

# **A PROPOSAL FOR A LONG TERM, ENVIRONMENTALLY ENHANCING APPROACH TO SEAFORD FLOOD PREVENTION**

## 1. INTRODUCTION

Seaford is primarily a fantastic seaside town – it is not a town that happens to be by the sea! It is suggested that Seaford’s beach front, it’s beach and promenade, is potentially the most valuable asset it has, certainly it is these which mark it apart, different from other towns of a similar size.

Sadly this most valuable of assets is now a poor shadow of its former self. Seaford deserves better, it deserves to have its beach back and restored as the fantastic ALL YEAR ROUND community asset it once had!

It is time for a re-think in the way our beach, Seaford Beach, is now being treated, or mistreated if you like, in order to protect Seaford, this fantastic seaside town of ours, from flooding.

A specific alternative, a much more robust and exciting alternative, to the existing strategy is suggested- **if you can agree with this proposal, or at least with the aim of getting a serious re-evaluation of the present sad situation please sign the petition calling for this. The petition can be found in the Old Plough, Church Street, the Salts Café, Salts recreation ground and finally the Sunnyside Caravan Park.**

## 2. BACKGROUND TO THE PRESENT SITUATION

Up to the mid 1980’s Seaford had a true ALL YEAR ROUND amenity beach, one which provided safe bathing, good shore fishing etc. In effect we had individual beaches of clean, sea washed shingle lying between groynes- much like Eastbourne has today in fact.

Largely due to the escalating costs of maintaining the groyne structures, there was increasing concern that the continued ability of the beach to prevent flooding was likely to be compromised unless another, more what we call today “cost effective” solution was found.

At around the same time (1983-4) a planning application was lodged for the building of the houses that are now along the seafront at the west end of the salts recreation ground.

A detailed engineering survey of the integrity of the promenade was undertaken as a result of this application and unearthed a major structural defect in the promenade which in fact was a hole described at the time as being the size of a “double decker bus”!

An urgent backfilling exercise was carried out to plug this hole but it seems now that perhaps this was the very first black hole known to mankind, because the back fill material just basically disappeared, never to be seen again!

It was obvious that, unless an alternative solution could be found, and found quickly, there was not only a real risk of serious flooding if the promenade were to be breached by the next big storm but, obviously of more importance, that there was also a serious risk of loss of life.

At around the same time also Southern Water took over responsibility for flood prevention from the Newhaven and Seaford Sea Defence Commissioners.

Basically, two alternative solutions were considered, one being an off shore artificial reef, the other massive shingle replenishment to quickly replace the shingle that had been lost to the sea over the previous years. Bearing in mind the urgency at the time it was decided that the shingle replenishment scheme was the most practical- as it was relatively quick to do and what we now call “cost effective”.

3 million tonnes of shingle were imported by sea, together with massive Spanish granite rocks which were placed against the promenade – it was quite an operation at the time.

This is the scheme we still have today, 20 years on - one long sweeping shingle beach.

At this point it is worth pointing out that it is the shingle beach that prevents Seaford from flooding, not the promenade. If the sea ever does reach the promenade in its full fury, Seaford’s flood defences truly would again be in serious danger of being breached, as they were in the 80’s.

This shingle based scheme has prevented and, continues to this day to prevent, serious flooding to Seaford- in other words it met and continues to meet it’s primary objective as defined 20 years ago.

An example of this occurred just after the scheme was completed, namely the great storm, or hurricane, of 1987. There is little doubt that the recently renewed beach did prevent a serious flooding of Seaford and, equally almost as certain, loss of life.

However, Seaford, this fantastic seaside town, is now starting to pay a very high price, indeed an escalating price, and this is being increasingly accepted by a growing number of very concerned residents and, indeed, visitors.

We are starting to witness a progressive deterioration in the amenity value of the beach front, particularly outside the peak summer months. Enough really is enough - it really is time for a major re-appraisal of the situation with a view to seeking a PERMANENT, SELF-SUSTAINING, ENVIRONMENTALLY SOUND scheme fit for the 21<sup>st</sup>. century.

A 21<sup>st</sup>. century that will have to cope with what is now almost universally accepted is likely to be the greatest threat ever to face our planet – CLIMATE CHANGE. The scientific predictions are that over the coming years we will in the UK experience rising sea levels, more frequent and severe storms – it is suggested that Seaford’s beach – the primary defence against flooding – is currently unlikely to be robust enough to combat these conditions, these ever more severe weather patterns.

There is another aspect of the existing scheme that needs to be bought out- the cost to the marine environment. This is also becoming increasingly of concern to people nowadays, certainly more so than the way we thought in the 1980’s.

The body now responsible for flood defence - the Environment Agency – through no fault of it’s own, is having to operate within an increasingly tightening year on year budget, is following a strategy that is undoubtedly getting ever more costly to support and, it is also believed, is required to operate under terms that require it to treat the beach primarily as a flood prevention barrier rather than a community amenity.

The Environment Agency has indicated the year on year cost of the existing scheme is “around £150,000” per year.

The treatment of the beach as just a flood defence barrier is really born out by the sorry state that the beach is now left in after the EA’s contractors leave site after each shingle re-alignment visit.

Up to the late 1990s it seemed the EA did at least reshape the beach after each visit in order to allow fairly easy access to us- however over the last few years and probably because of these increasingly tightening budget constraints, married with ever higher costs, the beach, by the EA's own admission is now left to become increasingly steep and compacted, again the EA is understood to have intimated that this is the best we can expect from now on.

The top end of the beach, because of its increasing compaction is no longer able to drain water so readily from its surface, witness the flooding of Marine Parade over this last winter, caused at least partly by the sea washing straight over the surface of the beach and not being absorbed by it. Also bearing witness to this inability to drain water are the large areas of standing water after rain that you will now find along stretches of this compacted area.

This compaction is being at least partially caused of course by the weight of the lorries driving over it when re-aligning the shingle. Increasing compaction of the top of the beach therefore in itself is resulting in the flood defence for Seaford being compromised.

Another consequence of the existing strategy that has fairly recently come to light, and potentially also very serious, is shingle loss. The original estimate back in the 1980's was that there should in fact be very little shingle loss to the sea.

This may have been true in the early years, it does not appear to be so now – although the Environment Agency disputes this, claiming to have “sophisticated” monitoring systems in place checking this at regular intervals – the most sophisticated items likely to be seen on the beach are Bulldozers, Lorries and Diggers when the Environment Agency “is in town”!

The mean level of the beach is falling, witness over the last couple of years the occasional re-appearance of one of the old groynes near to the Sailing club, also near the Buckle end of the promenade you will now see the re-appearance of the foundation of one of the longer groynes, or gantries as they were called, and for which a warning sign had to be erected last year.

There are also now reports of shingle deposits off the Cuckmere river mouth, there are also reports of the same off Beachy Head.

These shingle losses, which it is understood the EA has recently itself quietly admitted to, are of concern for two reasons, one the undoubted damage the shingle is doing to the marine eco-system along the coast, acting as it would like sandpaper on the sea bed, the other, the inevitable need, at some stage if we continue like this, to re-import large, probably huge, quantities of shingle at not just enormous monetary cost but also to the detriment of the sea bed eco-system it is dredged from.

There are proposals to have the coast from Seaford Head through Beachy Head designated as marine nature reserve- surely one of the most beautiful stretches of coast throughout the British Isles - any serious degradation of the bio diversity of this coastline would put this proposal in doubt- most people, would be very concerned if this were the case.

The reasons for this shingle loss are difficult to pin down with certainty- undoubtedly the seeming increasing severity and frequency of storms is contributing, however another plausible explanation that has recently been put forward is quite interesting and worth briefly mentioning

With age it could be that, with the effect of constant abrasion and re-alignment, the shingle below the compacted area, is starting to abrade and reduce in size at a progressively greater rate, to the point that the average size of pebbles is reducing such that it is becoming significantly lighter in weight and therefore more prone to being lost to the sea- certainly it does appear there is a lot more

very fine, almost sand like, material to be seen at low tides now- if this is true then the existing beach could now be in serious danger of major loss to the sea and consequently Seaford's flood defence could now once more be in a correspondingly serious situation.

Given all these factors, it is suggested that, after 20 years of the existing flood defence strategy for this fantastic town of Seaford, now really is the time to take stock and consider more permanent, self sustaining and environmentally sound alternatives.

Following is a suggestion for a new approach which aims to improve upon the existing level of flood defence, necessary to ensure robust protection against ever more frequent and severe weather, to enhance the marine eco-systems in the bay, to stop the degradation of the coast eco-system just described and lastly and certainly no less importantly, rejuvenate Seaford's potentially most valuable asset – it's beach and seafront environment - for all. **A beach front environment that would be envied and Seaford's residents would be proud to have and, deserve to have once more. Additionally a beach front environment fit and ready to take advantage of the possibility of the English South Coast becoming the new Riviera as another possible consequence of Climate Change.**

### 3. OPTIONS FOR THE FUTURE

There are two options for the future of Seaford Flood defence- the first is to continue with the existing "shingle- re-alignment" strategy of the last 20 years, in which case at some stage fairly soon a massive re-importation of shingle will surely be required, in order just to maintain the existing level of flood defence, at great cost in both monetary terms AND environmentally.

Ever more frequent "shingle re-alignment" visits will also be necessary with this option resulting in ever greater beach and marine eco system degradation and of course year on year cost.

This will also not rejuvenate Seaford's seafront environment, it will continue to undermine it- this option, to continue with the strategy of the last 20 years continues to be the EA's intention.

The other option is to seek another approach that is SELF-SUSTAINING (that is once in place will require little, if any, year on year maintenance) is ENVIRONMENTALLY SOUND (that is not just negates the environmental damage of the existing scheme but actually reverses it), will rejuvenate Seaford's beach front as a true all year round community asset AND LASTLY AND MOST IMPORTANT of all – IMPROVES UPON OR STRENGTHENS THE EXISTING LEVEL OF FLOOD DEFENCE for Seaford compared to the existing strategy.

The artist's impression, produced by a young local artist - Mr David Thomas (**e.mail david@dauidleethomas.com**)– shows Seaford Bay with an area of enclosed, calmed water stretching from the Buckle in the west to Splash point in the East which is the entire length of seafront of the inhabited part of Seaford, a distance of approximately 2200 metres, or 1 1/3 miles.

Calming the sea, or dissipating the energy of the waves, before beach impact will achieve 2 major things in terms of the PRIMARY AIM of flood defence;

a) No longer will the beach erode, move or be lost to the sea, as we have seen is the case with the existing strategy – the barrier to flood defence, the beach, will itself be protected – if you think of Seaford Town as the castle, the beach is it's outer defensive wall, the off shore reef is it's mote!

b) The need for heavy plant (lorries/bulldozers/diggers) to re-visit the beach to shore it up, re-position the shingle and even re-import the shingle lost to the sea will no longer be necessary – the

EA therefore will no longer have to allocate increasing amounts from its ever tightening budget for this ever more regular task, this will therefore give it scope to divert funds for flood defences for Newhaven, Lewes and Uckfield. Also by negating the need for these heavy plant visits we will, admittedly in a very minute way globally, reduce carbon emissions into the atmosphere – something that even our government is now saying should be central to all that we plan to do in the future - and will ensure the beach is less compacted such that it is again able to absorb water as it is intended to do.

In addition to these two major advantages of course are several others, perhaps spin offs if you like, but major advantages nonetheless, first a rejuvenated beach front.

Just imagine if you will how much more attractive such a feature would be compared to the present beach front – a calmed water based beach (a lagoon if you like) which will offer all the attractions that our beach had prior to 1987 – safe sea bathing, shore fishing, small boat based recreation, absolutely superb.

With a low density, small craft haven that is shown in the picture there would be income opportunity for Seaford Town council, the list goes on really, snorkelling, scuba diving, the opportunities grow and grow as you stop and consider such an environment.

This really would be a beach front to be envied.

The marine eco-system along the coast would no longer be subjected to damage from shingle movement over the sea bed. Bio diversity would no longer be compromised which would help in any future designation of a marine nature reserve, surely something we should all support.

Also just imagine how lobsters, crabs and fish would take to the reef! Build nature a house and she will turn it in to a home.

By calming the water, and on the flood tide (that is west to east) the scouring effect of the sea will be reduced along the Seaford Head cliff line. As a result the 17<sup>th</sup> fairway of Seaford Head Golf course should last a bit longer!

Many advantages, many advantages.....

In terms of a down side to this proposal we would have to accept that there would be a visual impact, that of the reef – it will be visible to a greater or lesser extent at all states of the tide.

Also, unless the reef is made solid, that is like a solid wall such as the Newhaven West arm, in storms it is unlikely the water inside the reef will be completely calm or flat, there will be broken waves, but these will not have anything like the destructive energy of the waves the beach currently gets impacted by.

This specific proposal suggests that the off shore reef should allow water through it, to allow the beach front water to be replenished, to basically breath if you like.

Of course the engineering detail and, most significantly at this stage, likely implementation costs remain as major issues yet to be fleshed out, but lets not get ahead of ourselves yet.

In terms of general engineering the proposal is as follows;

1. At Splash point and the Buckle, a solid arm perpendicular to the beach. These solid arms will allow public access for walking and fishing. These really should have been constructed under the existing scheme anyway as they would have helped stop shingle drift along the Tide Mills beach and help reduce shingle loss towards Seaford Head.

2. Between these two arms, and following the beach line, a water permeable reef. This will not be accessible to the public and therefore could be constructed from any suitable material, the “bonios” that have served so well for so long now, and without maintenance as far as is known, at Splash point and Newhaven west arm, or granite boulders, old ships, tyres etc. etc..

The two ends of this reef overlap the solid piers to allow water flow and access to small craft.

So hopefully you can see that we end up with an area of enclosed, calmed water stretching for over a mile along Seaford Town beach front - this would not only bolster the existing defences against flooding but also bring the seafront effectively “back to life”, back to the all year round amenity we once had, and, again deserve to have!

In terms of the depth of water and distance from the beach of the main reef basically the shallower and closer the better that remains practical. The initial thought here is to follow the 2m depth line between Splash Point and Claremont road where the beach profile is steepest, this is estimated to be a distance of around 150-200 yards from the Lowest Astronomical Tide line and to follow the same line from Claremont road to the Buckle where the beach profile is slightly shallower.

The 2m line would give a minimum reef height of around 10m off the sea bed to allow for the 7m tidal range of the bay.

It is worth pointing out that reefs DO NOT HAVE to be higher than the depth of water to be calmed – waves are dissipated very effectively by obstructions beneath the surface, the waves do not have to break on them in order to dissipate energy – this is why a broken wave, that is one that has crested into what we commonly call a white horse has in fact very little energy. It is the solid, unbroken waves that cause the damage and in our case cause the shingle to move and effectively undermine the integrity of the beach.

In terms of visual impact a reef height of 10m above sea bed will result in around 8 metres visible height on extreme low tides - about the height of a bungalow, at all other tide states this height will obviously be less.

It is suggested that in time this reef would become in itself an attraction that we will actually come to not just accept but actually appreciate.

In terms of construction, this could be done in phases; first construction of the two solid piers which should already have been built anyway, and secondly the reef itself which again could be constructed in phases if necessary.

There is one last important point, back in the 1980’s there was an almost immediate threat to serious flooding of Seaford for the reasons explained earlier – thankfully and thanks to the existing scheme this today is not the case, therefore we now do have the time to fully consider and plan this scheme, or any other that is put forward – we do not have the urgent need to come to fast decisions, but of course it is important to keep the kettle boiling, complacency should not be an option.

If we can muster sufficient outline agreement from the residents, the councils, our MP etc. that this proposal can or should be taken forward then funding for initially an engineering feasibility and further down the road, a detailed costing for implementation would be sought BUT FIRST WE HAVE TO MUSTER THAT SUPPORT.

With SUFFICIENT POPULAR SUPPORT this scheme or something similar can be made to happen, and really it is suggested there is no option if SEAFORD is to have a viable, attractive all year round amenity seafront which is well protected from flooding in these uncertain years of Climate Change that lie ahead of us.

In summary continuation of the strategy of the last 20 years should no longer be readily accepted by us, the residents of this fantastic bay - it is OLD HAT, OBSOLESCE, WILL NOT BE ROBUST ENOUGH FOR LIKELY FUTURE WEATHER PATTERNS AND WILL NOT RESTORE SEAFORD BEACH TO THE ALL YEAR ROUND COMMUNITY AMENITY IT ONCE WAS AND WE SHOULD STRIVE TO HAVE AGAIN.