

Marine Parade, Dawlish



Following the 2014 storm events, which caused significant disruption to the railway connecting Devon and Cornwall to the rest of the UK, Network Rail established the South West Rail Resilience Programme (SWRRP). The first project to reach detailed design and construction is Marine Parade, a 350m length of sea wall and improved promenade, immediately south of Dawlish Station.

- **Date of completion: Nov 2020**
- **Cost: £22.5m**
- **Location: Dawlish, Devon**

Challenges and solutions

The key risk to achieving the project programme was to design a sea wall, which could be constructed within the restrictions of the maritime environment while keeping the railway operational. The project team were familiar with these challenges and worked closely with Network Rail to deliver the project within budget and meeting the deadlines.

Through careful design and collaboration with the contractor, elements of the sea wall could be manufactured off-site and installed with relative ease within tidal windows, without the need for prolonged curing times. This helped to mitigate the risks associated with a prolonged project programme and provided clearer certainty on the project budget.

During constructions, careful project management allowed for activities to be planned around tidal patterns to maximise the available working windows. The construction programme was planned to maintain a publicly accessible and safe beach environment during the summer high season.



Benefits and achievements

The design improves protection of the promenade in extreme weather events, but also provides additional benefits for Dawlish. Landscape architects were engaged to create areas of public space which catered for everyone and increased the usability and accessibility of the promenade, both day and night. Ergonomic assessments were undertaken to ensure the sea could be viewed by all users and the ramps accessing the promenade were designed to ensure sufficient widths and gradients were installed to significantly improve beach access.

During Storm Dennis, the construction team assisted local residents by providing and installing sandbags to protect properties from flooding. The team undertook 40 days of beach cleans and coastal path clearance. This helped preserve the habitat of the protected sea species, Sabellaria, which builds colonies and reefs in the intertidal zone at Dawlish.

Marine Parade demonstrates how civil engineering can benefit local communities by providing a safer, more accessible promenade while making sustainable upgrades to the sea defences to enhance the railway's resilience.



Fascinating facts

- The design achieves a 90% reduction of waves overtopping sea defences in today's conditions.
- Approximately 1000 pre-cast units have been designed, manufactured, transported and installed within tidal windows to protect the historic rail link.
- The new sea wall will ensure that over the next 100 years the railway can remain operational and the risks to pedestrians on the promenade are significantly reduced.

People who made it happen:

- Client: Network Rail
- Lead Designer: Arup
- Contractor: BAM Nuttall

More about this project: www.networkrail.co.uk/running-the-railway/our-routes/western/south-west-rail-resilience-programme/