

Bonnell's Bay MH G77 Corrosion Protection

Metz 33EN- Sprayable Modified Epoxy Novolac

Metz 33EN-Sprayable modified epoxy novolac has restored and extended the working life of a heavily corroded maintenance hole with inspections nearly 5 years after application showing protection of the asset is maintained.



Figure 1 MH G77 Before



Figure 2 MH G77 After coating with Metz 33EN

During inspections conducted in October / November 2015, a number of maintenance holes in the Bonnell's Bay catchment of Hunter Water Corporation's sewerage network were identified as having severe damage due to hydrogen sulphide induced concrete corrosion. Of the MH's inspected, Bonnell's Bay MH G77 was identified as experiencing significant corrosion and loss of concrete cover across the entire structure.

MH G77 was selected to conduct a demonstration of the Metz 33EN-Sprayable Modified Epoxy Novolac due to its ease of access and being offset from the roadway allowing time for onsite discussions with Hunter Water personnel during the demonstration.

Metz 33EN-Sprayable is a 100% solids sprayable modified epoxy novolac coating base on special resin and hardeners which impart outstanding chemical resistance. Metz 33EN-Sprayable can also be used as a trowellable coating for vertical and overhead surfaces and is applied in thicknesses up to 4mm per coat.

Metz 33EN-Sprayable cures rapidly even at low ambient temperatures, thus minimising down time.

Metz are an Australian owned company established in 1953 specialising in acid protection and industrial flooring. With an extensive history and experience in highly aggressive industrial environments including concentrated sulphuric and nitric acids, molten sulphur, alkali's and other chemicals the Metz product range is perfectly suited to the corrosive environments experienced in sewer networks and treatment plants.

Bonnell's Bay MH G77



Figure 3 showing blistered/ missing coating and corroded concrete– 29/10/15

MH G77 is a maintenance hole with 2.8m depth from surface to invert and 750mm GRP inlet and outlets. MH G77 had significant corrosion with loss of coverage across the entire structure. The structure looked to have been previously coated with a thin material which was blistered throughout the structure and completely missing in significant areas.

Approximately 5-10mm of soft cementitious material could be easily removed by hand scrapping at various points on the walls while 40-50mm of depth was scrapped by hand immediately around the GRP pipes.

The roof of MH G77 is a flat slab with HDPE liner which extends into the neck of the MH.



Figure 4 Corrosion above GRP pipe



Figure 5 Corrosion around ladder

All corroded and degraded material was removed by high pressure water blasting which revealed significant damage of the benches. These damaged sections (as well as redundant bolt holes) were filled and repaired using Metz 10EN Epoxy Novolac Concrete. Final preparation of benches to return them to a smooth sloping surfaces was done with Metz 33EN-VG, the render version of this material.



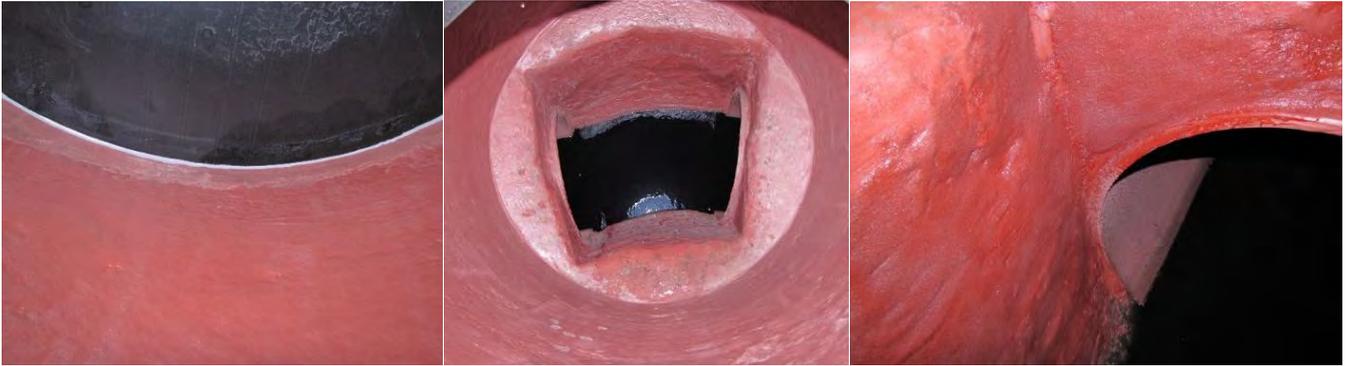
Figures 6, 7, 8 - After high pressure water blasting, corrosion damaged benching was rebuilt using Metz 10EN

Once the preparation was complete and damaged benches were repaired, Metz 33EN-Sprayable was applied using spin casting to coat the entire shaft with a 3mm thick coating and then finished with a roller. The channel was finished to the water line by hand. Spin casting Metz 33EN-Sprayable produces immediate good adhesion with minimal rebound and material loss.



Figures 9 &10 - Spin Casting and roller finishing

Once the Metz 33EN-Sprayable had been finished, a bead of sealant (Metz 8) was applied where the 33EN-Sprayable met the original HDPE roof liner to achieve a definite seal between the two and prevent acidic moisture migrating between the two different materials.



March 2016

After 4.5 years, Metz 33EN-Sprayable continues to prevent corrosion and other than some staining, looks as good as the day it was done.



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