

Port Tawe Footbridges and Walkway Design

Wilkinson Eyre and Flint & Neill were the design team who designed the impressive twin bridges for the regeneration of the River Tawe Marina in Swansea.

As part of the development the south bridge had to enable canal access through the existing lock gates, which control the water level in one of the world's largest tidal ranges. Bennett Associates was brought in to the team to design the opening section over the existing lock gates.

The south (moving) bridge consists of two swing bridges fabricated out of mild steel, which rotate on a slew bearing mounted on a fixed fabrication. Each swing bridge is rotated by a hydraulic ram that extends to open the bridge.

The bridges consist of steel plated boxed beams mounted on a slew bearing, which was supported on the existing concrete lock structure.

The west approach is a ramp up to the swing bridge. The east approach is via the new south fixed bridge. On either side of the approach ramp are pivoting gates that when open become the parapets and prevent access in to the lock gate area and when closed prevent access for pedestrians onto the bridge but opens up access for the lock operators through the parapets. A 'communication' pole that has pedestrian lights and an intercom system is mounted on to the gates.

There is a hydraulic power pack mounted on the east abutment for the east side swing bridge locking pin, gates and bridge and a power pack on the west abutment for the west side swing bridge locking pin and gates. Control of the system is from an existing two-storey building located on the west quay wall.

The swing bridges are approximately 11m long with a nominal central pivot point on one side. The bridges are designed to swing through approximately 90 degrees to provide a clear opening of 12.5m to match the clear width of the lock.

There is a special 1.4m high parapet suitable for use by pedestrians and cyclists.

Bennett Associates (originally founded in 1984) was acquired in 2008 by Atkins; bringing their proven technical expertise to the UK's leading engineering consultancy.

