Vienna Consulting Engineers

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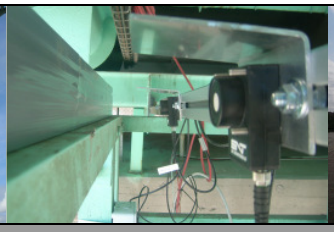


research bridges railways tunnelling monitoring technology management international

Älvsborg Suspension Bridge Gothenburg, Sweden

The Älvsborg Suspension Bridge, one of Gothenburg's most prominent landmarks, was built in 1966 over the Göta älv. The bridge spans a total length of 933 metres and comprises of a steel truss deck, whose central span is 417 metres, and two 107 metre high reinforced concrete towers.

There are plans currently being made for Älvsborg Bridge to undergo extensive repair works in the course of the next couple of years. These repairs will include the replacement of key structural elements such as the sliding finger joints at the bridge abutments. In order to carry out these repairs, extensive knowledge of the bridge's structural behaviour is required. This includes the structural deformation and deflection in the abutments and the deck due to live loads, temperature and humidity. The Movement of the deck will also be measured to investigate transverse and longitudinal displacements of the bridge as well as the torsion generated in the deck at the towers. The data collected will be used to select an appropriate joint type with adequate loading capabilities. The data will also be used to improve the understanding of the seasonal effects on the main structure.

VCE in cooperation with Mageba SA have therefore been charged with the planning, installation and operation of a permanent monitoring system. The bridge will be monitored during the course of a year with the option of extending the monitoring period. The measured data and the results will be retrievable in the Brimos® Web-Interface and for the first time a "Live View" of the Älvsborg suspension bridge will be implemented. This permits real time viewing of the measured higher frequencies in the Brimos® Web-Interface.

- Client: Mageba SA
- Location: Gothenburg, Sweden
- Inspection Period: 2011 – 2012
- Services: Permanent Monitoring System of the bridge's structural behaviour: Planning, Installation and operation of the Monitoring System.

  Measurement of:
  Structural deformation at the bridge abutments,
  Transverse and longitudinal structural movement in the deck

BRIMOS® Services conducted:

Lifecycle Management:	☐ Condition Assessment	☒ Condition Monitoring	☒ Rehabilitation Planning	☐ Quality Control
	☐ Lifetime Assessment	☐ Traffic Analysis	☐ Environmental Influences	☐ Risk Assessment
Special Measurements:	☐ Attendant Monitoring	☐ Noise and Vibrancy	☒ Deflection Measurements	☐ Seismics