



Rehabilitation in Dunedin

In Dunedin, New Zealand, Interflow has developed some innovative solutions to overcome the freezing temperatures, resulting in the successful repair of sewer pipe and laterals.

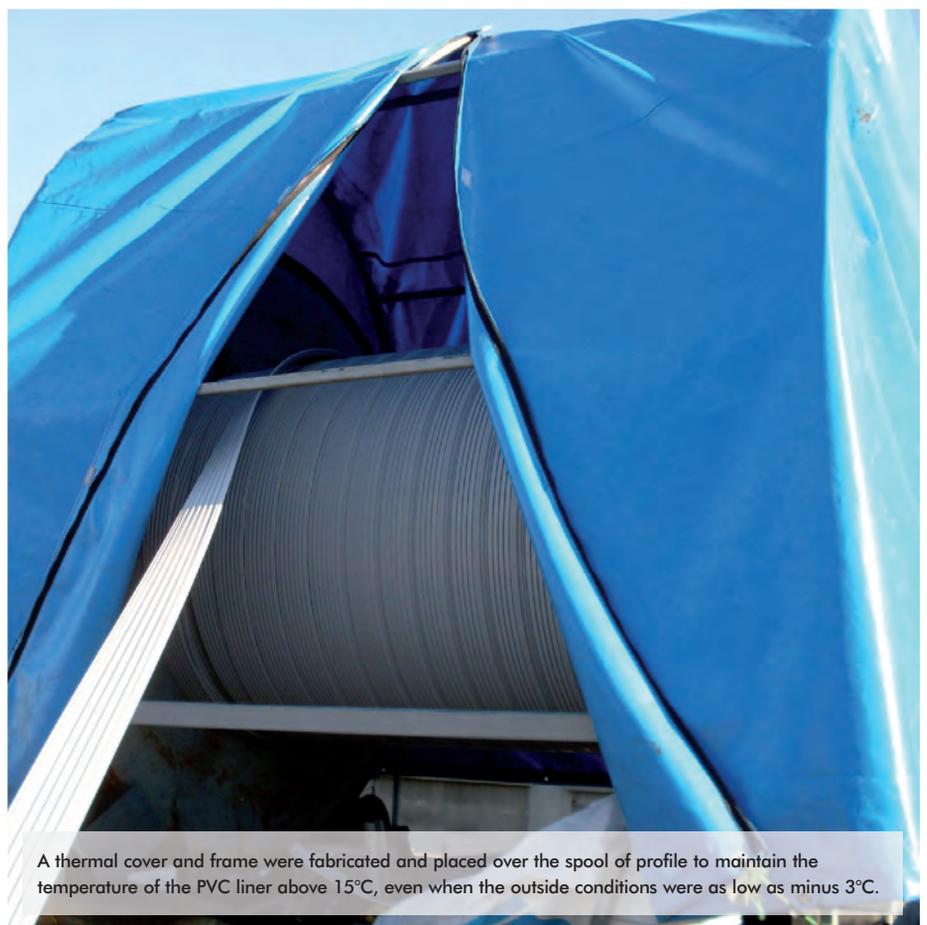
Interflow is currently in the final stages of completing a \$NZ1.6 million sewer rehabilitation contract for Dunedin City Council in New Zealand. The project involves rehabilitating 5,687 m of sewer pipe ranging in size from 150 – 600 mm in diameter (the majority in the 225 mm and 300 mm size range) and includes the sealing of 124 laterals.

Whilst on the surface this may appear like any other sewer rehabilitation project, the geographical location and timing of the project have presented a unique set of challenges.

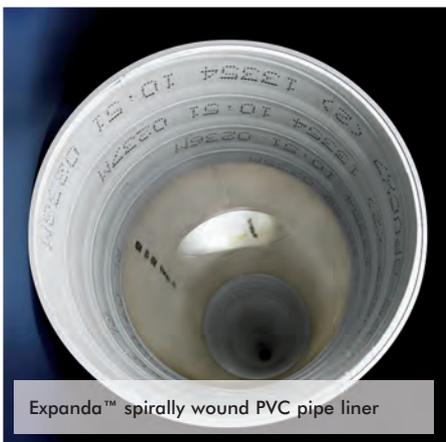
The city of Dunedin lies in the south of New Zealand's Southern Island.

The client required that the work be completed before the end of June 2010, which meant that Interflow's crews had to perform the work in winter. This often meant working in below freezing conditions, with temperatures commonly reaching minus 3°C.

The first stage of the rehabilitation process involved cleaning the existing sewer pipeline. This was challenging because not only did the pipes vary in size, they were made of different materials and their conditions varied considerably. For example, some of the 375 mm diameter



A thermal cover and frame were fabricated and placed over the spool of profile to maintain the temperature of the PVC liner above 15°C, even when the outside conditions were as low as minus 3°C.



Expanda™ spirally wound PVC pipe liner



The small footprint of the Expanda installation site meant that work could be performed from access chambers located on roads whilst the road remained open to traffic.

clay pipes that ran below roads had tar inside them. Interflow used a bucket and winch system to collect the tar from inside the pipeline and bring it up to the surface for disposal. Many of the 300 mm diameter pipes were made of cast iron, were heavily corroded and had significant scale build up. Interflow used a chain flail to mechanically dislodge and remove the scale from the pipe walls. The cleaning process ensured that the pipeline was in a suitable condition to be lined.

To re-line the pipes, Interflow used Expanda™¹, a spirally wound PVC liner which is installed by machine from an existing manhole. One of the benefits of Expanda is that it provides a full bore structural liner without the need for curing, which was very advantageous given the climatic conditions, said Interflow.

Another benefit of Expanda is that the plastic profile and the installation machine are located on the same truck, which makes the site setup fast and the size of the site footprint small. Given that a large number of the access chambers on this project were located in the middle of roads, the use of Expanda meant the relining work could be performed with minimal disruption to road users and the local community.

To deal with the extremely cold conditions, Interflow devised a simple yet effective method for keeping the Expanda PVC profile warm so that the installation process could be performed smoothly and without interruption. This involved fabricating a special thermal cover and support frame which was placed over the spool of PVC profile on the truck. The cover ensured the spool of PVC profile was maintained at or above 15°C in all conditions. In addition to the cover, a profile heater was specially designed and built, and fitted in-line in between the profile and the winding machine so that the profile could be warmed up as it was being fed into the winding machine in the access chamber below.

This process allowed Interflow's lining crew to install the Expanda liner at

installation rates similar to those in warmer conditions more commonly experienced elsewhere.

After the pipelines were relined, the lateral connections were reinstated by robotic cutting. A separate sealing crew then followed the Expanda lining crew and installed Interfit™¹ seals in the lateral connections. This ensured that the pipeline was completely renewed and sealed against infiltration and root ingress.

Dunedin City Council's Project Manager for this project, Janan Theiva, said "We were very pleased with Interflow's adaptability and prompt responses to some very demanding situations and extreme weather conditions on what was initially thought to be a relatively straightforward sewer refurbishment."

Despite the challenges of the project and of working in extremely cold conditions, the project is ahead of schedule and is due to be completed by late June 2010.

For more information about Expanda, Interfit and Interflow visit www.interflow.com.au 

¹ Interfit™ is a registered trademark of Interflow Pty Ltd and Expanda™ is a registered trademark of Rib Loc Australia Pty Ltd.