



Supercharging an Undercapacity Pipe That Just Needs to Take More - Case Study WestConnex Stage 2

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Have you ever been in the position of being stuck with an existing stormwater outlet pipe that is already at full capacity and you cannot change but you need it to take more water?

Such was the case for an portion of the WestConnex Stage 2 project on Marsh Street, Arncliffe temporary tunnel entry site where there was the need to dewater the site before construction can start and that meant putting 50% more water down an existing 375mm pipe. This pipe was not only already beyond full capacity, for even low event storms, but drained a critical carpark area that could not be allowed to flood.

As an additional complication, the existing pipe crossed another critical piece of infrastructure feeding the airport that had severe limitations and restrictions for any construction close to that site. Further, the pipe exited into the Cooks River at a sensitive location, that, if it were changed in any way would require at least lengthy approval process. Both of these issues virtually made any upgrade of the existing pipe impossible, as either would have required too much time to get approvals to change, if that was at all possible.

The solution was the insertion of a unique and original one-off designed venturi pump that would be driven by the additional water that was to be pumped through this already overburdened pipe.

This paper follows the design and time constraints, the development of the unique design and the mathematic verification as well as physical modelling which was videoed, through to the final installation and use of the device. Fortunately, all components of the design and installation and final operation went to plan and the device was a success. Ultimately, a low cost solution to an unsolvable problem