

## Notice of Meeting:

I hereby give notice that an ordinary Meeting of the Finance Committee will be held on:

**Date:** Tuesday 23 May 2017  
**Time:** 9.30am  
**Meeting Room:** Council Chamber  
**Venue:** Municipal Building, Garden Place, Hamilton

Richard Briggs  
Chief Executive

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## Finance Committee OPEN LATE AGENDA

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### Membership

Chairperson	Cr G Mallett
Deputy Chairperson	Cr R Pascoe
Members	Mayor A King Deputy Mayor M Gallagher Cr M Bunting Cr J R Casson Cr S Henry Cr D Macpherson Cr A O'Leary Cr P Southgate Cr G Taylor Cr L Tooman Cr P Yeung

**Quorum:** A majority of members (including vacancies)

**Meeting Frequency:** Six weekly

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Becca Brooke  
Governance Team Leader

**18 May 2017**

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**Committee:** Finance Committee

**Date:** 23 May 2017

**Report Name:** Eastern Bulk Main Subsidence  
Remedial Works

**Author:** Maire Porter

<b>Report Status</b>	<i>Open</i>
<b>Strategy, Policy or Plan context</b>	<i>Hamilton Plan Outstanding Infrastructure</i>
<b>Financial status</b>	<i>There is \$1,880,000 budget allocated (approved 6 April 2017) <u>Additional</u> \$2,760,000 now sought for a total required budget of \$4,640,000</i>
<b>Assessment of significance</b>	<i>Having regard to the decision making provisions in the LGA 2002 and Council's Significance Policy, a decision in accordance with the recommendations is not considered to have a high degree of significance</i>

## 1. Purpose of the Report

2. To seek additional funding approval for the remedial works associated with the Eastern Bulk Water Main Subsidence event that occurred on 2 February 2017.
3. Council approval is needed because the additional scope of works are unfunded and outside the Chief Executive's delegation.

## 4. Executive Summary

5. A subsidence event that occurred on the Waikato River bank in the vicinity of Hamilton Gardens in early February 2017 resulted in significant risk to critical council water assets.
6. Urgent procurement of a physical works contractor was necessary to undertake the initial stabilising work and to continue with more permanent works.
7. Council received a report on 6 April 2017 and gave retrospective approval for urgent unfunded remedial works and to entering into a contract with Brian Perry Civil to undertake permanent physical works.
8. In parallel to the emergency stabilisation works getting underway, additional investigations were undertaken to assess and determine suitable design solutions.
9. The entire situation has been dynamic with several high river events threatening the stability of the pipe and further eroding the river bank.
10. Continued erosion of the subsided area caused by weather events and further investigation and assessment of options has indicated that the cost estimations detailed within the April 2017 report were optimistic being based on a rock filling solution and that an alternative soil-nailing solution is now the required solution.

11. Staff are now seeking an increase to the already approved funding to remediate and stabilise the vulnerable area, including increasing the existing Approved Contract Sum for Contract 16275 to complete the scope of the long term bank stabilisation.

### **Recommendations from Management**

That the Finance Committee

- a) receives the report;
- b) approves a revised project budget of \$4,640,000 to manage remedial works; and
- c) approves a revised approved contract sum for Contract 16275 of \$3,240,000, made up of a construction estimate of \$2,700,000 plus a 20% contingency of \$540,000

### **12. Attachments**

13. There are no attachments for this report.

### **14. Background**

15. A subsidence event that occurred on the Waikato River bank in the vicinity of Hamilton Gardens in early February 2017 resulted in significant risk to critical council water assets (Eastern Bulk Main pipes).
16. Following the subsidence event, Staff acted under 5.3.8 of Councils Procurement policy which allowed for Emergency procurement with retrospective approval.
17. Brian Perry Civil were engaged to undertake emergency stabilisation works, and assist Council with their operational response.
18. Council received a report on 6 April 2017 and gave retrospective approval for urgent unfunded remedial works, the majority of which would be completed under contract by Brian Perry Civil (BPC).
19. Council were advised in the report on 6 April 2017 that due to the emergency nature of the works being undertaken and environmental factors including river levels and weather events, there was a risk of additional cost and time delays, which has proved to be the case.
20. The contract has been proceeding with first response works while additional investigations were undertaken to determine suitable design situations.
21. The entire situation has been dynamic with several high river events threatening the stability of the pipe and further eroding the river bank. The high risk to the City water supply network remains.

### **22. Key Issues**

#### **23. Review Of Initial Proposed Solution**

24. Rock filling was initially proposed as the preferred remedial solution for this site and considered a cost effective solution and often used to mitigate erosion in a wide range of situations.

25. The 6 April 2017 report was brought to Council prior to having full understanding of all of the factors relating to this issue as it was necessary to have Council retrospective approval at the earliest opportunity. At that time, the full extent of what was required to stabilize the failed river bank and to provide an appropriate level of protection for the remaining life of the bulk water mains was not clear.
26. As a result, the cost estimations within the 6 April 2017 Council report were optimistic and predominantly based on a rock filling methodology. Further assessment has indicated that this method would now be unsuitable.
27. The assessment identified that the level of support needed around the bulk water mains resulted in larger rock filling extents than other regular applications, and would have extended almost halfway into the Waikato River. Along with navigational hazards, this would significantly alter the riverbed dynamics which are very sensitive and are already closely monitored for degradation. As a result this remedial option had to be discounted.

### **28. Alternative Remedial Solutions**

29. In addition to the immediate risks of securing water supply, and in the period since the April 2017 report, a range of options for long term remedial works were more thoroughly assessed.
  - Relocation of the eastern Bulk Mains
  - Provision of a reduced level of Bulk Main protection
  - Reliance on operational methodology to manage risk
  - Use of Soil Nailing methodology
30. Careful consideration was given to potentially relocating the two bulk water main pipes into a different location altogether. While this has merit, the need still exists to stabilize the river bank and protect future erosion from damage to the Hamilton Gardens site and so when combined with significant relocation costs and the significant risks until relocation could be completed, this option was also discounted.
31. Options to provide a lesser degree of protection, for example providing no seismic protection were also considered, however this would be inconsistent with Councils approach to protecting infrastructure of this significance.
32. Relying on existing projects currently underway that will add significant resilience into the city's water network. These include duplication of the Hamilton South reservoir supply mains, and the soon to be completed Rototuna reservoir. When these assets are operational they will provide an increased level of operational resilience to a range of emergency situations, however do not sufficiently reduce Councils risk to continued water supply to the east of the city should these Eastern Bulk Mains fail.

### **33. Preferred Permanent Remedial Solution**

34. There is now confidence that Soil Nailing presents the best value for money over time to manage risk to an acceptable levels. The life span of the remedial works is designed to match that of the twin bulk water pipes under the river and now also includes seismic protection.
35. Soil nailing can be constructed around the existing infrastructure with minimum interference. It will stabilize the bank sufficiently to provide support and protection over the life of the assets and can be implemented right now to mitigate the immediate risk of pipe failure.
36. BPC have provided input into the design and the works now proposed are well within their skills and ability to deliver. In an effort of best manage risk, staff have instructed Brian Perry Civil to begin works under existing approvals so to take advantage of the remaining fine weather ahead of winter months while we progress with seeking increased project budget.

**37. Event Investigation and Insurance Claim**

- 38. Since the February 2017 subsidence event staff have been collating relevant information to support an overall independent assessment of the cause of the event.
- 39. Aecom have been engaged to complete the investigation into the root cause with the outcome of their investigation due in late June 2017. Copies of the investigation report will be made available to our insurance agents to allow a determination on insurance policy triggers.
- 40. Crawford & Company have been appointed as the loss adjuster by our Principal insurer, AIG Insurance Ltd, on a without prejudice basis. At this stage they will be gathering information and documentation regarding the bulk main matter and reporting to AIG for their consideration and instruction.
- 41. Councils infrastructure and business interruption insurance programme for Waters and Hamilton Gardens is currently being considered and a determination will be made after the triggers against either insurance programme are identified based on the findings from the event cause investigation.

**42. Status of Works**

- 43. Works have progressed to the point where we believe the slip is secure with a temporary concrete facing in place along the entire slip face.
- 44. High river levels still continue to pose risk and works are progressing as quickly as possible, when environmental conditions allow.
- 45. This drilling of the soil nails into the slip face is currently underway, however are very sensitive to weather and River levels and so the risks remain high, but at this stage is manageable.

**46. Financial and Resourcing Implications**

- 47. An updated estimated project cost associated with managing the remedial works is summarised in the table below

<b>Eastern Bulk Main Subsidence Remedial Works</b>			
	<b>2016/17 and 2017/18</b>		<b>Future</b>
	<b>Costs incurred or committed</b>	<b>Estimated Total Costs</b>	<b>Estimated Total Costs</b>
<b>Emergency Remedial Works</b>			
Emergency Response	\$90,000	\$110,000	
Project Management	\$60,000	\$230,000	
Consultancy & Design	\$90,000	\$230,000	
Contract 16275 - Eastern Trunk Main Slip Remedial (Physical Works)	\$450,000	\$3,240,000	
Investigation	\$7,000	\$30,000	
Non-emergency works remediation works (including Hamilton Gardens Water intake and stormwater diversion)			\$840,000
<b>Total</b>	<b>\$697,000</b>	<b>\$3,800,000</b>	<b>\$840,000</b>
			<b>\$4,640,000</b>

48. The estimated cash flow associated with this project is summarised in the following table

<b>Eastern Bulk Main Subsidence Remedial Works Cash flow (\$M)</b>			
<b>Expenditure</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2017/18 or later</b>
Capital (CAPEX)	\$1.87M	\$1.84M	\$0.80M
Operational (OPEX)	\$0.13M		

49. There is no allocated capital funding for the current proposed works under this project and the required funding will be accounted for through the reconciliation of the 2016/17 capital budget and the draft 2017/18 Annual Plan.
50. There is no allocated operational funding for the operational activities and response completed under this project (Emergency response and Investigation activities) and staff are looking at opportunities to accommodate them within existing 2016/17 operational budgets.
51. Following on from the emergency works further additional planned works are still required to complete the full remediation of the subsided area and mitigate the risk of damage to infrastructure (permanent remediation works). An estimated cost for this work is included as the last line in the table above, however the cost and timing of these works will need to be further defined after a planned design process.

## **52. Risk**

53. The completion of emergency stabilisation works are critical for the protection of the eastern bulk main water pipes and valve chamber. It is not possible to delay these works without significant risk to infrastructure and the ability to supply water to the city.
54. The risk of further subsidence and potential damage to council assets while works are undertaken, either as a result of the works themselves or due to other environmental impacts (e.g. river levels, weather events) cannot be eliminated but has been reduced by implementing the temporary works onsite and having completed more detailed site investigations. These risks do still exist but are now more manageable. The most likely impacts now are on how quickly works can progress onsite.
55. Site investigations and test drilling have encountered variable ground conditions including historic buried debris and rubbish. As this project involves significant earthworks in a sensitive environment and drilling into the bank, there is still potential for further unexpected time delays and additional costs.
56. Due to the emergency nature of the works being undertaken, there is an increased risk that Council is charged a premium for delivery of services. This risk is minimized by the engagement of trusted consultants and reputable physical works contractors and experienced project management overseeing works.
57. Given the emergency nature of the works and to best manage risks, Brian Perry Civil have been instructed to proceed within the approvals already sought. While actual costs to date are within existing approved financial limits, the consequential forward commitments would likely exceed existing approvals.
58. Staff have been in discussion and provided regular information and updates to Council's Insurance agents regarding this event and the subsequent emergency works; however any claim will be dependent on the outcome of investigation into the cause of the subsidence.

59. Councils Risk & Insurance Manager is in direct regular liaison with Crawford & Co providing updates to allow AIG to determine if their own experts can be appointed for potential site visits. The loss adjustor has received relevant information and is monitoring the situation.

**Signatory**

Authoriser	Chris Allen, General Manager City Infrastructure Group
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