FLOOD PROTECTION AT FELIXSTOWE

NRA

National Rivers Authority
Anglian Region

The North Sea, which helps to make the Suffolk town of Felixstowe a popular holiday resort and thriving port, is also its biggest danger.

Much of the Southern part of the town, including the rapidly expanding dock complex which includes in excess of six hundred homes and commercial premises is below flood level and at risk of flooding.

In 1953 the tidal defences along the east coast were in a poor condition following a period of neglect caused by the austerity of the war years and the following period. At the end of January of that year a combination of weather conditions created an exceptional surge tide which ran down the East coast of England smashing defences, causing extensive damage, flooding and loss of life. Here South Felixstowe was flooded to a considerable depth, 40 lives were lost and many properties severely damaged.

In 1978 the area suffered further extensive flooding though not to the extent of that in 1953.

The low lying part of the town and the dock area is now protected by almost 2 miles of sea and tidal defences. The sea defences protect the area from near Felixstowe Pier to Landguard Common and consist of hard defences in the main with clay banks fronting the nature reserve. High quays along the Orwell Estuary provide adequate flood protection linking in with those to the South on Landguard Common.
The defences from the dock complex to Felixstowe Ferry have been constructed in a number of phases. The earliest in the 1960s when extra protection was provided round the dock basin, Felixstowe Ferry and Felixstowe Golf course. Improvements at these sites range from soft clay defences to concrete sea walls. The main defences are those fronting the lower part of the town. These were constructed in three sections, the Town Wall, Manor House Frontage and Landguard sea wall. Constructed between 1981 and 1985, they were built to a height of 5.0 metres (16.4 ft) above Ordnance Datum and the full length of the sea walls now provide a defence that is one metre (approx 3 ft) higher than the still water level of the 1953 floods.

TOWN WALL

The promenade provides some level of flood protection to low lying properties between Felixstowe Pier area and Manor House. This however is not high enough to provide protection in extreme weather conditions. Sea water topped the promenade and went into homes along the sea front during the late 1970s. Subsequently, additional protection was provided with the construction of a steel sheet piled wall on a retired line inland from the back of the promenade.
This wall, known as the Town Wall, was built in 1983. The sheet piles were clad in concrete for durability and faced with brick on the landward side between what was the Herman de Stern Hospital and the northern end of the wall near the Town Hall to make it visually acceptable. Thirty openings allow public access in the summer season to the promenade and beach, these are closed when necessary by hinged steel gates.

At the northern end, the wall connects to high ground in the vicinity of the war memorial, while at the southern end it adjoins the Manor House Wall.

Town Wall, Felixstowe.

MANOR HOUSE FRONTAGE

To the south of Town Wall there was no effective sea defence for a 300 metre (319 yd) length of coast between the promenade and the old war department wall (Ministry of Defence) at Landguard Common until the completion of the Manor House frontage in 1981.

Imported shingle was compacted to provide a base for the new wall. Erosion of the shingle foundation is prevented by steel sheet toe piles. These in the first instance were driven into position at the front of the apron to provide a half tide working cofferdam during the construction and later cut to apron level. These piles provided the base for a 2 metre (approx 6 ft) wide concrete apron which was topped with a sloping concrete block revetment and reinforced concrete wave wall supported on driven steel piles.

Manor Wall, Felixstowe

Timber groynes were constructed along this frontage to help contain the shingle beach (which normally moves from north to south). The formation of a high beach strengthens the defence, reduces wave action and consequent erosion.

LANDGUARD SEA WALL

The final link to the town's sea defences was secured with the construction of a new sea wall at Landguard in 1985. The original defence was a mass concrete wall which probably dated back to before the last war and had been subsequently strengthened over intervening years. This wall was severely damaged by high tides in January 1985. Although not exceptional, they ripped out the wall's steel sheet toe piling, lifted large lumps of concrete and scoured a deep cavity under the sea wall.

By April work had started on a new 550 metre (600 yd) sea wall with a reinforced concrete wave wall and stepped apron. This was completed by the end of the year together with the construction of seven new groynes and modifications to eleven others.

Landguard Sea Wall.

FELIXSTOWE FERRY

The defences protecting Felixstowe are varied. Their construction is dependent on the severity of their location. From the end of the cliff at Old Felixstowe, north to the Martello Tower at Felixstowe Ferry the defence is mostly hard concrete seawall. There is an intervening length within this hardened defence which is well protected by shingle beach and consequently made of clay. The rest of the defences in the Ferry area are either of clay or a combination of clay and steel piles. These defences adjoin the main clay wall defence for the River Deben which is located on a retired line inland.

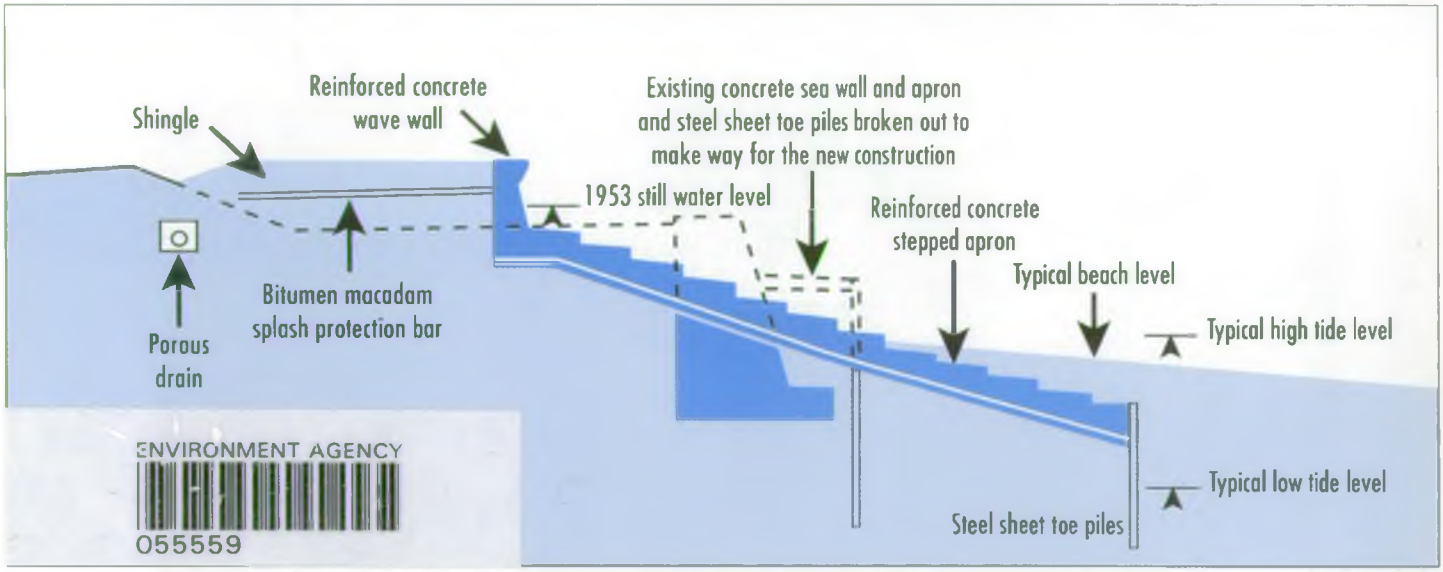
These then are the defences protecting the Town of Felixstowe and its adjacent low areas. Whilst there can never be any guarantee that in the future there will not be an abnormal tide which will overtop them they provide a level of protection that can cope with tide levels in excess of that experienced in 1953.

STORM TIDE WARNING

In 1953 the storm tide arrived without warning. There was no system to accurately forecast and advise the public of the possibility of such an event.

Today, forecasting of weather conditions is a science. The Meteorological Office is able to predict with high accuracy conditions that create surge tides. During the Storm Tide Season, arrangements are in place to ensure bodies such as the police and this Authority are warned well in advance of the likelihood of surge tide events.

DESIGN OF NEW SEA WALL



NEW WALL CONSTRUCTION

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