

7. OCEAN OUTFALL PIPELINE

General Manager responsible:	General Manager City Environment
Officer responsible:	City Water & Waste Manager
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PURPOSE OF REPORT

1. The purpose of this Wastewater Ocean Outfall Project report is to:
 - (a) Update the Council on the current state of the project with respect to:
 - (i) The resource consent process
 - (ii) The design process
 - (iii) The project programme
 - (b) Seek approval from the Council to change the procurement strategy from the Design and Build strategy previously resolved by the Council to a traditional design tender and construct methodology. This change in procurement strategy has resulted from an extensive review of the project risk register and development of conceptual designs

EXECUTIVE SUMMARY

Status of Progress:

Resource Consent(s)

2. The consent application to construct, maintain, and operate an ocean outfall pipeline for treated wastewater, was lodged on 17 December 2004 (in accordance with the Estuary Discharge Consent condition). A submission period was allowed which was double the statutory period. 80 submissions were received. Approximately 50% supported and 50% opposed the application.
3. The ocean outfall consent hearing was held over a three week period and concluded on 24 June 2005. The consent sought would allow the Council to proceed with either dig-and-lay or tunnelling construction methods.
4. There was generally very good support from the submitters for the Council's application and there have been no requests for further information from the Commissioners at this time. A decision is anticipated in early October 2005 (on programme).
5. The main issues that arose during the hearing, related to aspects of the proposed consent conditions including:
 - Sediment control issues relating to the dig & lay construction method for the Estuary crossing.
 - Construction methodology and associated potential effects on the public and/or recreational users for the Estuary, South Brighton Park, Jellicoe Street and beach sections affected by laying of the pipeline, (eg noise, vibration, traffic, safety, disruption along Jellicoe Street and disruption to yachting and other recreational activities on the Estuary).
 - No significant 'new' issues were identified that were not already addressed in the AEE.

Design Process

6. Conceptual hydraulic design for the pipeline is substantially complete, and concept design is now underway for the pump station. The concept designs are based on an ocean outfall pipeline discharging 3 km offshore, and include hydraulic profiles that allow for either:
 - Dig & Lay/Float & Sink; or
 - Micro tunnelling

7. The intention is to carry both design options forward through detailed design into the tender phase for both the Ocean Outfall Pipeline and Pump Station, to confirm the true market cost for each.

Project Programme

8. The Ocean Outfall Project remains on programme relative to the key dates listed below:
 - ROI Process & Tenderer Selection end October 2005
 - Issue Tender Documents for Pipeline and Pump Station end January 2006
 - Award Contract(s) end May 2006
 - Start on Site September 2006
 - Complete & Commission Ocean Outfall September 2008
9. The programme above assumes that the consent application is not subject to appeal. Any appeal process could delay the project up to one year. The ocean outfall must be commissioned by September 2009.

Contract Procurement Strategy

10. The previous contract procurement strategy is outlined in paragraphs 18-20 below. The strategy was based on the pump station and pipeline being constructed under a single design-build contract (ie the successful tenderer designs and builds the facilities).
11. The proposed recommendation to the Council is to vary the contract procurement strategy to allow two contracts to be tendered and to adopt a more traditional tender (design-tender-construct) approach for both the ocean outfall pipeline and the pump station. A mechanism will be incorporated in the tender process such that the two contracts can be combined into one contract, if either:
 - One contractor tenders for and is successful in winning each contract; or
 - Different contractors are successful on each contract but the pump station contract becomes a nominated subcontract to the main pipeline contract.

FINANCIAL AND LEGAL CONSIDERATIONS

12. Two preferred hydraulic design options have been developed. Each design will have different capital and operating costs. The cost of each tendered solution will be evaluated on a whole of life cost basis to ensure operational costs of the different options are correctly accounted for in the decision making process.
13. Tendering the two design options under a traditional contract approach will provide better control over the quality of the physical solution (because design control remains with the Council and not the contractor). The traditional contract approach can also reduce the Council's exposure to contract variations.
14. Splitting the project into two separate contracts is not expected to impact adversely on the total project cost. The contracting resources for the construction of the pump station are different to those required for the pipeline and marine outfall work.
15. The overall costs for professional design and project management fees are not expected to vary significantly. However the source of the costs is altered with the design and associated costs being the responsibility of the Council.

16. One of the primary reasons for revising the contract procurement strategy has been to remove the potential conflict of interest which could arise from having a Council Unit (City Solutions) integrated into the contractor's design and construct team. The risk review process highlighted commercial risks in having Council staff working as both the client and contractor (ie part of the design and build team).
17. Under the traditional design tender and construct strategy, City Solutions' engagement is retained direct to the Council for the design and construction management of the pump station. City Solutions have this work programmed as part of their 2005/06 capital works programme.

STAFF RECOMMENDATION

It is recommended that the Council:

- (a) Note the progress to date with the Ocean Outfall Project.
- (b) Rescind the resolution of 27 May 2004.
- (c) Grant approval for the Ocean Outfall Pump Station and Pipeline components to be tendered under two separate traditional (design-tender-construct) contracts with the option for staff to later combine these two contracts into a single contract if commercially advantageous to the Council.
- (d) Note that officers will finalise the detailed design of the ocean outfall pump station and pipeline based on two hydraulic design profiles. One hydraulic design shall be suitable for micro-tunnelling and the other shall be suitable for dig and lay methodologies. Both detailed designs shall be fully designed by a Council engaged consultant prior to going to tender.

BACKGROUND ON PREVIOUS PROPOSED STRATEGY

Design Tendering and Contract Methodology

19. A review of a number of tendering and contracting options has been undertaken. This review (see *Technical Briefing Paper*) recommends the most beneficial tendering and contracting option for the Christchurch City Council to achieve the ocean outfall is to:

- (a) Have a single contract for the whole works.
- (b) Implement the pipeline component (estuary, landline across the Southshore spit and along Jellicoe Street, and submarine outfall) as a design and build contract.
- (c) Implement the pumping station component (including UV disinfection if required) based on a design completed by the Christchurch City Council (and their consultants), and with the City Solutions design team included within the construction contract ((b) above).

Process for Selection of Contractor

20. A strategy for purchasing the services above be developed which will include the following components:

Item	Timing
(a) Advertising this year for Request for Information (RFI). This will allow the Council to be aware of potential options for construction of the outfall and the preparation of the AEE can therefore include the widest range of likely construction options for consenting purposes.	June 2004
(b) Selection process and appointment of Project Manager for contract matters	October/November 2004
(c) After completion of the preliminary AEE, develop a tendering shortlist via a formal Registration of Interest (ROI) process for the design and construction. Potential contractors will have a weighted attribute assessment to qualify for tendering.	<ul style="list-style-type: none">▪ February 2005 if no appeals appear likely to resource consent process.▪ Later in 2005 if appeals eventuate (to be evaluated later)
(d) Issue tender documents for a design build of the pipeline, and construction of the pump station to pre-qualified tenderers as a single contract. Documents will take account of the possible timing for the resource consent, and will promote local input combined with overseas expertise.	September 2005 based on no appeals to resource consent process.
(e) Receipt of bids, evaluation of tenders and award of contract.	March 2006 based on no appeals.
(f) Contract administration.	Ongoing

Resolution of Council meeting 27 May 2004

That the Council endorse the above proposed methodology and process for the Ocean Outfall Pipeline.

ASSESSMENT OF OPTIONS

21. The procurement options for delivery of the Ocean Outfall Project are to:

- (a) Maintain the status quo for a single design-build contract procurement strategy; or
- (b) Adopt the recommended strategy for two separate contracts for the ocean outfall pipeline and pump station utilising a traditional (design-tender-construct) contract procurement strategy for each.

22. Several risk workshops have been carried out over the last three to four months (including an external peer review by a contract specialist from international consulting company Montgomery Watson Harza). The workshops identified the risks and advantages associated with the previous contract procurement strategy, as well as analysing the risks relative to alternative procurement strategies. This process, in parallel with development of the conceptual hydraulic design, has led to the recommendation to alter the procurement strategy.
23. The primary drivers in recommending an alteration to the initial procurement strategy are:
 - **Request For Information (RFI)** process carried out last year identified contractors' likely construction methods. This RFI information reduced the onus on the tender process to maintain flexibility and scope for construction innovation (which was a prime reason for adopting a design-build contract).
 - **Concept Hydraulic Design** - Work completed to date has narrowed down the potential range of likely hydraulic solutions to two options. The concept design process also reduced the need to maintain design flexibility with respect to alternative hydraulic design solutions.
 - **AEE & Resource Consent Process** - The AEE lodged by the Council was purposely tailored to maintain flexibility for alternative construction methodologies (dig and lay, float and sink or tunnelling). The AEE identified the potential issues and constraints associated with the differing construction methods and sought consents for these different methodologies.
 - **Interface Issues** - Interface issues between the pump station and pipeline in terms of design, construction, programme, and operational performance, have been identified to a point that these two components are believed to be manageable under two separate contracts.
 - **Construction Capabilities** - The equipment and expertise required for the construction of the pipelines and pump station are different. Construction of the pump station lends itself to a local civil construction/building works contractor, whereas construction of the pipeline, particularly the ocean outfall section, lends itself to a specialist dredging/pipelaying or tunnelling contractor (likely overseas contractor).
 - **Novation of City Solutions** - Novation of City Solutions to a design-build contractor's organisation (as originally proposed) presents administrative and potential legal issues. The original proposal of novation could have resulted in litigious issues between the Council and contractor coming back to the Council via City Solutions involvement. The risks associated with novation were believed to be too great relative to any benefits that were perceived previously with a single Design-Build contract.

PREFERRED OPTION

24. That the Ocean Outfall Pump Station and Pipeline components be tendered under two separate traditional (design-tender-construct) contracts with the option for these two contracts being combined into a single contract if commercially beneficial to the Council. Responsibility for design of the pump station and pipeline will rest with Council engaged consultants (City Solutions for the pump station).
25. That two detailed hydraulic design options be developed for the ocean outfall pump station and pipeline. One hydraulic design shall be based on dig and lay and the other on micro-tunnelling construction methodologies.
26. The tender short listing process will be similar to that previously proposed. Tenderers will be given detailed design information at tender time on which to price their proposals. The tender assessment process will utilise a weighted attributes method and costs shall be evaluated on a whole of life basis.