

## MARINE DRIVE SEA WALL, MUMBAI

### Background

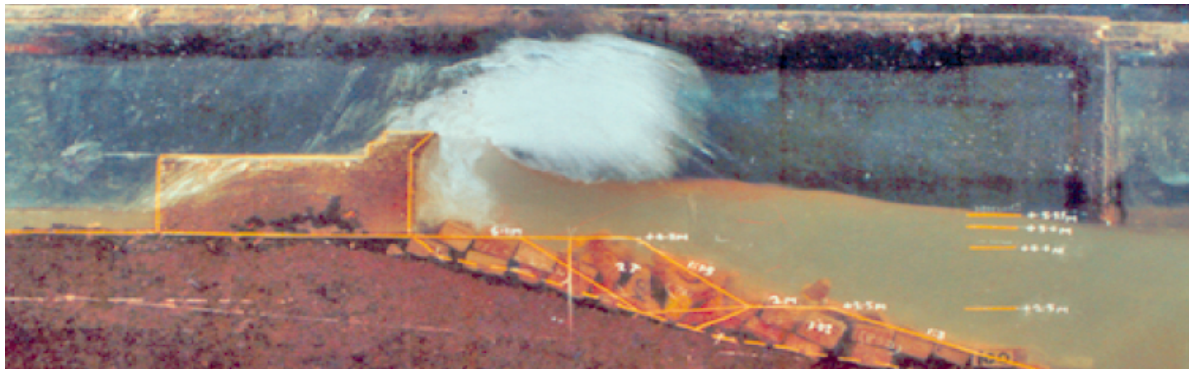
A sea wall from Nariman Point to Chowpatty, Mumbai, was constructed in 1920 as a retaining wall for the reclamation as well as to protect the promenade and a main road provided on the reclamation. The total length of the sea wall is about 3340 m and was protected by Tetrapods and stones in some reaches during 1960-61. A parapet wall is also provided to avoid overtopping. However, in early 1980's damages were noticed to the rubble protection provided on the sea side of the wall. Furthermore, the splash/spray of sea waves was causing obstruction to the vehicular traffic and the pedestrians during the monsoon. The road surface needed frequent repairs due to pooling of water.

### Studies Conducted

- The Govt. of Maharashtra referred the problem to the CWPRS to conduct model studies and to suggest suitable measures for
  - Strengthening the existing sea wall from Nariman point to Chowpatty sea face
  - Reducing the splash/spray action coming on the roadway due to wave striking the seawall during high water.
- Two-Dimensional hydraulic model studies taken up in a wave flume to recommend remedial measures by providing suitable modifications in the seawall cross-section.
- Data collected like topography of the backbay, bed material, wave climate and tidal levels for deciding the appropriate design of seawall.



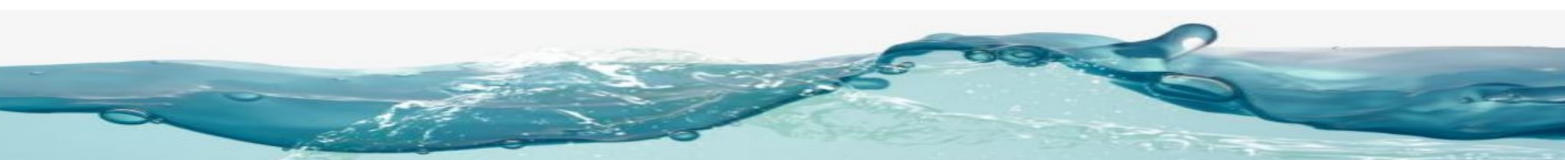
*Marine Drive Sea Wall*



*Wave Flume Studies*

### Outcome and Benefits

- Strengthening of seawall, armour layer with 2.0 tonne Tetrapods placed in double layer and supported by 800 kg to 1000 kg stones/concrete cubes in the toe.
- The curved parapet with its crest level raised to about +8.5 to +9.0 m to reduce the splashing of water on the road / footpath.
- Footpath level on the lee side was raised upto +7.5m so that view of the sea would not be obstructed.
- The toe berm and the layer of Tetrapods enhanced the stability of the seawall. Furthermore, the





dissipative surface of the armour layer and the toe reduced the run-up and thereby the splashing of the waves. Beautification of the marine drive area and the aesthetics of the area for attracting the tourist

