

Management Unit 11 - Fort Gilkicker to Browdown Ranges

Unit limits

4100m from 460700E, 097450N to 456950E, 099500N

Coastal process

Generally low lying recreation and MoD area, fronted by a massive shingle bank extending down to Gilkicker Point where it forms a tidal current dominated ness. Natural feed from eroding cliffs to the northwest is now restricted by coast protection and beach control works. The River Alver passes through the shingle beach via a large outfall structure, and creates a small low tide delta.

- Geology*
- Bracklesham Beds overlain by shingle storm beach and nearshore deposits of sands and muds.
- Wave climate*
- Dominant waves from south west (50% of the time)
 - Secondary waves from south and southeast (30% of time)
- Tidal regime*
- Complex flood tide
 - Maximum nearshore current < 0.5 m/s except off Gilkicker Point where the maximum is between 1.0 and 1.5 m/s
 - Weak tidal current residuals, but with a convergence at Gilkicker Point
- Sediment transport*
- Weak but strongly directional nett southeasterly drift
 - Sand and mud transport over the nearshore seabed has little interaction with beach transport
- Possible future change*
- 300mm sea level rise over 50 years
 - Increased inshore wave energy, with mean direction shifting clockwise
 - Increased nett drift to the southeast

Table 11.1 *Extreme wave heights and water levels*

Probability	1:1 year	1:10 years	1:50 years
Nearshore wave height Hs(m)*	1.2	1.4	1.5
Maximum water level (mOD)	2.40	2.71	2.83

* at the -2m CD contour assuming MHWS tide level.

Existing defences

The greater part of the frontage is unprotected. In Stokes Bay a short length of the coast road is protected against flooding by a concrete wave return wall, while the beach at this point is maintained by small number of timber groynes. The MoD land at Browdown to the northwest is protected over short lengths but the defences are of a piecemeal nature. Various materials such as builders rubble, rock armour, stone, together with short lengths of dilapidated walls serve as partial protection against erosion. The groynes along this frontage are ineffective in arresting littoral drift. The problems are exacerbated by the lack of supply from updrift. This area will be affected by the works in progress at Lee-on-the-Solent.

Natural environment

The backshore includes the Browdown SSSI, Gilkicker Lagoon SSSI (also proposed Ramsar site and part of proposed Solent and Isle of Wight Lagoons SAC), and Gilkicker Point CHS. These areas include shingle, grassland and brackish lagoon communities, including rare plants and invertebrates. Shoreline management operations must comply with statutory procedures.

Land use

The backshore mainly comprises open space, although public access at Browdown is restricted as this area is MoD property and contains several installations and former ranges. The coastal road runs along the shoreline over a short length. There are a number of public recreation facilities, car parks, a public golf course, several slipways and a lifeboat station. The River Alver passes through the beach via a concrete outfall structure. To landward of the open space is a heavily developed residential area.

Human environment

The area is highly valued for public recreation and easy access to the shore. There are three Scheduled Monuments within the backshore zone and a number of sites of historical/archaeological interest, both along the shoreline and within the nearshore zone.

Planning policies

The backshore is designated as Coastal Zone. The MoD property is designated as Countryside while the remaining frontage is Public Open Space. These areas are protected from development. There is a small area designated for housing development near the River Alver, outside the flood risk area.

- Statutory policy documents*
- Hampshire County Structure Plan, Deposit Draft
 - Hampshire Minerals and Waste Plan, Deposit Draft
 - Gosport Borough Local Plan

Strategic defence options

Table 11.2 Impact matrix

	Do nothing	Hold the line	Retreat the line	Advance the line
Effects on physical environment and coastal processes	Natural fluctuation of shoreline	Disruption of natural shoreline evolution. Increased wave attack in future	Gradual realignment of shoreline.	Disruption of natural shoreline evolution. Increased wave attack
Effects on human environment	Loss from MoD ranges at Browndown. Restricted use of coast road at Alverstoke. Possible medium term damage to recreation facilities.	Retain all infrastructure and facilities.	Resite road and facilities to sustainable locations to landward	Reclaimed land available for new recreation developments.
Effects on natural environment	Loss of part of shingle community at Browndown.	Loss of natural development of shingle communities	Loss from designated site at Browndown.	Loss of natural development of shingle communities
Implications for coastal defence	Further damage to defences at Browndown. Possible damage to wall at Alverstoke and to recreation facilities along Stokes Bay.	Upgrade existing defences. Substantial new defences required at Browndown.	Removal of defences at Browndown. Possible need to remove defences at Alverstoke.	Substantial new defences required
Impact on adjacent units	Negligible	Interruption of drift to Unit 10.	Negligible	Interruption of drift to Unit 10.

Losses due to “do-nothing” option

Between Fort Gilkicker and Alverstoke the shingle beach is wide, with an adequate supply of shingle from the northwest. No damage to the few shore front properties is likely to occur in the short term, but some facilities may be threatened in the medium term.

At Alverstoke wave overtopping of the short length of sea wall will result in restrictions on the use of the coast road but will have little effect further inland. The wall may be at risk from undermining and collapse in the future, depending on the development of the beach.

The ranges at Browndown will continue to suffer backshore erosion and rifle butts will be lost.

The River Alver outfall will continue to require maintenance to prevent shingle accumulations from blocking the flow.

Preferred option

This Unit cannot be managed under a single option as there are several short lengths of sensitive frontage along a generally stable shoreline. As much of the shoreline would not be adversely affected by future natural changes then a general policy of **do-nothing** is appropriate in the short-term. Costs of actively holding or advancing the line are not justified and there is no existing requirement for a planned retreat in the short term. Within this general do-nothing policy there are two areas requiring special attention:

- The River Alver outfall tends to become blocked by shingle deposition and requires regular maintenance. The existing outfall cannot be extended or diverted without further disrupting the drift along the whole frontage. The Environment Agency can, therefore **hold the line** by continuing to clear the shingle from around the outfall as at present. Alternatively a new low level, longer outfall could be constructed that would allow shingle to be transported alongshore in both directions and allow the beach to shift seaward and landward without affecting the river discharge. This latter approach would then allow a **do-nothing** shoreline policy to continue along this frontage. Extension of the outfall in a manner likely to interrupt drift would not be appropriate.
- The coast road at Alverstoke may be in an unsustainable position should the shoreline retreat further at this point in the future. In the medium-term a policy of **managed retreat** may be necessary. The road would be re-sited to landward away from the active foreshore zone and the existing wall would be removed.

The policy of managed retreat may also become appropriate in the medium term for other parts of Stokes Bay as some of the recreational facilities may become threatened by changes to the shape of the shoreline. Future monitoring will determine the need for medium term resiting of facilities. Construction of defences to protect any of these assets, or development of significant new facilities requiring protection would be detrimental to the natural stability of the shoreline and the recreational value of the area.

Suggested management options

- Short term* - Plan and implement the future management of the River Alver outfall
- Medium term* - Resite the shoreline road and any recreation facilities that may become threatened by shoreline change

Preliminary economic assessment

Losses due to “do-nothing”

- Negligible in the short term. Possible medium term partial loss of use of coast road and damage to recreational facilities (parking, slipways, etc.).

Costs of works not applicable at present.