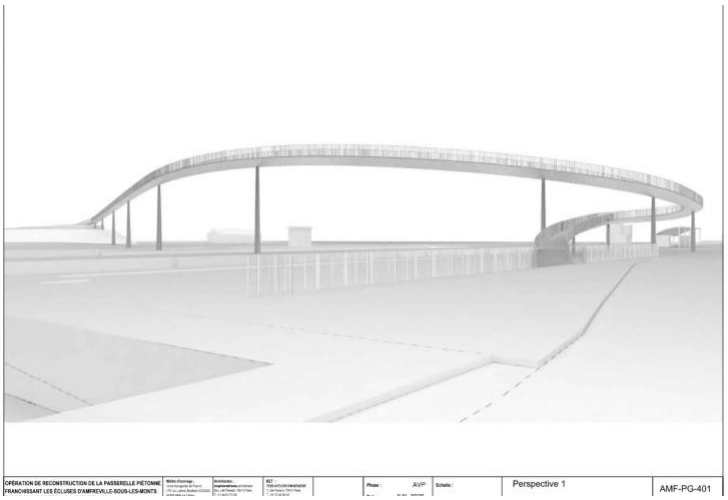

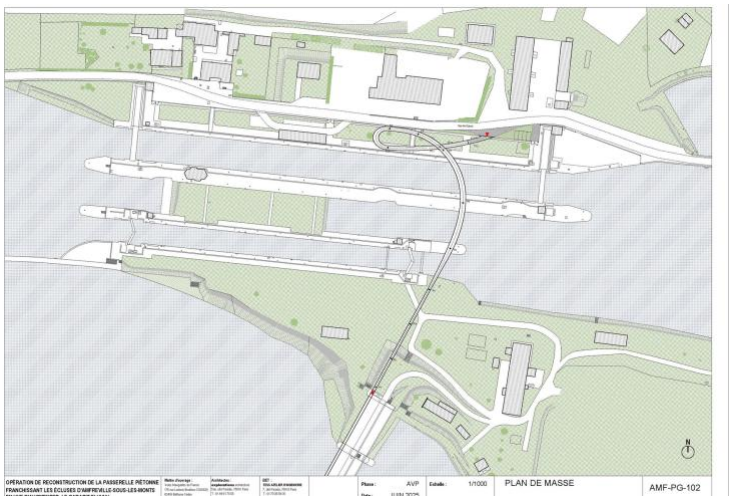

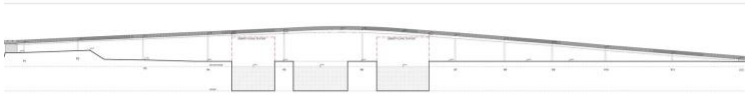

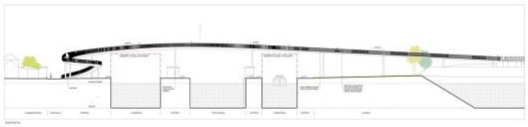



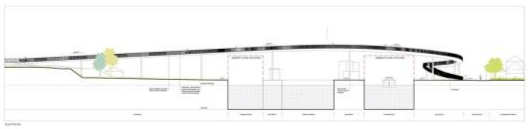



Amfreville Footbridge

Location : Amfreville-sous-les-Monts
Architect : Explorations Architecture
Client : Voies Navigables de France
Scope : Full design and construction services for the Seine crossing
Date : 2023-2027

The new footbridge replaces an existing structure that crosses the Seine at the lock. The weir is on the left bank and the lock on the right bank; the central span is disused and backfilled. River traffic is heavy there, particularly because of vessels in transit to the Paris region. The air draft (the clear height beneath the structure) of the current footbridge, at approximately 9 m, restricts passage to vessels carrying up to three tiers of containers. The new structure will allow vessels carrying four tiers to pass, as is the case for the majority of structures on the lower Seine.

The proposed footbridge is a steel box girder of varying width and depth, designed to suit the lock's operational constraints. It bears on different points from those of the existing structure. The preliminary design compared a low-carbon steel base with a hybrid option combining steel and timber. A change to the alignment of the central box girder was also studied: the straightened girder reduces the mass from 120 t to 76 t, but this option was set aside, as the material saving did not outweigh the discomfort of the alignment. The curved central box girder, at 85 t, was selected.

For the foundations, T/E/S/S drew up the brief for a preliminary low-carbon study entrusted to a geotechnical engineer. It covers three options, compared through a multi-criteria analysis (carbon, technical feasibility, durability, cost). The constraints are significant: the Grande Île and the lock walls (the side walls of the lock) can only be reached by water, the lock cannot be shut down, at least one of the two passes must remain in service, and the watertightness of the concrete caissons of the lock walls must be preserved. The next steps are to firm up costs, particularly for the timber, to analyse the carbon footprint and to define the construction details.