

Environment Agency in
partnership with



planning for the future

Eastern Yar
flood and erosion management strategy
2010 - 2020





introduction

The Environment Agency in partnership with the Isle of Wight Council has undertaken a review of how we manage the flood and erosion risk along the Eastern Yar River and in and around Bembridge Harbour.

The final *Eastern Yar Flood and Erosion Management Strategy* sets out our plan to manage flood and erosion risks along the coastline. The final strategy was approved by the Environment Agency and the Isle of Wight Council in 2010.

We have now identified ways to defend almost 500 homes and businesses that are currently at risk from flooding. The Environment Agency plans to raise the sea defence around Embankment Road and the Isle of Wight Council intends to maintain the defences along the St Helens Sea Wall on the Duver. This work is scheduled to take place over the next five years, but is subject to securing funding.

This strategy takes into account:

- a future increase in sea level rise due to climate change;
- the need to appraise options over the long term;
- the impacts of implementation on the natural environment;
- the *Isle of Wight Shoreline Management Plan*;
- 146 responses to our public consultation carried out in 2009 and 2010.

Our final strategy incorporates information and comments provided by the 400 visitors to our public exhibitions. Local communities were supportive of our recommended options and we produced a Consultation Summary Report which is available on the project websites.

Views from Natural England and English Heritage on how our strategy impacts the natural environment and archaeology in the area have also been taken into account and both support our approved options.

the Eastern Yar Strategy area



The beach on the Duver

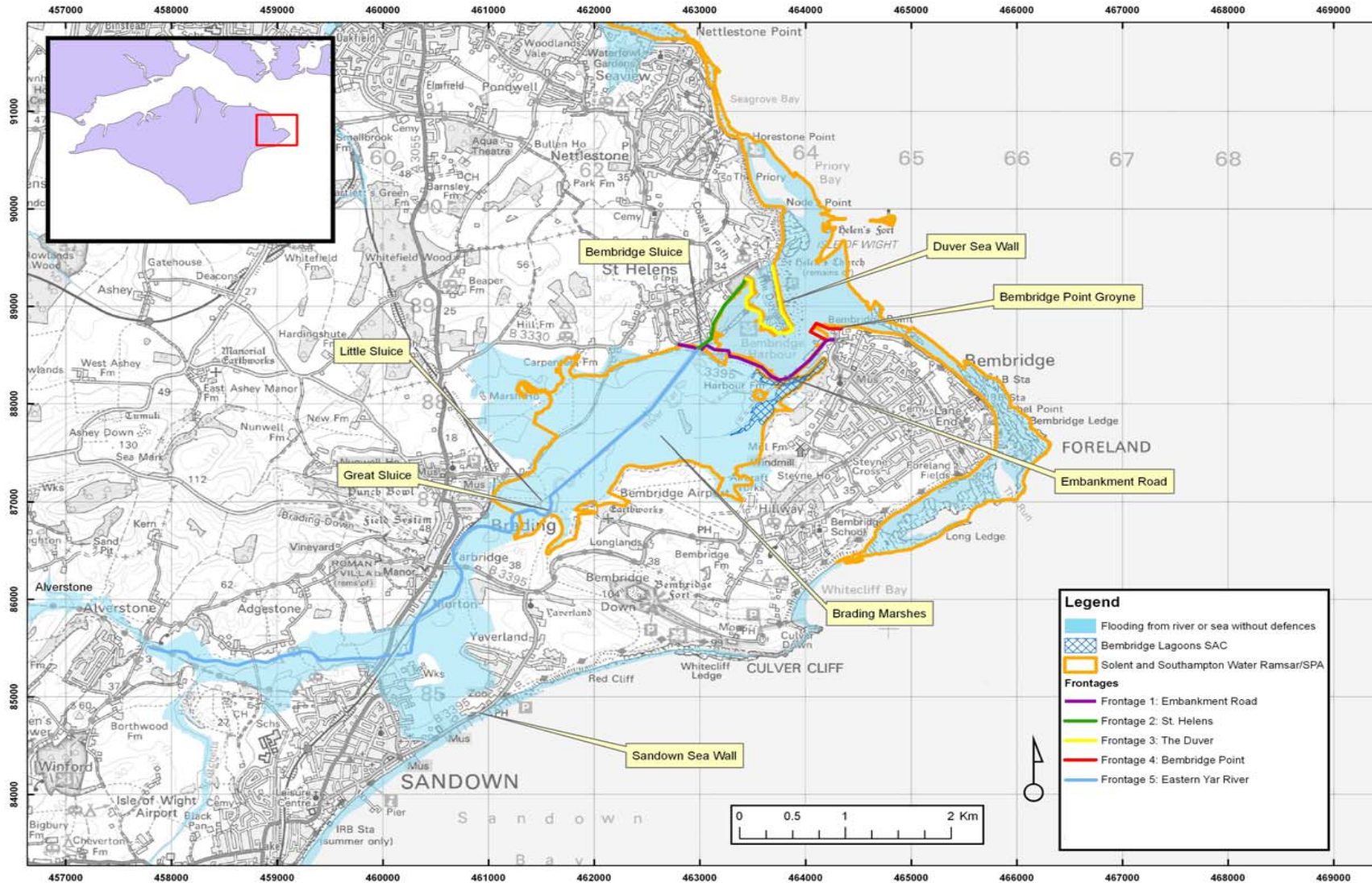
The strategy area (or catchment) includes the Eastern Yar River, Bembridge Harbour, St Helens and the coast along the front of the Duver peninsula. The main tributaries are the Arreton stream, the Wroxall stream and Scotchell's Brook, with the catchment covering almost a quarter of the Isle of Wight.

The Eastern Yar Valley is a unique area of international importance, valued by many for its diversity. Large parts of it are environmentally designated for freshwater and maritime habitats, including freshwater wetlands, sand dunes, lagoons, salt marshes and mudflats. There are also towns and communities which are historically and socially important to the Island such as St Helens, Brading and Bembridge.

The lower sections of the river and its tributaries were dredged and straightened following the reclamation of Brading Marshes in the 1870s. The land between Brading and St Helens was reclaimed when Embankment Road and the railway line to Bembridge Harbour were constructed.

The island attracts large numbers of short and long stay visitors. Tourism in the Eastern Yar catchment is centred on the beaches and sand dunes at the Duver and Bembridge, and on sailing and other maritime leisure pursuits. The strategy has been divided up into different sections to make it easier to assess the risks and damages across the catchment. These frontages are shown in the map on page 4.

strategy boundaries and flood risk



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wildlife sites in the area



Saline lagoons behind Embankment Road

There are many sites of environmental importance in the catchment. Nearly half of the strategy area is designated as an Area of Outstanding Natural Beauty. The bird life, freshwater, intertidal and marine habitats, rocky reefs and saline lagoons have all been recognised as internationally important features.

A large part of the area is classified under the European Community (EC) Birds Directive as a Special Protection Area (SPA) and under the Ramsar Convention for its internationally important populations of overwintering wildfowl and waders.

The marine habitats, intertidal reefs and saline lagoons have been classified under the EC Habitats Directive as a Special Area of Conservation (SAC).

Brading Marshes is a Site of Special Scientific Interest (SSSI), as well as being part of the Solent and Southampton Water SPA and Ramsar site. The area is mainly freshwater and is protected from tidal flooding by the river outfall structure and Embankment Road. We think that Brading Marshes is the most important environmental asset within the catchment as it is the largest freshwater habitat in the Solent, and cannot be recreated within Hampshire and the Isle of Wight. The marshes are protected by a Water Level Management Plan that seeks to balance the needs of flood risk and conservation. Royal Society for the Protection of Birds (RSPB) manages Brading Marshes and it supports the strategy options.

There are many other environmental sites within the Eastern Yar Strategy area including Alverstone Marshes, Alverstone Meade Local Nature Reserve, Arreton Down and Cliff Copse.

who is involved in managing the coastline?

The Operating Authorities for managing flood and erosion risk in this catchment are the Environment Agency and the Isle of Wight council.

We have permissive powers that allow us to protect both people and property where economically, technically and environmentally viable, and where affordable within national budgets. Generally we have no legal duty to build and maintain river and coastal defences.

In April 2008 the Environment Agency became responsible for overseeing the management of all flood and coastal erosion risk in England.

Under the new arrangements the Environment Agency now:

- takes the lead for managing coastal flooding risk in England;
- ensures that sustainable long-term Shoreline Management Plans are in place for our coastline and approves them on behalf of Defra. (This coastline is covered by the *Isle of Wight Shoreline Management Plan*, more details available at www.coastalwight.gov.uk/smp/);
- allocates flood and coastal erosion risk management capital funding.

The local authority will continue to deliver its coastal erosion role, but now under the Environment Agency's strategic overview in a true partnership approach.

We will also work with other organisations, such as Natural England, to understand what effect our strategy will have on the local environment.

The Environment Agency and the Isle of Wight Council have a legal obligation to protect the internationally recognised freshwater habitat in and around Brading Marshes.

The beach on the Duver



strategy development

For each frontage we have assessed flood and erosion risk management options, using technical, economic, social and environmental criteria. For each option we have considered

- how it would address flood and erosion risk to people and properties;
- whether it would work for the short, medium and long term given the effect of sea level rise;
- the cost of the option and the value of damage avoided by providing such defences;
- how it would be built or maintained (if it is a structure);
- how it would impact on people who live in, work in and visit the area;
- the effect it would have on the natural environment.

We considered four main types of options for this draft strategy as shown in the table below.

Management Option	Description
Do Nothing	Let nature take its course – no work will be carried out to maintain or repair defences, allowing them to deteriorate over time.
Do Minimum	Maintain existing defences until they fail and then do nothing as above.
Hold the line – by maintain, sustain or improve	<p>Maintain – defences are maintained as they are, but as sea levels rise flood and erosion risk increases over time.</p> <p>Sustain – defences are raised and strengthened keeping the levels of flood and erosion risk the same as now.</p> <p>Improve – defences are improved to increase the standard of protection over time, beyond the requirements of rising sea levels.</p>
Managed realignment	Improve coastal stability by moving coastal defences to a more sustainable location further inland.

Eastern Yar River

This area extends from Alverstone down the Eastern Yar River to Bembridge Harbour. Flood risk upstream of Alverstone is low. It was not appropriate to consider this risk within this strategy and so we have produced a separate local options report which can be downloaded from our website.

Much of this area was reclaimed from the sea when Embankment Road was built. There is a significant risk of flooding from the sea, but this risk is reduced by Embankment Road and Sandown Sea Wall. The sea wall at Sandown is being considered separately in the Sandown Bay Strategy.

There are three structures which are used to manage water levels and flood risk from the river in and around the marshes: Bembridge tide gate, Middle Sluice and Great Sluice. There are a low number of properties at risk of river flooding on the Eastern Yar River and for some of these properties, the chance of flooding in any year may be 1 in 75.

Approved Strategy Option

Do Minimum

We will support the people living and working in the properties that are at risk of flooding to take local action to reduce the impact of flooding on their lives.

Eastern Yar and Brading Marches



Embankment Road

Embankment Road links St Helens to Bembridge. It is a sea defence structure that prevents tidal waters from entering the Eastern Yar River, reducing salt water in Brading Marshes and protecting the land behind it from erosion.

Embankment Road is the most important flood defence structure in the Eastern Yar catchment and is managed by the Environment Agency. At the moment the defence has a 1 in 25 chance of being overtopped in any year.

We are planning to sustain the defence to ensure Embankment Road continues to provide this standard of protection for the next 100 years. This will protect around 450 properties that are currently at risk of flooding if the road was not there. The option will also protect Brading Marshes, a wildlife rich open space which the local community values highly. Most people responding to our consultation supported this option.

Approved Strategy Option

Hold the line – Sustain

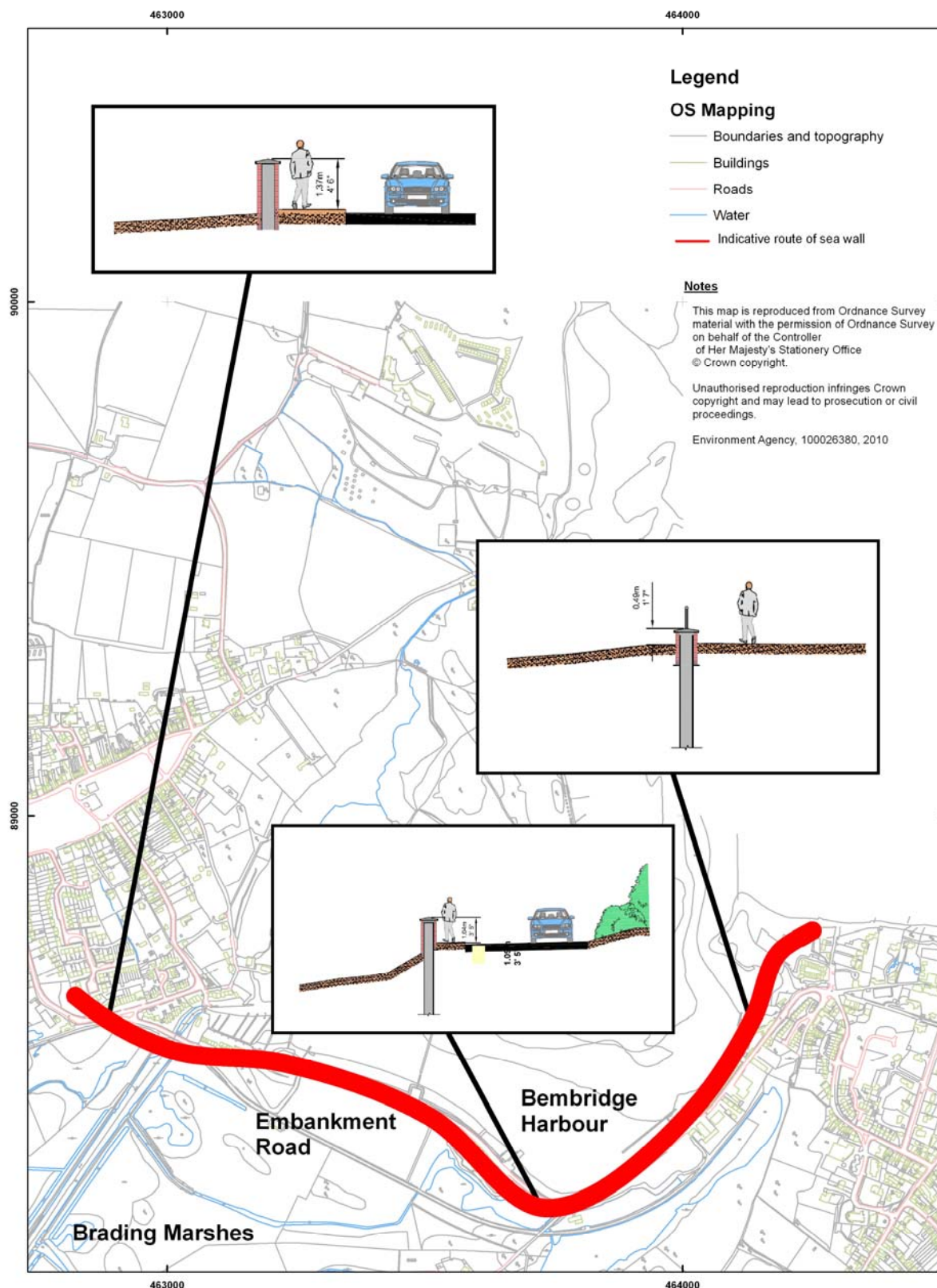
Raise the sea defence around Embankment Road in line with sea level rise predictions. This would include building a sea wall along the length of Embankment Road which varies in height from a few centimetres to 1.4 metres. Refer to Figure 1 for details.

The next stage is to produce a Project Appraisal Report which will look in detail at the costs and benefits and how to protect as many properties as we can economically justify. It will determine what to build new defences from, what they will look like, the exact alignment and how high they need to be. It is likely that this scheme will gain funding in the next five years.

Houseboats on Embankment Road



Figure 1 – Indicative route of sea wall



St Helens

St Helens is situated in the north west of Bembridge Harbour. Most of the community is on a hill and well away from any flood risk although there are some waterfront properties that are at risk of flooding. The harbour walls protect these properties and they are maintained by the riparian owners.

Approved Strategy Option

Hold the line – Maintain

Maintain the defences at their current level for the next 100 years.

It is recognised that securing central government funding will be very difficult for this frontage. We encourage homeowners and businesses to be prepared to take action to protect their properties from flooding. We encourage riparian owners to continue ongoing maintenance of the harbour wall.

Bembridge Point

There are no properties or infrastructure at risk from flooding or erosion at Bembridge Point. The coastal groyne structure does not protect any properties and so we cannot justify spending public money to repair it.

Strategy Option

Do nothing – continue coastal monitoring

Do not maintain or repair the groyne.

Regularly review our coastal monitoring data to ensure that coastal processes are not changing over time.



Bembridge point groyne

The Duver

The Duver is a sand spit formation at the mouth of Bembridge Harbour which provides shelter to the harbour from surface waves. It has a range of uses from recreation to commercial and residential, and is home to important habitats. Much of the seaward side is protected by a sea wall.

There are a few properties on the Duver that are at risk of flooding from the sea. The sea wall is managed by the Isle of Wight council and in places is in a poor state of repair. The National Trust is the main landowner on the Duver and it supports our recommended option for the next 50 years.

Approved Strategy Option
Hold the line – Maintain (for 50 years)
Maintain the sea wall until around 2060.

There are uncertainties surrounding sea level rise predictions, so we must carefully monitor the effects of any rises on this frontage to ensure it is not negatively impacting the protected habitat on the beach. The economic case for this frontage has a very low benefit cost ratio, meaning that works here would not qualify for funding from central government. Funding for maintenance will have to be secured locally by the Isle of Wight Council.



The sea wall on the Duver

what happens next

Frontage	Approved strategy option	Planned work (subject to funding)	Date
Embankment Road	Hold the Line Sustain	Strengthen and raise the sea wall.	2013 - 2020
Duver	Hold the Line Maintain	Repair and strengthen sea wall for next 50 years	2011 - 2012

The approved option for Embankment Road is to raise and strengthen the sea defence in line with sea level rise predictions. We recommend that the sea wall goes on the harbour side so that it protects the road from flooding. We seek to maximise the benefit from any flood and erosion management we undertake and so we will consider extending the sea wall to protect the properties at risk of flooding in St Helens.

This strategy does not guarantee funding for these planned works. Please see page 14 to read about how funding is allocated. The Embankment Road Scheme is in the current medium term plan (*5 year programme of flood and coastal risk management schemes 2010-2014/2015*) published on the Environment Agency website in April 2010.

Embankment Road



funding for flood risk management

Funding is allocated nationally and priority given to schemes protecting large numbers of houses, where flooding and erosion are an immediate risk and likely to cause significant damage.

In this document we set out how we intend to manage flood and erosion risk over the next 100 years although the strategy does not guarantee funding to carry out that work. There could be a long wait for national funding for schemes protecting only a few houses or where economic benefits are low. In these cases, exposure to flood or erosion risk could increase over time in the absence of investment.

To help us to do more to manage flood and coastal erosion risks, we will look for contributions from private, public or voluntary organisations, or communities who will benefit the most from our work. In addition, a contribution may also fund additional work to increase the standard of our services over those which we would otherwise have delivered.



The beach on the Dover

where can I find out more?

The strategy documents are available on the Environment Agency website:
www.environment-agency.gov.uk/yourenv/consultations/

And the Isle of Wight Council website:
www.coastalwight.gov.uk/easternyarstrategy/index.htm

You can keep up to date with progress on implementing this strategy on the Environment Agency and Isle of Wight Council websites.



Ramblers on Embankment Road

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