

Roads and Maritime Services

Stage 2 Batemans Bay Independent Assessment Scope of Works
Options Assessment for Foreshore Protection at Northern Shoreline

25 June 2019

1. Introduction

1.1 Background

The New South Wales Government has committed to investigate an engineering solution along the northern shoreline of Batemans Bay, New South Wales to protect the residents from coastal erosion. An options assessment (the Project) is being undertaken to investigate foreshore protection options that would address the risk of coastal erosion while minimising impacts to the downstream areas of the shoreline. The Options Assessment will be undertaken by GHD, building on from the Batemans Bay Independent Coastal Impact Assessment prepared in 2019.

The project areas to be considered in the study are indicatively shown in Figure 1. It includes the foreshore at Wharf Road and Surfside Beach. Potential future impacts resulting from any proposed protection works will be assessed and minimised including the areas at Cullendulla and Long Beach.

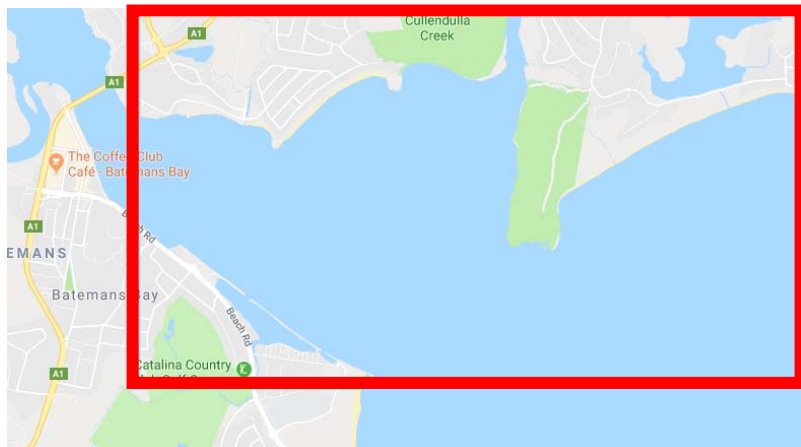


Figure 1 Project areas

Having delivered the Batemans Bay Independent Coastal Impact Assessment in 2019, GHD has been invited by Roads and Maritime Services to undertake the options assessment, as well as to provide stakeholder engagement and management services.

1.2 Scope of works

From discussion with Roads and Maritime, GHD understands that the Project is to be independent of the coastal management studies commissioned by Eurobodalla Shire Council and the Office of Environment and Heritage. The Project will not serve to replicate or revise these studies, and will instead focus on foreshore protection options for the areas indicated above. The scope of works into two major components:

- Options assessment
- Community engagement

These components are discussed in detail in the subsequent sections of this proposed scope of works.

2. GHD Methodology

2.1 Options assessment

2.1.1 Data collection and gap analysis

GHD will review data and information available and relevant for the development of foreshore protection options.

The review will include investigations undertaken by degree-qualified coastal engineers or academics/researchers on broader coastal processes in Batemans Bay, as well as submissions previously provided by the community.

2.1.2 Develop Basis of Concept Design

A Basis of Design will be prepared for Roads and Maritime's review and approval, documenting parameters relevant for option development and multi-criteria assessment (MCA), including:

- Location of the foreshore protection
- Purpose of foreshore protection
- The design life of the foreshore protection
- Design return period (magnitude of design storm event)
- Acceptable level of maintenance
- Site constraints
- Aesthetics
- Requirements for environmentally friendly design per the 2009 Office of Environment and Heritage guideline document
- Criteria and weighting to guide the MCA process

2.1.3 Numerical modelling to derive design conditions

Once a design return period has been agreed, the metocean conditions and design parameters for the foreshore protection will be determined using the built numerical models from Stage 1.

The model domain will be extended further offshore to consider wave propagation and wind-wave interaction in the Bay area; the model mesh resolution will also be refined at and around the project site in order to provide the accuracy required to inform the options development.

Outcomes of the modelling work will be the design wave and water level conditions at the sites of interest.

Following the meeting with the Project Reference Group on 14th June 2019, it is understood that the Group requested GHD to investigate the movement of sediment inside Batemans Bay and to carry out any required field works to inform the sediment movement. GHD note that the broader coastal processes in Batemans Bay were established in earlier works and research including but not limited to:

- Laurie, Montgomerie and Pettit in 1978
- Higgs and Nittim in 1988
- NSW PDW in 1989
- Patterson Britton and Partners in 1992

Findings from the above works were further evaluated and developed by many others, including:

- The estuary processes study by WBM Oceanics in 2000
- Eurobodalla Shire Coastal Hazards Scoping Study by SMEC in 2010
- Eurobodalla Coastal Hazard Assessment by UNSW WRL in 2017

GHD proposes to review these studies during the data review phase, and focus effort on developing the foreshore protection options rather than revisiting or repeating the studies.

Consequently, the existing conceptual models of coastal processes will form the basis for assessment.

2.1.4 Options development

Foreshore protection options would be developed to a conceptual level of detail suitable to allow Multi-Criteria Assessment and comparative cost estimate to be carried out.

It is envisaged that in total, the following options will be considered:

- Structural options:
 - Do nothing. A commentary on the implications of do nothing at these locations will be provided with reference to the overall Batemans Bay characteristics.
 - Revetment running parallel to the shoreline at the back of the beach with suitable toe detail for scour resilience.
 - Groynes running perpendicular to shoreline.
- Material options:
 - Armour rock
 - Geotextile sand containers

¹ <http://www.esc.nsw.gov.au/development-and-planning/considerations/coastal-and-flooding-considerations/batemans-bay-urban-creek-flood-study>

Other options such as offshore submerged breakwaters will not be investigated in the Project.

Each of the five options will be documented in a plan view schematic showing the approximate location and extent of proposed works, accompanied by a typical section showing the composition of the proposed option.

A qualitative assessment on the impacts of the options to sediment transport along the shoreline and nearby surrounding will be provided in the report. No modelling of the options is proposed during this stage of work due to the preliminary nature of options.

Environmental pathway

High-level advice on the applicable environmental planning pathway for the foreshore protection will be prepared as part of the assessment.

Interaction with the existing flood study

The options development will focus on coastal hazards generated by tides, waves, and sea level rise projections, i.e. hazards from the ocean. Overland inundation arising from groundwater, flood, and drainage are understood to have been investigated by Rhelm Consultancy on behalf of Eurobodalla Shire Council¹ and is not considered relevant to this study. As such, GHD does not propose to carry out another similar investigation on overland inundation or to validate the study. Rather, a review of the Rhelm study will be carried out to inform the options development and assess the likelihood of proposed works impacting upon flood hazards.

2.1.5 Multi-Criteria Assessment

The pros and cons of each option will be evaluated through an MCA process, based on the criteria and weighting agreed with the community and relevant stakeholders.

Criteria that will be adopted in the MCA include:

- Functionality – does the proposed option meet the performance requirement set out in the Basis of Design?
- Environmental impacts – does the proposed option likely to cause adverse impact to the surrounding environment and impede the dynamics of Batemans Bay coastal processes? Does the proposed option cause negative impact to the overland inundation identified in the Rhelm Consultancy report?
- Certainty of outcomes – with the data and information based on to develop the options, how certain is it that the proposed option will meet the performance requirement set out in the Basis of Design?
- Safety – does the proposed option pose safety hazard to users during and after the construction?
- Amenity – does the proposed option pose access issues to general beach users?
- Compliance to Coastal Management Act – with reference to the receptors the options are to protect and regarding relevant NSW coastal management guidelines and frameworks, does the options comply with the requirement set out in the Coastal Management Act?
- Cost – what is the relative order of magnitude comparative cost of the options?

At the end of the MCA, the scores for each options against the criteria will be summed up to provide an overall score. The option

with the highest score should then be considered as the ‘preferred option’ for further development in the detailed design stage.

2.1.6 Cost estimate

GHD will prepare a high-level order of magnitude (OOM) cost estimate for each option to enable comparative assessment of the options. The estimate will be based on ‘per-metre-run’ of the foreshore protection options and will consider the material supply and placement costs.

2.1.7 Reporting

The options assessment, feedback from the community and stakeholders, high-level OOM cost estimate, and MCA will be documented in an Options Assessment Report. It is anticipated that at the end of the MCA process, Roads and Maritime would nominate a preferred option.

The report will be accompanied by tables and figures where applicable to assist in presenting the option development. Up to two sketches per option will be prepared and appended to the Options Assessment Report.

The consultation report from the community engagement activity will be appended to the Options Assessment Report.

2.2 Community engagement

The Batemans Bay Bridge Project has developed a significant amount of interest in the local community resulting in GHD being engaged by Roads and Maritime to conduct the Stage 1 Independent Coastal Impact Assessment. Stage 2 work is expected to continue generating significant community interest, particularly since there is an expectation that they will be involved throughout the options assessment and subsequent engineering design.

After the project award, a Community Engagement Plan will be prepared to confirm our approach to engaging with the community, including the discussion around a Project Reference Group. For the purpose of this variation request, a Terms of Reference to forming the Project Reference Group is appended in Appendix A.

2.2.1 Information sessions

Based on the discussion with Roads and Maritime and with the key members from the community, we have allowed for the following information sessions be held at Batemans Bay throughout the project life duration:

- Undertake an initial session with the Project Reference Group to discuss the engagement plan and proposed methodology of Stage 2^[2]
- Undertake a follow-up session with the Project Reference Group after the initial session: two GHD attendees^[3]
- Hold the first session with the broader community to present the Stage 2 methodology (this to coincide with the final session of Stage 1)
- Interim session (1-1) with the Project Reference Group to discuss the Basis of Design (including criteria and weighting for MCA)
- Interim session (1-2) with the broader community to present the Basis of Design (including criteria and weighting for MCA)
- Final session (2-1) with the Project Reference Group to present the outcomes of options development
- Final session (2-2) with the broader community to present the outcomes of options development

² This session was carried out on 21st May 2019

Following the completion of each information session, GHD will prepare meeting minutes to document the outcome of the session, this includes both Reference Group minutes and sessions with the broader community. Of the sessions facing the broader community, the presentation slides used during the session will be appended to the meeting minutes.

2.2.2 Objectives of the information sessions

We anticipate that the community consultation would:

- Determine, collaboratively with the community and relevant government agencies, the location and purpose of the foreshore protection, and the scope of community involvement during this phase of work.
- Invite the community and relevant government agencies to provide their local knowledge in identifying opportunities and constraints along the foreshore protection location, for consideration in the options assessment.
- Discuss the criteria and relative weighting to be adopted in the MCA.
- Invite the Project Reference Group and the community to provide their input for consideration in developing the options. It is expected that the outcomes from the interim sessions 1-1 and 1-2 will allow GHD to progress the Project on an agreed design basis.
- Following the options assessment, information sessions (2-1 and 2-2) will be arranged to present the assessment process, considerations, foreshore protection options, and outcome of the MCA.
- For the duration of the options assessment, GHD's Engagement, Communication, and Communities team will

³ This session was carried out on 14th June 2019

continue to provide support and management to all community-related inputs/enquiries, including updates to the CEP and CM. A Consultation Report will be prepared and appended to the Options Assessment Report as part of the deliverable.

2.2.3 Other considerations

The Roads and Maritime/GHD study is not part of the Council's Coastal Management Program nor is it to replace or to undertake an independent assessment on the Coastal Hazard Assessment carried out by the Council. Instead, the Roads and Maritime/GHD study would only look at foreshore protection options for specific areas of the northern foreshore, where the options will consider findings from the Coastal Hazard Assessment if applicable.

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