39th IABSE Symposium – *Engineering the Future*
September 21-23 2017, Vancouver, Canada

Basic design for a Submerged Floating Tube Bridge across the Digernessundet

Mathias Eidem

Norwegian Public Roads Administration, Region West, Stavanger, Norway

Arianna Minoretti

Norwegian Public Roads Administration, Directorate, Trondheim, Norway

Xu Xiang

Norwegian Public Roads Administration, Region West, Stavanger, Norway

Anette Fjeld

Dr. Techn. Olav Olsen, Oslo, Norway

Contact: mathias.eidem@vegvesen.no

Abstract

This paper describes the basic structural design for a Submerged Floating Tube Bridge (from now on SFTB) across the Digernessund in Norway. The SFTB is proposed as part of a scheme for a new and improved fixed link along the E39 route, across the Bømlafjord in Norway. The existing fixed link consists of a 7.8 km long subsea rock tunnel below the main part of the Bømlafjord, and a 677 m long suspension bridge spanning across the Digernessund, which was too deep for a subsea rock tunnel. The two parts of the link meet at a small island named Føyno. The existing tunnel does not comply with new EU regulations for tunnels due to the high gradient, but an improved tunnel with a SFTB through the Digernessund will solve the problem.

The paper will discuss different structural solutions for the SFTB. A possible construction method will also be evaluated.

Keywords: Bridges, design, submerged structures

https://doi.org/10.2749/vancouver.2017.3018
Distributed by structurae