



Broome Boating Facility Site Selection Report



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EXECUTIVE SUMMARY

The design of a boating facility within the Broome region faces a number of challenging constraints. The combination of complex ocean processes, a highly valued natural environment, and extensive indigenous heritage means that site selection for a boating facility in Broome is among the most difficult in the whole of Western Australia.

Options for small boat facilities at Broome have been examined on several occasions over the past thirty years and a number of proposals for small boat harbours and private, water-based developments have been prepared. This report compiles the conclusions from these past investigations and identifies potential sites for a boat launching facility within the Broome region.

The Broome coastline from north of Willie Creek to east of Crab Creek has been examined to identify a suitable site for a new small craft boating facility. Thirteen possible facility locations were identified, and of these, four all tide launching facility locations were recognised. These sites were Gantheaume Point, Riddell Point, Entrance Point and west Roebuck Bay.

To deliver a facility designed for cyclone storm events exposed sites require construction of very large protective breakwaters. Thus, the development of a facility at a reasonable cost requires a naturally sheltered location. This limits the site selection to locations on the eastern side of the Broome peninsula.

Having reviewed all potential sites the only location where a small craft boating facility could be built (within reasonable cost constraints) that meets the majority of the boating requirements of the Broome community is considered to be west Roebuck Bay, adjacent to the Port of Broome's jetty. Preliminary investigations indicate that a boating facility in this location can feasibly:

- Provide protected boat launching facilities accessible at all stages of the tide
- Allow the construction of a service jetty that would allow passenger and cargo handling for charter and commercial operators (including disabled access)
- Allow the construction of facilities to assist private boat owners to safely embark and disembark from their boats
- Offer the capacity to remove boats from the water for repairs and maintenance on a daily basis
- Improve the existing boat repair yard to an acceptable environmental standard
- Provide some options to develop a small local marine industry for boat servicing.

Environmental and heritage concerns require detailed consideration at a local scale and consequently have not been considered in full within this summary report. Further work is required, however initial consultation indicates that the impacts of a boating facility at the west Roebuck Bay location are likely to be manageable.

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1 INTRODUCTION

Options for small boat facilities at Broome have been examined on several occasions over the past thirty or so years and a number of proposals for small boat harbours and private, water-based developments have been prepared. This report compiles conclusions from these past investigations and identifies potential sites for a boat launching facility in close proximity to Broome.

1.1 Boating Demand

Broome was developed as a land base for the pearling industry and today it is home to a varied fleet of fishing boats, charter boats, other commercial vessels and recreational vessels.

Currently, there are about 132 commercial boats registered for regular survey inspection in the Broome area, and there are almost 1,700 private recreational boats registered in the Shire of Broome as at end of 2011. By 2031 it is expected that there may be in the order of 4,600 recreational boats. In addition, there are a large number of visiting boats and Department of Fisheries' boat counts suggest that up to half the boats on the water on a good boating day are visitors' boats.

As a general rule, boats under 7.5 metres in length are considered as being trailerable and therefore typically require the use of a boat ramp. On average in Western Australia, 85% of private boats are less than 7.5 metres in length.

1.2 Existing Facilities

Boats are currently launched using part tide ramps or directly off the beach. There are two boat ramps at Entrance Point and a further small boat ramp at the Town Beach, all with limited high tide access and exposure to waves. There are also a number of informal beach launching areas including the highly used Gantheaume Point.

The existing major marine facility is the Port of Broome jetty, which was primarily designed to cater for shipping rather than small boats. Currently, larger boats can transfer some cargo and passengers from the jetty. However, for most private boats and commercial vessels, loading and offloading of both cargo and passengers is conducted across the beach, using dinghies.

Boating facilities at Broome are below average standards in comparison to facilities throughout the State. All current launching sites are exposed and are only usable for a part of the tide. None have holding facilities (jetties) or wave protection. The exposed nature of these facilities can lead to hazardous situations with injuries and damage to boats and vehicles.

If maintenance is required, some larger boats can be taken from the water at the slipway site adjacent to the Port jetty, using wheeled jinkers. However, the slipway can only be accessed at higher tides, and there are limited hardstanding and workshop facilities available.

There are some swing moorings within the Port area, however, there are no boat pens in Broome. The only protection available during cyclones or other storm events is by running vessels up the local tidal creeks such as Dampier Creek or by taking them out of the water. Larger vessels normally put to sea.

1.3 Previous Studies

Prior to 1987 the limited launching facilities at Entrance Point and Town Beach, and the small-craft landings at the Port jetty were the only available options. Beach launching at Cable Beach was available for those with four wheel drive capability and local experience. At this time both the Public Works Department and private developers had looked at the development of a boat harbour and a number of concepts were prepared for marinas in Roebuck Bay immediately north of the Port jetty.

In 2002 the Department of Transport (DoT) led a major investigation into the feasibility of developing a boat harbour at Broome. This study concentrated on identifying possible sites, with concepts and costings prepared for four short listed sites. Although this investigation was aimed at identifying sites for a boat harbour, the site requirements for a boat launching facility are similar, and the previous investigations remain relevant to this study.

The possible locations identified in the 2002 harbour study were:

- Willie Creek
- Barred Creek
- Crab Creek
- Coconut Wells (Cape Latreille)
- Gantheaume Point
- Dampier Creek
- Lookout Hill, Streeter's Jetty
- Mangrove Point
- Midway between Town Beach Caravan Park and the Port
- Riddell Point
- Port of Broome

(See the final page of this report for site locations.)

Between 2002 and 2009 the Port looked at harbour options at Entrance Point and inland options at west Roebuck Bay. In 2010 DoT again investigated sites for a launching ramp in Broome. Consideration was given to the outcomes of the earlier investigations, and a number of possible sites were identified, including:

- Gantheaume Point
- Riddell Point

- Entrance Point
- West Roebuck Bay (north of the Port jetty)

2 DEVELOPMENT CONSTRAINTS

The design of a boating facility within the Broome region faces a number of challenging constraints. The combination of the complex ocean processes, high valued natural environment, and extensive indigenous heritage means that site selection for a boating facility in Broome is among the most difficult in the whole of Western Australia.

2.1 Physical and Engineering Constraints

The dynamic physical environment of the oceans and beaches and remote location presents a number of engineering challenges which include:

- The very large tide range (in excess of ten metres) – launching and access structures have to be significantly larger to cater for the full tidal range
- Generally shallow inshore bathymetry – entrance channels require long training walls or regular dredging
- Strong tidal currents – fine sediment is easily mobilised into channels and basins, and breakwater structures may be subject to scouring
- Frequent cyclones – structures need to be designed to allow for high water levels and large waves
- Shortage of available materials – rock for breakwater construction is not readily available
- Remote location – services are not readily available to all sites and local construction costs are high.

A boating facility needs to be designed to withstand the wave heights and storm surge generated by a cyclone. The relatively shallow waters offshore from Broome, particularly the Pearl Shoals, limit the design wave height inshore at low tides. However, they have much less effect at high tides.

The eastern shoreline of the Broome peninsula is naturally protected from offshore waves from the west and southwest. Preliminary studies indicate that a design wave height of some 2.5 metres can be expected between the Port and Dampier Creek. The design wave increases to around four metres from the jetty south and around Entrance Point. Breakwaters for wave sheltering are traditionally constructed from rock as it is generally the most cost effective construction material. Preliminary calculations indicate that a two metre wave would require armour rock in the order of 5 tonne, while a four metre wave would require 14 tonne armour rock to provide the same level of protection.

The supply of rock is scarce in the Broome region. Preliminary investigations indicate that smaller armour rock (< 5 tonnes) may be available from the sandstone formations about 100 km east of Broome. However, the nearest quarries potentially capable of producing the larger armour are granite quarries some 400 km or more east of Broome. Alternative breakwater designs utilising different construction materials such as cast concrete units (eg x-Block, Dolos, Corlok), sheet piling, and caissons are available. However, these alternative options typically have significantly greater costs than the traditional rock breakwater designs.

Due to breakwater constraints the development of a facility at a reasonable cost requires a naturally sheltered location. In many regards this limits the site selection to locations on the eastern side of the Broome peninsula.

Most of the coast around Broome is fringed with either wide tidal flats or wide flat beaches and consequently it is generally a long way from the shore to adequate depths for boating (i.e. seabed level below RL -1.0 metre Chart Datum). At many sites this leads to a requirement for either long dredged entrance channels or extensive earthworks in most locations to be considered.

The tidal mud flats of Roebuck Bay are mobile under the influence of the tidal currents, and any channel through these will be prone to siltation, and require ongoing dredging maintenance and / or breakwater protection. Additionally, if any excavation of the sandstone substrate is required, this will be both difficult and expensive. The fine sands of Cable Beach are also mobile and would require breakwaters combined with sand bypassing and ongoing channel dredging to construct and maintain an entrance.

Boat ramps in the Broome area must be comparatively long to cover the whole tide range. For example, with a ramp at a standard grade of 1 in 8, running from 2 metres above high water to 1.4 metres below low water, would require a ramp to be about 100 metres long. This dictates a requirement for very wide ramps on which cars and trailers can turn around, or the inclusion of turning points on the ramps, or a series of ramps for partial tide ranges.

2.2 Environmental Constraints

Earlier work looked at number of sites that were being considered for a boat harbour. Careful consideration of the environmental impacts is required on a local scale and will be dependent on the site and facility design. Initial work and discussions with the Environmental Protection Authority (EPA) have indicated the broad scope of potential environmental impacts which will need to be taken into consideration in the design and assessment of a boating facility. A scoping document identifying the key environmental issues in relation to a new boating facility has been undertaken for DoT. Any facility would require a detailed environmental impact assessment and referral to the EPA for determination.

2.3 Land Title and Heritage

All potential sites within the Broome region require consideration in relation to the Aboriginal Heritage Act 1972 (AHA). Under the AHA, consultations with Aboriginal cultural advisers are required to determine the existence of heritage sites and appropriate use of these areas. The Broome region is subject to a successful Native Title determination with associated rights and responsibilities. Negotiated Indigenous Land Use Agreements (ILUA) between Yawuru Native Title Holders, the WA Government, and the Shire of Broome create a framework for addressing Native Title and Aboriginal heritage issues. The ILUAs recognise the primary and principal rights of the Yawuru community in protecting and preserving heritage values. Heritage consultations and agreements (where necessary) with the Yawuru are required in relation to any proposed locations. Discussion

with the Yawuru is required in relation to the proposals for the west Roebuck Bay site in order to resolve interface concerns between the proposed facility and heritage sites in the area.

It is acknowledged that heritage interests exist across all of the coastal areas of Broome. However it is considered that complexity of heritage issues is such that they require investigation and consideration on a local, site specific scale and, as such, are not possible to address at this high level site selection process. As a first step a simplistic approach has been followed within this report to identify the possible sites so as to narrow the number of locations where heritage issues require investigation.

Preliminary discussions with Yawuru representatives have assisted in the identification of areas where future development might be acceptable.

3 NEW INFRASTRUCTURE REQUIREMENTS

Following from consultation with the Broome boating community, the priority boating needs have been identified as:

- Protected boat launching facilities accessible at all stages of the tide
- A facility to provide passenger and cargo handling for charter and commercial operators to embark and disembark passengers including the elderly and disabled, and loading and unloading supplies and product, preferably at all levels of tide
- Cyclone protection
- Safe mooring for both commercial and recreational boats
- Capacity to remove boats from the water for repairs and maintenance.

Other desirable requirements identified include:

- Improved catch offloading facilities for fishing boats
- Boat repair facilities
- Capacity for private boat owners to safely embark and disembark from their boats
- Capacity to develop local marine industry including boat servicing.

The cost of providing a boat harbour that can meet all of these requirements has been considered previously and is likely to cost well in excess of \$100 million (2011 costs).

Following further consultation with the boating community it is considered that Broome's immediate boating needs could be met with a sheltered all tide boat launching facility and service jetty with sufficient adjacent land for parking and an enhanced commercial boat servicing yard. Such a facility would provide:

- Protected boat launching facilities accessible at all stages of the tide
- Facilities to assist private boat owners to safely embark and disembark from their boats
- Passenger and cargo handling for charter and commercial operators to embark and disembark passengers including the elderly and disabled, and loading and unloading supplies and product
- Capacity to remove boats from the water for repairs and maintenance on a daily basis
- Available land for boat repair facilities
- Capacity to develop a small local marine industry for boat servicing.

It would not provide safe moorings with cyclone protection, nor support a major marine servicing industry.

4 SITE SELECTION

4.1 Site Requirements

There are limited opportunities for the development of a boating facility at Broome, and any site should allow for the design of a facility which can meet as many of the immediate boating needs as possible and allow the capacity for future growth. Ideally the selected site should have:

- Sufficient natural wave protection to allow construction of breakwaters (if required) using the available material from the area
- All tide access or be where all-tide access can be developed and maintained at a reasonable cost
- Sufficient land for parking, boat servicing and other facilities to meet both the current and expected future demand
- Close proximity to Broome
- Road access and services or be located where these can be provided at reasonable cost
- Acceptable operation and maintenance costs
- Acceptable and manageable environmental impacts
- No unacceptable impact on sensitive heritage areas.

It is also desirable for the site to have the potential to provide developable land for future maritime industries and also have a capacity to be expanded to include safe mooring.

4.2 Location Assessment

The coast of Broome from Barred Creek to Crab Creek has been investigated for potential boat launching sites (see the final page of this report for site locations).

Sites remote from Broome, including Barred Creek, Willie Creek, Coconut Wells and Crab Creek are considered unsuitable due to their distance from the community centre. This affects their accessibility as well as adding the cost of providing access roads and services.

Willie Creek, Coconut Wells and Crab Creek were also considered unsustainable due to the likely on-going cost of providing and maintaining vessel access from the ocean through the unstable inshore areas. At these sites it would be necessary to construct long breakwaters or training walls in excess of a kilometre along an access channel to limit sand movement. The alternative of maintaining a dredged channel in the unstable sandbanks is not considered practical and would involve a high ongoing cost.

Cable Beach is a popular recreational area and tourist attraction. Construction of a boat launching facility with its associated breakwaters and parking areas across Cable Beach

at any point will be disruptive as well as very costly, and unlikely to be acceptable to the community. The cost of maintaining an entrance channel across this mobile sandy shoreline and managing the impacts on coastal stability would be very high.

Gantheaume Point has some attractive attributes, including proximity to Broome, adjacent land and easy access. However, the history of attempted development in this area, together with its proximity to Cable Beach, suggests that a proposal for a boat harbour development in this area would not be well supported. In addition, a site here would require extensive breakwaters and some offshore excavation for a harbour basin. The site is exposed, poorly serviced and armour sizes would be large.

The coast from Gantheaume Point to Entrance Point does offer some opportunities. The intertidal zone appears to be shallow sediments over Broome sandstone, and this part of the coast does not have the wide tidal flats of Roebuck Bay nor the mobile sand of Cable Beach. However, this coast is very exposed, and any breakwater structures would require large heavy armour stone.

The adjacent land from Entrance Point to Riddell Point is vested in the Port of Broome, other than the immediate coastal strip, and the Port may have future development requirements over this area. Once again this is also a very exposed section of coast.

Dampier Creek has been considered for a tidally limited small boat harbour, but it is unsuitable for an all-tide launching facility. Like Crab Creek, the cost of providing and maintaining an all-tide dredged channel in this area is likely to be extremely high.

The coast from Dampier Creek to the Port is characterised by wide tidal flats. The cost of developing and maintaining an access channel across these flats would be high. The silty sediments of the tidal flats are mobile under the strong tidal currents and it is unlikely that a long channel could be maintained by dredging. The alternative of providing breakwaters or a bund along this channel would be very costly.

In addition to the above, the area from Mangrove Point up to and including Dampier Creek, has limited land available and likely environmental constraints given the mangroves in the area.

Entrance Point south of the jetty is exposed and the necessary breakwater protection would need to withstand cyclonic waves up to about four metres. As discussed previously, the size of armour required for this breakwater is not available anywhere near Broome.

The conclusion derived from the review of a number of extensive investigations including this most recent study is that the only location where an all-tide protected boat launching facility can be built within reasonable cost, proximity to the population and available services is in west Roebuck Bay, in the Port of Broome adjacent to the Port's jetty.

4.3 Site Summary

There have been exhaustive examinations of possible sites in and around Broome. A summary of the benefits and constraints for the possible sites identified is given in the following table.

As previously discussed (refer to Section 2) environmental and heritage concerns require detailed consideration at a local scale and consequently have not been included in full in this summary table.

Table 1 Broome Boating Facility – Summary of Benefits and Constraints for Site Options

Benefits	Constraints
<i>Barred Creek</i>	
<ul style="list-style-type: none"> • Coastal stability – has manageable water depths and navigable waters • Provides safe approaches • Area is near to existing charter boat operations 	<ul style="list-style-type: none"> • Environmental considerations – mangrove removal and crocodiles. • Distant from town and so services costly to provide to the area. • No access roads, high costs to construct roads. • Tidally limited without extensive breakwaters or continuous dredging
<i>Willie Creek</i>	
<ul style="list-style-type: none"> • Area is outside of proposed conservation boundaries. • There is a tourist market already in existence – pearl hatchery. • Access established. • Crown and reserve land available. 	<ul style="list-style-type: none"> • Distant from town and so services costly to provide to the area. • Water quality is a matter of concern to the pearl hatchery. • Environmental considerations – mangrove removal and crocodiles. • Shallowness of the nearshore water would require long access channel or breakwaters. • Major breakwaters would be necessary to protect from sand movement (siltation). • Sand bypassing around the breakwaters/channel may be required. • Access road will require upgrading and sealing. • Tidally limited.
<i>Coconut Wells (Cape Latreille)</i>	
<ul style="list-style-type: none"> • Developable land may be available. • Cable Beach site would be attractive to resort or real estate developer. 	<ul style="list-style-type: none"> • Distant from town and services. • Shallowness of the nearshore water would require long access channel or breakwaters. • Major breakwaters would be necessary to protect from sand movement (siltation). • Sand bypassing around the breakwaters/channel will be required. • Need to manage creek inflows. • Cable beach is the major tourist attraction in Broome, and this harbour would bisect Cable Beach. • Appears to be reef offshore which would make channel excavation difficult.

Crab Creek	
<ul style="list-style-type: none"> • Crown Land adjacent. 	<ul style="list-style-type: none"> • A Ramsar wetland • Distance from navigable waters are approximately 5 nautical miles, therefore requires construction of entrance channel. • Maintenance cost of long entrance channel through tidal flats is likely to be prohibitive due to high sedimentation rates. • Remote from population and services. • Costs of establishing services and roads would be high. • Tidally limited.
Cable Beach	
	<ul style="list-style-type: none"> • Distant from town and services. • Shallowness of the nearshore water would require long access channel or breakwaters. • Major breakwaters would be necessary to protect from sand movement (siltation). • A popular local and tourist recreation area and construction of a boat launching facility with its associated breakwaters and parking areas across Cable Beach at any point would not be acceptable to the community.
Gantheaume Point	
<ul style="list-style-type: none"> • Good real estate potential. • Close to town. • Close to (limited) services, some cost will be incurred to develop more. • Access roads are established. 	<ul style="list-style-type: none"> • Landscape constraints. • Site is exposed to cyclonic conditions. • Area is part of conservation reserve with shellfish harvesting restrictions. • Popular public beach. • Scientific value due to dinosaur relics/fossils. • Land ownership may be concern. • Racecourse location. • Strong public opposition to site.
Riddell Point	
<ul style="list-style-type: none"> • Close to town. • Good access. • Provision of services would be cheaper. • Close to existing marine infrastructure at the Port • Close to deep water offshore. • Land available for harbour purposes. • Land available for a range of development types. • May be possible to fit larger commercial vessels depending on design. 	<ul style="list-style-type: none"> • Site is exposed to cyclonic conditions. • Water depth and site exposure will require large and costly breakwaters for offshore site. • Excavation problems may arise due to the presence of rock. • Damage to cliffs required. • Alienated Port land.

<i>Dampier Creek</i>	
<ul style="list-style-type: none"> • Close to town. • Cost of services and road works lower. • Protection from cyclonic conditions. • Limited excavation and rock work required in area (for restricted tide entry). • Large area of land to develop subject to filling (low lying wet areas). 	<ul style="list-style-type: none"> • Maintenance cost of long entrance channel through tidal flats is likely to be prohibitive due to high sedimentation rates. • Flooding of the land from cyclonic rains. • Environmental constraints. • Tidally limited.
<i>Lookout Hill/ Streeter's Jetty</i>	
<ul style="list-style-type: none"> • Close to town. • Cost of services and road works lower. • Protection from cyclonic conditions. • Limited excavation and rock work required in area. • Smaller breakwaters. 	<ul style="list-style-type: none"> • European Heritage listed jetty (Streeter's Jetty) in area. • Maintenance cost of long entrance channel through tidal flats is likely to be prohibitive due to high sedimentation rates. • Limited space for land infrastructure. • No buffer areas to existing residential areas available.
<i>Mangrove Point</i>	
<ul style="list-style-type: none"> • Close to town. • Cost of services and road works lower. • Limited excavation and rock work required in area. 	<ul style="list-style-type: none"> • Less protection from cyclonic conditions. • Foreshore land alienated, limited space for land infrastructure. • European Heritage considerations (original port facilities). • Access depth of channel – about 1.5 km from navigable waters if all-tide access is required. Maintenance cost of long entrance channel through tidal flats is likely to be prohibitive due to high sedimentation rates. • No buffer areas to residential available.
<i>Mangrove Point to the Port</i>	
<ul style="list-style-type: none"> • Alienated land may be available at realistic costs. • Close to town. • Cost of services and road works moderate. • Narrower inter tidal zone than further up Dampier Creek. • Buffer areas available. • Possible to fit larger commercial vessels depending on design. 	<ul style="list-style-type: none"> • Land alienated by golf course, sewerage works etc. • Less protection from cyclonic conditions. • Access depth of channel – still about 1 km long distance from navigable waters if all-tide access is required. • Longshore tidal current may fill channel quickly resulting in prohibitive maintenance costs.
<i>Entrance Point</i>	
<ul style="list-style-type: none"> • Close to town. • Cost of services and road works moderate. • Existing ramps. 	<ul style="list-style-type: none"> • Coast is exposed and the large armour required for the breakwaters is not available locally in the quantities required. • Limited land available.

	<ul style="list-style-type: none"> • Strong tidal currents across the site. • Access will be through the Port.
<p><u>West Roebuck Bay</u></p>	
<ul style="list-style-type: none"> • Some protection from cyclonic conditions. • Close to town. • Cost of services and road works moderate. • Narrower inter tidal zone than further north and east with reduced access channel length. • Close to existing marine industry. • Possible to fit larger commercial vessels depending on design. • Port land is available. 	<ul style="list-style-type: none"> • Longshore tidal current may fill channel quickly. • Extensive offshore work may be required. • Proximity to the jetty will require management of small boat access ways.

5 WEST ROEBUCK BAY

West Roebuck Bay, with its natural shelter from extreme waves, is considered the only feasible site for the construction of a small craft boating facility in Broome that will meet the majority of the boating requirements in this community at a realistic cost.

This site has a number of advantages, including:

- Sufficient natural wave protection to allow construction of breakwaters with locally available rock
- Relatively narrow intertidal flats where an access channel can be built and possibly maintained
- Sufficient adjacent land to service the facility and cater for growth for ten to twenty years
- Close location to Broome
- Easy access
- Essential services
- Land can be leased from the Port or it can be re-vested in the Minister for Transport
- Adjacent to the existing slipway and boat service area
- Provides the opportunity to manage the environmental problems currently associated with the slipway service area
- The Port has not identified any conflicting use for this land
- Environmental impacts are believed to be manageable.

The disadvantages of this site include:

- The Yawuru PBC has identified high cultural heritage values associated with sites in this location
- A channel is required through the intertidal flats, and this will require some ongoing sediment management
- It is not certain that the sediments to be excavated for the basin and channel are suitable for structural fill for the offshore structure
- There is limited land available to manage future growth, and the facility could reach capacity at peak times within the 20 year planning horizon
- There is insufficient land immediately adjacent to accommodate any expanded maritime industry other than limited maintenance in the existing slipway area.

SITE LOCATION MAP



REV	DATE	BY	DESCRIPTION	APP'D
A	18/01/12		ISSUED FOR COMMENT	R15

GENERAL NOTES
 1. Broome_3362_May_2007_Mosaic.ecw AERIAL PHOTOGRAPHY BASE

LEGEND
 POTENTIAL BOATING FACILITY LOCATIONS

SCALE: 1:50 000 @ A1
UNLESS OTHERWISE STATED DIMENSIONS IN METRES

PROJ: MAP GRID OF AUSTRALIA
BASED ON GDA94 - ZONE 51

VERT: MGA

DESIGNED: Peter Boreham
 CHECKED: R TALBOT-SMITH
 PROJECT MANAGER: PETER BOREHAM

APPROVED: *Peter Boreham*
 APPROVED: *R Talbot-Smith*
 APPROVED: *M. Baird*
MANAGER NEW COASTAL ASSETS

Department of Transport

BROOME BOATING FACILITIES
SITE INVESTIGATION - POTENTIAL FACILITY LOCATIONS

DRAWING NUMBER: 1503 - 11 - 01

SCALE: 1:50000

Scale 1:50000 0 1 2 3km

