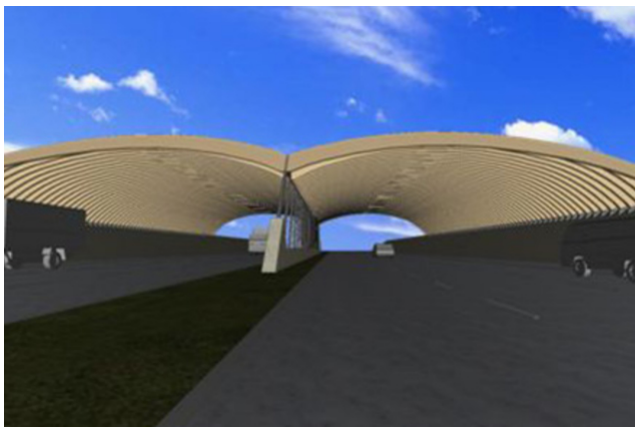
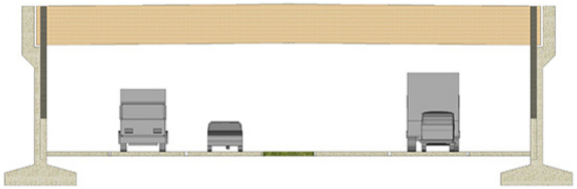
Preliminary project wildlife overpasses A1and T5, Suhr

2005





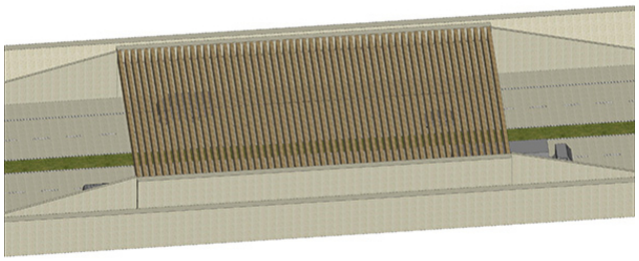
The construction of roads and railroad lines has cut up and reduced the existing wildlife habitat. The green bridges serve to reconnect these habitats at important points.

The project

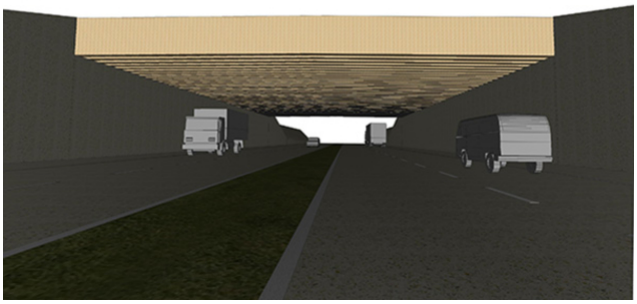
In the only forest area between Zurich and Olten where the individual habitats can be reconnected, the Canton of Aargau is planning two wildlife crossings over the A1 freeway and the T5 expressway. Our task was to create a preliminary project in wood for both crossings. The loads due to the high earth loads, the large impact forces and the structural timber protection placed high demands on the supporting structure. The bridge structure at the A1 consists of glulam arches spanning the highway in a double arch. An optimized arch shape reduces the cutting forces and thus the material usage to a minimum.

The construction method

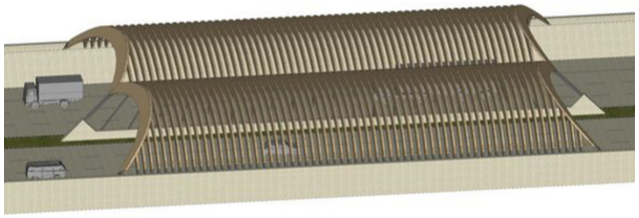
A steel girder is installed on the median strip of the highway, which carries the high loads via circular steel columns arranged in a radial pattern. For wildlife biology reasons, the optimal structural form of an arch could not be utilized for the T5. Instead, single-span girders made of block-glued glulam provide the support structure. A cantilever of the girders absorbs the deformation from the high earth load and gives the bridge a slope for drainage. In both structures, large-format solid wood multi-layer panels distribute the forces to the timber ribs and also serve as stiffeners for the structure. In order to account for the increased moisture load caused by the spray, the supporting structure is planned in larch. In the area of the transition from the wood to the concrete, a hot-dip galvanized steel joint separates the wood from standing water. Basically, all wooden parts are air-flushed, so that the constructive wood protection is solved in the best possible way.



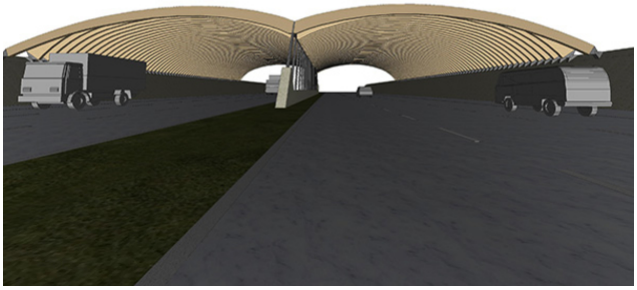
Bird's eye view T5



T5 driver view



Bird's eye view A1



View of a driver A1

Construction Data
- Spans T5: 24 m / A1: 2 x 21 m
- Bridge width T5/A1: 45 m
- Surface area of solid concrete slabs T5: 1100 m^2 / A1: 2400 m^2
- Glulam T5: 940 m^3 / A1: 560 m^3

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