

Project:

E39 BJØRNAFJORDEN FLOATING BRIDGE

LOCATION:

Bjørnafjorden, Hordaland county

YEAR:

2016 - 2017

CLIENT:

Norconsult/Norwegian Public Roads Administration

SCOPE/PHASE:

Technical development phase 3

PROJECT RESPONSIBLE:

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Project description:

Dr.techn.Olav Olsen have in cooperation with Norconsult and Aker Solutions worked in an extended technical development phase to optimize the end-anchored floating bridge alternative and reduce the technical uncertainties in the project. The purpose of the extended development phase is to achieve a better decision basis in order to select the right crossing concept for Bjørnafjorden. The bridge from Svarvhella to Røtinga has a total length of approx. 5800 m and consist of an almost 1000 m long cable-stayed bridge, 4400 m long floating bridge and a concrete plate bridge/road on rock fill between Røtinga and the floating bridge foundation on the islet Gulholmane. The project team proposed drastic changes in the concept from the previous phase in order to reduce the construction cost. The changes led to a reduction in material quantities by almost 50% without compromising with the robustness of the concept. Key challenges in the project were coupled structure- wind- and wave analysis in the time domain, ship impact analysis, introduction of large reaction forces to the floating bridge foundation, planning of construction and installation (including risk analyses), uncertainties assessment and preparing cost estimates.

