Civil Engineering

Bascule FRP Composite Footbridge

Span 60m. FRP composites in both single skin and sandwich configurations.

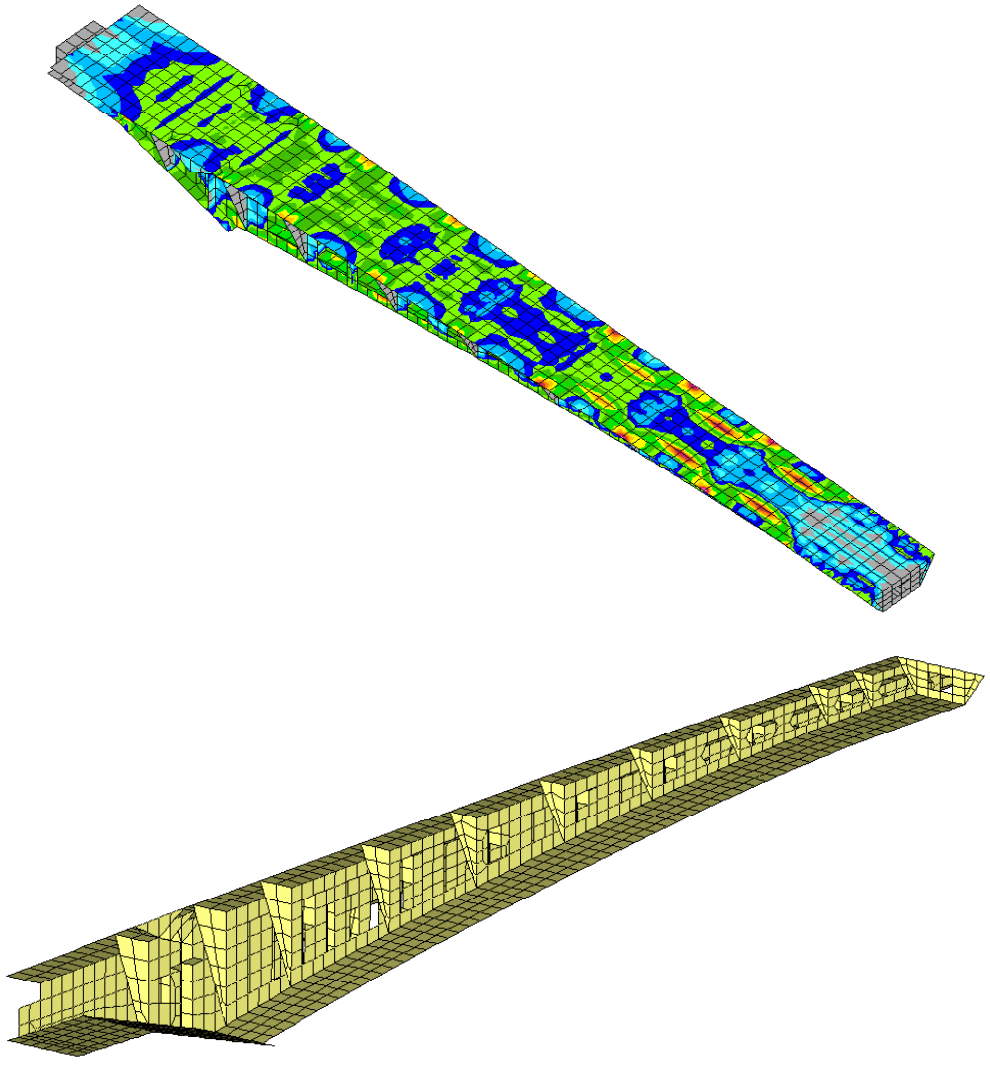
Client: Inglingstad & Tørnquist AS
Design: Griff kommunikasjon AS (www.griff.no)

The moveable part of the footbridge is a double-leaf bascule bridge with counterweights. The leaves are built as a closed box girder with longitudinal and transverse stiffeners inside, with double curved outer surfaces. Approx. weight of a fully equipped leaf is 70ton, where 13ton is FRP composite materials. The bridge deck is a sandwich construction with carbon fibre (CFRP) laminates and a Balsa core, with embedded heating cables for defrosting during the wintertime. The deck is strong enough to carry a car with up to 2.0ton axel load. The bottom flange of the girder is made of single skin CFRP and GRP laminates. The internal stiffeners are all sandwich constructions with CFRP and/or GRP laminates and PVC core materials. A steel construction at the thickest end of the girder is used to distribute the concentrated bearing loads into the composite box girder and serve as counterweights. All laminates were supposed to be made by vacuum assisted resin infusion.

Artist impression

Civil Engineering

- Feasibility study
  - Structural design
  - Load predictions
  - Selection and qualification of materials
  - Strength, stability, and dynamic analyses
- Detailed design phase
  - Detailed strength, stability, and dynamic analyses (FEM)
  - Documentation, tender, and drawings for production



FE model