13. EARTHQUAKE DAMAGED WASTEWATER REBUILD FOR PUMP STATION 37 - BETTERMENT

General Manager responsible:	General Manager, City Environment Group, DDI 941-8608
Officer responsible:	Unit Manager, City Water and Waste
Author:	Steve Hart, Professional Services Manager, SCIRT and Ross Herrett, Capital Programme Coordination Manager

PURPOSE OF REPORT

1. The purpose of this report is to seek the Council's approval for the additional funding required to increase the size of the inlet suction pipe work from 100 millimetre diameter to 200 millimetre diameter, in the planned rebuild of earthquake damaged pump station 37.

EXECUTIVE SUMMARY

2. A technical report on this proposal (**Attachment 1**) has been provided by the Stronger Christchurch Infrastructure Rebuild Team (SCIRT). This report (SS30) was considered by the Scope and Standards staff committee, which accepted the SCIRT recommendation that the rebuild option containing a betterment element should proceed, but determined that a report should go to Council seeking approval for the additional funding for this option.

3. Pump Station 37 was damaged by the 22 February 2011 earthquake. As part of the repair there is an opportunity to replace the existing 100 millimetre suction inlet with a 200 millimetre inlet, which increases the capacity of the existing pumps from 48 litres per second to 58 litres per second with a single pump or from 55 litres per second to 70 litres per second with two pumps to cope with a pre earthquake wet weather peak flow of 72 litres per second.

4. If after the pump station and catchment rebuild further future capacity is required, the existing pumps could be replaced with higher capacity pumps.

5. Two options have been considered for repairs, as outlined in the attached report.

   (a) Option 1 is to repair the pump station "like for like" and make no change to the suction inlet. This option will be funded through insurance and Government funding mechanisms.

   (b) Option 2 is to repair the pump station and in addition, upgrade the suction inlet while repairs are being undertaken.

6. Option 2 is recommended by the Scope and Standards Committee as the preferred option. It would be practical and economically efficient to take the opportunity to upgrade the suction inlet, reducing pump run hours and power costs during the earthquake repair.

FINANCIAL IMPLICATIONS

7. The estimated cost for the "Earthquake repair only" option is $129,000. The estimated cost of the recommended suction inlet increase to 200 millimetre pipe is $126,000 which is also the estimate for the betterment.

8. It is not expected construction would be complete in the current financial year therefore $126,000 is sought from the betterment fund to allow the project to proceed to construction in the 2012/13 Financial Year.

9. The Earthquake Building/Infrastructure Shortfall Allowance currently has an unallocated balance of $132,836,116.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

10. Not applicable - earthquake related works.

13 Cont'd

LEGAL CONSIDERATIONS

Have you considered the legal implications of the issue under consideration?

11. Yes, there are no legal considerations.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

12. Earthquake related works – restoration and improvement of level of service.

ALIGNMENT WITH STRATEGIES

Do the recommendations align with the Council's strategies?

13. Yes. They align with the Council's Strategic Direction of providing wastewater collection services that "protect public health".

CONSULTATION FULFILMENT

14. Not applicable.

STAFF RECOMMENDATION

It is recommended that the Council approves the additional $126,000 to come from the Council's Earthquake Building/Infrastructure Shortfall allowance to enable Option 2 for the suction inlet to be upgraded as part of the earthquake repairs to Pump Station 37.

Stronger Christchurch
Infrastructure Rebuild Team

Pump Station 37 (SCIRT Project 10416)

Scope & Standards SS30

Prepared by the Red Team
7 February 2012

Stronger Christchurch
Infrastructure Rebuild Team

Capacity Increase Included in Concept Design

Project: Pump Station 37 (PS37) (SCIRT PRJ 10416)

Change/Dispensation Sought

Approval is sought to address the existing (pre-September 2010) capacity problem at PS37 as part of the earthquake repair works, by modifying the pipework inside the pump station. This is described in the PS37 Concept Design report, which requires approval to proceed to detailed design.

Scope:
Pump Station 37 (PS37) is a wastewater pump station located at 178A Estuary Road, South New Brighton. The location of the pump station is indicated on Figure 1 below. It serves South New Brighton and Southshore.

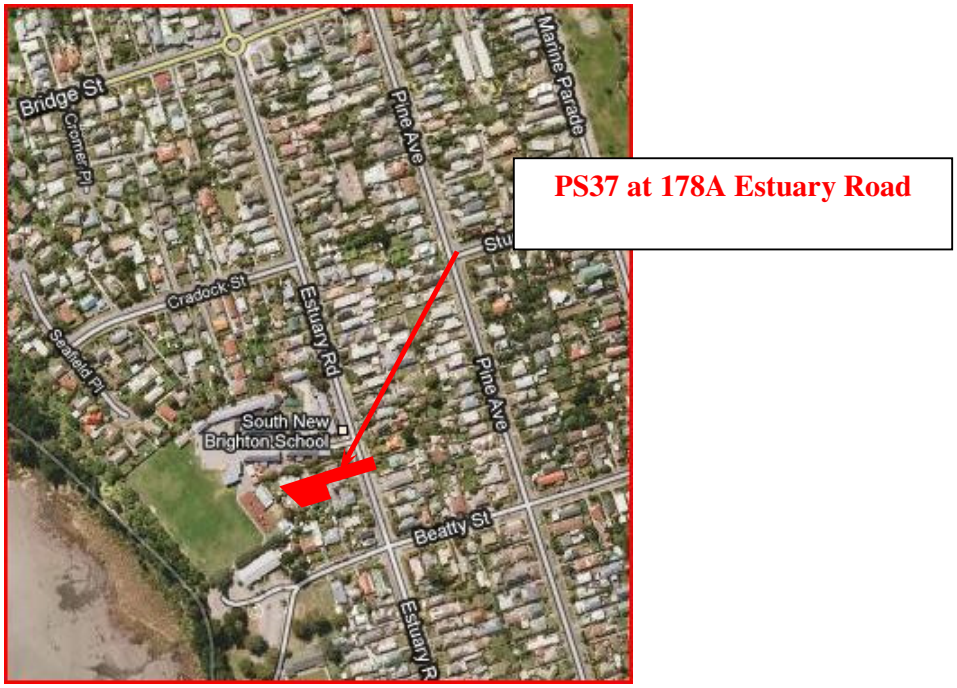

Figure 1 Location Plan

PS37 has the standard Drainage Board concentric wet well/dry well arrangement, with the pumps, electrics and controls housed within the dry well. Prior to the earthquakes the capacity of the pump station was lower than ideal resulting in long pump run hours.

The theoretical (i.e. calculated using IDS and not allowing for current high infiltration) peak wet weather flow is 72L/s. Prior to the earthquakes, PS37 had a capacity of 48L/s with one pump and 55L/s with two pumps, and high pump run hours. This capacity problem has been exacerbated by the increase in inflow and infiltration following the earthquakes.

In conjunction with the earthquake repair works at this pump station site, it is proposed that 100mm diameter suction pipework is upgraded to 200mm diameter. This would increase the capacity to approximately 58 L/s with one pump and 70L/s with two pumps.

In future, if pump run hours continue to be an issue and further capacity is required, the existing pumps could be replaced with higher capacity pumps.

Betterment

The betterment is the pipework upgrade inside the station, to improve capacity, as described above.

Benefits/Dis-benefits of Proposed Upgrade

The proposed pipework upgrade would increase the capacity of the pump station, thereby reducing pump run hours (and power costs) and reduce the overflow risk. It would also make management of the current high flows easier.

The upgrade will not provide the full design peak wet weather flow for the catchment with one pump, however if required the pumps could be upgraded in the future.

Consultation Required:

- CCC City Environment Group – Consultation has been carried out with wastewater planning and operations staff regarding the design flows and operational issues and requirements.
- Historic Places Trust – Consultation is not required.
- Archaeology & local Iwi – Work is inside an existing wastewater pump station. Consultation is not required.
- Environment Canterbury – No consent is required.
- CCC Building Consents – No consent is required
- Neighbours – Communication with the neighbours will be required regarding the works to be carried out at the site.

Costs

	Pipework Upgrade Costs
a. Like for like cost	$-
b. Betterment cost	$126,000
c. EQ Resilience cost	$-
d. Operational cost (NPV)	$-
e. Resilience Benefit (NPV)	$-
Capital cost (a+b+c+d-e)	$126,000

The cost estimate for the earthquake repair works at the pump station is $129,000. The total PS37 project concept design cost estimate is therefore $255,000.

Note: Costs based on a Concept Design are ±20% unless shown.

Priority of the work

Given the high flows in the catchment, increasing the station's capacity soon would be beneficial.

Recommended Option:

It is recommended that the pipework is upgraded to increase the capacity.

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Appendix A – PS37 Photos

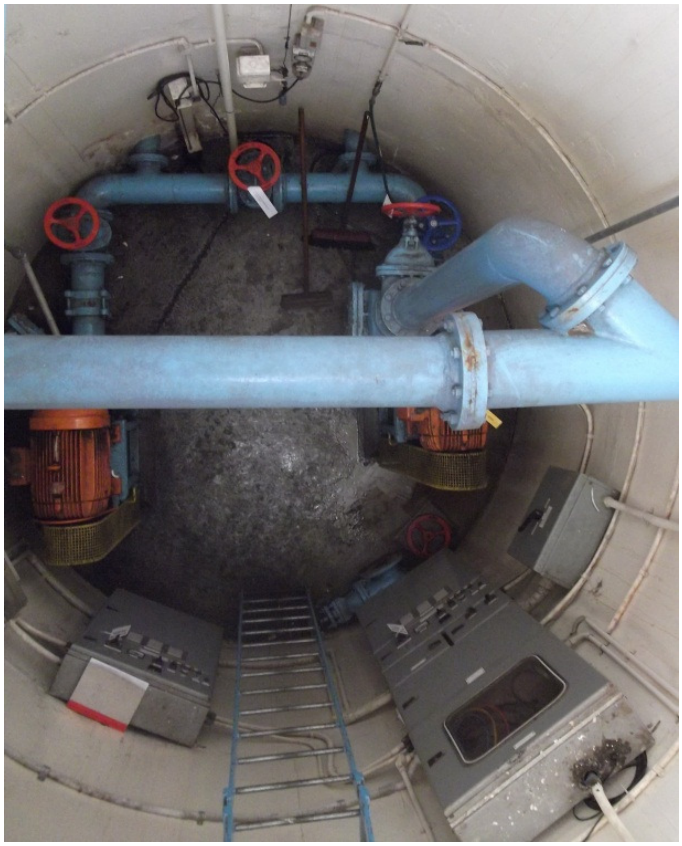

Photo 1 - Pump Station 37 Internal - Existing Layout