

**DEPARTMENT OF SUSTAINABILITY AND
ENVIRONMENT**

**GIPPSLAND REGION
PRELIMINARY SITE ASSESEMENT REPORT**

PROPOSED BASTION POINT BOAT RAMP UPGRADE



DEPARTMENT OF SUSTAINABILITY AND ENVIRONMENT

FEBRUARY 2005

This Site Assessment Report (the Report), prepared by the Department of Sustainability and Environment (DSE), is intended to provide a preliminary overview to the East Gippsland Shire Council of a range of environmental issues of relevance to the Department in relation to the proposed redevelopment of a boat ramp in the Bastion Point area.

The Report is submitted without prejudice to the consideration of an Environmental Effects Statement by the Minister for Planning and the Department reserves the right to provide additional comments on any issue addressed within the report and on any other matters of environmental significance that may arise during consideration of the proposal.

BACKGROUND

East Gippsland Shire Council are proposing an upgrade to the existing boat launching facility at Mallacoota.

The Minister for Planning has advised the Council that an Environmental Effects Statement (EES) will be required for the project. Assessment guidelines have been prepared and were finalised in December 2004.

A Coastal Processes Study was undertaken on behalf of the Council as the first stage of the preparation of the EES for the redevelopment proposal and is a key document in determining the viability of any upgraded ramp to be located at Bastion Point.

The key aim of the Coastal Processes Study is to “..describe the coastal processes at the project site and the inter-relationship of the new ramp with the coastal processes.”

The draft study focussed on three (3) options and concluded each option has its own positive and negative features but concluded that

- upgrading of the ramp could occur at all of the three nominated locations
- all sites would be subject to sand deposition and ongoing dredging would be required to maintain launch capability
- Option 1 would affect the sandbar which forms the area known as the nursery surf zone
- Options 2 & 3 reduce the levels of impacts on other recreational users

The study also concluded that in order to achieve an 85 and 95% launch rate, rock walls of up to 3 metres (Location 1) and 3.5 metres (Locations 2 & 3) would need to be constructed.

A second 2-metre high rock wall would also be required for Location 1 to prevent sand sweeping into the launch channel. This movement of sand is one of the major factors in limiting the effectiveness of the existing ramp at this location.

The Coastal Processes Study has indicated that upgrading of the ramp is technically feasible at any of the nominated locations, but has nominated Location 3 as the preferred location as it requires the removal of less rock to create the access channel and less rock is required to construct the breakwater.

After reviewing the recommendations of the study, DSE agreed to carry out a preliminary site inspection to provide to the East Gippsland Shire Council with an overview of the environmental factors and determine if there any other factors that may compromise the development potential of any of the proposed locations recommended by the study.

This review does not provide technical comment on the Coastal Processes Study or its methodology but is only intended to provide comment on the environmental implications of any recommendations than arise from the study.

This review is limited to terrestrial issues and involved site inspections and a review of database information and is intended to provide Council with preliminary comments from DSE on a range of issues such as Flora and Fauna, Cultural Heritage, Native Title and Visual Impacts and to highlight those areas that are likely to be of potential environmental concern to the department.

FLORA AND FAUNA

The survey involved the review of existing databases coupled with on-site surveys that were conducted on the 18th and the 24th of January 2005. The on-site surveys involved numerous transects being carried out throughout the extent of the proposed development area.

COMMENTS

The area is situated adjacent to the beach on the primary dune system, thus the soil is dominated by sand which is stained to varying depths by humic acid leached from the humus layer. It is also dominated by Swamp Paper bark (*Melaleuca ericifolia*) which has created a dense canopy impeding the establishment of understorey plants. This impediment is further augmented by the humus layer found underneath the Melaleuca that is up to several centimetres thick in some places. In areas where the canopy has been damaged or opened and around the periphery of the area surveyed herbs, shrubs and other understorey plants are well established. The survey identified a range of plant species that are listed in Table 1

TABLE 1

Preliminary Vegetation Assessment of Bastion Point; Mallacoota Inlet.	
Area Surveyed 18th and 24 of January 2005.	
Scientific Name	Common Name.
<i>Acacia longifolia / sophorae</i>	Coast Wattle / Sallow Wattle
<i>Acacia suaveolens</i>	Sweet Wattle
<i>Acmena smithii</i>	Lilly Pilly
<i>Agave americanum</i>	Century Plant
<i>Allocasuarina littoralis</i>	Black She-oak
<i>Alyxia buxifolia</i>	Sea Box
<i>Astroloma humifusum</i>	Cranberry Heath
<i>Atriplex cinera</i>	Common Saltbush
<i>Austrodanthonia pilosa</i>	Velvet wallaby-grass
<i>Banksia serrata</i>	Saw-leaf Banksia
<i>Billiardiera scandens</i>	Common Apple-berry
<i>Cakile maritima</i>	Sea Rocket
<i>Cassinia aculeata</i>	Common Cassinia
<i>Dianella revoluta</i>	Black-anther Flax-lily
<i>Dichondra repens</i>	Kidney Weed
<i>Disphyma crassifolium</i>	Coastal Pig-face
<i>Elaeocarpus reticulatus</i>	Blueberry Ash

<i>Eucalyptus botryoides</i>	Southern Mahogany / Bangalay
<i>Eustrephus latifolius</i>	Wombat Berry
<i>Exocarpus cupressiformis</i>	Cherry Ballart
<i>Gahnia sieberiana</i>	Red Fruit Saw-Sedge
<i>Glycine clandestina</i>	Twining Glycine
<i>Goodenia ovata</i>	Hop Goodenia
<i>Hardenbergia violacea</i>	Purple Coral-pea
<i>Hibbertia fasciculata var.prostata</i>	Bundled Guinea Flower
<i>Kunzea ambigua</i>	White Kunzea
<i>Leptospermum continentale</i>	Prickly Tea-Tree
<i>leucopogon juniperus</i>	Coastal Beard Heath
<i>leucopogon parviflorus</i>	Long flower Beard Heath
<i>Melaleuca ericifolia</i>	Swamp Paperbark
<i>Muehlenbeckia adpressa</i>	Climbing Lignum
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Poa poiformis</i>	Coastal Tussock Grass
<i>Rhagodia candolleana</i>	Seaberry Saltbush
<i>Senescio X orarius</i>	Coastal Fireweed
<i>Spinifex sericeus</i>	Hairy Spinifex
<i>Tetragonia tetragonoides</i>	New Zealand Spinich
<i>Themeda australis</i>	Kangaroo Grass
<i>Westringia eremicola</i>	Slender Westringia

Whilst no threatened species have been identified as part of the preliminary survey of the proposed development site, a formal survey should be carried out as part of the development of the Environmental Effects Statement to formally determine the presence or absence of any rare or threatened species within the proposed development area.

Vegetation Removal

An area of approximately 1.5 hectares of native vegetation will be affected by the development where vegetation will need to be either modified or removed. Victoria's Native Vegetation Management – A Framework for Action (DSE 2002) establishes the strategic direction for the protection, enhancement and revegetation of native vegetation across the state. It establishes the notion of achieving a Net Gain in the extent and quality of native vegetation. A priority for implementing Net Gain is to avoid clearing but where clearing is permitted achievement of the Net Gain principles must be pursued through strict application of offset requirements.

Therefore the loss of vegetated area must be “off-set” by the establishment of a revegetated area of similar value in the vicinity of the development if possible. Species selected for regeneration should reflect what is to be lost from the proposed development site. Such “off-set” proposals will need to be identified as part of the development of the EES documentation.

Fauna

No formal fauna survey work was conducted however given existing knowledge of the habitat, and on the basis of information retrieved from databases, predictions can be made as to the likely animal species that may be found in the study area.

The likely species include

Yellow Bellied Glider
Common Wombat
Eastern Pigmy Possum

Swamp Wallaby
Eastern Grey Kangaroo
Brown Antechinus
Red Necked Wallaby

The Brush Tailed Phascogale (*Phascogale tapoatafa*) last sighted in the vicinity of Double Creek Arm of Mallacoota Inlet is listed as rare and may be also be located in the vicinity.

A number of bird species including the threatened Little Tern (*Sterna albifrons*) frequent the area and may be impacted on by the proposed development.

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Bastion Point Mallacoota Threatened Flora and Fauna

Threatened Fauna Species within area

Common Name	Scientific Name
Australasian Shoveler	<i>Anas rhynchotis</i>
Azure Kingfisher	<i>Alcedo azurea</i>
Black-tailed Godwit	<i>Limosa limosa</i>
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>
Caspian Tern	<i>Sterna caspia</i>
Diamond Dove	<i>Geopelia cuneata</i>
Diamond Python	<i>Morelia spilota spilota</i>
Eastern Bristlebird	<i>Dasyornis brachypterus</i>
Eastern Curlew	<i>Numenius madagascariensis</i>
Fairy Tern	<i>Sterna nereis</i>
Freckled Duck	<i>Stictonetta naevosa</i>
Glossy Black-Cockatoo	<i>Calyptorhynchus lathamii</i>
Great Egret	<i>Ardea alba</i>
Great Knot	<i>Calidris tenuirostris</i>
Grey Goshawk	<i>Accipiter novaehollandiae</i>
Grey Plover	<i>Pluvialis squatarola</i>
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>
Ground Parrot	<i>Pezoporus wallicus</i>
Hardhead	<i>Aythya australis</i>
Hooded Plover	<i>Thinornis rubricollis</i>
Humpback Whale	<i>Megaptera novaeangliae</i>
Intermediate Egret	<i>Ardea intermedia</i>
Little Egret	<i>Egretta garzetta</i>
Little Tern	<i>Sterna albifrons</i>
Mallacoota Burrowing Cray	<i>Engaeus mallacoota</i>
Martin's Toadlet	<i>Uperoleia martini</i>
Musk Duck	<i>Biziura lobata</i>
Nankeen Night Heron	<i>Nycticorax caledonicus</i>
Pacific Gull	<i>Larus pacificus</i>
Pied Cormorant	<i>Phalacrocorax varius</i>
Powerful Owl	<i>Ninox strenua</i>
Red Knot	<i>Calidris canutus</i>
Regent Honeyeater	<i>Xanthomyza phrygia</i>
Royal Spoonbill	<i>Platalea regia</i>
Sanderling	<i>Calidris alba</i>
Shy Albatross	<i>Diomedea cauta</i>
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>
Southern Right Whale	<i>Eubalaena australis</i>
Spotted Quail-thrush	<i>Cinclosoma punctatum</i>

Whimbrel
White-bellied Sea-Eagle
White-faced Storm-Petrel
White-footed Dunnart

Numenius phaeopus
Haliaeetus leucogaster
Pelagodroma marina
Sminthopsis leucopus

Threatened Flora Species within area

Rough-barked Apple	Angophora floribunda
Shore Spleenwort	Asplenium obtusatum subsp. northlandicum
Glistening Saltbush	Atriplex billardiarii
Veined Spear-grass	Austrostipa rudis subsp. australis
Swamp Baeckea	Baeckea linifolia
Sword Bossiaea	Bossiaea ensata
Fairy Orchid	Caladenia alata
Thick-lip Spider-orchid	Caladenia tessellata
Bronze Bird-orchid	Chiloglottis X pescottiana
Purple Coopernookia	Coopernookia barbata
Fringed Helmet-orchid	Corybas fimbriatus
Red Bloodwood	Corymbia gummifera
Sheath Sedge	Cyathochaeta diandra
Long-flower Mistletoe	Dendrophthoe vitellina
Blotched Hyacinth-orchid	Dipodium variegatum
Upright Panic	Entolasia stricta
Blue-leaved Stringybark	Eucalyptus agglomerata
Maiden's Gum	Eucalyptus globulus subsp. maidenii
Mallacoota Gum	Eucalyptus X williamsonii
Rosy Baeckea	Euryomyrtus ramosissima subsp. prostrata
Small Wax-lip Orchid	Glossodia minor
Genoa Grevillea	Grevillea parvula
Swamp Grevillea	Grevillea patulifolia
Erect Violet	Hybanthus vernonii subsp. vernonii
Creeping Shield-fern	Lastreopsis microsora subsp. microsora
Lacy Wedge-fern	Lindsaea microphylla
Whiteroot	Lobelia purpurascens
Tiny Logania	Logania pusilla
‡Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris
Varied Mitrewort	Mitrasacme polymorpha
Coast Mistletoe	Muellerina celastroides
Golden Mistletoe	Notothixos subaureus
Smooth Geebung	Persoonia levis
Prickly Podolobium	Podolobium ilicifolium
Eastern Pomaderris	Pomaderris discolor
Privet Pomaderris	Pomaderris ligustrina subsp. ligustrina
Maroon Leek-orchid	Prasophyllum frenchii
Slender Leek-orchid	Prasophyllum parviflorum
King Greenhood	Pterostylis baptistii
Cobra Greenhood	Pterostylis grandiflora
Sharp Greenhood	Pterostylis X ingens
Hybrid Bramble	Rubus X novus
Dune Fan-flower	Scaevola calendulacea
Tiny Spyridium	Spyridium cinereum
Mauve-tuft Sun-orchid	Thelymitra malvina
Crested Sun-orchid	Thelymitra X irregularis
Peach-leaf Poison-bush	Trema tomentosa var. viridis
Southern Xanthosia	Xanthosia tasmanica

SOILS AND EROSION

An inspection of the site for the development of the proposed ocean access boat ramp was conducted on the 18th January 2005. The methods of survey were visual and desktop.

The main structure of the cliffs that form Bastion Point is sedimentary rock capped by Tertiary gravels. (Sandstone)

A deposit of river stone located between the toe of the cliff and the beach. This layer of stone was visible to approximately 700mm above the sand.

The cliff height ranges between 5m – 10m and is vegetated with native trees and shrubs.

Any vegetation removal in this area is likely to result in a high risk of erosion. This is evident by an actively eroding gully 10m south of the existing road.

The toe of the exposed cliffs that join the beach at Site 3 is considered to be highly susceptible to erosion. If a road construction was to occur in this area, soil disturbance and vegetation removal must be kept to a minimum and where possible road alignments should be aligned to avoid any direct impacts on the toe of the cliff.

CULTURAL HERITAGE

An Indigenous Cultural Heritage assessment was made at the proposed site on the 20th January 2005.

Previously a survey of the Mallacoota Township was carried out by the Victorian Archaeological Survey in 1983 that resulted in the 2 cultural heritage sites being listed in the vicinity of the proposed development.

These sites contain substantial quantities of shellfish from both the open coast and the inlet. The sites are similar to other shell middens along the Victorian coast but they are recognised for the diversity and volume of their contents.

The VAS study proposed management measures including restoration and conservation of vegetation, coastal walling, erection of barriers and avoidance during road works to protect sites identified during the survey. Some restoration has occurred at the sites however there is some evidence of further deterioration of the site.

One of these registered cultural heritage sites has a high possibility of being impacted upon during any of the proposed works.

Therefore before any works could be conducted on the site, a 'Consent to Disturb' request under the provisions of the Archaeological and Aboriginal Relics Preservation Act 1972 (Vic) must be made to the indigenous cultural heritage authority responsible for this area.

As there is no Aboriginal organisation nominated for this area, the application reverts back to the Minister for Aboriginal Affairs and Aboriginal Affairs Victoria (AAV) administers the act on behalf of the Minister.

This application/request must be made to AAV. Mr John Tunn, East Team Leader (AAV) will be the principal contact for an application at Mallacoota.

AAV will generally advise that proponents seek a letter of consent from the local indigenous representative involved in cultural heritage management.

Gippsland Cultural Heritage Unit (GCHU) in Moogji must also be notified of any intent to seek a “Consent to Disturb”. (Contact Barry Kenny -03 51542923)

Aside from the registered sites, there is also evidence of the further occupation and use of the Bastion Point area by aboriginal people and the community is likely to have strong links with the area.

Given the nature of its occupation, excavation works at Bastion Point may expose additional artefacts and relics and aboriginal monitors would be required on-site during any works that disturb the surface of the land.

NATIVE TITLE

This assessment provides an overview of how the provisions of the Native Title Act 1993 (NTA) will affect the proposed works under the three options.

(NOTE: This report has been prepared on available plan and file information. Detailed on ground field survey has not been undertaken to establish reservation boundaries that may have moved or altered under the doctrine of accretion, caused by coastal dynamics. Any alterations to the proposed works arising out of the EES or from subsequent amendments may need further assessment to be undertaken.)

The onground works (additional access roading and carparking facilities etc) components are restricted to two parcels of Crown land situated in the Parish of Mallacoota. These are

Crown allotment 1 K, Parish of Mallacoota, which is Crown land temporarily reserved as a site for Public Purposes under the general reservation to Bass’ Strait and the Southern Ocean of 11 August 1879 as notified in the “*Victoria Government Gazette*” of 1879 on page 2045.

Crown allotment 1N, Parish of Mallacoota, which is Crown land temporarily reserved as a site for Public Recreation and Camping by notice published in the “*Victoria Government Gazette*” of 1968 on page 3751

Both these parcels are managed by East Gippsland Shire Council as a Committee of Management appointed under the provisions of Section 14 of the *Crown Land (Reserves) Act 1978*.

The remaining work (new ramps and possible breakwaters and jetties etc) will be located on unalienated Crown land forming the bed of Bass’ Strait.

Crown allotments 1K, 1N and the bed and waters of Bass Strait are subject to a Native Title Determination Application (number V6001/02) lodged in the Federal Court by the Bidwell Peoples.

Native Title Assessment

Proposed development on reserved lands.

Division 3 of the NTA contains a series of provisions, (termed the “future act regime”), which allow for certain action to be undertaken on crown lands subject to a regime of procedural rights that must be observed and extended to native title interest holders.

Subdivision J of Division 3 allows for action to be undertaken on lands subject to reservations made prior to 23 December 1996. The action must however be in keeping with the purpose of the reservation or have no greater impact on native title rights and interests than an action that is in keeping with the purpose of the reservation.

Where that action involves the establishment of a “public work” or the creation and adoption of a management plan, a right to comment must be extended to any native title interest holder. Any comments must be appropriately addressed before the plan can be adopted or the public work constructed.

A “public work” is defined within the NTA as being:

- any building or other structure (including a memorial) that is a fixture,
- a road, railway or bridge,
- a well, or bore, for obtaining water or
- any major earthworks.

A public work, by definition, must be constructed by or on behalf of the Crown or a local government body or other Statutory Authority of the Crown.

Works proposed for Allotments 1K and 1N including the proposed carparking, road construction and realignments and possibly some of the proposed boat ramp and associated infrastructure works would fall within the parameters of Subdivision J of Division 3 of the NTA.

Proposed developments outside the reservations.

Most of the new boat ramp works are designated for areas outside the current reservations on unalienated Crown lands. Subdivision J of Division 3 of the NTA will therefore not apply to or cover these works.

Subdivision K of Division 3 of the NTA addresses facilities for services to the public.

This Subdivision allows for certain facilities to be established on Crown lands or waters. These facilities include boat launching facilities, associated jetty and breakwater infrastructure.

Subdivision K requires that native title interest holders have a right to make submissions on the effect that the proposed works would have on those rights and interests and have any valid submissions addressed through a minimum six-month good faith negotiations process.

Comments

The proposals being addressed in the EES can be validly undertaken under NTA provisions subject to the relevant procedural rights under Subdivisions J and K of Division 3 of the NTA being observed prior to any works commencing.

Procedural rights would need to be extended to the existing native title determination Applicants, (the Bidwell Peoples), and to the State Representative Body, Native Title Services Victoria.

VISUAL IMPACTS

Bastion Point is a relatively undisturbed location with the existing car park and roadway effectively screened from the beach by remnant patches of native vegetation. The current turning circle is located on an elevated area of beach and has a gravel surface that is topped by windblown sand. A section of this turning circle is utilised as car parking for boat trailers and a small car park (2 to 3 cars) is located on the northern corner of the site.

The construction of a new car park and roadway will require significant vegetation removal and excavation works. However through careful planning and design, the additional visual impacts associated with these works could be mitigated through maintaining vegetation buffers, developing appropriate replanting programs and through careful consideration of type, texture and colour of materials to be used.

Breakwaters

Design variations and the use of local materials can partially mitigate visual impacts of breakwaters, however the sheer bulk and size of breakwaters proposed for Bastion Point in the Coastal Processes Study presents a much more difficult issue in relation to the mitigation of visual impacts.

The options presented following the completion of the Coastal Processes Study see the proposed introduction of break-walls varying between 2 to 3.5 metres high and up to 130 metres long. Limited details are provided in relation to the design of the proposed breakwaters and it is unclear if the walls need to be of a consistent height or whether the heights are peaks at specific locations.

However it is clear that such break-walls are likely to have significant visual impacts. A number of photo's (See Photo's 1, 2, 3 & 4) are included in this report to demonstrate the potential extent of potential impacts.

Given the tidal variation at the site, the height of exposed rock walls for a 3.5 metre wall could vary between approximately 3 and 4 metres and the exposed base, at sea level, may be up to 12 metres wide.

The Department acknowledges that given the proximity of the site to the active surf zone, breakwaters may be required to achieve a significant upgrade to the boat launching facility at Bastion Point.

However the landscape and visual values of Bastion Point, and the broader Wilderness Coast area, will be key environmental considerations for the department.

It would be difficult to assess the relative benefits of such a proposal against its extensive visual impacts, unless there is also the capacity to adequately compare its merits against those that would be achieved through lesser development options.

Accordingly it may be prudent for the East Gippsland Shire Council to consider a range of design options, including the "do-nothing" option, that may provide for variations in the level of increased ocean access whilst enabling reasonable comparison between Council preferred and non preferred options.

From the findings of the Coastal Processes Study it appears that irrespective of the location of any improved ramp, ongoing dredging will be required to maintain launch capacity.

Design Options

The recommendations arising from the Coastal Processes Study appear to be limited to those design options that would be required to achieve a launch rate of between 85 to 95%.

It is important to recognise that the launch rate is only one indicator of the actual useability of an ocean boat ramp. The extent and the frequency of the immediate and open ocean swell conditions and the likely specifications of the boats using the ramp, are some of the other factors that need to be considered in the development of design options for an improved boat ramp at Bastion Point.

If the swell conditions are such that, for the majority of times, the majority of potential users are unable to venture to sea, even though the proposed breakwater offers an 85% safe launch rate, then the scale and location of the development may be considered to be inappropriate.

By focussing on the frequency of ocean conditions that would enable the majority of likely users to venture out to sea, rather than a launch and retrieve indicator only, it may be possible to come up with a more accurate indicator of the Usage Rate of any particular boat ramp design. This is particularly important where differing design options may have similar benefits but significantly different environmental impacts.

The ocean conditions that are required for abalone industry to operate effectively (relatively calm sea's, low chop and clear waters) are likely to reflect the requirements of the majority of recreational boaters who currently launch from the existing facility.

Currently the abalone industry boats launch on approximately 50 to 60 days per annum in order to achieve their quota requirements. Anecdotal evidence suggests that the ocean and weather conditions are such that launching could take place on additional 30 to 50 days per annum if required. Using this as a guide, the Usage Rate at the current Site could be described as approximately 20 to 30% of days per annum.

Therefore in considering designs options it may be appropriate to focus on a range of options for each location.

Site 1 development options should focus on what level of development would be required to then

- (a) Achieve existing Usage Rate but
 - reduce (remove) the requirement for tractor assisted launching
- (b) Achieve a Usage Rate above 50%
- (c) Achieve a Usage Rate above 85%.

Sites 2 and 3 development options should focus on what would be required to

- (a) Achieve a Usage Rate above 25%
- (b) Achieve a Usage Rate above 50%
- (c) Achieve a Usage Rate above 85%.

The existence of the deep water channel at Site 3 means that the layout of the onshore infrastructure (ramp layout, roading etc) is unlikely to change, and redevelopment options may only need to focus on what level of breakwater design would be required to achieve the varying Useability Rates.

In addition the current launch facilities capabilities and limitations would need to be fully described and the impacts of the “do-nothing’ option must also be considered.

SUMMARY

On the basis of current information it appears that;

- redevelopment of the ramp could occur at any of the 3 nominated locations provided appropriate environmental requirements (eg vegetation offsets, cultural heritage, native title, visual etc) are satisfied.
- Locations 1 and 3 appear to offer the best options for the redevelopment of Bastion Point boat ramp.
- a range of detailed design options, focussing on varying usage rates and considering the subsequent impacts on viability, safety, economic benefits and environmental outcomes etc should be prepared for Locations 1 & 3 as part of the EES documentation.
- such a report should also include East Gippsland Shire Councils recommendations in relation to any preferred or non preferred development options.

Photo 1
Existing conditions at Bastion Point



Photo 2 (Indicative only)
A 4 metre high, 10 metre long natural rocky outcrop at Bastion Point with an outline of a cross section of the visible section of a 3.5 metre breakwater.

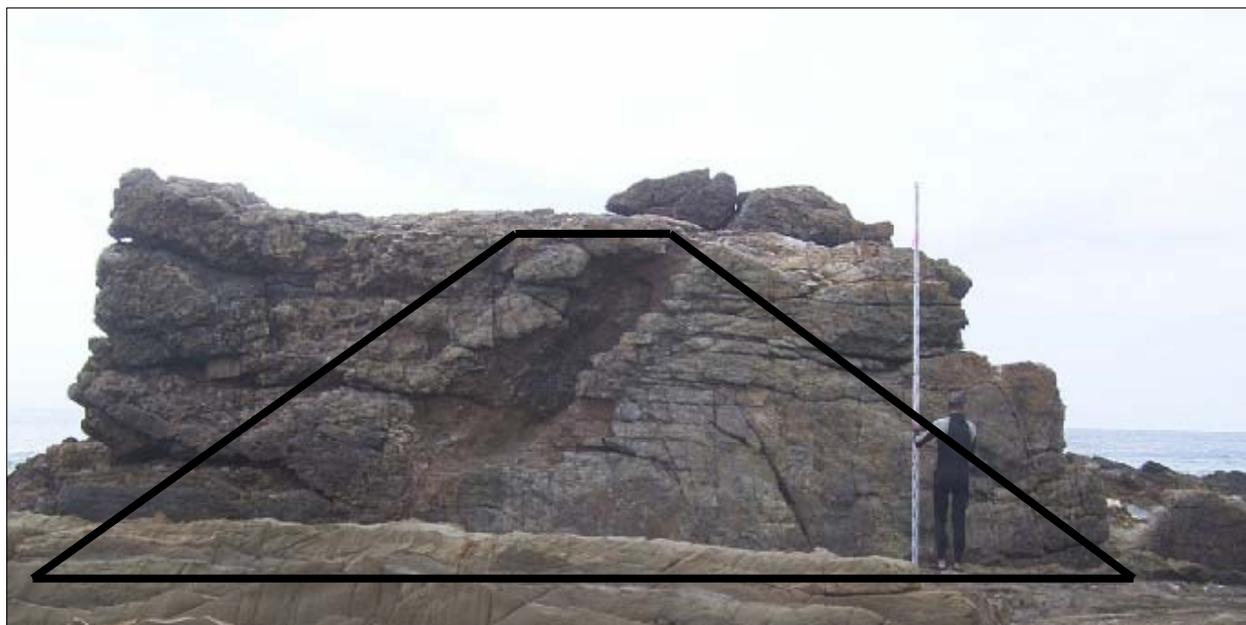


Photo 3 (indicative only)

SITE 1 - Potential visual impacts of a 2 metre break-wall at northern side of existing ramp

2m high wall
looking south



Existing Boat Ramp Area



Photo 4 (indicative only)

Site 3 - Potential visual impacts of a 3.5 metre break-wall looking towards existing ramp area



Option 3 looking N

