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Report to Utility Services Committee
from Kate Zwartz, Engineer, Engineering Consultancy Group

Contract No. 1210 : OK Main Refurbishment - Randwick to Rahui: Tender Acceptance

1. Purpose

To obtain approval to accept a tender for Contract No. 1210 for refurbishing the Orongorongo-Karori Main along the Petone Foreshore from Randwick Pump Station to the connection to the Rahui Reservoir rising main.

2. Exclusion of the Public

Grounds for exclusion of the public under section 48(1) of the Local Government Official information and Meetings Act 1987 are:

That the public conduct of the whole or relevant part of the proceedings of the meeting would be likely to result in the disclosure of information for which good reason for withholding would exist, i.e. commercial negotiations.

3. Background

The Orongorongo-Karori pipeline was constructed in 1925 from bitumen coated and lined "lockbar" steel pipe. The pipe was decommissioned in 1993. The section from Randwick to Rahui was flushed and recommissioned in July 1999, to supply unfluoridated, unchlorinated water to Rahui Reservoir from Waterloo Water Treatment Plant.

The proposed refurbishment of the section from Randwick Pump Station to Rahui will improve the quality of water being supplied to Petone. It will also lengthen the life of the asset.

4. Construction Options

Two options were detailed in the tender documents, in order to widen the pool of contractors competing for the work. Both options are suitable for the refurbishment of this pipeline. These options were also provided for the rehabilitation of the OK main between Thorndon and Karori in October 2000.

Option 1 is to line the pipe with a 12 mm thick layer of cement mortar. This method was used successfully on the same pipeline in Wainuiomata in 1994 and at Thorndon in 2000/2001. The mortar is applied centrifugally, by a spraying head, which runs on wheels down the centre of the pipeline. The existing Gibault type joints are retained.

Option 2 is to insert a polyethylene (PE) pipe within the steel pipe, and fill the gap around the PE pipe with cementitious grout. Investigations have shown that the steel pipe wall is in good condition and will carry the stresses imposed by the water pressure. Therefore a thin walled PE pipe has been designed, with a wall thickness of about 10 mm.

The PE pipe will have a smaller diameter than the steel main; 400 mm outside diameter, in a steel shell of 533 mm internal diameter. This reduces the capacity of the pipeline. The reduction in capacity is not significant as relatively low flows are required to supply Rahui Reservoir. The connection from Korokoro to Rahui is only 300 mm diameter.

The options offered in this Contract were successful in attracting a good range of tender prices.

5. Tenders Received

Tenders closed on 3 September 2001. Four tenders were received; two for Option 1 (Cement Mortar Lining) and two for Option 2 (PE Slip Lining).

Tender prices received were:

Tenderer	Price (Option 1)	Price (Option 2)
CM Contracting Ltd	\$ 996,293.00	
Flowmotion Pipeline Solutions Ltd	\$1,592,936.05	
Construction Techniques Ltd		\$ 974,174.00
E N Ramsbottom Ltd		\$1,348,831.00
The Engineer's Estimates were:	\$ 848,550.00	\$1,027,350.00

All prices exclude GST.

Construction Techniques Ltd indicated that further savings could be made by modifying the jointing method used at the lining access pits. This modification can be considered if their tender is accepted.

6. Analysis of Tenders

The tenders were evaluated using a weighted attribute system. In addition to the contractors' attributes, the expected performance and life of the materials for the two options was considered.

A \$100,000 cost difference between Options 1 and 2 has been assessed as reflecting the perceived advantage of a PE liner over the cement mortar. This reflects a higher life expectancy and improved performance in an earthquake, where the continuous, flexible PE pipe has an advantage over rigid, Gibault jointed cement lined steel. Option 2 also does not require the existing pipeline to be tested for leaks prior to the start of the Contract.

The differential (of \$100,000) was subtracted from the Option 2 prices for the purpose of tender evaluation, to allow for the different performance and durability characteristics. These adjusted prices were then evaluated with the non-price attributes.

Weighted Attributes

	Rating	Ranking
Construction Techniques Ltd	74.4	1
CM Contracting Ltd	70.2	2
E N Ramsbottom Ltd	60.0	3
Flowmotion Pipeline Solutions Ltd	45.4	4

7. Discussion on the Proposed Contractor

Construction Techniques Ltd is a well-resourced specialist rehabilitation company. They have not previously undertaken this type of Contract directly with the Council. However, they have displayed experience and resources in other major rehabilitation projects.

The proposed contractor put forward an alternative pipe jointing detail in the covering letter. This will be discussed with the tenderer after the Contract is awarded, as it offers some cost savings.

As a result of their specialist experience, the proposed contractor can offer a different method for grouting the PE into the steel main. This could eliminate some work and provide a satisfactory solution.

The Contract Documents allow the tenderers to nominate a preferred start date. Construction Techniques propose 21 January 2002. This is acceptable and will allow adequate time for planning and mobilisation.

Construction Techniques Ltd is considered suitable to carry out this Contract.

8. Finance

The 2001/2002 Annual Plan includes a budget of \$1,250,000 for relining the Randwick to Rahui main.

In addition to the Contract Sum, costs for the supply of materials, design, supervision, and contract administration will be incurred.

• Valves	\$17,500.00
• Other materials	\$9,000.00
• Engineering design & supervision	<u>\$70,000.00</u>
Total	\$96,500.00

The total estimated project cost for 2001/2002 is \$1,070,674.00, which falls within the allocated budget.

9. Environmental Considerations

The works will have a minor impact on the environment. The water used to clean the line, and waste material from the cleaning and lining operations, will have to be disposed of without contaminating the stormwater system or any natural waterways. The Tenderer submitted an Environmental Management Plan and proposes to install appropriate sediment controls.

Care will have to be taken at all excavation sites to avoid damage to other services, trees, and Hutt City Council's property. Disruption to traffic, pedestrians, and commercial premises will have to be notified (see Communication).

10. Communication

Rahui Reservoir will be supplied with chlorinated and fluoridated water through the 1050 mm main along the Petone Foreshore for the duration of the Contract.

Public notification of work will be necessary, both before and during the construction. Untreated water will be available at the public Gear Island tap in Halford Place.

Articles and advertisements in local papers, as well as a letter drop along the route of the Contract, are proposed.

11. Recommendations

- (1) *That the tender for Contract No. 1210 received from Construction Techniques Ltd for the sum of \$974,174.00 be accepted.*
- (2) *That the expenditure of an additional 10 percent of the accepted Contract Sum be approved to allow for unforeseen circumstances.*

- (3) *That the Common Seal of the Wellington Regional Council be affixed to the necessary documents of Contract No. 1210.*

Report prepared by:

Approved for submission:

KATE ZWARTZ
Engineer

JOHN MORRISON
Engineering Consultancy Manager

MURRAY KENNEDY
Strategy and Asset Manager

DAVID BENHAM
Divisional Manager, Utility Services