This project is part of a larger scheme comprising two bridges across the River Tawe with an additional opening span and associated Guusivada walkways. The bridges connect the city centre with a publicly funded redevelopment project currently under construction to the east of the city on the site of the Swansea Docks. The requirement for units in the redevelopment to be present at an early date, with necessary infrastructure visibly in place, resulted in an unusually compressed programme—from design inception through to contracted completion in less than 15 months.

The 3.4km north bridge, named the "Sail Bridge" by the WOA, is an innovative design explicitly requested by the Client and City Council to form an emblem for the regeneration of the Port of Swansea. Although the structure is an iconic bridging development, the complex's configuration is cross section the deck is held along only one edge. The simplicity of the overall form is augmented by the apparent delicacy of the asymmetrically suspended walkway.

The 43m high mast, of varying cross section, is fabricated from a series of flat and rolled steel plates of decreasing thicknesses from base to tip. The cross section increases from a flanged square at the base through to a kite shape at mid height, culminating in a triangular configuration at the tip. This development is achieved without the use of wrapped planes. All forces are "flat" and yet the final form is visually correct; the plate thickness in the mast vary from a minimum of 45mm at the base to 10mm at the tip. The final crushing weight of the mast was 78 tonnes from an initial material procurement tonnage of 93 tonnes, and the mast was lifted in one piece using a 1000 ton crane on the west bank.

The project was procured using the NCC Target Cost Form with the specialist steelwork fabricator, Rowecord Engineering Ltd, appointed early on in the process. Very close cooperation between the design team and the specialist subcontractor meant the highly modelled nature of the mast and the simplicity of the overall structural solution were retained through the design development to deliver an end product that is incredibly faithful to the original scheme design.

Furthermore, in terms of detailing, Rowecord were able to advise fabrication methodologies that surpassed the design team's expectations in terms of formal clarity and final surface finish. One good example of this is the sharp aris on the back of the mast from mid height to apex. Because of the extremely acute angle between the side plates, the design team had envisaged a shadow gap detail at the junction between the plating to lessen the visual impact of the welding. However, Rowecord suggested an alternative detail where a rib shaped bead of solid steel, running the full height of the intersection, formed the junction between the two plating. This allowed for a sharp edge as plates met and greatly simplified the welding details.

Steel is also used for the deck box sections and the catenary ribs supporting the pedestrian walkway. The deck is suspended on one side by 70mm diameter spiral standalone stay cables connected to the road. As a result of the eccentric cable support, the deck is a closed steel box in order to provide the necessary horizontal stiffness. The 20m wide deck plate is stiffened longitudinally, but the 15mm wide and 20-30mm thick bottom flange is unflanged to simplify fabrication and box assembly. The stay anchorage are formed from simple intersecting tubes designed to facilitate proper alignment because of the complex 3-dimensional geometry. The whole bridge was modelled by Rowecord as a 3-dimensional plate model to ensure correct geometry and control of tolerances, with the result that there were very few problems in the alignment and assembly of the units. Following the installation of the mast, the deck was fitted into position in nine individual lifts of approximately 20 tonnes each. This allowed for off site fabrication of individual deck units, transportation by road and rapid erection onto temporary plumb supports in the river using cranes from both banks.

This method enabled the correct geometry to be achieved prior to welding up the sections and stressing the stays to lift the deck off its temporary supports.

The bridge parapet differ between the vertical parapet on the cycleway and the inclined tension wire downstream parapet. This counterpoint between sides of the curved deck is accentuated by the more visually solid parapet mill panels and bespoke lighting units on the upstream side, which provide effective functional lighting for bridge users as well as subtle coloured lighting elements to viewers further upstream. The bridge road is up to enhance the nighttime visual impact.

The bridge was opened to the public for the inaugural 'Great West Wales Teamball' in June 2003, and has already received warm public acclaim, becoming a popular icon for the region and destination in its own right as well as an essential link between the new Port Tawe Innovation Village and the city centre.