

Evaluating Sea Defences

Strategy	Type of Engineering	Description	Intended Effect	Cost	Notes
Concrete sea wall	Hard	Usually curved with steps at the bottom and reinforced metal inserts	Deflect wave energy	~ £6,000 per metre	Can last up to forty years if foundations are not undermined
Revetment	Hard	Sloping wooden structures placed on the beach or near the base of the cliff	Reduction of cliff erosion	~ £2,000 per metre	Can last up to twenty five years , but less on storm prone coastlines
Rip-Rap / Rock Armour	Hard	Piles of igneous boulders, often used with other defences	Dissipate wave energy	~£700 per boulder	Many people find them unattractive. Ineffective in very large storms
Groynes	Hard	Wooden or stone structures running perpendicular to wave direction	Collect sediment to act as increased defence	Wooden: ~£10,000 each / Stone: ~£200,000 each	Relatively easy to maintain and repair
Offshore breakwaters	Hard	Artificial islands created offshore	Protect land from incursion by sea	£millions per scheme	Can allow land reclamation
Cliff engineering	Hard	May include drainage , revegetation, re-profiling or surface stabilisation	Reduce or halt cliff erosion	~£20,000 to £millions depending on scale	Not always possible on some angle cliffs
Beach nourishment	Soft	Pumping sand onshore to build up beach	Replenish beach materials to act as increased defence	~£2,000 per cubic metre	Natural looking but needs regular recharge (sometimes twice a year)
Sand dune stabilisation	Soft	Dunes are planted and fenced	Prevents trampling and maintains the dune line	~£1,000 per metre	Natural looking and non-intrusive
Managed retreat	Soft	Allow sea water to infiltrate certain areas	Maintains coastal processes in situ and does not move problem to other areas	Limited	Highly unpopular with land owners