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P00051_MacmastersBeachRevetmentandDetailedDesign_Final.docx

Dear Warren,

PROPOSAL TO PREPARE DETAILED DESIGN: SEAWALL REVETMENT AT SOUTHERN MACMASTERS BEACH

Background

Thank you for inviting us to provide a proposal for the above project.

I have considered the requirements for the detailed design and provide the following proposal for consideration by Central Coast Council. Due to time constraints, the proposal is necessarily brief, but I am happy to elaborate on any item within the proposal if required. While Dr David Wainwright from Salients would lead the project, we would also engage the following third parties to assist with aspects of the required work:

- Monteith & Powys, to assist with a detailed ground survey of the site to underpin detailed design;
- Doug Lord (Coastal Environment Pty Ltd), to provide peer review of coastal engineering aspects during the detailed design process; and
- Pells Sullivan Meynink (PSM), to provide a geotechnical check on the final design.

My understanding is that Council is already familiar with the work of most, if not all, of these organisations and individuals. For brevity, we have not included background information on experience or credentials. Of course, these details can be provided if required. The proposal which follows focusses on the assumed scope and methodology and a fee proposal to complete the work. Our proposal does not include consideration of the environmental permit requirements for the work, nor the preparation of a review of environmental factors.

Scope and Methodology - Background Tasks

Background Tasks 1 and 2: Inception Meeting and Site Survey

We propose that project inception would occur on-site with representatives of Council, the MacMasters Surf Life Saving Club and Salients. The objectives of this meeting would be to discuss the process and timing for the Detailed Design, and to initiate consultation activities. We have assumed that Council and the SLSC would be able to provide details for any other community based parties, or council officers that should be consulted regarding the proposal.

On the same day as the inception meeting, we would organise for Monteith and Powys to complete a survey of the entire site, to a standard suitable as a basis for detailed design.

Background Task 3: Consultation

We expect there would be a need to consult with a variety of state government departments, divisions within council and community groups. The purpose of the consultation would be ensuring stakeholder concerns regarding the design are understood. For example, decisions need to be made regarding (i) retention of mature foreshore trees; and (ii) whether additional access stairs across the revetment are required. Our proposal does not include an arborists assessment of existing trees at the crest of the embankment.

For our base proposal, we have assumed that the seawall design would comprise a continuous rock for the full length (around 110m) of foreshore between the boat ramp fronting the SLSC building southwards, to beyond the pool at the southern end of MacMasters Beach. Inclusion of additional access ways, or the incorporation of tree retaining structures into the revetment, for example, would require additional input from geotechnical and/or structural engineers and a nominal amount of extra drafting effort. Our fee proposal provides indicative amounts for these items, but these amounts may vary depending on what is required in the final design. These requirements will not be clear until after consultation and they have been included as "optional" extras in our fee proposal.

The existing conceptual design report provides enough detail to complete the consultation task. In total, we have assumed that we would need to contact up to 10 different individuals, and that the contact would include an initial telephone call with follow up email correspondence asking for feedback on the proposed revetment, including any specific concerns or requirements.

Scope and Methodology - Detailed Design and Documentation

Our proposal assumes that a parallel environmental assessment would be undertaken (by others) and that the outcomes of that environmental assessment would be available to inform the detailed design.

Detailed Design Task 1: Review sources of Rock & Availability

The nature of available rock for use in revetment construction will affect several aspects of design including the balance between armourstone size and slope, the resulting footprint of the revetment, total tonnage and cost. Local sources of rock would be investigated in terms of available quantities and quality. To assist with this assessment, we have assumed that records obtained relating to recent revetment works by Council, such as the protective works at southern Avoca Beach, would be provided to us for review. We have also allowed for contact of a few local suppliers to confirm rock availability and quality.

Detailed Design Task 2: Safety in Design Considerations

A safety in design process would be adopted to address designer's responsibilities under the NSW *Work Health and Safety Act 2011* and the associated *Work Health and Safety Regulation, 2011*. The process outlined by NSW WorkCover's Code of Practice for the Safe Design of Structures would be followed. The outcomes of that process, which would include a focus on promoting safe construction practices, would be incorporated into the design drawings and specification.

Detailed Design Task 3: Design

Considering the availability of rock (determined in *Detailed Design Task 1*) and design conditions determined as part of modelling completed during conceptual design, a variety of revetment cross sections would be developed and sketched. These sections would be tested during the drafting process, to calculate rock volumes and structural footprint extents.

Detailed Design Task 4: Internal Design Review

The designed cross sections, and the underlying calculations would be subject to peer review. Salients would engage the services of Mr Doug Lord, from Coastal Environment Pty Ltd to undertake that review.

Detailed Design Task 5: Prepare Draft Drawings

Geometric design would be completed using the AutoCAD Civil 3d Package. The design cross sections would be modelled in detail to calculate volumes and footprints for each option. These factors would be considered, along with the pros and cons of varied sizes of primary armour (in terms of constructability) to make a final decision about the cross section to be adopted. The revetment design, including cross sections, alignment and set out coordinates would then be detailed within the draft drawings.

Detailed Design Task 6: Geotechnical Review

Salients would engage the services of Pells Sullivan Meynink (PSM) to undertake geotechnical stability assessment of the final design. Steven Pells, from PSM was involved in geotechnical investigations and assessment during the conceptual design stage and would oversee these analyses.

Detailed Design Task 7: Technical Specification

The technical specification would be prepared as a series of “notes” drawings covering issues such as site access, construction methodology, environmental conditions (e.g. tide levels), need for erosion and sediment control, technical rock specification, excavation and earthworks, geotextile installation and survey. Our proposal does not include the preparation and integration of commercial contract clauses with our technical specification.

Detailed Design Task 8: Revised Cost Estimate

A revised cost estimate would be prepared, based on the estimate developed during conceptual design. However, the cost estimate would utilise the final volumes calculated during drafting and modelling in AutoCAD, and updated using rates for rock supply and delivery determined during investigations as part of the detailed design. Minor items associated with environmental controls and any other requirements regarding the construction methodology would also be included, such that the cost estimate reflects the draft drawings and technical specification.

We advise that the size of the project (<\$1M) is such that the cost of construction may vary substantially (+/- 30%) from our revised estimate. It is our experience that there can be significant variation in the tendered prices received depending on how busy the local construction market is at a given time. A quantity surveyor with local experience could be engaged to peer review or improve the estimate. However, it is our experience that the effort required for a project of this size is unlikely to be justified.

Detailed Design Task 9: Prepare Draft Design Report

The draft design report would be prepared to accompany the draft design drawings. This would compile the outcomes of the design process, including demonstrating the overall process, selection of rock, any safety considerations, selection of a cross section and cost estimate.

The draft design report and drawings would be submitted to council for review.

Detailed Design Task 10: Finalisation

Following submission of the draft design report and drawings to Council, our timeline allows four weeks for review. We have assumed that Council would compile a single list of comments from all reviewers, to enable us to consolidate, correct and finalise the drawings and design report.

Background Task 4: Additional Meetings

We would maintain regular contact, via email and telephone with Council. Our proposal includes attendance at two additional meetings, including the preparation of a short, (~ 15 minute) presentation. We have assumed that these meetings would be held either at Central Coast Council premises, or on site at the surf lifesaving club.

Provisional Task: Design and Detailing of Additional Access and/or Tree Retaining Structures

As noted under *Background Task 3*, the need for additional access ways, or the incorporation of tree retaining structures into the revetment is uncertain at the present time. An indicative amount for engaging a geotechnical and/or structural engineer to assist with these tasks, and to cover the additional detailing, technical specification and drafting effort is indicated in the fee proposal, but not included in our base fee.

Fee Proposal

We propose to undertake the work outlined above for a fee of **\$41,582** (exclusive of GST, \$45,740.20 if GST is included). A breakdown of the fee into its component parts is provided in Table 1.

In addition to the base fee outlined in Table 1, some additional work may be required if specialised retaining structures need to be incorporated into the revetment. An indicative fee for this work is \$14,520 (exclusive of GST), however this may vary depending on the nature of the structure that needs to be incorporated into the design.

Table 1 Fee Breakdown

Task	Fee
Background Task 1: Study Initiation	\$ 1,030.00
Background Task 2: Site Survey	\$ 3,902.00
Background Task 3: Consultation	\$ 2,380.00
Detailed Design Task 1: Review of Rock Sources and Testing Data	\$ 1,080.00
Detailed Design Task 2: Safety in Design Considerations	\$ 1,080.00
Detailed Design Task 3: Design	\$ 1,350.00
Detailed Design Task 4: Internal Design Review	\$ 1,080.00
Detailed Design Task 5: Prepare Draft Drawings	\$ 15,100.00
Detailed Design Task 6: Geotechnical Review	\$ 5,680.00
Detailed Design Task 7: Technical Specification	\$ 1,800.00
Detailed Design Task 8: Revised Cost Estimate	\$ 720.00
Detailed Design Task 9: Draft Design Report	\$ 1,800.00
Detailed Design Task 10: Finalisation	\$ 2,700.00
Background Task 4: Additional Meetings	\$ 1,880.00
Total (GST Exclusive)	\$ 41,582.00
Provisional Task: Additional Access and Retaining Structure Design (Indicative Fee)	\$ 14,520.00

Beyond the services outlined above, we can also provide support during tender evaluation and construction. These services could involve review of tender prices and proposals and/or inspection of constructed works (and certification reporting) at various stages during construction. We would undertake additional work on a time and expenses basis at the following hourly rates:

- Dr David Wainwright \$200/hr;

- Doug Lord \$180/hr.

Proposed Timeline

An indicative timeline for completion of the work is presented in Figure 1.

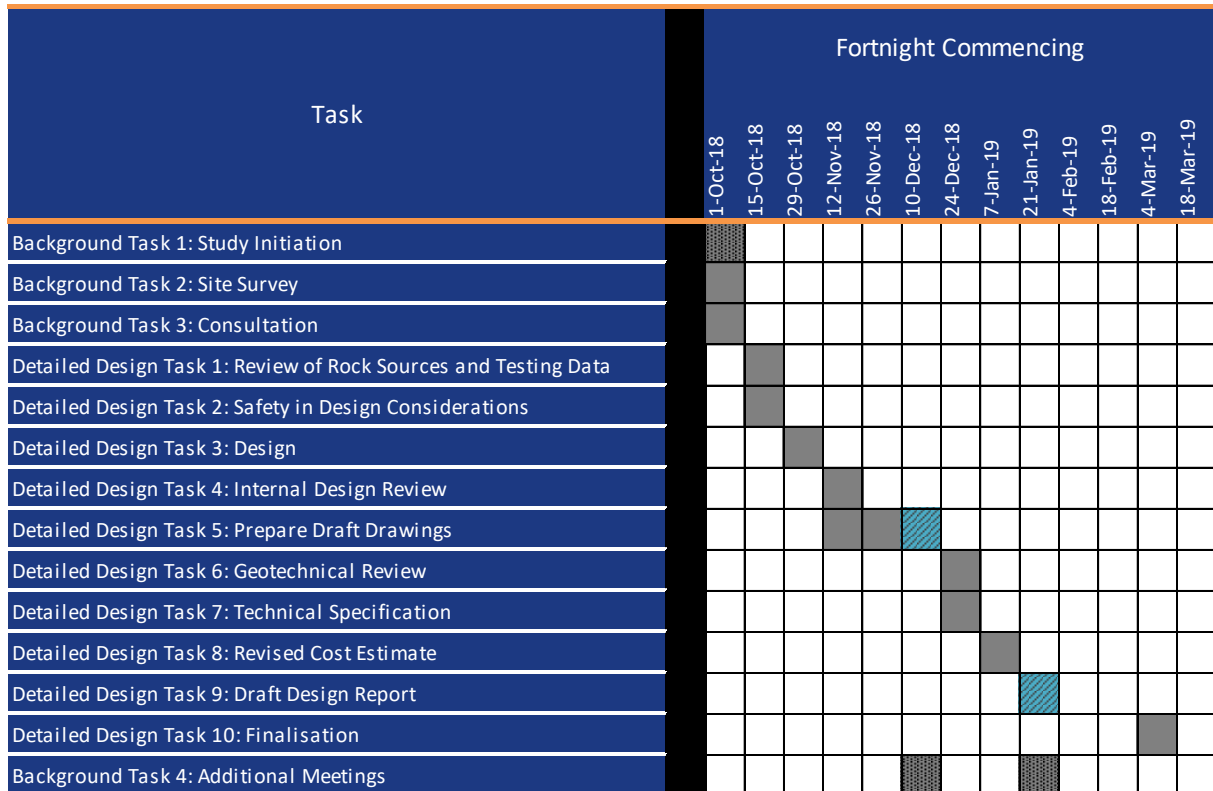


Figure 1 Indicative Timeline

We advise that proposal is valid for six weeks from the date at the top of this letter.

I trust that this proposal meets your requirements. Please contact me to discuss, or to confirm whether you wish to proceed. My mobile number is 0497795174.

Yours sincerely,

Dr David Wainwright
 Director
 Salients Pty Ltd.