

Last line of defence structures can be used to protect critical assets from coastal hazards. These structures are typically in the form of a seawall that provides a barrier between the ocean and adjacent coastal land.

Seawalls can be vertical or sloped structures and are typically made of rock, concrete or geo-textile containers (geo-bags), and can be designed as buried revetments or exposed walls.

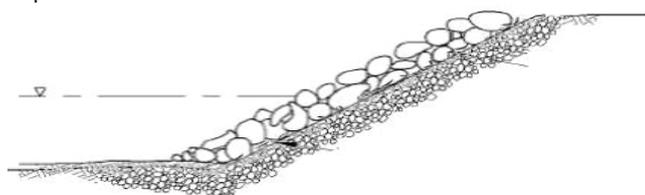


Figure adapted from USACE Coastal Engineering manual

Seawalls are normally very large structures designed to withstand extreme events. A seawall structure must be appropriately engineered to ensure the design (size, height, grade, layers, filters and material) meets the required standards to provide sufficient protection from the local wave climate.

Exposed seawall

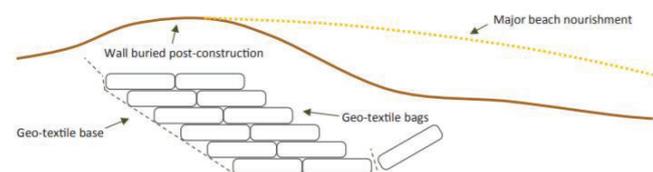
An exposed seawall is a hard barrier to wave energy. Unlike a dune system, a seawall has limited capacity to dissipate (spread out and absorb) energy when it hits the wall. Consequently, waves refract off the seawall and can scour sand from the base, resulting in a change in, or progressive loss of the sandy beach.



An exposed seawall will change the natural aesthetics of the beach and coastline. Exposed seawalls are typically used only as a last line of defence to protect critical assets (a last access road or other critical infrastructure) and in urbanised foreshore environments.

Buried seawall

In some cases, seawalls can be constructed as a buried revetments. In these cases the wall is buried and dune system revegetated, and effort is made to ensure sufficient sand is retained to keep the wall buried (in all except extreme events).



Buried geo-bag seawall at Zilzie, QLD

A buried seawall provides protection from extreme events while maintaining natural beach aesthetics, however will involve additional costs of periodic beach nourishment to ensure the wall remains buried.

Relevant and priority areas

Seawalls in the form of rock revetment structures (formal and informal) are currently established at sections of Tin Can Bay on the estuarine river banks as well as Carlo Point Marina. A rock revetment structure was also constructed in early 2020 to protect Inskip Point Road.

New / upgraded seawalls are feasible in some locations, established as a last line of defence structure, and based on implementation triggers consistent with State planning policy.

Last line of defence structures		
	Exposed seawall	Buried seawall
Cooloola (Estuarine frontage)		
Cooloola (Ocean frontage)		
Cooloola Cove		
Inskip Point South		
Inskip Point Spit		
Rainbow Beach (Estuarine frontage)		
Rainbow Beach (Ocean frontage)		
Tin Can Bay		

	Relevant / feasible
	Priority
	Not applicable

