

 **Job Report**



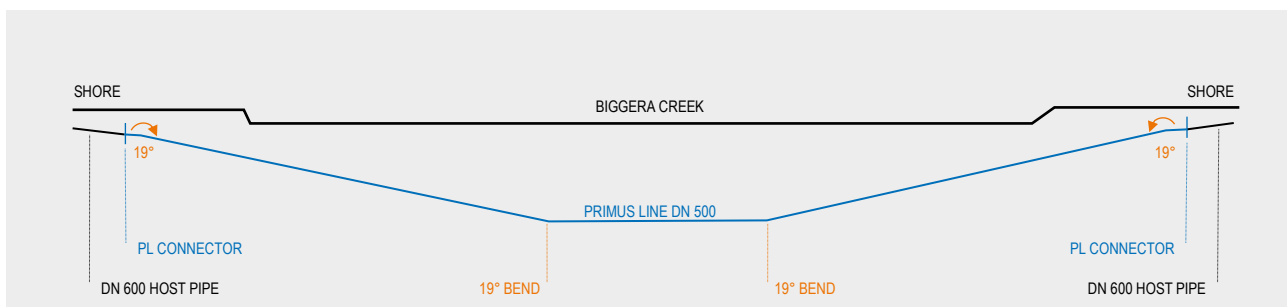
Renovation of a sewer rising main using Primus Line®

Client:
Gold Coast City Council

Year of Construction:
November 2018

Type of Construction Measure:
Renovation of a DN 600 sewer rising main using a DN 500 Primus Line® system

Situation:
The Gold Coast City Council operates a DN 600 sewer rising main crossing under the Biggera Creek. The cement-lined mild steel pipe ruptured within the creek. Therefore, a swift solution was required. There are four vertical bends with 19 degrees in the route of the pipe. Following on from other successful pressure pipe rehabilitation projects, the specialist contractor Interflow Pty Ltd. proposed the use of the Primus Line® system. Primus Line® is a flexible relining solution that is accommodating the operating pressure due to a Kevlar®-reinforcement independently from the host pipe and is able to negotiate bends of up to 45 degrees. In addition, the liner is not glued to the host pipe and hence can also be installed, if protruding water is present in the host pipe. The cleaning was performed with two runs of pull-through rubber discs and the free inside diameter was verified before the installation of the Primus Liner DN 500. The contractor installed reducers from DN 600 to DN 500 before mounting the special termination fittings. The renovation works were completed in only one working day.



Technical Details:

Material of Host Pipe:	Mild steel, cement lined
Transported Fluid:	Residential waste water
Diameter of Host Pipe:	DN 600
Operating Pressure:	4 bar
Primus Line® System:	DN 500 PN 16
Total Length:	50 m
Number of Sections:	1 section
Installation Time:	1 working day

Design considerations for sewer rising mains using the Primus Line® system:

Since the Primus Line® system remains a flexible pipe in all operating conditions, the following additional considerations need to be taken into account when installing the system in sewer rising mains:

- At the beginning and end of the renovated section, a Primus Line connector is installed; there is no free inlet and no free outlet in the area of the connector; the installed Primus Line® system will be integrated into the network using a spool piece
- The liner is constantly filled with the transported fluid during all operating conditions (load case maintenance has to be considered separately); this can be realised with a non-return valve after the pump, if pumping uphill; if the pipe runs downhill, technical modifications can be made to fulfil the requirement of a constantly filled liner
- Along the entire Primus Line section, there will be a constant or constantly increasing/decreasing pressure level
- The minimum operating pressure within the system has to be 1.0 bar
- There is a constant flow velocity within the entire Primus Line® section; usually, pipes are operated with up to 3 m/s
- The inside coating of the liner can be made of PE for residential waste water applications; a TPU inside coating is to be used, if industrial waste water is present; a chemical analysis will be required to determine the suitability of the liner's inside coating; in case of industrial discharge water, the operating temperature needs to be taken into account; the Primus Line® system is laid out for an operating temperature of up to 50 degrees, however in combination with industrial waste water, the chemical suitability of the inside coating needs to be verified by the company's in-house chemist
- In case of protruding ground water into the annulus space (between the liner and the host pipe), a discharge pipe shall be installed at the lower pit so that ground water can discharge freely in case of maintenance

The Primus Line engineering team has successfully renovated several sewer rising mains and turbine lines over the past 10 years.

To learn more or to discuss a project in detail, please get in contact with the engineering team by supplying a ground view plan, a longitudinal plan and further project information at info@primusline.com.