of Intent (LOI) with Multiplex Constructions relating to construction of a gas pipeline from the central Timor Sea to Darwin. The LOI has appended to it a fully negotiated but unexecuted contract that covers engineering, design and survey work in preparation for procurement, fabrication and installation of a pipeline from Bayu-Undan to a site at Wickham Point in Darwin Harbour. Multiplex, with the support of its principal subcontractors, Kvaerner, Saipem and EMC, provided Phillips a lump-sum, fixed-cost price relating to installation of a 26 inch pipeline along with options for several larger pipeline sizes. The former size would be adequate for the supply of Bayu-Undan gas alone, while the larger capacity option would accommodate the gathering and transportation of larger volumes of gas from other Timor Sea gas fields. Work is progressing under the LOI.

In February 2001, Phillips, Woodside and Shell finalized principles for co-operative development of their Timor Sea gas resources. This co-operative effort includes the Bayu-Undan and Greater Sunrise fields. The agreement is designed to combine the early gas delivery potential of the Bayu-Undan gas and condensate development with the larger gas reserve base of the Greater Sunrise fields. The agreed principles cover supply of gas and

marketing of LNG, pipeline infrastructure and field optimisation; the principles will be developed into co-operation agreements. It is anticipated these co-operation agreements will be ratified and executed by all relevant stakeholders by mid-year 2001. In addition, Phillips has increased its share of the Greater Sunrise fields to 30 percent.

The principles envision production to commence from Bayu-Undan in 2004 to supply customers in the Northern Territory and elsewhere who require gas by that date, with Greater Sunrise production commencing as early as the second half of 2006. Gas required to satisfy gas deliveries contracted from the Greater Sunrise fields prior to this time will be made available to the Greater Sunrise participants from Phillips-owned equity reserves in Bayu-Undan and possibly other participants in the Bayu-Undan project.

Phillips has also continued to progress other matters critical to the success of the proposed LNG venture.

In 1996 Phillips applied to the Northern Territory to acquire a site on Wickham Point for the installation of gas processing facilities and/or distribution to other domestic markets within the Northern Territory or interstate. As a result of an agreement executed in 1999 between Phillips and various native title parties, all matters relating to Native Title and Aboriginal Land Rights claims affecting both the plant site and the offshore pipeline route have been resolved. FIRB approval has been obtained and final action by the NT DLPE on Phillips' application to secure the site at Wickham Point is imminent. Figure 3 shows the boundary of the area subject to agreement between the Proponent and native title claimants, and also shows the proposed boundaries for the freehold and the long-term crown lease tenure arrangements which Phillips is currently negotiating with the NT Government.

In 1997 Phillips applied for several licenses for the offshore pipeline from the field to Wickham Point. In April 2001, the first two of four licenses required by Australian authorities were issued to Phillips Pipeline Australia Pty Ltd. Preliminary discussions with the Timor Gap Joint Authority on various gas export options have been conducted, and a Gas Development Plan is being drafted. As a consequence of these efforts, customers have begun to demonstrate confidence in the Timor Sea as a significant new source of gas. In March 2001 a Phillips affiliate executed a letter of Intent for the sale of 4.8 million tonnes of LNG to El Paso Energy to be delivered to North American markets. The long-term supply of gas for this market will be the reserves of Greater Sunrise. However, Phillips is continuing to market Bayu-Undan and other gas to other LNG customers and believes there is a strong possibility that additional LNG contracts can be arranged. As a result of this development and other potential LNG customers, Phillips wishes to amend its approved 3 MTPA LNG project and to secure environmental approvals for a significantly larger facility.

2. NEW PROPOSAL

With the potential development of the Bayu-Undan and Greater Sunrise gas fields, there are now sufficient gas reserves in the Timor Sea to support a larger LNG plant than originally envisaged by Phillips based solely upon the reserves of Bayu-Undan.

Phillips plans to construct in two phases and operate a 10 MTPA LNG Facility on Wickham Point. The project will still comprise the same major components as proposed for the 3 MTPA Project (e.g. LNG Plant, load-out jetty, construction dock, access road, and LNG tanks), but will differ principally in the capacity of the LNG plant and its layout on Wickham Point (refer Figure 4). Except for the access road and the main process flares, all other components of the facility are in the same general location as previously approved. The access road has been relocated and incorporated into a major arterial transport corridor proposed for construction by the NT Government in the Darwin Regional Land Use Structure Plan 1990. The flares have been relocated to the south of the process area also as a result of this transport corridor.

The principal differences between the approved plant layout shown on Figure 2 and the proposed new plant layout shown on Figure 4 are as follows:

- the disturbed area envelope has changed shape slightly, in regard to the spill impoundment area, the main flare area, and the south eastern part of the plant site.
- instead of one 3 MTPA LNG process train, the plant will now comprise two 5 MTPA LNG process trains. These trains will still use the Phillips' Optimized Cascade LNG process as described in the Draft EIS;
- instead of two LNG storage tanks there will be three larger tanks;
- instead of identifying an area for only an elevated main flare, there is now an area identified for either an elevated or ground main flare. The final flare configuration will be determined after the results of the current flare studies and the associated impact to air traffic are confirmed and approved by the Civil Aviation Safety Authority (CASA) and local air traffic authorities.

Initial site preparation, involving an access road to Wickham Point and some preliminary land clearing for the pipeline installation project will be required in late 2001. Construction of the first phase (one 5 MTPA process train) proposed LNG facility is anticipated to commence in July 2002 and be completed by July 2005. Figure 5 provides the current schedule for engineering, construction and initial operations of this new LNG facility. Construction of the second 5 MTPA process train is expected to commence in January 2003 and be completed by January 2006

While the larger LNG facility will involve gas supplies from Bayu-Undan and Greater Sunrise, this NOI does not address the pipeline that will need to be installed to connect the Greater Sunrise field to the Bayu-Undan to Darwin pipeline, for which environmental assessments and approvals have already been received. That pipeline will be included in the environmental assessment documents prepared on behalf of the Greater Sunrise field development.

3. EFFECTS OF THE PROPOSAL

This section outlines the main effects of the proposed expansion in plant capacity. It summarises the results of a preliminary assessment of a 9 MTPA LNG Plant presented in the Supplement to the Draft EIS in February 1998. It subsequently presents a preliminary assessment of the main effects of the proposed 10 MTPA LNG Facility and provides detail on the emissions from the proposed 10 MTPA facility in contrast with the emissions from both the approved 3 MTPA facility and the potential 9 MTPA facility.

3.1 PREVIOUS ASSESSMENT OF POTENTIAL 9 MTPA LNG FACILITY

Appendix 4 of the Supplement to the Draft EIS (Feb 1998) presented an assessment of the potential environmental effects of a 9 MTPA LNG Facility on Wickham Point. That assessment concluded that many of the environmental terrestrial and marine effects remain the same as the 3 MTPA facility because most of the construction activities (e.g. site preparation, jetty and construction dock, and dredging) will only occur once. The assessment identified that the total area of land disturbed would increase from 61.5 ha to 100 ha, that the atmospheric emissions would approximately triple in response to tripling the volume of LNG produced, that operating personnel would increase resulting in additional wastewater and solid waste disposal requirements, and shipping movements would also triple in number from 78 movements to 234 per annum.

3.2 PRELIMINARY ASSESSMENT OF THE EFFECTS OF THE PROPOSED 10 MTPA LNG FACILITY

The proposed 10 MTPA LNG Facility differs from the approved 3 MTPA facility and the potential 9 MTPA Facility assessed in Section 3.1 above in a number of important ways:

- the feed stock gas will be a combination of both Bayu-Undan and Greater Sunrise gas, which will be processed offshore to remove LPGs. As a result, the facility will not produce significant quantities of LPGs for export;
- the concentration of H₂S in the gas is greater than previously estimated; and
- the plant will use more efficient turbines than were available at the time of the Draft EIS, and hence lower emission factors will apply;

The main environmental effects of the new 10 MTPA Facility as compared to the approved 3 MTPA facility will result from the increased capacity of the plant and will be as follows:

- increased area of ground disturbance from 61.5 ha to 85 ha;
- increased demand for power generation from 18.2 MW to 48.4 MW;
- increased operating workforce from 75 to 120 personnel;
- increased demand for process water requirements from 6 m³/hr to 10 m³/hr;
- increased volume of wastewater disposal requirement from 4.5 m³/hr to 8 m³/hr
- increased volume of solid waste generated (refer Table 3.1);
- potentially increased public risk environment as result of arterial transport corridor along northern plant boundary (this was not assessed for the 3 MPTA facility because the likelihood of such corridor was not considered high at that time);
- increased product shipping movements from 78 to approximately 155 and associated navigation risk using larger vessels; and
- increased atmospheric emissions (refer Table 3.2).

A clarification of the reasons behind the various changes to solid waste generation, atmospheric emissions rates and water requirements for the 10 MTPA Plant is presented below.

Solid Wastes:

Table 3.1 presents a comparison of the estimated solid waste generated by the approved 3 MTPA facility, and the potential 9 MTPA facility, and the 10 MTPA facility now proposed. Review of this table shows that the solid waste generated for the proposed 10 MTPA facility does not incrementally increase across the board. While higher than the 3 MTPA facility, there is a substantial reduction in volumes from that estimated for the 9 MTPA facility.

Table 3.1 Estimated LNG Facility Solid Waste Quantities

Type of Solid Wastes	Quantity Kg/yr		
	3.0 MTPA	9.0 MTPA	10.0 MTPA
Waste Lubricating Oils	8,300	20,750	16,000
Spent Oils	950	2,375	1,500
Cellulose	1,020	2,500	2,000
Biological Sludge	4,000	6,000	5,000
Inorganic Sludge	200	500	400
Oily Sludge	40,000	80,000	60,000
Spent Solvents	100	250	200
Ceramic Balls	3,100	7,750	5,500
Molecular Sieve Waste	35,380	88,450	72,000
Trash	50,000	120,000	80,000

Atmospheric Emissions:

Table 3.2 presents a comparison of the atmospheric emissions estimated for the approved 3 MTPA facility, the potential 9 MTPA facility, and the 10 MTPA facility now proposed. Review of this table shows that the emissions for the proposed 10 MTPA plant do not incrementally increase across the board, and in fact in most cases, there is a substantial reduction in emissions volumes from that estimated for the 9 MTPA. Due to an error in the calculation H₂S in the feed gas for the original EIS, there is a substantial increase in SO₂ emissions proposed for the expanded LNG facility.

Table 3.2 Comparison of 3.0 MTPA, 9.0 MTPA, and 10 MTPA LNG plants

Emissions in Tonnes per Year						
Case	PM	SO ₂	NO _x	CO	CO ₂	TOC/CH ₄
3.0 MTPA	374	6	3,174	1,623	1,713,772	1,675
9.0 MTPA	1,097	18	9,244	4,800	5,070,441	5,010
10 MTPA	743	141	4,355	1,835	5,388,048	1,431

Emissions in Kg per Hour						
Case	PM	SO ₂	NO _x	CO	CO ₂	TOC/CH ₄
3.0 MTPA	43	0.70	408	433	274,238	285
9.0 MTPA	125	2	1,045	491	814,624	852
10 MTPA	85	16	523	349	681,658	243

Note: SO₂ emissions for the 10 MTPA case are based on the expected H₂S concentration in the feed gas.

In calculating the emissions from the 10 MTPA facility, new and more representative emissions factors have been used. Emission factors used for the Approved 3 MTPA plant were from USEPA Compilation of Air Pollutant Emission Factors (AP-42, January 1995), which are very conservative and are based on natural gas for fuel. The emission factors used for the current 10 MTPA proposal are based on the probable composition of the fuel gas for this project, which is significantly leaner than the generalized natural gas used to calculate the emission factors for the 3 MTPA base case. Therefore, the emission factors are generally lower than the Base Case (refer Table 3.3).

Sulfur Content in the Feed Gas: In the Base Case, the estimated hydrogen sulfide concentration in the feed gas was 6 mg/Nm³ (4.22 ppm). The current estimate of the feed H₂S composition is 4.26 mg/Nm³ (3 ppm), potentially increasing to a maximum design concentration of 21.3 mg/Nm³ (15 ppm). In the base case, H₂S removed by amine treatment was vented to the atmosphere, and overlooked and not accounted for in the emission inventory. In the current design, an acid gas incinerator has been provided to combust all of the H₂S removed by the amine unit, which will increase SO₂ emissions from the plant to a rate of 80.6 kg/hr based on the maximum design premise concentration of H₂S.

Operation of the Marine Flare: In the Base Case, the marine flare was used 624 hours per year (based on 52 LNG taker loadings per year at 12 hours each). For the current 10 MTPA facility, the total number of LNG ships loaded per year is approximately 155, therefore, the marine flare operation will be for approximately 1868 hours per year.

Additional Combustion Equipment: As noted above an acid gas incinerator has been provided in the Current Case to burn the H₂S removed by amine unit while venting of acid gas was assumed in the Base Case. This will contribute to an increase in the SO₂ and CO₂ emission load. Also the number of process turbines driving compressors on each stage of the LNG facility has increased from 6 to 16 units with corresponding increases in emissions.

Changes in the Equipment/Heat Rating: In the Base Case, GE Frame 5C compressor turbine drivers were assumed, while in the current case, 16 GE Frame 5D turbines are proposed. The thermal efficiency of the Frame 5D turbine is slightly higher than the Frame 5C turbine.

Carbon Dioxide in the Feed Gas: There is a significant increase in the CO₂ from the feed gas. This is primarily due to the increase in the capacity of the facility and the resulting increase in the feed gas requirement.

NO_x Emissions: In the Base Case, the emission factors for turbines were based on combustion of standard fuel gas (natural gas) as fuel and vendor guarantees (150 ppm NO_x). The fuel gas premised in the current case will be very lean with 30% Nitrogen, which will result in lowering the NO_x emissions by approximately 50%. Therefore, even though the number of turbines increased from 6 to 16, the hourly emissions of NO_x were increased by only approximately 25% from 306 kg/hr to 382 kg/hr. Thus, the total emissions are not proportional to the equipment count in the Base Case and the current case. Similar reductions in NO_x will occur for other fuel gas fired equipment.

Dry Low NO_x Combustors: The turbine manufacturer has advised that the Dry Low NO_x combustors (DLN) will not work with the lean fuel gas. A suitable fuel gas for the DLN combustors requires at least 85% methane with a maximum of 15% inert gas. The nitrogen concentration in the currently premised fuel gas is 30%. However as discussed above, this 30% nitrogen fuel gas achieves a substantial reduction in the NO_x emissions without the addition of this equipment.

Table 3.3 Comparison of Emission Factors for Various Emission Sources between 3 MTPA and 10 MTPA Plants

Emissions	Emission Factors (a) = Kg / GJ (b) = Kg / Mscm											
	PM(a)		SO ₂ (b)		NO _x		CO		CO ₂		TOC / CH ₄	
	3	10	3	10	3	10	3	10	3	10	3	10
Capacity of Plant (MTPA)												
Emission Sources												
Regen. Gas Heater	0.0989 0.1201	0.0989 0.1201	0.0095	NA	2.2425 (b)	1.449 (b)	0.5608 (b)	0.373 (b)	1900.0 (b)	1900.0 (b)	0.0920 (b)	0.0920 (b)
Fired Heaters	0.0989	0.0989 0.1201	0.0095	NA	(b) 2.2425 0.1201	1.495 (b)	0.5608 (b)	0.373 (b)	1900.0 (b)	1900 (b)	0.0920 (b)	0.0920 (b)
Marine Flare	NA	NA	NA	NA	0.0294 (a)	0.0194 (a)	0.1594 (a)	0.106 (a)	1900.00 (b)	1900.0 (b)	0.0602 (a)	0.0602 (a)
Compressor Turbine Drivers	0.0083 0.0098	0.0055 0.0065	0.0095	NA	0.1461 (a)	0.0681 (a)	0.0730 (a)	0.025 (a)	47.424 (a)	46.979 (a)	0.0219 (a)	0.023 (a)
CTG Turbine Drivers	0.0083 0.0098	0.0055 0.0065	0.0095	NA	0.1897 (a)	0.0681 (a)	0.0474 (a)	0.025 (a)	48.160 (a)	46.979 (a)	0.0103 (a)	0.012 (a)
Amine Treater Vent Incinerator	NA	0.0989 0.1201	NA	NA	NA	0.0344 (a)	NA	0.0229 (a)	NA	1900.0 (b)	NA	0.0920 (b)
Flare Pilots	NA	NA	NA	NA	0.0294 (a)	0.0194 (a)	0.1594 (a)	0.106 (a)	1900.00 (b)	1900.0 (b)	0.0602 (a)	0.0602 (a)

Notes:

- (1) There are two entries for the PM factors. The top one represents the filterable (solids) emission factor. The bottom is the condensable emission factor.
 - (2) SO₂ will be based on sulfur content of the fuel. Factors used for the 3 MTPA case were based on general natural gas composition in USEPA compilation. Current 10 MTPA case uses probable composition of the fuel gas for this project which will not have sulfur in the fuel used.
 - (3) Marine flare is assumed to have negligible PM based on expected composition.
- NA = Data not available.

TOC/CH₄ Emissions: Emission rates for TOC/CH₄ are lower in the current case than the Base Case because of elimination of venting of the acid gas. In the Base Case, the TOC/CH₄ emission rate from the vent was 135.47 kg/hr. In the current case, acid gas will be burned in an incinerator converting the TOC/CH₄ into CO₂ and water vapour. Therefore, the emission rate is lower than the Base Case.

Water Requirements:

Water requirements have increased from 6 m³/hr to 10 m³/hr from the Base Case to the current case. This is due to the increase in number of people required to operate the plant as a result of operating two liquefaction trains versus one (from 75 people to 120 people). Other reasons are the additional water consumption required for amine makeup, turbine wash water, and the general use of water in washdown activities. For the current case, water demand will be lower than the 9.0 MTPA plant as it would involve 3 LNG trains that would require additional operators, more utility stations, etc.

4. KEY ISSUES AND PROPOSED STUDIES

The key issues associated with the proposed project are as follows:

- the acceptability of the increased primary atmospheric emissions, particularly those of SO₂;
- the acceptability of increased greenhouse gas emissions;
- the risk posed to public safety by an increase in the capacity of the plant, and by the closeness of the transport corridor;
- the risk posed to public safety by an increase in shipping movements through the Port of Darwin;
- the impacts of an enlarged flare on air traffic;
- the impacts of extended operations of the marine flare;
- the acceptability of the increased area of dry rainforest habitat loss (refer Figures 6 and 7); and
- the adequacy of existing Proponent management commitments.

Phillips is prepared to undertake the following measures in accordance with appropriate guidelines to be issued by the NT DLPE:

- describe in detail the proposed project;
- re-model atmospheric emission concentrations,
- qualitatively and quantitatively assess the risk to public safety posed by the increased plant capacity and increased shipping movements;
- continue to address the impact of a flare event on air traffic with CASA,
- determine the effects on visual aesthetics of the new plant layout;
- review options for minimising release of greenhouse gas emissions in accordance with best international practices;
- investigate options for mitigating any significant loss of dry rain forest at Wickham Point;
- review and update the preliminary EMP to incorporate management requirements resulting from the increased plant capacity.

5. LEVEL OF ASSESSMENT

Given that Phillips has already obtained conditional environmental approvals relating to the construction and operation of a 3 MTPA LNG facility at Wickham Point, and given that the environmental effects of the proposed increase in capacity to 10 MTPA are limited to emissions and waste discharges from the plant, and do not involve substantial additional modification of the environment of Wickham Point, it is considered that the proposal does not represent a significant impact on the local environment. It should also be noted that the impacts of the proposed 10 MTPA facility are consistent in most respects to those identified in the 1998 Supplement to the Draft EIS for a potential 9 MTPA facility. Phillips will welcome discussions with the NT DLPE and Environment Australia to properly assess the impacts of this expanded LNG facility.

Figures



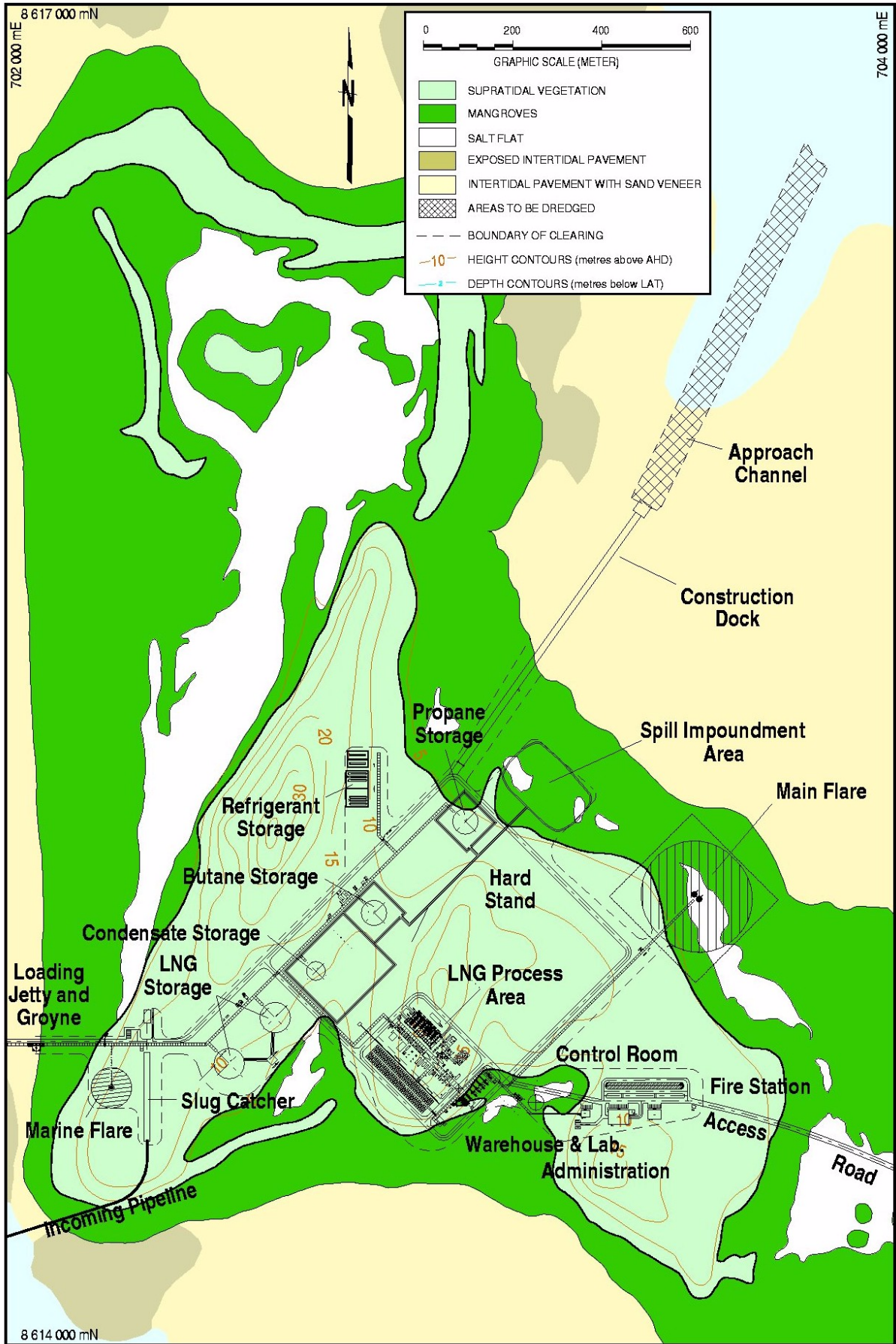
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Wickam Point Pty Limited
DARWIN LNG FACILITY - NOTICE OF INTENT

**MAJOR COMPONENTS
OF APPROVED LNG PROJECT**

Figure 1

URS

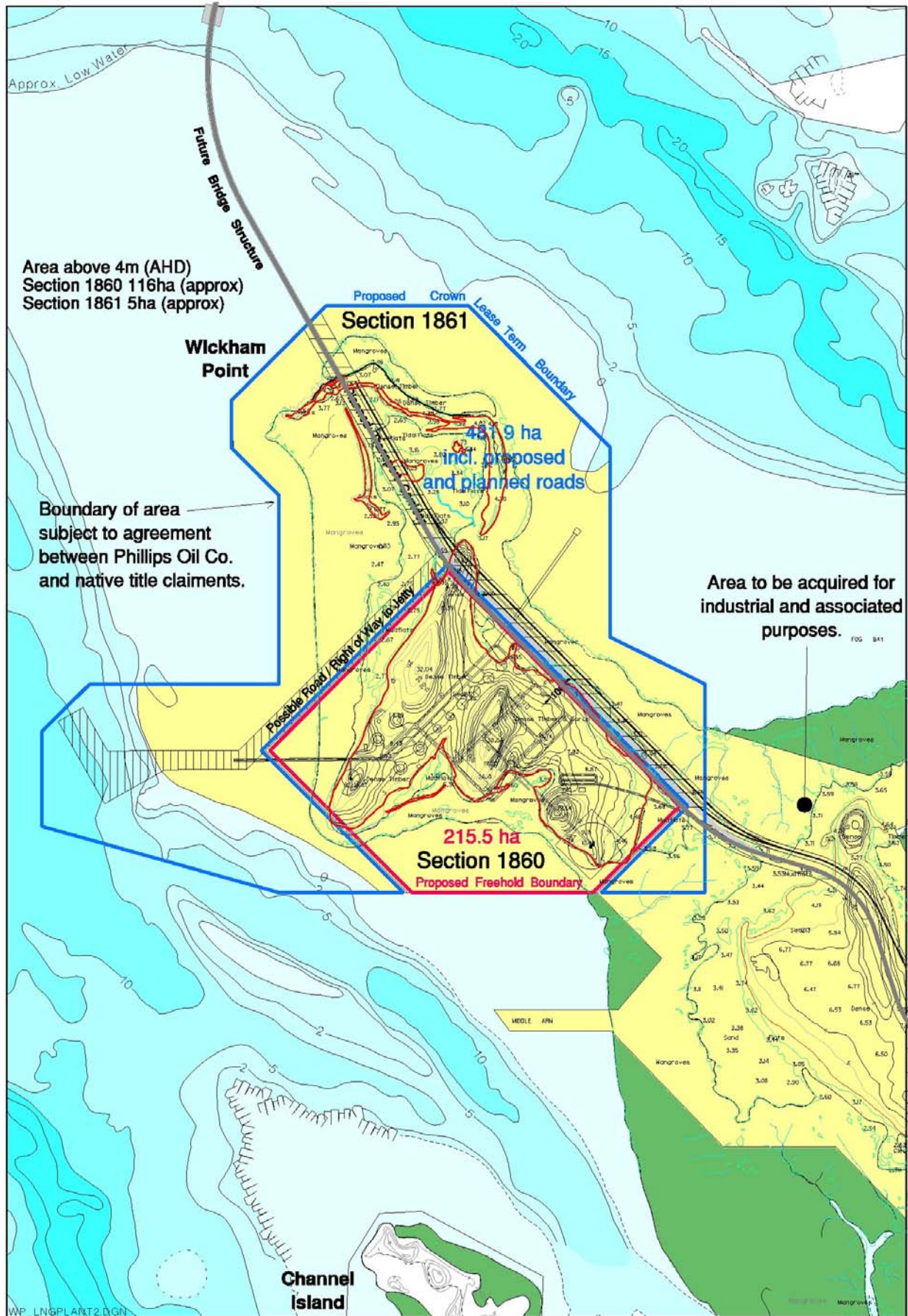


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Report No.	R810	
Prep. By	INB	07 May 01
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**APPROVED 3MTPA LNG PLANT LAYOUT
ON WICKHAM POINT**

Figure 2

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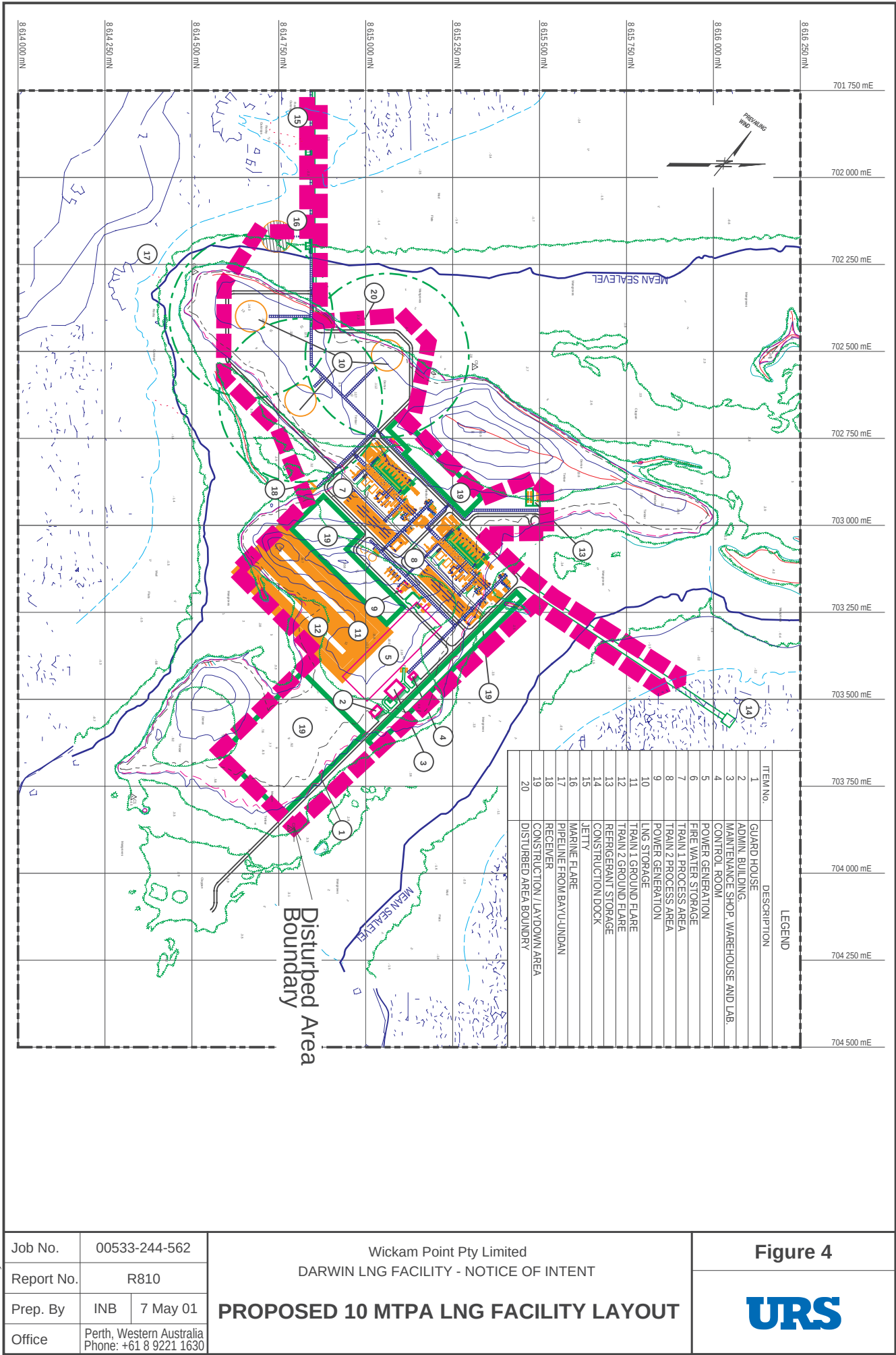
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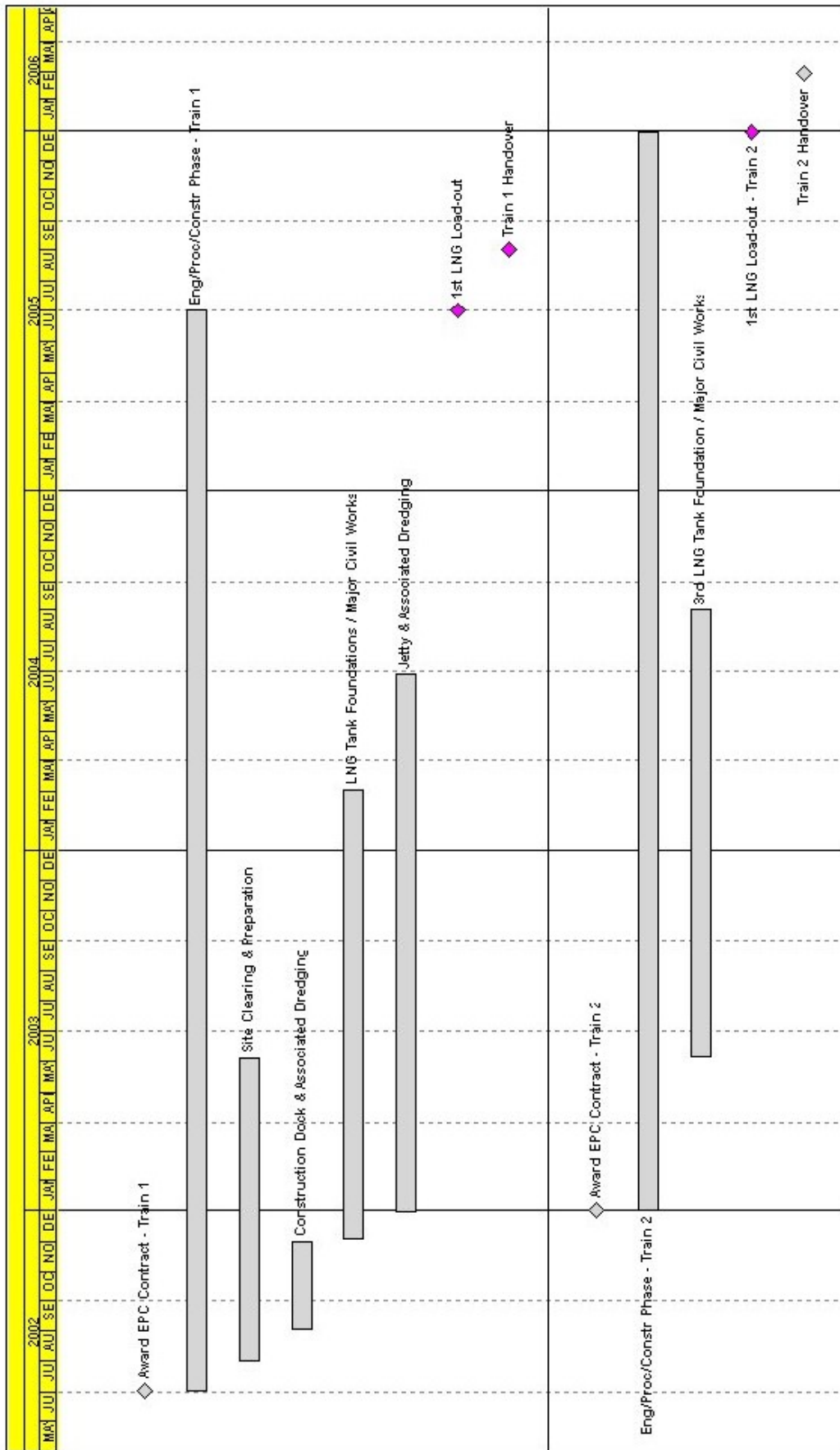
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PROPOSED LAND TENURE

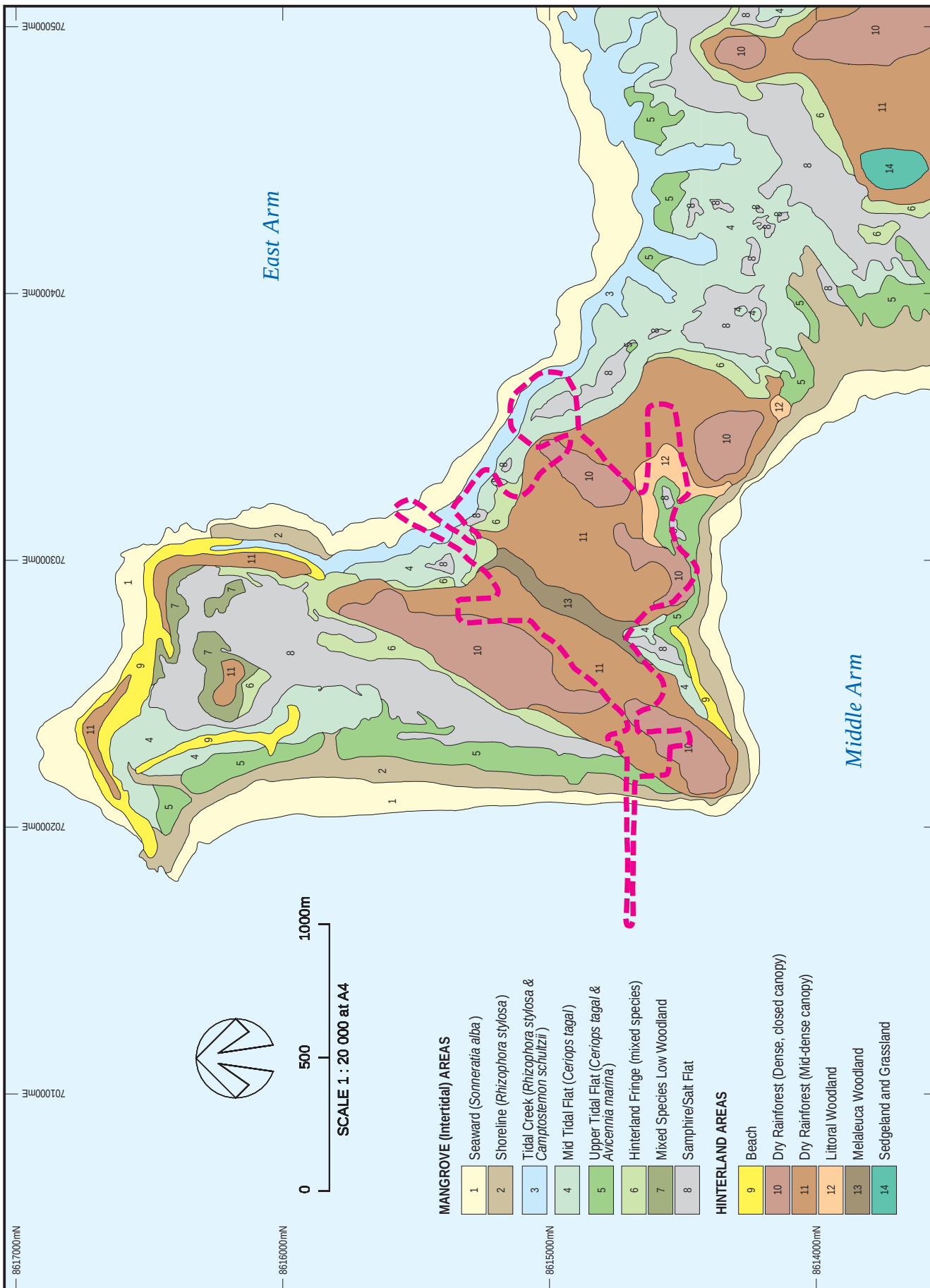
Figure 3

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Job No.	00533-244-562	Wickam Point Pty Limited DARWIN LNG FACILITY - NOTICE OF INTENT PROPOSED CONSTRUCTION AND OPERATION SCHEDULE	Figure 5
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**APPROVED 3MTPA LNG PLANT DISTURBANCE
ENVELOPE SUPERIMPOSED ON VEGETATION
COMMUNITIES OF WICKHAM POINT**

Figure 6

URS

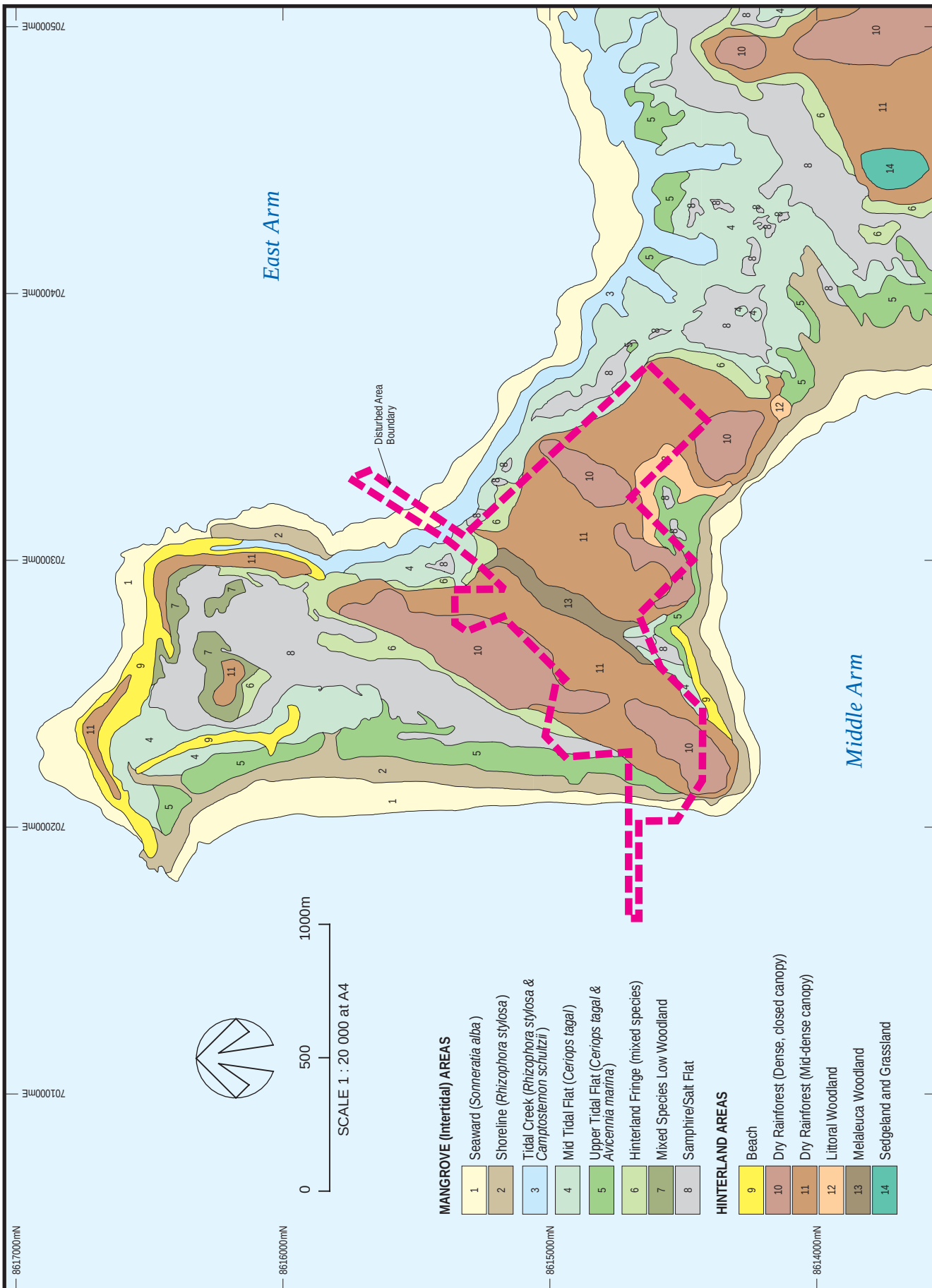


Figure 7

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**PROPOSED 10MTPA LNG FACILITY DISTURBANCE
ENVELOPE SUPERIMPOSED ON VEGETATION
COMMUNITIES OF WICKHAM POINT**