



Eastoke Point, Hayling Island: Coastal Defence Works

Planning Statement

1 Project Description

1.1 Background of scheme

Hayling Island is located on the south coast of England in the Eastern Solent as shown in Figure 1. This summary report makes particular reference to the Eastoke Peninsula, which forms the south-eastern corner of the Island and is surrounded by water on the southern, eastern and northern frontages. The main water body located to the north and east of the peninsular is Chichester Harbour and the water body to the south, is the Solent.

The Eastoke Peninsula is a densely populated area to the south east of Hayling Island. The southern and south eastern frontages of the peninsula comprises mixed shingle beach with timber and rock groyne control structures. The southern Eastoke frontage is at risk from erosion, tidal flooding and over topping flooding. Havant Council Officers, working in partnership with the Environment Agency (EA), have considered in detail the potential risks to the Eastoke area and have developed the approved Eastoke Sectoral Strategy Study which sets out the preferred option for defending the Eastoke Peninsula, (approval date Dec 2006). The Strategy recommends works to protect the Peninsula from coastal erosion and flooding over a 100 year appraisal period and states that *"...the principle concern along the coastal frontage is that unmanaged, the shingle beach would erode leading to breach causing widespread flooding or properties...without intervention the Peninsula would be cut-off and 1,743 properties, a nature reserve, marina, sailing club, extensive holiday chalets and caravan parks and associated infrastructure would be lost through flooding from both the northern and southern frontages..."*. The Eastoke Point Coastal Defence works is one element of this "intervention". This option is consistent with the hold the line policy as recommended in the North Solent Shoreline Management Plan, adopted in December 2010, which has recently superseded the East Solent Shoreline Management Plan (June 1997).

The Eastoke Peninsula benefits from a combination of existing defences; the southern Eastoke frontage has an extensive shingle storm beach that is a vital coastal defence for the residential area of the Eastoke Peninsula. The Environment Agency has recently constructed a tidal flooding scheme for the north of the Eastoke Peninsular. The scheme consisted of new and raised flood walls, flood gates and various other structures to provide the required degree of flood protection.

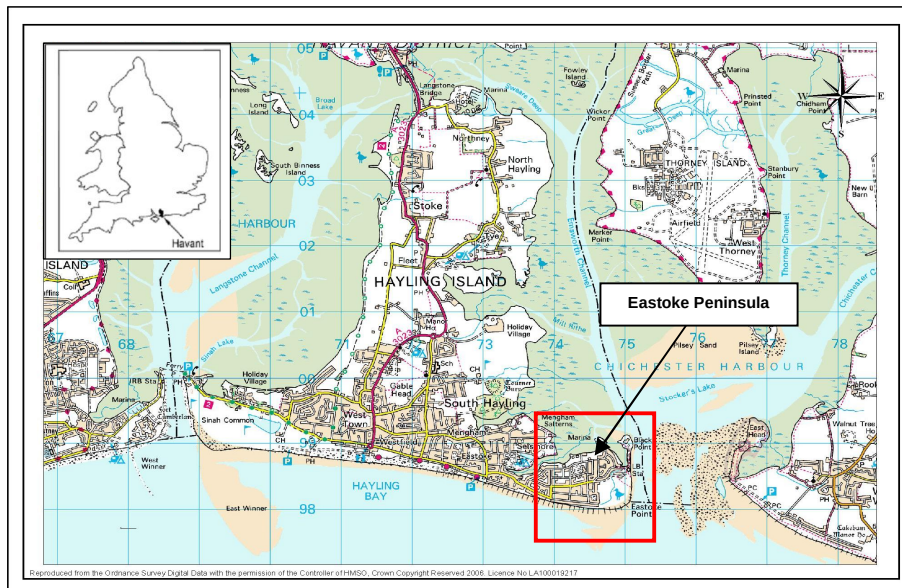


Figure 1: Site Location Map

1.2 Summary of scheme

In 2009, Havant Borough Council commissioned HR Wallingford to undertake the Eastoke Point Coastal Defence Study. It was completed in May 2009, and is available to view on the Havant Borough Council website: <http://www.havant.gov.uk/eastoke>. The study was undertaken to develop a sustainable coastal defence scheme to manage coastal erosion and flooding risks along the Eastoke Point frontage of Hayling Island. The Study considered a total of six main options for coastal defences at Eastoke Point. The studies preferred option, comprised a hybrid of various defences to achieve the desired standard of flood protection of 0.5% Annual Exceedance Probability (1 in 200 year) to these low-lying residential areas.

This preferred option proposed the following:

- Groyne replacement or improvement;
- Rock revetment;
- Improvement and maintenance of splash wall;
- Beach recharge;
- Groyne maintenance;
- Revetment maintenance;
- Beach recycling and management.

The proposed scheme has been designed to be capable of adaptation in the light of changes to wave conditions, tide levels or for any unforeseen affects. This is thought appropriate due to unpredictable swell waves and variable near shore depths in this area. In the unlikely event that the design created adverse environmental impacts, a navigational hazard or not achieving the required standard of protection then the scheme could be adapted to address the situation at relatively low cost.

1.3 Notes on design development

From the initial preferred scheme the design has now been progressed using digital modelling and recognised design methods to produce the proposed design. This has included the consideration of overtopping rates and the length of groynes required in order to keep the beach in place. Also considered was the size of rock armour required to form a stable slope and the crest level of the revetment. This is a compromise between overtopping rates and cost compared to visual impact. A drawing showing the design in a simplified form is given below.

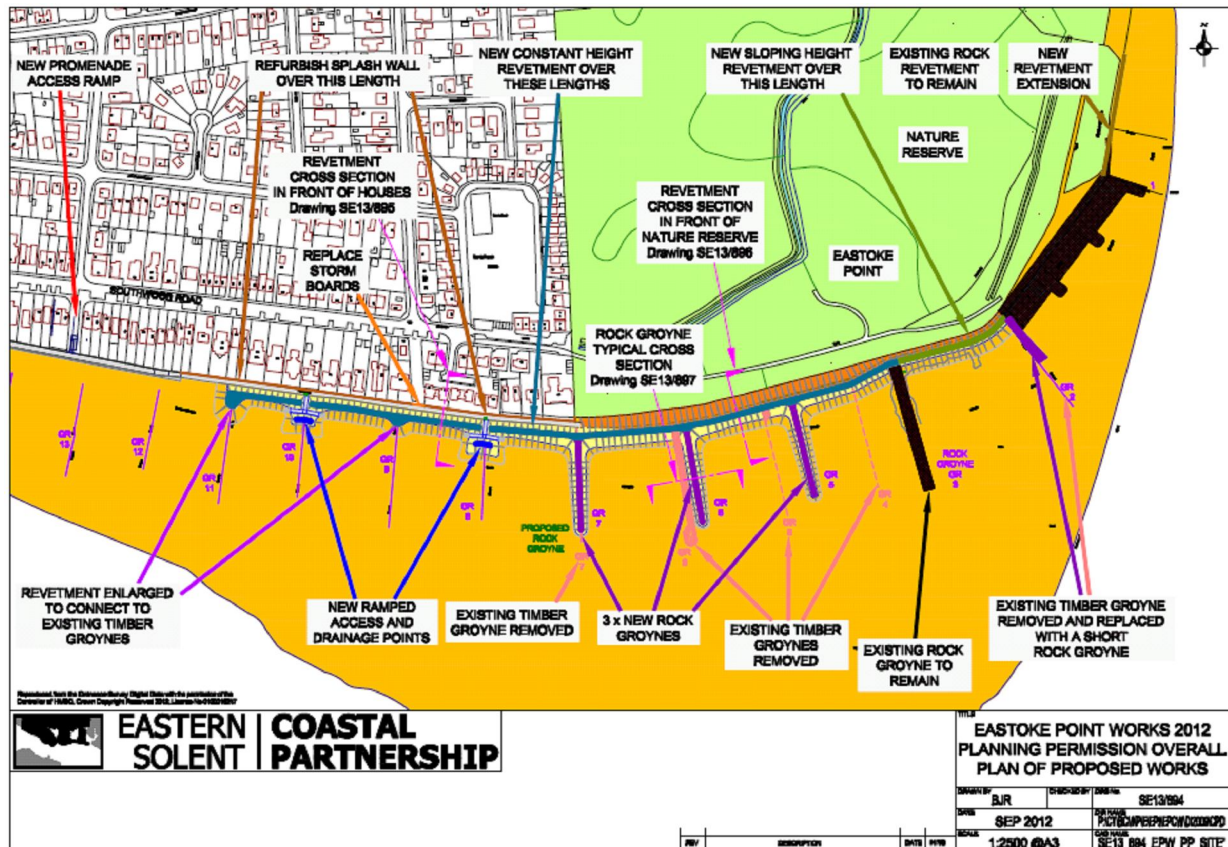


Figure 2: Simplified scheme layout with groyne numbers

1.4 Groyne Replacement or improvement

It is proposed that the existing timber groyne numbers 4, 5, 6 and 7 are replaced with new rock groynes. The new groynes will be constructed with 3 to 6 tonne armour rock. The rock type will be confirmed once contracts have been let depending on market forces, however it is expected to be hard granite (syenite). The majority of the groyne will normally be buried by beach. The top of the groyne will generally follow the profile of the beach but may be up to 1m above the level of the beach, especially following a storm

event. Some work will also be required to Groyne 2, which will consist of shortening the existing timber groyne and converting it into a short rock groyne.

It is also proposed to connect the existing timber groynes (numbered 9, 10 and 11) to the new rock revetment, again with 3 to 6 tonne rock armour. This connection will normally be buried under the beach. This is prevent wave run up running around the landward end of the groynes.

1.5 Rock revetment

It is proposed to construct a new rock revetment between Groyne 2 and Groyne 11 again with 3 to 6 tonne armour rock. As with the rock groynes, the rock type will be confirmed once contracts have been let depending on market forces, however it is expected to be the same hard granite (syenite). Between Groynes 6 and 11 the revetment will protect the existing concrete recurve seawall from undermining and erosion. It will also assist in stabilising the top of the beach and act as a second line of defence if the beach is removed during a storm event. Between Groynes 4 and 5 the rock revetment will protect the existing sheet piles which are in reasonable condition. Between groynes 2 and 4 the revetment will provide the secondary defence at the back of the beach against erosion. At groyne 2 it will tie in to the previously constructed rock revetment. There will also be a minor revetment constructed north of Groyne 1.

The majority of this new revetment will be covered in beach material and will therefore not be visible except if it is exposed by a storm event. In some areas it may be necessary to use the rock to increase the height of the back of the beach and use the rock to help in keeping the beach in place. The elevation of the berm has been set at a level of +5.6m. OD which is the same level as the target level at which the rest of the beach crest is maintained.

1.6 Existing splash wall

The existing splash wall is at the rear of the promenade and extends from Groyne 7 westwards. It provides a tertiary line of defence for the housing on the landward side of the wall from flooding by overtopping water. It is a reinforced concrete wall in reasonable condition. The design has been reviewed and it is not necessary to raise the splash wall to contain any overtopping flows. The opportunity will however be taken to carry out concrete repairs to the wall and provide a surface coating to the wall which will increase its durability. The coating will be coloured light blue. In addition as part of the overtopping flows review, the opportunity has been taken to review the current stoplog arrangements at the two access points. This has resulted in the proposal to install new stoplogs at one location and to provide an access ramp at the other location that will improve disabled access to the promenade.

1.7 Beach Recharge

It will be necessary to recharge the beach between groynes 3 and 7 (see Fig. 2 for groyne numbers). This is needed to act as the primary coastal defence in this area. In the past it has been difficult to maintain the profile of the beach here and part of the current scheme is to design the groynes to keep the beach in place. The beach recharge material is likely to be similar or a coarser grading to that existing on the beach. There are two possible sources for the beach recharge material. The choice will be left to the Contractor who will make the choice on economic grounds. It is possible that it will be sourced from

offshore and delivered to the area by sea. Due to the water depths it is unlikely that it can be delivered to the location that is required. It may therefore be necessary to land the material further to the west and then transport it along the beach to the required location. It is also possible that the recharge could be sourced from an inland source that uses an existing marine dredging operation and delivered to Eastoke by road.

1.8 Groyne maintenance

There will be a continuing need to maintain the rock groynes if rocks become displaced or if it is found that the groynes need to be amended in height or length to adjust to changing conditions. Due to the size of the rocks, this maintenance is expected to be minimal.

1.9 Revetment maintenance

There will be a continuing need to maintain the rock revetment if rocks become displaced during a storm event or if the beach is washed away and the revetment becomes a safety hazard. Due to the size of the rocks, this maintenance is expected to be minimal.

1.10 Beach recycling and management

It is likely that the current recycling and management regime will need to continue once the scheme is completed. This is necessary to maintain the primary defence, the beach to the required standard. It is hoped however, that the scheme will reduce both the quantity and the frequency of the operation. Future beach management activities for the full Hayling Island frontage are being considered as a South Hayling Beach Management Plan, which is currently being developed by the Eastern Solent Coastal Partnership.

1.11 Construction period

It is estimated that the scheme will take approximately six months to construct and the preferred construction period is **April to September**. This is economically advantageous as the Contractor's costs will be lower as they will suffer less down time during the summer. It will also avoid disturbance to overwintering birds. It is believed that the interface with the public can be managed as the scheme location is away from the main beach frontage and access arrangements can be altered to ensure public safety.

2. Alternatives Considered

2.1 Opportunities

Based on the available technical and environmental information, the main opportunities for enhancement on the scheme options are as follows:

- The proposed scheme will be designed to manage both flooding and erosion risk, which will benefit the Eastoke peninsular by providing protection to the local residents, beach users, nearby amenities and businesses as well as protection to the Local Nature Reserve (LNR);
- The scheme will provide improved access and amenity to users of Eastoke Point;
- There will be enhancements to improve disabled access to the area;
- There will be an opportunity for enhancement to the vegetated shingle colonies through a seed collection and dispersal programme post construction works with guidance from Hampshire County Council Rangers;
- There will also be an enhancement to the splash wall and promenade along the Eastoke Frontage.

Any additional appropriate enhancement opportunities identified will be incorporated into the final scheme.

2.2 Proposed Options

In 2009, HR Wallingford set out six main options to consider for the coastal defences of the Eastoke Point area (HR Wallingford. (2009). Eastoke Point Coastal Defence Study). These options included:

- Option 0 Do Nothing;
- Option 1 Do Minimum;
- Option 2 Beach recharge and recycling (alone);
- Option 3 Timber groynes, recharge and recycling;
- Option 4 Rock groynes, recharge and recycling;
- Option 5 Rock revetment with groynes, with recharge and recycling;
- Option 6 Seawall with groynes, recharge and recycling.

Each option was carefully considered in turn, weighing the advantages and disadvantages, then scored against the criterion set in Table 2.1. This multi-criteria analysis considered technical feasibility, environmental acceptability, sustainability and economic benefits of each option.

Criterion	Priority	Weighting
Prevention of flooding at Eastoke (by wave overtopping or breaching of the barrier beach at Eastoke Point).	High	10
Providing continued high beaches and coastal defence standard along Eastoke frontage west of Groyne 7.	High	8
Minimising down-drift erosion and risks of breaching of the spit leading to Black Point.	High	7

Minimising disturbance to flows in Chichester Harbour entrance.	Moderate	5
Impacts on the Sandy Point Nature Reserve.	Moderate	5
Initial and maintenance costs.	Moderate	5
Sustainability.	Moderate	5

Table 2.1: Criteria used to compare Future Coastal Defence Schemes

The multi-criteria analysis technique indicated that the best two coastal defence options for the Eastoke Point frontage are:

- Option 4 Rock groynes and recycling; and
- Option 5 Rock revetment, groynes, recharge and recycling.

After further consideration, the preferred defence scheme for the Eastoke Corner frontage was confirmed as **Option 5**.

For a more detailed review of the different Options along with their advantages and disadvantages, please refer to Section 8 of the HR Wallingford (2009) report which can be found on the Havant Borough Council website: <http://www.havant.gov.uk/eastoke>.

3. Environment Aspects of the proposals

3.1 Nature Conservation Designations

A number of environmental designations have been awarded to sites within the Eastoke Peninsular area, and Eastoke Point tends to form a small part of much wider designated areas (harbour wide). The Peninsula is entirely surrounded by a Special Area of Conservation (SAC), whilst Chichester Harbour is designated as a Site of Special Scientific Interest (SSSI), a Special Protection Area (SPA), Ramsar Site and an Area of Outstanding Natural Beauty (AONB). Sandy Point, located on the eastern tip of the Eastoke Peninsula is designated as a Local Nature Reserve and the Southern Eastoke Frontage is a designated Site of Importance for Nature Conservation (SINC). It is recognised that any shoreline management operations must take account of the environmental value of these areas, and ensure damage is avoided or mitigated against. More details on the likely affects on the designated sites are included in the accompanying Environmental Statement.

3.2 Pollution through construction stage

The scheme has the potential to cause localised, short-term pollution of the water body through increased turbidity during construction. Without appropriate methods of control, there would also be the potential for hydrocarbon pollution resulting from accidental spillages of vehicle fuels, oils and other construction materials.

As part of the Contract for the works, the Contractor will be required to provide a written method statement, to highlight how water quality would be protected during construction. This would be checked against the relevant UK legislation and Environment Agency Pollution Prevention Guidelines, in particular:

- PPG1 – General guide to the prevention of pollution;
- PPG5 – Works and maintenance in or near water;
- PPG2 - Above ground oil storage tanks;
- PPG6 – Pollution prevention guidance for working at construction and demolition sites.

3.3 Impact on sediment supply process in bird habitat, in particular Black Point

The Eastoke Point scheme will manage the sediment supply to Black Point, north of Eastoke Point (to the east in terms of longshore drift). One of the key aims of the scheme design, is to maintain this supply, otherwise this would damage natural processes within the harbour and could cause problems to the inner harbour coastline (to the rear of Eastoke).

The rock groynes that are proposed are not significantly higher or longer than the existing timber groynes they replace and therefore the sediment pathway should not be significantly affected.

When new structures are installed, there can be a lag in the sediment pathways, as shingle needs to build up within the shingle retaining structures before it bypasses the groynes. However as beach recharge forms a significant part of this scheme, this lag has been removed, as the groynes will be full of shingle soon after they are constructed.

Should there be any negative effect on the supply of shingle to Black Point, the rock groynes are adaptable and can easily be shortened by removing rocks at the seaward end. The sediment transport is closely monitored along this frontage, and this will continue during and after the scheme to ensure no

negative effect. The Eastern Solent Coastal Partnership are also developing a Beach Management Plan for the Hayling Island frontage, working with natural processes to maintain critical quantities of beach material along this frontage.

3.4 Traffic

Due to the close proximity of residential property to the storm beach at the Eastoke Peninsula, the free flow of traffic on the surrounding highways has been considered as a potential problem associated with the scheme. Previous successful schemes on this frontage include the Beach Nourishment and Beach Recycling and therefore the traffic restrictions placed on these have been used again for the Eastoke Point Coastal Defence works. There is currently an existing haul route along the top of the shingle ridge, which is used periodically to transport shingle from east to west during the annual recycling operation. It is therefore unlikely that any proposed scheme will require the creation of additional access points to the beach.

It is recommended restrictions are placed on the contractor to only allow work between 7.00am and 7.00pm. No machinery will be allowed to be operated outside of those hours, which includes delivery, collection and maintenance. In addition to this, no weekend working or work on recognised Public Holidays will be permitted except in special cases. An exception to this would be marine based activities, for example material arriving on a ship, needing suitable tidal conditions and these operations would therefore need to be able to operate over a 24hour/day time period.

In the interest of free flowing traffic on and off the island, restrictions will be put in place so that no delivery to or collection from, the application site using construction vehicles between the hours of 3.00pm and 9.30am on any day except in special cases would be allowed. Also, the construction vehicles will be restricted to a specified route of transport to minimise disturbance.

The Development Engineer of Havant Borough Council's Transport and Implementation Team commented that as long as the restrictions detailed above are enforced then the works are **unlikely to have a significant** on traffic and transportation within the surrounding highways.

3.5 Shipping

The entrance to Chichester Harbour lies adjacent to the study area. This serves fishing boats, pleasure craft, and limited commercial vessels. It is important that any proposed scheme will not adversely affect the dredged harbour channels. Also, should material arrive by ship, a specific approach route will be agreed in advance with the Harbour Master at Chichester Harbour Conservancy and disseminated to all local fisherman as has been successfully done in previous years to keep disruption to local seafarers to a minimum (for example, the 2009 Beach Nourishment Project).

The Hayling Island Lifeboat station is located at the eastern end of the study area. Access for launch, recovery and operation of RNLI lifeboats at this site will be maintained during construction works period.

3.6 Noise

Activity within the study area is limited and, as such, noise levels are typical for a coastal location. Existing noise levels are dominated by the natural sounds of the sea and the wildlife. Due to the urban nature of Eastoke Peninsula, vehicles and plant on the beach are allowed between 07:00 and 19:00

during the annual recycling operations. Although dependent on the types of operation being carried out, it is thought that any proposed works would also adhere to these time limits to minimise disturbance, although a review would be carried out if any complaints were received.

Renourishment works using dredgers generally operate 24 hours a day. This is to allow for tidal conditions as vessel activity will typically occur 3 hours either side of high water. This may give rise to some disturbance should the proposed scheme include marine beach recharge; the disturbance would be moderate and of reasonably short duration. In particular, elevated noise levels will occur whilst the vessels discharge their load onto the beach, which is typically over 60 minute periods. In recent years, dredgers have discharged shingle and sand onto the beaches at Eastoke using a “rainbow” technique. If at some future date it was decided to use a pipeline to deliver such materials, this would reduce noise levels during such operations.

3.7 Vibration

Due to the close proximity of the residential properties to the proposed construction area, the movement of operational machinery and the construction works may cause a potential problem through vibration, particularly to the residential dwellings located closest to the operation area (far east of the promenade on the southern frontage) and those dwellings neighbouring the compound at 72 Southwood Road where plant will be stored. Plant will be delivered to the public carpark at Eastoke Corner well away from any buildings and then tracked/driven along the beach to be stored at the compound.

In order to limit the disturbance through vibration, restrictions will be placed on the Contractor to only allow work between 07:00 and 19:00. No machinery will be allowed to be operated outside of those hours, which includes delivery, collection and maintenance. In addition to this, no weekend working nor on recognised Public Holidays, will be permitted except in special cases.

There has also been a change of layout to the compound at 72 Southwood Road that has largely addressed the issue of vibration caused by plant at this location. Plant is now restricted to being stored in the Southern end of the compound away from adjacent houses.

There would also be a Contractors compound in the western part of Creek Road car park which would be used as an office location and for car parking. As there is a risk of damage to the car park surfacing heavy plant will not be allowed to use this compound.

This document has been reviewed by the Environmental Health Team Leader of Havant Borough Council's Environmental Health Department who commented with regards to Noise & Vibration “...I accept that there may be some problems with vibration in close proximity to certain residential properties but anticipate that provided works are limited to the proposed hours of operation the residents may well take the pragmatic view that it is a price worth paying...”. Should complaints arise, the Environmental Health Department would review whether the best practicable means were being taken to minimise disturbance. Therefore we anticipate that the scheme is **unlikely** to have a significant impact on area but may well have some localised impact throughout the construction phase.

Also, consideration is given to the likely affects the construction works may have on the SPA bird species. It is believed that the SPA bird's favoured roosting and breeding grounds are further up in the shelter harbour area, there should therefore be no adverse effects on the designated interest features of these sites. The proposed construction works for the Eastoke Peninsula frontage is based on the more

exposed coastal area. A meeting with Natural England and Hampshire County Council's Local Nature Reserve ranger revealed that construction works along the Eastoke Peninsula frontage are likely to have only a 'limited' impact on migratory and breeding birds.

3.8 Water Quality

3.8.1 Groundwater

Water resources throughout Hampshire depend on groundwater stored within the Chalk aquifer of the Hampshire Downs. This groundwater is replenished by winter rainfall which percolates down into the water table. It then drains out of the aquifer to provide reliable flows in chalky rivers such as the Test, Itchen and Meon. This water is usually of very high quality and as such requires very little treatment for public supply. No groundwater protection zones are located within the study area.

3.8.2 Surface water

There are three main surface water features within close proximity of the study area. These are:

- Eastoke Boating Lake – This lies to the north-west of the study area;
- The Solent – The study area is bordered by the Solent; and
- Emsworth Channel – This body of water lies to the east of the study area at the mouth of Chichester Harbour.

The Boating Lake will not be affected by the scheme and restrictions will be placed on the Contractor to ensure that any pollution of the other two water bodies is kept to an absolute minimum.

3.8.3 Bathing water quality

The EU Bathing Water Directive (76/160/EEC) imposes statutory objectives on bathing waters. Its two main objectives are:

- To improve or maintain the quality of bathing water for reasons of amenity; and
- To protect human health.

Samples taken during the past 10 years from the sampling point closest to the study area have consistently achieved an excellent rating for all parameters.

West Beachlands Central beach, which is located to the west of the study area, currently holds a “Blue Flag” which is a symbol of high environmental standards as well as good sanitary and safety facilities at beaches and marinas.

During the construction stage, there is potential for suspended solids to affect the turbidity of the water which may impact on the rating. However, once the construction phase is completed, it is considered **unlikely for the proposed design to have a significant impact** on this rating due to the inert nature of proposed construction.

4 Landscape and Visual Amenity

4.1 Local landscape character

Havant's Townscape, Landscape and Seascape Character Assessment was completed in February 2007. The site is on the edge of Landscape Character Area 40, Chichester Harbour Mouth, south of LCA 37, Black, Sandy and Eastoke Points. It is an open and exposed landscape with views across the harbour mouth to the low lying coastline of West Wittering and long views out to sea and inland across Chichester Harbour Basin to Thorney Island and the South Downs.

The Eastoke frontage consists of an eroding mixed sand and shingle beach that is controlled by a series of rock and timber groynes in varying states of repair and a partially buried rock revetment. A vertical concrete splash wall runs along the length of the promenade, protecting adjacent properties from flooding. The western end of the study area is bordered by residential properties of varying styles and sizes and traditional seaside amenities such as wooden bench seats, litter bins and beach huts.

The eastern end of the study frontage is backed by the Sandy Point Nature Reserve. This was formerly part of Eastoke common and constitutes one of the last remaining areas of undeveloped land on the eastern part of the island. The nature reserve comprises areas of heathland, sand dunes and grassland. It is separated from the beach by a post and rail fence with wire mesh infill. Works should have no adverse effects on landscape character and visual amenity.

To the east of the study area is Chichester Harbour, part of which has been designated an Area of Outstanding Natural Beauty (AONB). The main characteristics of the landscape are described below.

- A unique blend of land and sea – especially the combination of large open water areas, narrow inlets and creeks;
- Frequently wooded shoreline;
- The flatness of the landscape accentuates the significance of the sea/land intersection and highlights distant landmarks across both land and water. This is an unusual feature of AONBs;
- The open water in the central area of the harbour is a microcosm of the open sea beyond the harbour mouth, reflecting the clouds and sky, the wind and rain;
- A sense of wilderness within the seascape;
- Particularly strong historic character and associations;
- Picturesque harbour-side settlements;
- A rich flora and fauna, notably flocks of wading birds, adds to the diversity of the landscape;
- Unspoilt character and unobtrusive beauty; and
- A harbour offering a very special sense of peace and tranquillity.

4.2 Visual Impact Assessment

In order to identify the potential impacts of any proposed works on the visual amenity of the area, the extent and nature of the views from a variety of representative viewpoints were assessed in the enclosed Landscape and Visual Impact assessment. The principal visual impacts of the proposed works fall into two categories: impacts on the character of the landscape within the study area and, the visual impacts of the works on people living, working or travelling through the area, assessed in the following order of sensitivity:

- High sensitivity: Private dwellings and gardens where viewers are likely to view the study area frequently;

- Medium – high sensitivity: Public rights of way, country parks and other informal recreational facilities where viewers gain a prolonged view due to a slower passage through the area and where the quality of the view forms part of the amenity;
- Medium – low sensitivity: commercial premises, public facilities and schools where the viewer may be familiar with the scene but holds it in lower regard than viewers from residential properties and the surroundings are secondary to the purpose to the visit; and
- Low sensitivity: Surrounding road and rail networks where the viewer gains brief glimpses of the view whilst in motion.

The magnitude of the visual impact of any proposed works was assessed during the option evaluation according to established appraisal guidance. The visual impacts of any new coastal defences will be most apparent to those living behind the eastern end of the promenade just to the west of Eastoke Point, and to those walking along the beaches around Eastoke Point or travelling in boats into and out from Chichester Harbour. Because of this, the visual impacts of any defence scheme can be regarded as of medium-high or high sensitivity. The design of the defence scheme has taken this level of sensitivity into account with a view to keep visual impact of the finished construction to a minimum.

The development guidelines for Landscape Character Area 40, Chichester Harbour Mouth, which this site falls within, states that 'the form and scale of the sea defences should as far as possible not over dominate the natural character of the harbour mouth'. The proposed rock groynes will be less prominent on the skyline than the existing decaying timber groynes because only a maximum of 1 metre of large rocks will protrude above the beach material. The current timber groynes proposed for replacement are unsightly in their current state of disrepair and therefore detract from the harbour landscape.

The guidelines for the adjacent LCA 37, Black, Sandy and Eastoke Points include 'Consider the appearance of sea defences and the collective impact they will have on the character of the area'.

The proposed rock groynes are not too intrusive and are consistent with the modern design for groynes. Timber is no longer considered to be effective or sustainable for modern sea defences to withstand the magnitude of coastal erosion experienced at the harbour mouth.

The Landscape and Visual Impact assessment concludes that 'the proposed sea defences could be successfully accommodated within the landscape without causing significant harm to the surrounding landscape character, visual amenity or landscape elements of the area.'

5 Public consultation and community involvement

Throughout the development of the scheme, various phases of engagement have been undertaken to raise awareness, gather information and to establish key partnerships with stakeholders. This was carried out to provide input data to assist with developing the scheme. The steps taken are detailed in the enclosed Communications Plan.

The public, local organisations and local councillors have been involved throughout scheme development, both during the study stage where the preferred scheme was decided and during the detailed design stage.

A public consultation exhibition was held for the study stage in December 2009 and two further public consultation exhibitions held in April 2012, to raise awareness of the scheme and to gather views and opinions. Various forms of engagement has fed into the development design phase, with the key forms being listed below;

- Establish a steering group (SG) with key stakeholders and host steering group meetings to inform of the schemes progress and enable SG members to express issues/ concerns they may have with the scheme/ design.
- Keeping the Local Authority Portfolio Holder informed of scheme design progress through presentations and regular Portfolio Holder Briefing Papers.
- Presenting the scheme to local Councillors by presenting to the Coastal Defence Panel (CDP) and hosting a site visit for CDP members and Ward members in October 2011.
- Meeting with planning officers of the Local Planning Authority to discuss the scheme in detail, seeking advice and guidance.
- Engaging with other licensing bodies such as the Marine Management Organisation and Chichester Harbour Conservancy for advice and guidance.
- Engaging with the public through various media including; coastal display posters, regular website updates, submission of articles in 'Serving You' in Summer 2011 and Spring 2012 and press releases for local papers which were released in August 2010, February 2011, October 2011, November 2011 and April 2012.
- A second public exhibition was held in April 2012 to advertise the final design which was attended by the general public, residents, representatives from local organisations, businesses and councillors. Feedback from the exhibition is displayed on the Havant Borough Council website.

Feedback received throughout the engagement process from the key stakeholders (including local residents, local organisations, local councillors, other local authority departments such as planning and landscape architecture and the general public), has been positive and in most cases fully supportive of the scheme.

6 Assessment of Flood Risk

The sole reason for the proposed development is to reduce flood and erosion risk to the properties and land on the Eastoke peninsula. It is fully supported by the Environment Agency who have secured funding through Defra for the design and will provide funding for the construction if approval is given. During the detailed design a study of the scheme overtopping has been carried out using digital modelling and it has been designed for acceptable overtopping for a 1 in 200 year event. It is therefore not considered that a formal Flood Risk Assessment is required.

