*Environmental Report*

# Runswick Bay Coastal Protection Scheme: Scoping Report

Prepared for

**Scarborough Borough Council**


*A great place to live, work & play*

November 2015

ch2m

Quality Assurance

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## *Approvals*

| Name | Signature | Title [complete using 497-10 as guidance] | Date | Version |
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| Marcello Cali | M Cali | Principal engineer | 27/7/15 | Rev A |
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# Contents

# 1 Background

## 1.1 Introduction

Runswick Bay (the Bay) is located on the North Yorkshire coast, set within the North York Moors National Park (NYMNP) and along the North Yorkshire and Cleveland Heritage Coast (NY&CHC). The Bay contains Runswick Bay Village (the village), the older part of which is located in the Bay close to the sea and has been designated as a Conservation Area for its historic and aesthetic value.

The area has a history of coastal instability, such that landslips and coastal erosion present a risk to the village and community of the village. This is predominantly as a result of deterioration of the existing seawall and wave over-topping. Failure or loss of even part of the existing defence structures could have serious and relatively rapid implications. A new coastal protection scheme has been proposed to address this risk.

This Scoping Report has been prepared to follow the format of the Environment Agency's Preliminary Environmental Information (PEI) report in order to support the Project Appraisal Report (PAR), reporting on the feasible options considered at a strategic level to address this risk, developing the preferred (leading) option approved within the Strategy Appraisal Report (StAR) and further assessing the associated potential environmental effects and opportunities of implementation.

### 1.1.1 The purpose of this Scoping Report

We have produced this Scoping Report with a view to:

- Consult with statutory bodies and interested parties for their views;
- Identify issues that have been 'scoped in' and 'scoped out' of the future environmental assessment as presented in Sections 4 and 5 of this document;
- Outline the methods for undertaking the Environmental Impact Assessment (EIA);
- Report on partnership working opportunities; and
- Provide a formal record of the scoping stage and the options appraisal.

### 1.1.2 Supporting information

The information from the Runswick Bay Strategic Environmental Assessment (SEA) has helped in understanding the existing environment and defining a preferred option for the coastal protection at Runswick Bay. A number of relatively detailed studies and surveys were carried out during preparation of the SEA. These include a Landscape and Visual Impact Assessment, a Rapid Marine Ecology Overview and, as an addendum to the latter, a Bird Site Use Survey. The reports of these surveys were included as appendices to the SEA Environmental Report, and the results have been used to inform this Scoping Report. Reponses from consultation undertaken during the SEA process have also been used to inform this Scoping Report. In the interests of efficiency, copies of the survey report have not been reproduced here.

### 1.1.3 Location and Map

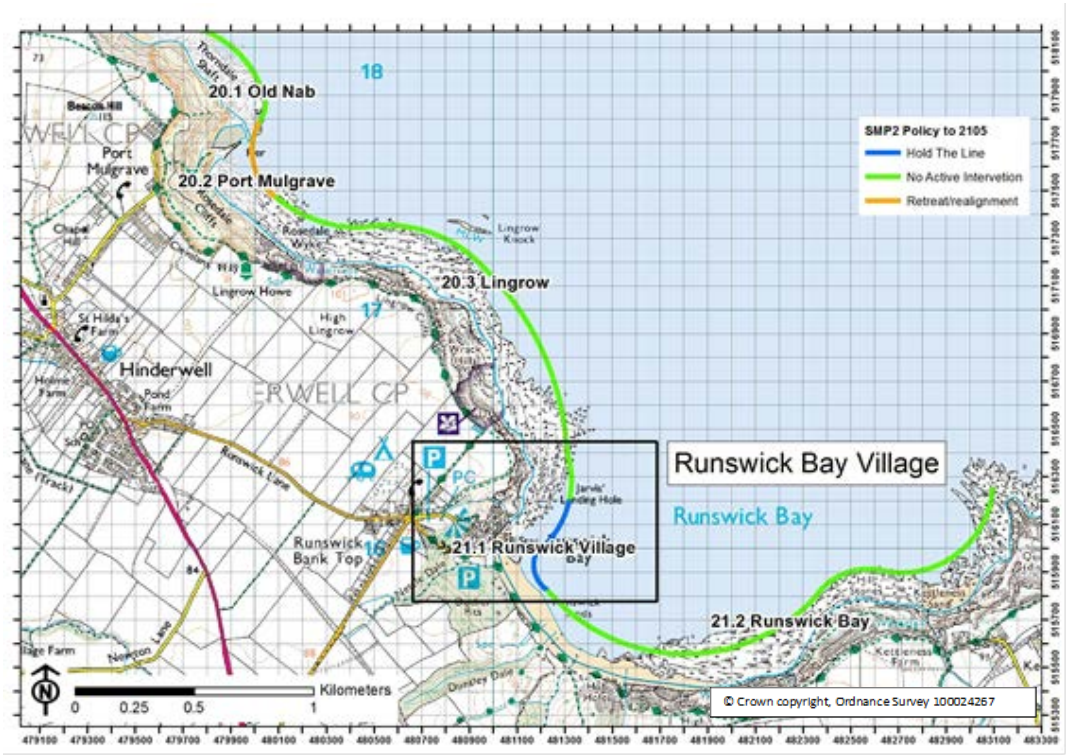



Figure 1: Location map of Runswick Bay

### 1.1.4 Why we are looking at the project

The Runswick Bay Coastal Strategy ('the Strategy') as promoted by Scarborough Borough Council was developed to identify the preferred strategic approach for managing coastal erosion risk to the coastal frontage between Thorndale Shaft (in the north) to Sandsend Ness (in the south), North Yorkshire. This represents approximately 7 kilometres and includes the communities of the village and the smaller settlements of Port Mulgrave and Kettleness.

The Strategy identified the Bay as a primary area of concern in terms of risks to the community from coastal erosion. Coastal erosion was implicated in the ongoing risk of seawall deterioration, toe erosion and for the stability of the slopes behind. Failure or loss of even part of the existing defence structures at the Bay could have serious and relatively rapid implications. The Strategy noted that around 96 residential and 17 non-residential properties are considered to be at risk from coastal erosion. Yorkshire Water has sewage assets in the seawall and under the beach that may also be at risk. Wave overtopping at the village is also a problem, causing occasional damage to properties and slopes behind the existing seawalls.

There are, in addition, issues relating to bathing water quality and seaweed accumulation in the area of the southern section of the existing defences at the Bay. A solution to these issues was sought through the Strategy via modification to the existing defences. However, it was determined through further study that this would be taken forward as a separate project because the linkage between the coastal protection to the village and these issues is not clear.

Natural England (NE) have provided a letter of comfort, dated 17 February 2015, for the proposed strategy. The letter states that it is NE's view that the proposals are likely to lead to an environmentally acceptable solution and that an Appropriate Assessment under the Habitats Regulations will not be required.

### 1.1.5 Environmental Objectives

A SEA was undertaken to appraise the potential effects arising from the strategy options and to ensure that environmental considerations were taken into account during the strategy level decision-making process.

The strategic options considered were assessed against a suite of environmental objectives, targets and indicators. These were developed specifically for the Strategy to address the key environmental issues of the study area and make sure that option selection reflected strategic issues that are relevant to the Bay. The objectives used during the SEA stage remain relevant to the current study, and were used during the options appraisal process. They are listed in Table 1.

Further information on the options appraisal process (and the targets and indicators used) is provided in Section 2 and Appendix A.

**TABLE 1: ENVIRONMENTAL OBJECTIVES**

| Environmental Topic | Environmental Objective |
|---|---|
| **Population** | Maintain or improve standards of flood and coastal protection to local residents in the village. |
| | Protect, and enhance where possible, land and water based amenity and recreation facilities, tourism, the local economy and community structure. |
| | Reduce risk to human life and health (stress and injury) from erosion events. |
| **Landscape, townscape, seascape and visual amenity** | Protect and enhance the natural coastal landscape, seascape and visual amenity of the coastline at the Bay. |
| | Protect and enhance the built townscape, landscape and visual amenity of the Bay and its contribution to the landscape of the North Yorkshire Moors National Park. |
| **Biodiversity** | Avoid damage to the North Yorkshire Moors Important Bird Area.<br>Avoid damage or loss of extent of the recommended MCZ, BAP habitats or habitats of high ecological value. |
| **Historic environment and heritage assets** | Protect designated and non-designated features of archaeological and heritage importance. |
| **Geology and coastal morphology** | Avoid damage to the Runswick Bay SSSI and the Staithes-Port Mulgrave SSSI and, where possible, avoid damage to coastal geological features and the coastal geomorphology. |
| **Water resources** | Protect and enhance, where possible, existing surface, coastal and ground water quality in compliance with the Bathing Water Directive and Water Framework Directive objectives. |
| **Traffic and transportation** | Protect the existing access routes into and out of the village. |
| **Material Assets** | To minimise use of natural resources and generation of waste. |

## 1.2 Scoping methodology

The scope of issues to be addressed during the detailed design and assessment stage of the scheme has been based on our knowledge of the baseline environment within the study area (based on information gained during the SEA process, from site visits, desk study, and specialist surveys), the results of consultation (see Section 2.2) and our understanding of the construction and operation of other similar projects. Consideration of these factors has helped to define the key issues that may arise from construction and operation of the scheme, and enabled a decision on which issues will need to be further examined and reported as part of an Environmental Impact Assessment during the detailed design stage (issues 'scoped in'), and issued not requiring further assessment or reporting (Issues 'scoped out'). The need for additional information has also been highlighted where relevant.

## 1.3 Strategic, Legislative and Regulatory Requirements

The following consents will be sought as part of the detail design phase:

- As the coastal protection structure will constitute a new structure, planning permission will be sought from The North York Moors National Park Authority as the planning authority; and
- A Marine Licence will be required from the Marine Management Organisation under the Marine and Coastal Access Act (MCAA) 2009 to undertake the works.

The National Park Authority has confirmed that they consider the proposals to constitute an EIA development, and therefore an EIA will need toe submitted to support the planning application in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulation 2011 and under the Marine Work (Environmental Impact Assessment) Regulation 2011 (as amended).

Consideration will also be required of the following:

- Protected species licensing under Wildlife and Countryside Act 1981; and
- Consideration of Part 3, Marine Planning, of the Marine and Coastal Access Act 2009 Section.

It has been concluded that there will be no likely significant effect on designated habitats or species as a result of the preferred option and no effect on the relevant water bodies. NE has confirmed that no Habitats Regulations Assessment is likely to be required. No Water Framework Directive assessment will be required.

# 2 Project Development

## 2.1 Options development

### 2.1.1 Long list options

The SEA set out alternative strategic options to address the risk from coastal erosion to the village of the Bay as outlined in Section 1. The process was undertaken in two stages, starting with the production of long list of options as outlined in Table 2.

**TABLE 2: LONG LIST OF OPTIONS CONSIDERED AND PRESENTED IN THE STRATEGY**

| Option | Option Description |
|---|---|
| **1** | No active intervention (NAI) / Do nothing |
| **2** | Do minimum (patch and repair works to the seawalls, and monitoring) |
| **3** | Rock armour apron to seawall toe |
| **4** | Seawall buttressing |
| **5** | Stepped concrete revetment to seawall |
| **6** | Rock armour fillet (reduced section rock apron) |
| **7** | Rock groyne at Cobble Dump (included in Option 8) |
| **8** | Reduced length rock armour fillet to seawalls (in combination with Option 7) and rock groyne |
| **9A** | Shingle recharge |
| **9B** | Shingle recharge with rock groynes |
| **10** | Rock berm to protect exposed cliff |
| **11** | Fishtail groyne |
| **12** | Offshore breakwaters |

The options presented at the long list stage were subject to a high level technical, economic and environmental appraisal with the aim to discount options not considered technically, economically or environmentally viable. Viable options were retained on a 'short list' for further consideration.

Table 3 presents a summary of the high level technical, economic and environmental appraisals of the long list.

**TABLE 3: A SUMMARY OF THE LONG LIST OPTION APPRAISAL**

| Option | Appraisal |
|---|---|
| **1** | Do nothing - This was not considered a viable option as the SMP Policy is 'Hold The Line'. However, this option was **retained** as a baseline option. |
| **2** | Do minimum - This was not considered an ideal option, but it was **retained** as a do minimum baseline option. |
| **3** | Rock armour apron to seawall toe - This option was **retained** on the basis that there is already existing rock armour within the bay which has been accepted by residents of the Village and technically this option would perform well. |
| **4** | Seawall buttressing - **Discounted** on the basis of adverse impacts on visual amenity. |
| **5** | Stepped concrete revetment to seawall - **Discounted** for the following reasons: likely to perform poorly due to the prevailing wave climate; it would attract algae/bio-fouling and would be slippery; and it would form a dominant, stark and severe visual feature within the bay. |
| **6** | Rock armour fillet (reduced section rock apron) - This option was considered to be less effective than Option 3 but also less intrusive, and was therefore **retained**. |
| **7/8** | Reduced length rock armour fillet to seawalls with rock groyne (Option 7 and Option 8 combined) - This option would provide the same level of protection as Option 6 and it was therefore **retained**. |
| **9A** | Shingle recharge - **Discounted** as the material would be unlikely to stay in place and would therefore require frequent maintenance and topping up operations. |
| **9B** | Shingle recharge with rock groynes - **Discounted** on that basis that this option would require a lot of maintenance and groynes are not a preferred option at amenity beaches. |
| **10** | Rock berm to protect exposed cliff - **Discounted** on the basis that this option was considered to provide insufficient protection to the Village. |
| **11/12** | Fishtail groyne and offshore breakwaters (Option 11 and Option 12 combined) - **Discounted** on the basis of high cost, health and safety implications, environmental and aesthetic/landscape/visual amenity impacts. |

The following options were taken forward as a short list of possible options:

- Option 1 - No active intervention (Do Nothing baseline)
- Option 2 - Do minimum
- Option 3 - Rock armour apron to seawall toe
- Option 6 – Rock armour fillet (reduced section rock apron)
- Options 7 and 8 – Reduced length rock armour fillet to seawalls with rock groyne

### 2.1.2 Short list options

The short list options were then subject to a comparative appraisal against the environmental objectives, targets and indicators, and mitigation proposed as reported in the SEA. A list of the environmental objectives, with their associated targets and indicators, and the key conclusions of the appraisal process are presented in Appendix A. A summary is provided below.

**Option 1 – Do nothing**

Description: This option assumed no active intervention for the frontage, with no repair or maintenance works undertaken other than minimal actions to eliminate immediate health and safety risks.

Assessment: The option would result in the loss of up to 96 residential properties in the long term causing disruption to communities and would therefore not meet objectives to reduce erosion risks in the long term. There would be a potential release of sediments and pollutants into coastal waters through erosion and damage to Yorkshire Water infrastructure in the short term, would have adverse effects on coastal water quality. These impacts would continue during the medium and long term. There would also be potential smothering of seabed habitats from erosion debris.

The SEA assessment confirmed that this option is not an environmentally viable option.

**Option 2 – Do minimum**

Description: This option was proposed as a low cost maintenance option providing limited risk reduction and benefits. It consists of patch and repair works to the seawalls, and monitoring to provide early warning of any significant problems. It does not include for large scale repair works and therefore may consequently have a limited design life.

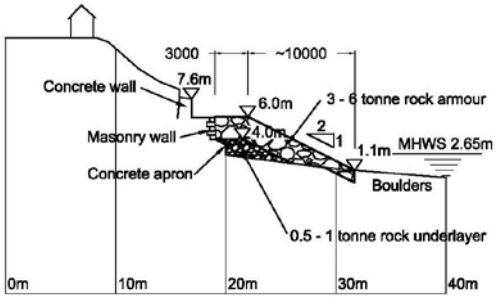
Assessment: The issues associated with this option would be the same as those associated with option 1, but they would occur later. The SEA assessment confirmed that this option is not an environmentally viable option and, as with Option 1, overall it was not considered to meet objectives to reduce erosion risks in the long term or to present an environmentally viable option.

**Option 3 – Rock armour apron**

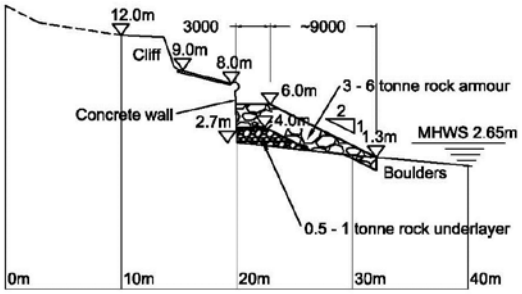
Description: This option comprised protection of the seawalls by the placement of a rock armour apron at the seawall toe. Initially the rock armour would have extended from the old lifeboat house to the outlet of Runswick Beck, and then around the convex seawall at Cauldron Cliff tapering out along the cliff toe. However, discussions with Yorkshire Water revealed the presence of pipework in the foreshore leading to their pumping station, so the option was revised to exclude the pumping station frontage (as shown in Figure 2).

The rock armour apron would comprise rock sized at 3 to 6 tonnes, with a 3 metre berm (at crest level of +6.0m AOD) and slope of 1 in 2, giving overall apron widths of 12 or 13 metres. Refer also to sections C-C and D-D.


Figure 2: Option 3 rock armour apron




Section C-C in Figure 2




Section D-D in Figure 2

Assessment: Overall, the option would meet objectives to reduce erosion risks in the long term (unlike Options 1 and 2). Potential impacts associated with pollution, erosion and seabed smothering of seabed habitats as a result from sewage infrastructure and property damage would be positively addressed.

This option would provide major benefits to residents, the local economy and community structure in terms of risk reduction and protection of the cultural heritage interest of the village, amenity value provided by the North Yorkshire Moors National Park Authority and the Yorkshire and Cleveland National Trail (and proposed England Coast Path).

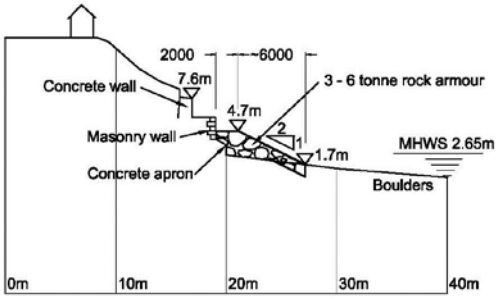
The SEA assessment concluded that Option 3 would result in major adverse impacts on ecology of the recommended MCZ through loss of inter-tidal habitat from coastal squeeze and associated loss of bird feeding habitat in the medium and long term. There would also be an adverse impact on the natural landscape and seascape as the defences would not allow the landscape to respond to the existing environmental conditions. The SEA assessment concluded that this was not the environmentally preferred option.

**Option 6 – Rock armour fillet**

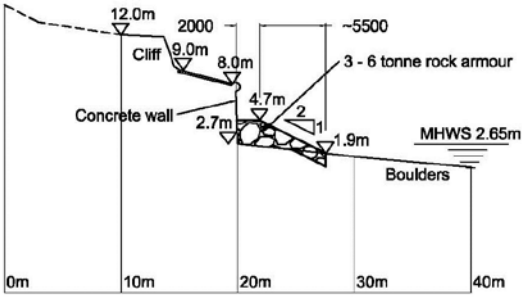
Description: A rock armour fillet approximately 2 metres high (i.e. at a crest level of +4.7m AOD) and 7 metres wide would be placed at the toe of the seawalls and extend some 30 or 40m north of the Upgarth Hill seawall. As per Option 3, discussions with Yorkshire Water revealed the presence of pipework in the foreshore leading to their pumping station, so the option was revised to exclude the pumping station frontage (as shown in Figure 3).

Assessment: Overall, this option would meet objectives to reduce erosion risks in the long term (unlike Options 1 and 2). Potential impacts associated with pollution, erosion and seabed smothering of seabed habitats as a result from sewage infrastructure and property damage would be positively addressed.


Figure 3: Option 6 rock armour fillet




Section C-C in Figure 3




Section D-D in Figure 3

This option would provide the same level of flood and erosion protection with the same associated benefits as Option 3. The SEA noted that Option 6 would result in the following slightly lower levels of adverse environmental impact than those associated with Option 3:

- Lower level of visual impact as a result of the smaller scale and footprint of the rock armour fillet compared to the rock armour apron (Option 3); and
- Reduced impact on inter-tidal ecology.

In conclusion, Option 6 would provide the same level of coastal protection and lower levels of adverse impacts when compared with the other short list options. The SEA assessment concluded that this was the environmentally preferred option.

**Options 7 and 8 Combined – Reduced length rock armour fillet with rock groyne**

Description: This option includes for the rock groyne at Cobble Dump (Option 7), with the addition of a rock fillet approximately 2 metres high (as described in Option 6, i.e. at a crest level of +4.7m AOD and 7 metres wide), which would be placed at the toe of the seawalls.

Unlike Option 6, the fillet would not extend north of the Upgarth Hill seawall, as this area would be sheltered from the predominant waves from the north by the rock groyne. Again, as per Options 3 and 6, discussions with Yorkshire Water revealed the presence of pipework in the foreshore leading to their pumping station, so the option was revised to exclude the pumping station frontage (refer to Figure 4).

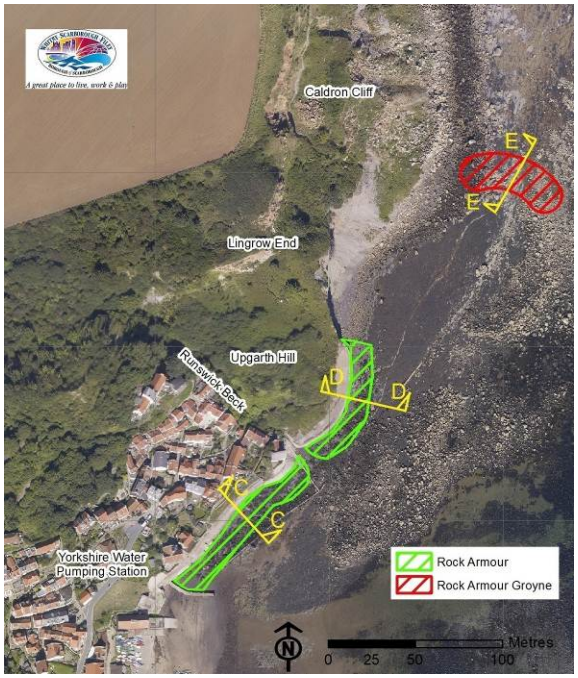
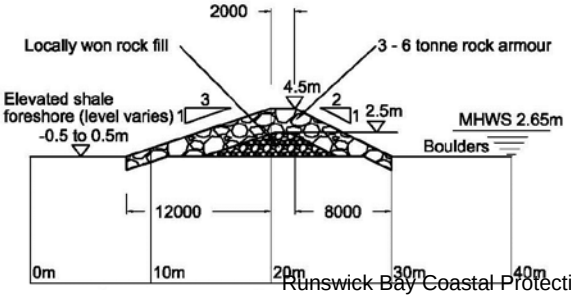



Figure 3: Options 7 and 8 reduced length rock armour fillet with rock groyne




Section E-E in Figure 4
(Sections C-C and D-D as in Figure 3)

Assessment: Overall, this option would meet objectives to reduce erosion risks in the long term (unlike Options 1 and 2), also removing associated pollution, erosion and seabed smothering issues. The assessment confirmed that Options 7 and 8 combined would result in higher levels of adverse impact than those associated with Option 3 and Option 6.

Adverse impacts would include a greater impact on ecology compared to Option 6 as a result of the larger footprint within the inter-tidal area of the recommended MCZ and loss of bird feeding habitat. Adverse impacts on the natural landscape would be similar as the defences would not allow the landscape to respond to the existing environmental conditions, but the construction of the groyne within the bay would have a higher level of adverse visual impact on the built landscape and cultural heritage as it would represent a new element on the landscape in addition to the rock apron or fillet. The groyne would also be placed in an area that may also have major adverse impact on a geological SSSI to the north. The SEA assessment concluded that this was not the environmentally preferred option.

### 2.1.3 Preferred option

Option 6, the Rock Fillet, was selected as the environmentally preferred option of the short list. It was also considered technically feasible and the most economically preferable. Further details relating to this this option are presented in Section 3 and key issues arising from construction and operation are presented in Section 4.

## 2.2 Consultation to date

The long list of options was presented and subjected to an initial review and discussions with the Steering Group at a meeting held on 7th November 2013. The Steering Group consisted of representatives of the local residents, the Runswick Bay Coastal Protection Trust, NE, Scarborough Borough Council, the North York Moors National Park Authority, Heritage Coast and Coastal Forum, EA, Local Councillors and Local Parish representatives. This meeting led to the short listing of Options 1, 2, 3, 5, 6, and combined Options 7 and 8.

The Steering Group, statutory consultees and members of the public (via a public exhibition at Runswick Bay) were consulted on the draft SEA and their comments were recorded and taken into account in the final SEA Environmental Report.

A screening/scoping consultation letter with a copy of this Scoping Report in draft was circulated to statutory stakeholders in July 2015, with a view of agreeing the scope of the EIA. The results of this consultation and the action that we have taken to address the responses are summarised in Table 4.

**TABLE 4: SUMMARY OF CONSULTATION REPONSES ON THE DRAFT SCOPING REPORT (AUGUST 2015)**

| Consuultee | Reponse | Action Taken |
|---|---|---|
| **Natural England, Graham Lee** | No comments further to those submitted during preparation of the Strategy to add; the comments contained within the NE letter of support continue to apply. In summary these state that:<br><br>The Strategy [and therefore, the preferred option of the rock | None required. |

| Consuultee | Reponse | Action Taken |
|---|---|---|
| | filet] is likely to lead to an environmentally acceptable solution.<br><br>No Appropriate Assessment under the Habitats Regulations is likely to be required.<br><br>No negative impact in the short term on the recommended Marine Conservation Zone is envisaged. There may be a loss of habitat in the medium or long term.<br><br>The preferred option is likely to lead to negative impacts on the natural landscape but positive impacts on the build landscape, resulting in a neutral effect overall.<br><br>No interaction between the preferred option and the proposed England Coastal Path is likely (envisaged at the time to follow the same route as the Cleveland Way in the vicinity of Runswick Bay). | |
| **North Yorkshire Moors National Park Authority, Mark Hill, (Planning)** | Confirmed that the Authority agrees with Scarborough Borogh Counil that the proposed scheme comprises an EIA development.<br><br>Confirmed that the proposed EIA scope was appropriate, but requested that the EIA also address the potential for trapping and subsequent release of pollutants by the rock armour, and that the option of delivery of rock by road is clearly scoped out (see under Ecology)<br><br>Also advised that both applications would need to be made to both the NYM National Park Authority and the Marine Management Organisation as competent authorities for dealing with the EIA Directive and any HRA for their respective administrative areas. | A formal EIA wil be undertaken and an ES submitted. |
| **North York Moors National Park Authority (NYM, NPA), Graham Lee (Archaeology)** | Confirmed that cultural heritage and archaeology have been adequately covered. | None required. |
| **NYM, NPA, Rona Charles (Ecology)** | Expressed concern that proposed defences would result in habitat loss, would be unlikely to support suitable habitat in the intertidal area, and could trap pollutants. Requested that the causes of erosion are addressed within the EIA. | Further discussions were held to explain the results of work undertake to date (not all of which have been reported in the Scoping Report). It was agreed that these issues will be addressed and more fully explained during the EIA. Potential for trapping of debris and effluent within the rock armour and the causes of erosion will also be assessed during the EIA. |
| **North Yorkshie Highways, Gerard Lyth (Highways)** | Requested that there should be a requirement for rock tol be delivered by barge only to avoid any deliveries by road. | The methods of delivery of rock and other materials to site willl be addressed during the EIA. |

## 2.3 Future consultation

Further consultation will be undertaken at the environmental assessment stage. This will to include further meetings with the Steering Group and local residents to discuss the details of the scheme, its programme and mitigation proposals.

# 3 The Preferred Option

As noted in Section 2, the rock armour fillet is the preferred option identified by the SEA for the proposed coastal protection of the Bay. Details of its design are described below.

## 3.1 Option Overview

The new rock armour fillet will be constructed in front of the existing seawall between the Yorkshire Water pumping station in the south, past the outlet of Runswick Beck and around the convex seawall at Cauldon Cliff, extending for approximately 30 or 40 metres north of Upgarth Hill seawall. As highlighted in purple on Figure 3, the fillet will rise approximately two thirds of the way up the seawall, to a height of 4.7m AOD (approximately 2 meters). The sides of the fillet will have a slope of 1 in 2, giving and overall width at its base, of 7-8 metres. This is represented in the photomontages in Figures 5 to 8.

There is scope to adjust the size of rock used, but it has been assumed that rock sized at 3 to 6 tonnes will be used. Rock armour fillets of this type have a proven track record of reducing wave impact, erosion and overtopping. Adjustment of the rock size will ensure that the rock armour will reduce wave energy to limit impacts on the seawall, whilst providing both the required stability and the 100 year design life of the Strategy. Larger rocks may be placed towards the northern end of the fillet where wave exposure is greater, and smaller rocks may be used in front of the village. Concrete steps will be provided to maintain access to the seawall from the beach.

Ongoing maintenance in the form of patch and repair works will be required throughout the 100 year design life to retain the integrity of the seawall and regular monitoring will be undertaken of the defences, particularly after storm events.

Yorkshire Water will lose access to some of their assets if the preferred scheme option is taken forward. Consequently, Yorkshire Water have proposed, through consultation reported in the SEA, to re-locate their assets out of the foreshore to within the existing seawall footprint, although the existing storm water overflow pipe would remain. This means that enabling works are required before any main works can begin. It will be necessary for Yorkshire Water to have undertaken the diversion of their pipelines prior to rock placement. It is preferred that the diversion will have been completed and commissioned before the main works start on site.

## 3.2 Phasing and Approach

Rock works on site are proposed to start September 2016 with a proposed completion date of January 2017. In terms of the construction timing and approach to works, the PAR report (EA, 2015) has noted the following key points:

- The rock armour works are to be undertaken in a single phase.
- Rock delivery and placing may be undertaken in a matter of weeks.
- It is anticipated that rock delivery will be by barge, possibly being shipped from Norway.

- Associated works include the construction of an access through the defences which will be undertaken over the same period.
- At this stage the only constraint on the timing of the works is to avoid the peak summer tourist season (June to August). However, this does not apply to the Yorkshire Water enabling works.

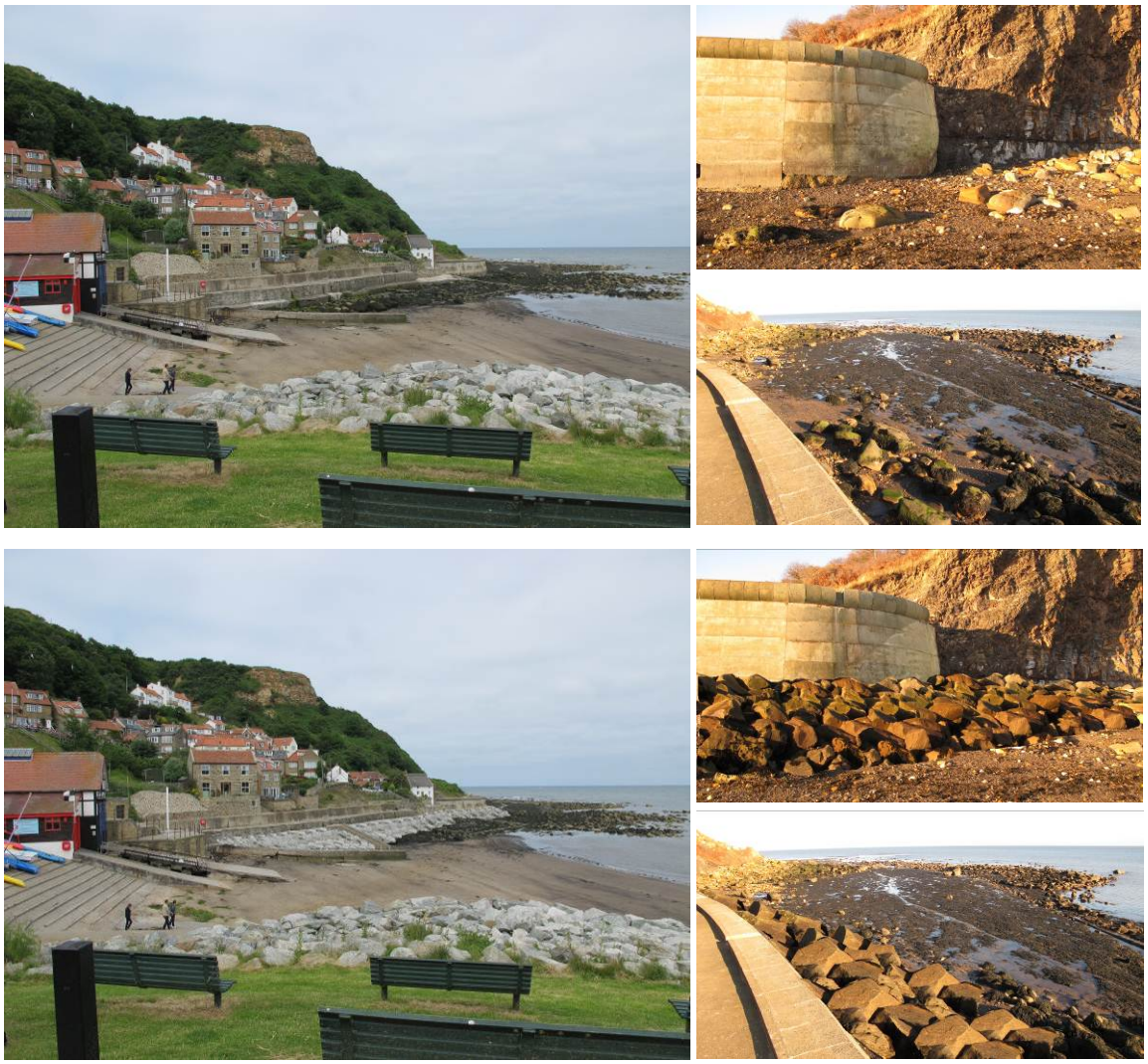


Figure 4: Photomontages of the existing (top) and proposed rock armour fillet preferred option

# 4 Key Issues

## 4.1 Introduction

This section identifies the key environmental issues for which potential impacts are considered most likely to occur as a result of the proposed scheme. It addresses all issues raised as being of potential concern during the consultation process.

The issues have been separated into the following topic headings:

- Population and the local community;
- Biodiversity;
- Landscape, seascape and visual amenity;
- Cultural, architectural and archaeological heritage;
- Water resources;
- Air quality, climatic factors and noise:
- Traffic and transportation;
- Material assets and the use of natural resources; and
- Cumulative impacts.

For each topic, sub-sections describe the key baseline information, key risks, constraints and opportunities; and set out the requirements for further assessment. The focus is to identify the main issues of relevance to the scheme for which further work will be required to: ensure compliance with legislation; meet the environmental objectives for the scheme; and, notably, ensure that negative impacts are avoided and any cost-effective enhancements are incorporated where possible.

Potentially significant impacts have not been identified for all issues considered in this section. Where issues have been scoped out, this has been clearly stated, and a summary is provided at the end of this section. Issues scoped out of the EIA have also been discussed in Section 7.

The location and extent of key environmental features are shown in the Indicative Landscape Plan (Appendix C).

## 4.2 Population and the Local Community

### 4.2.1 Existing baseline

The village is located within the Parish of Hinderwell, which also includes the villages of Hinderwell, Port Mulgrave, Staithes and Dalehouse. The Parish of Hinderwell is the largest and most northerly parish in the Scarborough Borough Council (SBC) area, forming the boundary with Redcar and Cleveland. It covers an area of 1659 acres and

has a population of 2,315. Specific population statistics for the village are not available, but information from Council tax registers indicates a low resident population (17 of the estimated 96 residential properties), with the remainder of the population being made up from tourists and visitors, mainly in the summer months.

Accommodation within the village comprises caravan and camping sites, bed and breakfasts, hotels, a number holiday cottages for private rental and additional accommodation is provided in many of the villages in the surrounding area. The Cleveland Way National Trail passes through the Bay and is used by many walkers and ramblers. The beach and coastal paths are accessible with parking provided just a few minutes' walk from the shore. The beach has been frequently awarded the ENCAMS Seaside Award and flies the distinctive blue and yellow flag

The Runswick Bay Beach and Sailing Club is located on the beach within the Bay. According to their website (http://www.rbbsc.co.uk/wp/), the club sailing day is Sunday, from April to October. Runswick Bay Lifeboat Station is also located on the beach with a small boat slipway and store. The area is popular for recreational and commercial fishing/harvesting activities. These activities are focussed in the northern part of the Bay.

### 4.2.2 Key issues

- Beneficial impacts from the reduction in the risk of loss of 96 properties, reduction in stress levels, community disruption and the protection of livelihoods;
- Disurbance to residence and vistors through increase noise and vibration and construction traffic;
- Health and safety issues arising from people access the existing coastal protection units;
- Temporary closure of the Runswick Bay Beach may effect sailing activities (if works are undertaken April – October) and access to the beach for the lifeboat;
- The design of the scheme may limit access to the foreshore for general recreational opportunities; and
- There is a need to improve access to the beach through the scheme's design (new access steps).

### 4.2.3 Approach to the EIA and next steps

Population should be scoped into the EIA, based on the key issues highlighted above.

We will consult with the National Park Authority to discuss the potential construction impacts and develop appropriate mitigation measures. Noise and vibration and visual impact will be discussed in separate chapters of the EIA (see Section 4.5).

In addition, it is recommended that due to potential access restriction for recreational fishermen and the lifeboat, these groups are consulted. Confirmation should be sought on whether these access restrictions would be permanent or temporary.

The following mitigation measures will be considered in the EIA:

- Public access to beaches to be maintained for residents, leisure pursuits and visitors;

- Careful consideration to programming and timing to avoid adverse impacts on, local residents, visitor's amenities, local businesses, the tourist economy;
- Measures (including warning signs) required to reduce the risk of harm from clambering over rock boulders and access through the rocks; and
- Close liaison with local residents and businesses to minimise noise disruption from construction activities.

Access requirements will be incorporated in the design of the scheme and will be reported in EIA as in-built mitigation.

## 4.3 Biodiversity

### 4.3.1 Existing Baseline

The Bay is located within the North York Moors National Park, and the North York Moors Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI) are located approximately 3.2km from the Bay). The SPA is designated under Article 4.1 of the Birds Directive (79/409/EEC) as supporting breeding populations of golden plover and merlin. The SSSI is notified as 'the largest tract of heather moorland in England and a site of national importance for its mire and heather moorland vegetation and of international importance for its breeding bird populations'. The following breeding bird species are noted as Red List birds or candidate Red List birds (IUCN, 2001): merlin, peregrine, hen harrier, golden plover, red grouse, curlew, redshank, snipe, short-eared owl, whinchat, wheatear, ring ouzel and lapwing. The North York Moors National Park is also listed as an Important Bird and Biodiversity Area (IBA) which details the following IBA trigger species: European nightjar, merlin and golden plover. The qualifying interests of the designations referenced for the IBA are not intertidal species but are detailed as the proximity to the designated area means that there is a reasonable likelihood that these species may be encountered at the Bay. However, it is unlikely that the intertidal area (and the works area associated with the scheme) forms a core habitat utilised by these species. This assumption is supported by survey work undertaken to support the SEA as described below.

A bird survey was undertaken for the SEA as part of the rapid marine walkover survey by the Centre for Environmental and Marine Sciences (CEMS), University of Hull on behalf of Scarborough Borough Council (Hull and Johnson, 2014). The survey was undertaken during July/August 2014 and did not record any evidence of breeding birds on the seawall structure although the survey report notes that the survey was undertaken late in the season. It concluded that 'it is unlikely that any proposed coastal defence works will affect the nesting / breeding of the [above species] as none nest on the seawall or directly in the area of any proposed development'.

A second survey (Hull, 2015) was reported as an addendum to the 2014 survey report. This campaign conducted monthly surveys to capture the movement of wintering birds in the Bay (August 2014 to January 2015, to take into account the movement of migratory birds through the area). The report concluded;

- 'populations are small and none of the species observed during the [current] surveys were dependent on that one site for foraging'; and

- ‘whilst there might be short-term disturbance to foraging and over-wintering waders and seabirds (which are of conservation concern) in the local vicinity of the works, there are additional feeding opportunities to the south of the main proposed development that can provide resources for these species’.

In the second conclusion, birds highlighted as being of ‘conservation concern’ and which may be associated or have connectivity with remote designated sites, were noted ‘to use the area as a stop-over site or moved to the South of the Bay rather than use the area proposed for coastal defence works’.

In terms of general ecological observations, the rapid marine ecology overview noted the following:

- Cetaceans are rarely spotted inshore at the Bay. Records of seals are sparse and irregular in the area.
- The Bay provides spawning and nursery grounds for many fish, including herring, sprat, cod, whiting and plaice.
- The beach sediments show some evidence that the shore is very dynamic. The seawall areas support a high abundance, low diversity infauna with high worm densities. The high worm densities in silts/muds on a beach is an unusual for the Yorkshire coast.
- In the mid-shore areas, coarser grained material was found 5 to10 cm below the beach surface indicating periodic coarse material deposition under higher energy wave environments.
- The shallow rocky areas within the Bay are dominated by kelps and red seaweeds, and deeper areas are encrusted by a living faunal turf of sponges, sea squirts, sea urchins and starfish, interspersed with sands and gravels.
- The rocky shore communities adjacent to the seawall are relatively species poor compared to that of sites further north around the headland and there are no species of commercial importance or conservation concern on this area. However, the Egg Wrack (*Ascophyllum nodosum*) dominated community on the boulders is relatively uncommon on the Yorkshire coast.
- The boulder communities found at mid and upper-shore are relatively unusual on the Yorkshire coast as shores are usually dominated by barnacle beds/algal turfs in very exposed areas or Bladder Wrack/Serrated Wrack on moderately exposed shores.
- The soft sediments below low water mark appear to support a good population of Sand Eels (*Ammondytes sp*.) that is important for seabirds, and a number of terns/ gulls were observed taking these as prey during the surveys.

Runswick Bay is proposed as a Marine Conservation Zone (rMCZ) under the Marine and Coastal Access Act (2009). The MCZ recommendation has been subject to a 12 week public consultation period, which closed on 24th April 2015. Results are expected January 2016. The proposed designation would cover the features listed below with a requirement to maintain them in favourable condition (Defra, 2015):

- Low energy intertidal rock;
- Moderate energy intertidal rock;
- High energy intertidal rock;

- Intertidal sand and muddy sand;
- Moderate energy infralittoral rock;
- High energy infralittoral rock;
- Moderate energy circalittoral rock;
- High energy circalittoral rock;
- Subtidal coarse sediment;
- Subtidal sand;
- Subtidal mixed sediments; and
- Ocean quahog (*Arctica islandica*).

The relevant features to the proposed scheme is the high energy inter-tidal rock habitat (up to mean high water). Although this is a recommended MCZ (July 2015) it should be considered as a fully designated site.

Biodiversity Action Plan (BAP) Priority Habitats in the Bay were recorded in the SEA Environmental Report. These include the Maritime Cliffs and Slopes (which extend north from the Village and the Cobbles Dump, and south from Hob Holes past Kettleness), the Inter-tidal Substrate Foreshore Sand (in the Bay and rock platform to the north of the village and south from Hob Holes) and several areas of Deciduous Woodland (including Nettle Dale, Dunsley Dale, Barnsby Dale and Calais Dale), which are also included on the National Inventory of Woodland and Trees.

### 4.3.2 Key issues

- Temporary disturbance to birds from construction noise, presence of plant on the beach and potentially from people walking along new temporary/unofficial access routes to avoid the construction area in order to access the beach;
- Direct loss of inter-tidal habits extending approximately 7 to 8m from the seawall, within Runswick Bay rMCZ and noted the BAP priority habitat, through the placement of rock onto the beach;
- Temporary loss and/or disturbance to inter-tidal habitat through the movement of construction material and plant;
- Indirect loss of inter-tidal habitat through medium to long-term coastal squeeze in the upper shore;
- The direct and indirect losses of intertidal habitats are likely to have a long term effect on marine invertebrates therefore limiting shorebirds' feeding resource;
- Protection of the cliff from erosion would protect the cliff habitat of the North Yorkshire Moors IBA; and
- Potential pollution issues associated with the use of plant in this sensitive environment and through the enabling working that may result in damage of existing sewage infrastructure that currently runs under the beach.

### 4.3.3 Approach to the EIA and next steps

Flora and fauna should be scoped into EIA.

The supporting ecological assessment will be conducted in accordance with the Institute of Ecology and Environmental Management's Guidelines for Ecological Impact Assessment in the United Kingdom (July 2006).

We will consult with North York Moor National Park and NE to discuss the potential impacts and appropriate mitigation measures. Mitigation requirements will be incorporated in the design of the scheme and will be assessed during the EIA.

NE have stated in their consultation response to the SEA that the proposed scheme will not have a negative impact on the rMCZ in the short term but note there may be some loss of habitat due to coastal squeeze in the medium and long term with some future short term impacts due to the maintenance of the coastal defence. The NE consultation response to the SEA outlined that there would not be a requirement for an Appropriate Assessment under Habitats Regulations. This is confirmed in the NE letter of comfort, dated 17 February 2015.

The following mitigation measures in relation to flora and fauna will be considered in the EIA:

- Short-terms impacts on birds mitigated for via seasonal restriction on working;
- The existing sandstone blocks supporting interesting biota to be incorporated on the seaward side of any granite block armour adjacent to the seawall to enhance colonisation of new substrata;
- Existing rock pools to be incorporated into detailed design where possible to enhance diversity and provide an area of interest for visitors;
- Granite to be sourced from the same area as the existing defences;
- Further measures (including drilling pools into granite block or the use of precast BIOBLOCK) to enhance ecological diversity to be investigated; and
- Additional planting of native coastal species (e.g. thrift, kidney vetch etc.) in the top soil adjacent to the granite armour would enhance that area for insects and form an attractive display.

The impacts of the proposed mitigation measures will need to be assessed in more detail during the EIA.

To support the ecological assessment undertaken at the EIA phase, it is recommended that local available datasets for bird data (for example WeBS) are sourced and an extended Phase 1 Habitat Survey is undertaken with supporting examination of local biological record. The Phase 1 survey will map vegetation types and establish the presence to potential for protected species within the local vicinity of the proposed scheme. An extended phase 1 habitat survey will also support assessment of potential impacts and inform the design of any appropriate mitigation measures.

## 4.4 Landscape, Seascape and Visual Amenity

### 4.4.1 Existing baseline

The whole of the Bay, including the village, lies within the North York Moors National Park. This area was defined as a National Park in 1952, due to its diverse landscape of moorland, dales, woodland and coast. The area of Runswick Bay has also been defined as a Heritage Coast for its landforms and abundance of minerals and fossils. As part of the SEA, a high level LVIA was undertaken which described Runswick Bay as being of high level (national) value.

The North Yorkshire and Cleveland Heritage Coast is 36 miles long and stretches from Saltburn, just north of the National Park, down to Scalby Mills near Scarborough. It is managed by the North Yorkshire and Cleveland Coastal Forum.

The village and surrounding coastline at the Bay are some of the most scenically outstanding areas of the North York Moors National Park and North Yorkshire and Cleveland Heritage Coast, attracting thousands of visitors each year.

The North Yorkshire and Cleveland Heritage Coast Landscape Character Assessment describes the Bay as 'being a focal point for visitors to the area, containing a cluster of red roofed buildings, which are perched one above the other at the foot of the cliffs overlooking a broad bay. The village has also extended onto the flatter land at the cliff top, to include more recent development that bears little relation to the historic settlement cores'.

The older part of the village within the bay is also defined by the North York Moors National Park Authority as a Conservation Area, due to its important vernacular buildings, social history and landscape setting. The Conservation Area covers part of the intertidal area.

### 4.4.2 Key issues

**Landscape and seascape effects**

- Natural England have confirmed that the scheme is likely to result in adverse impacts on the natural landscape but positive effects on the built landscape (of Runswick Bay village), and therefore their conclusion is that the overall effect will be neutral;
- Potential impacts of the scheme on landscape character and seascape within the study area and the setting of landscape features, settlements and property;
- Potential impact on the Character Area, National Park and Heritage Coast designation; and
- Potential loss of intertidal habitat arising from the scheme as noted in the biodiversity, flora and fauna section.

**Visual effects**

- Potential temporary visual effects for local residents and footpath users of the Cleveland Way National Trail within and around the construction works due to the presence of construction equipment.

### 4.4.3 Approach to the EIA and next steps

Notwithstanding NE's comments on the scheme in relation to landscape, it should be scoped into the EIA in recognition of its high (national) value. A full LVIA in accordance with the Guidelines for Landscape and Visual Impact Assessment Third Edition (Landscape Institute and Institute of Environmental Management and Assessment 2013) and the Countryside Agency and Scottish Natural Heritage Landscape Character Assessment Guidance for England and Scotland (2002) will be undertaken to support the landscape assessment which will incorporate and assessment on the Character Area and setting of cultural heritage features.

In drafting this LVIA we will consult with North York Moors National Park Authority Archaeological staff and Conservation officers and England Heritage to discuss the scope and in develop appropriate mitigation measures. In support of the option assessment as reported in the SEA, a strategic LVIA was produced. This document and associated visualisation will be utilised in drafting the full LVIA.

## 4.5 Cultural, Architectural and Archaeological Heritage

### 4.5.1 Existing baseline

The historic fishing village of the Bay has been inhabited since at least Roman times. There is one Scheduled Monument, the remains of the Kettleness alum works, and several listed buildings including a number of the grade II listed buildings. The centre of the village within the Bay is a Conservation Area. The North York Moors National Park Authority noted during consultation on the SEA that the Conservation Area is defined due to its important vernacular buildings, social history and landscape setting that covers the intertidal area. This consultation process noted English Heritage's (Historic England's) comments on the industrial heritage, World War 2 significance and community value of the Bay.

There are no registered battlefields, registered historic parks or gardens or Protected Wreck Sites within the Bay.

Many properties within the village are of heritage significance and the setting includes an important interface relationship with the sea.

### 4.5.2 Key issues

- Beneficial impact through reduced risk to the historic environment and listed buildings through the implementation of the scheme;
- There may be adverse effects on the setting of historic buildings/heritage assets and the appearance of the Conservation Area;
- The proposed scheme needs to ensure that the historic environment and heritage assets that are present within the Bay are holistically addressed; and
- There may be an opportunity for any emerging initiatives to preserve and enhance the Conservation Area.

### 4.5.3 Approach to the EIA and next steps

Cultural heritage, architectural and archaeological heritage should be scoped into EIA.

A key consideration, as identified through consultation, is the visual impact of the scheme on heritage assets and the appearance of the Conservation Area. This should be considered in a holistic manner through a full Landscape and Visual Impact Assessment (LVIA) as recommended in the Landscape Section of this document. The finding of this assessment should be reported in the cultural heritage, architectural and archaeological heritage of the EIA with consideration of the impact of the scheme on the character and appearance of the Conservation Area. Opportunities to preserve and enhance the Conservation Area will also be sought.

In drafting this LVIA we will consult with North York Moors National Park Authority Archaeological staff and Conservation officers and England Heritage, in relation to the Schedule Monument, to discuss the scope and appropriate mitigation measures. In support of the option assessment as reported in the SEA a strategic LVIA was produced. This document and associated visualisation will be utilised in drafting the full LVIA.

The impact assessment will take into account the setting of the heritage assets and, as suggested by English Heritage, their guidance document 'The Setting of Heritage Assets (2010)' will be used as a guide and their process for assessing how setting contributes to significance will be followed.

## 4.6 Water Resources

### 4.6.1 Existing Baseline

**Water Framework Directive**

Runswick Bay is located within the Humber River Basin District (RBD). There are fifteen catchment areas within the Humber RBD and the Bay is contained within the Esk and Coast catchment.

The coastal waterbody within the Bay is in the Esk Transitional Water body (GB510402703400) which is described as a moderately exposed mesotidal and heavily modified waterbody, with good current and predicted quality for both ecology and chemistry.

The two river waterbodies flowing into the Bay are the Runswick Bay South Coastal Area (GB104027068730) and the Runswick Bay Middle Coastal Area (GB10427068740).

Both the Runswick Bay South Coastal Area and the Runswick Bay Middle Coastal Area rivers are currently of Moderate Overall Status. Their Overall Status Objectives are to achieve a Good Status by 2027 and they are also hoped to reach Good Ecological Status by 2027. They are also designated as a Protected Areas under the Bathing Water Directive. Both river waterbodies are short lengths of river. Runswick Bay South Coastal Area is 1.56km long and Runswick Bay Middle Coastal Area is 0.7km in length. Their short length means that they are more vulnerable to deterioration on the waterbody scale.

A preliminary WFD assessment has been undertaken to support this Scoping Report. This concluded that the proposed scheme will not conflict with the WFD objectives and a

detailed compliance assessment is not required. A fill copy of the WFD assessment is presented in Appendix B.

Bathing Water Quality

Bathing water quality is monitored by the Environment Agency during the bathing water season (May to September) and is used to assess whether the waters in which people choose to swim comply with the standards of the current Bathing Water Directives. The monitoring point is 1.5m into the water at a point close to the end of the access ramp to the beach, to the south of the Lifeboat Station.

The EA's Bathing Water 2015 Profile for the Bay reports water quality ratings of good in 2013 and 2014. The EA describes the catchment area, as five streams cutting through the catchment, including Runswick Beck, Nettledale Beck, Limekiln Beck, Calais Beck and Claymoor Beck. Calais Beck is the largest stream measuring two kilometres in length.

The Bay has been subject to short term pollution incidences caused when heavy rainfall washes faecal material into the sea from livestock, sewage and urban drainage via rivers and streams. Reduced water quality increases after rainfall and typically returns to normal after 1-3 days.

Effluents from the Runswick Bay catchment are transferred to Hinderwell Sewage Treatment Works to be treated and disinfected. The treated effluent is discharged through the Staithes long sea outfall rather than into the Bay. There are, however, two storm overflows near the bathing water area. One discharges to the sea 600 metres outside the bathing water area and the second overflow discharges to Runswick Beck which flows into the bathing water area. The operation of these outfalls may sometimes result in reduced bathing water quality.

The Environment Agency have identified a landfill site in the catchment that may be contributing to a deterioration of water quality in the freshwater streams at Runswick Bay. There are plans to investigate whether it has an effect on bathing water quality. If it is shown to impact on bathing water compliance, the Environment Agency note in their 2015 Bathing Water Profile that immediate remedial action will be request from the owner.

This 2015 Bathing Water Profile notes research that 'suggests the bathing water is sometimes subject to an excess of seaweed (macro algae)'. The Environment Agency are currently investigating whether seaweed has any impact on bathing water quality.

A water quality study was undertaken to support the SEA due to the reported concern of water bathing water quality. The problem area is where the Nettledale Beck emerges through the rock armour onto the beach. The combination of seaweed accumulation and the presence of surface water causes odorous ponds to develop in certain conditions, and inhibits access to the beach. The study notes that environment is likely to promote bacterial activity in the ponds, which could in turn affect the results at the nearby bathing water compliance point.

Scarborough Borough Council have sought to undertake further investigation into water quality. This investigation will be undertaken separately from the scheme.

### 4.6.2 Key issues

- Potential pollution issues arising from the use of plant during construction and possible trapping of debris or effluent within the rock armour during operation; and

- Further consideration of the proposed enabling work of the Yorkshire Water infrastructure will need to be reported in the EIA. Potential environmental impacts from such works and any in-combination effects as a result of the enabling works with the proposed defence works will need to be considered.

### 4.6.3 Approach to the EIA and next steps

Water resources should be scoped into EIA based on further investigation of the key issues, particularly the design of any enabling works by Yorkshire Water.

The following mitigation measures in relation to water will be considered in the EIA:

- Release of contaminants from construction to be examined and addressed; and
- Potential for trapping of debris or effluent in the rock armour.

We will consult with North York Moors National Park Authority, Yorkshire Water and the Environment Agency throughout the development of the scheme design to discuss any potential impacts on water resources. Mitigation for construction impacts will be incorporated in the design of the scheme or managed in line with Pollution Prevention Guidelines, and will be assessed during the EIA.

## 4.7 Air Quality, Climatic Factors and Noise

### 4.7.1 Existing baseline

Noise and vibration levels and air quality in the Bay are predominantly influenced by the roads that run through the centre of the village. Baseline noise levels and air quality have not been ascertained through data collection as part of the SEA.

The main receptors that will be susceptible to the changes in air quality and noise will be:

- Local residents; and
- Ecological receptors.

### 4.7.2 Key issues

- Noise and vibration impacts resulting from construction work for the scheme; and
- The effects on climactic factors on sea level rise and coastal erosion.

No noise or vibration impacts during operation are envisaged. The scheme will have no impact on air quality or climate during operation.

### 4.7.3 Approach to the EIA and next steps

It is considered likely that there will be noise and vibration impacts resulting from construction work for the scheme. A noise baseline will be prepared to assess the likely impacts and identify appropriate mitigation measures. This will be further investigated as

part of the EIA process and documented in the ES. We will consult with North York Moors National Park Authority prior to undertaking this survey effort to ensure that all appropriate receptors and monitoring points have been considered.

However, as the construction period is limited in spatial and temporal scope emission to air are likely to be negligible and, assuming the implementation of best construction practises in relation to air quality, can be scoped out from further assessment. The effects on climactic factors on sea level rise and coastal erosion will be addressed as part of scheme design.

## 4.8 Traffic and Transport

### 4.8.1 Existing baseline

There is one main access road into the village, which can be accessed by either Runswick Lane (leading to Hinderwell Lane) to the north, or Ellerby Lane to the South, both of which are accessed off the A174, leading to Middlesbrough in the north west and Whitby to the south east. Buses from Middlesbrough serve the village on their way to Whitby and vice versa.

There are two public car parks located to the southern end of the village which can be accessed from the Cleveland Way. These are Banks Bottom Long Stay Car Park (which accommodates 80 cars) and Bank Top Lane Long Stay Car Park (which accommodates 100 cars).

There is a further car park called Runswick Bay Bank Bottom for resident permit holders only.

### 4.8.2 Key issues

- Temporary loss of access/use/revenue to the two public carparks and residents carpark;
- Temporary loss/obstruction of pedestrian access to village amenities, and visitors requiring access to the Cleveland Way; and
- Temporary disruption/access to the regular bus service that runs through the Bay from Whitby and Middlesbrough.

### 4.8.3 Approach to the EIA and next steps

Traffic and transportation should be scoped into EIA, based on the key issues highlighted above.

The following mitigation measures were recommended in relation to traffic and transportation in the SEA and will be considered in the EIA:

- Suitable access arrangements, management of traffic and considerate site practices during construction.

- Suitable siting of construction and storage areas to avoid disruption to residents and visitors.

We will consult with North Yorks Moors National Park Authority to discuss the potential construction impacts and develop appropriate mitigation measures. Access requirements for construction vehicles will be incorporated within the design for the proposed works and will be assessed during the EIA as in-built mitigation.

## 4.9 Material Assets: the Use of Natural Resources and Waste

Any construction works may require the use of natural resources. These will be obtained from a sustainable source wherever practicable. Throughout the scheme, environmental best practice will be applied when selecting construction methods, suppliers and contractors by following EA's procurement policy; Re-think, Re-use, Re-cycle. Timber will come from a Forestry Stewardship Council (FSC) or an equivalent approved source.

To encourage the minimisation of the carbon footprint of the works a carbon calculator will be utilised throughout the design phase.

A Site Waste Management Plan (SWMP) will be prepared and maintained throughout the design and construction phases of the project. This will ensure that the reduction of waste is integral to the design. It will also ensure that all waste generated by the works is accounted for and disposed of in an appropriate manner.

## 4.10 Cumulative Impacts

The requirement for cumulative (or in-combination) assessment comes from both the amended EIA Directive (Council Directive 97/11/EC, amending Directive 85/337/EEC) and also the Habitats Directive (92/43/EEC) in relation to protected European habitats and species.

In the determination and assessment of the potential impacts of the proposed scheme on the environment, a cumulative effects assessment will be required for EIA. The impacts from the scheme and associated works will need to be considered with the other proposed projects and schemes within the vicinity of the Bay. The following have currently been identified, a further comprehensive search for EIA is recommended:

- North East Shoreline Management Plan 2 (SMP2) - River Tyne to Flamborough Head;
- North Yorkshire and Cleveland Coastal Forum - A Strategy for the Coast 2012 – 2017 (under revision);
- Whitby Coastal Strategy 2;
- Robin Hood's Bay Strategy Study; and
- York Potash project.

## 4.11 Summary of Issues Scoped In or Out

Environmental topics scoped into or out of the assessment are summarised below. Further information issues scoped out are discuused in Section 7 with further rationale provided on this decision.

**TABLE 4: ENVIRONMENTAL TOPIC SCOPED IN AND OUT OF A FUTURE EIA**

| Topic | Sub-Section | Scoped In (Yes/No) | Reason |
|---|---|---|---|
| **Population** | Population | Yes | The risk of coastal erosion may affect the local population as a result of disruption and impacts on local amenity and recreation facilities. The tourism industry is a large part of the local economy, and coastal erosion may adversely affect future tourism. |
| | Tourism | Yes | |
| | Recreation | Yes | |
| **Landscape** | Landscape, Townscape, and Seascape<br>Visual Amenity | Yes | The scheme has the potential to affect the landscape, townscape, seascape and visual amenity, through a changed coastline as a result scheme. |
| **Flora and Fauna** | Terrestrial Ecology | Yes | The scheme may affect habitats and associated species as a result of loss of portions of the foreshore, disturbance, damage, smothering or potentially from altered coastal processes. |
| | Marine Ecology | Yes | |
| | Overwintering Birds | Yes | |
| **Cultural, Architectural and Archaeological Heritage** | Cultural, Architectural and Archaeological Heritage | Yes | The Village of Runswick Bay has been inhabited since before Roman times. The scheme may have potential to affect the setting of the cultural heritage of the Village. |
| **Climate factors** | Air Quality | No | There may be localised and temporary changes in air quality during any construction activities at the scheme stage. However, they are unlikely to lead to significant or long term changes to the local air quality within the Study Area. |
| | Noise and Vibration | Yes | Noise and vibration impacts resulting from construction work of the scheme may impact residents and ecological receptors. |
| | Climate | Yes | The scheme will have no effect on climate change, but the effects of climate change and sea level rise are factors that will be considered in the scheme's detail design and reported in the EIA. The predicted carbon footprint (Tonnes Fossil Co2e) of strategic options also needs to be considered. |
| **Water Resources** | Water Framework Directive | Yes | The scheme has the potential to affect water quality and water resources, for example, by changing currents, changing sediment flow and potential improvements to bathing water quality through associated works |
| | Bathing Water Quality | Yes | |
| | Groundwater | Yes | The scheme could affect groundwater quality and resources, and groundwater is likely to affect erosion and slope stability. |
| **Soil** | Designated Geological sites | No | Based on the lack of impact to designated features and change from the existing environmental constraints of the seawall on geomorphology it is recommended at soils are scope out the EIA |

| Topic | Sub-Section | Scoped In (Yes/No) | Reason |
|---|---|---|---|
| **Traffic and Transport** | Roads, Vehicular Pedestrian Access and Parking | Yes | Roads and access are key to survival of the village, and these could be affected by the construction hase of the scheme. |
| **Material Assets** | Use of Natural Reources and Waste Generation | No | The scheme is likley to require the use of natural resources and generate waste requiring disposal. However, these issues can be addressed during the detailed design and pre-construction phases by the adoption of standard design/construction measures. |

# 5 Other Assessments

## 5.1 Water Framework Directive

The preliminary WFD assessment (Appendix B) has concluded that the proposed scheme will not conflict with the WFD objectives and a detailed compliance assessment is not required.

## 5.2 Environmental management issues

Mitigation measures will be identified to prevent or reduce impacts to an acceptable level and where possible prevent any significant effect on the environment. These measures will be set out in an Environmental Action Plan (EAP), which will form part of the contract documents. The EAP is a tool by which we can manage the environmental impacts set out in the ES. The objectives, actions and targets will be monitored throughout the detailed design, construction and post-construction stages to ensure that the proposed mitigation measures are undertaken.

A Construction Environmental Management Plan (CEMP) should be prepared prior to construction by the contractor for reference throughout the construction phase. The CEMP will detail procedures and guidelines to be followed by the contractor to ensure generic site environmental aspects are managed adequately include but not limited traffic in the form of a traffic management plan.

Sustainability will be considered throughout the design and construction phase of the scheme by the use of a carbon calculator tool to identify approaches with the lowest carbon footprint, through a materials management plan to optimise materials and their transport and through applying a site waste management plan to avoid and reduce wastage.

# 6 Additional Issues

## 6.1 Uncertainties

At this stage of the development of the scheme there are several uncertainties relating to the proposals and potential effects. The main uncertainties that will need to be resolved during the next phases of the project are:

- The location of site compounds, haul routes across the site, sequence of construction, extent of vegetation clearance and construction methods. This detail will allow the full scale of potential effects to be assessed and appropriate mitigation to be designed;
- Construction methods, phasing of the works and the proposed programme and timing (season) which will inform the various impact assessments; and
- Conclusion of the recommended Extended Phase 1 Habitat survey which will inform the various impact assessments in regards to the current gap in knowledge of the local ecology.

These uncertainties will be removed during design development in order for the full EIA to be completed with confidence.

# 7 Issues Scoped Out

## 7.1 Air quality

As noted in Section 4 there may be limited impacts on air quality during the construction phase, but these are likely to be negligible and can be managed through the application of the construction best practice. Therefore, it is proposed to scope air quality out of further assessment.

## 7.2 Soils

The SEA has confirmed there will be no significant impacts from the proposed scheme on either of the SSSI designations notified for the geological interest. This conclusion is reflected in NE consultation response to the SEA, in which it was noted that it is unlikely that the proposed project will have any effect on the SSSIs, Runswick Bay or Staithes to Port Mulgrave.

The proposed scheme will prevent the natural regression of the coastline which it could be argued would affect the condition of rock exposures along the coast. However, it should be noted that this would only represent a change from the existing situation at the seawall margins as the seawall currently limits this natural regression in the short term. However, if this structure was to fail clearly natural process would act unhindered.

Based on the lack of impact to the designated features and change from the existing environmental constraints of the seawall on geomorphology it is recommended at soils are scope out the EIA.

## 7.3 Material Assets

As noted in Section 4, the scheme is likely to require the use of natural resources and generate waste requiring disposal off-site.

Natural resources will be obtained from a sustainable source wherever practicable and environmental best practice will be applied when selecting construction methods, suppliers and contractors by following EA's procurement policy. Timber will come from a Forestry Stewardship Council (FSC) or an equivalent approved source.

The carbon footprint of the works a carbon calculator will be utilised throughout the design phase to minimise carbon generation.

A Site Waste Management Plan (SWMP) will be prepared and maintained throughout the design and construction phases of the project. This will ensure that the reduction of waste is integral to the design. It will also ensure that all waste generated by the works is accounted for and disposed of in an appropriate manner. No further assessment of these issues is proposed and it is therefore recommended that material assets are scoped out of the EIA.

# 8 Next Steps

This Scoping Report has been prepared to report on the environmental scoping process undertaken for the proposed. The scope and findings of this assessment have been informed by consultation on the scheme proposals and the identified environmental risks, issues and opportunities.

Once the scope of assessment has been accepted, the detailed specialist topic assessments will be initiated. These will involve site specific surveys, further consultation with vested parties and result in the development of an ES to support the planning applications.

Further documentation that will be needed to assist the planning application are:

- Design and Access Statement;
- Drawings of the scheme;
- Flood Risk Assessment and;
- Planning Statement.

# References

Hull S.L and Johnson M. 2015. Runswick Bay Coastal Protection Scheme: Rapid Marine Ecology Overview - addendum. CEMS, University of Hull. Report for Scarborough Borough Council.

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CH2M HILL, 2015. Runswick Bay Coastal Strategy: Strategic Environmental Assessment. Prepared for Scarborough Borough Council

Hull S., Mayes W. and Riley A. 2014. Water Quality Issues at Runswick Bay: Nettledale Beck Diffuse Pollution Assessment. CEMS, University of Hull. Report for Scarborough Borough Council.

IUCN (2001) IUCN Red List Categories and Criteria. Version 3.1. Gland, Switzerland and Cambridge, UK: IUCN Species Survival Commission.

# Appendix A - Short list of options: Detailed environmental effects

Each short listed option was evaluated against a suite of environmental objectives, targets and indiactors at the SEA stage. These are as shown in the table below:

| SEA Objective | Target | Indicator |
|---|---|---|
| Population | | |
| Maintain or improve standards of flood and coastal protection to local residents in the village. | Increase the number of properties protected from tidal flooding or coastal erosion. | Number of properties protected. |
| Protect, and enhance where possible, land and water based amenity and recreation facilities, tourism, the local economy and community structure. | No fall (and where possible, an increase) in the number of users of existing land and water-based recreational and amenity facilities, or detrimental effect on the local economy or community structure. | Visitor numbers, number of users of land and water based recreation and amenity facilities, business growth and property prices. |
| Reduce risk to human life and health (stress and injury) from erosion events. | Reduce the number of properties affected by erosion events. | Number of properties affected by erosion events. |
| Landscape, townscape, seascape and visual amenity | | |
| Protect and enhance the natural coastal landscape, seascape and visual amenity of the coastline at the Bay. | To create a natural coastal landscape and seascape within the Bay. | Change in appearance of the coastal landscape of the Bay. |
| Protect and enhance the built townscape, landscape and visual amenity of the Bay and its contribution to the landscape of the North Yorkshire Moors National Park. | No detrimental effect on the quality of the built landscape, townscape or visual amenity of the Bay and its contribution to the landscape of the North Yorkshire National Park. | Change to the built landscape, townscape or visual amenity of the Bay and it contribution to the landscape of the North Yorkshire National Park. |
| Biodiversity | | |
| Avoid damage to the North Yorkshire Moors Important Bird Area.<br>Avoid damage or loss of extent | No detrimental effect on the North Yorkshire Moors Important Bird Area.<br>No damage to loss of extent | Condition and extent of North Yorkshire Moors Important Bird Area, recommended MCZ, BAP habitats and habitats of high |

| SEA Objective | Target | Indicator |
|---|---|---|
| of the recommended MCZ, BAP habitats or habitats of high ecological value. | of the recommended MCZ, BAP habitats or habitats of high ecological value. | ecological value. |
| Historic environment and heritage assets | | |
| Protect designated and non-designated features of archaeological and heritage importance. | No detrimental change in flood protection for archaeological sites.<br>Where possible improve protective measures for sites of heritage importance.<br>Avoid adverse impacts on the setting of built heritage features. | Change in the degree of flood protection for archaeological features.<br>Number and type of sites at risk of disturbance, degradation, damage and/or loss.<br>Change to the setting of buildings or monuments of high heritage value. |
| Geology and coastal morphology | | |
| Avoid damage to the Runswick Bay SSSI and the Staithes-Port Mulgrave SSSI and, where possible, avoid damage to coastal geological features and the coastal geomorphology. | No detrimental effect to geological sites of national interest or coastal geological features or coastal geomorphology. | Condition of sites of national geological interest and change to coastal geology or geomorphology. |
| Water resources | | |
| Protect and enhance, where possible, existing surface, coastal and ground water quality in compliance with the Bathing Water Directive and Water Framework Directive objectives. | No adverse impact, and improvements, where possible, on surface, coastal or groundwater quality. No detrimental effect on the ecological status (or ecological potential) of surface waters and coastal. | Sedimentation or contamination of surface, coastal or groundwaters or change to coastal morphology. |
| Traffic and transportation | | |
| Protect the existing access routes into and out of the village. | Protect access routes into and out of the village | Number of access routes affected by erosion events. |

The results of the options appraisal process undertaken during the SEA stage are shown in table below:

| Environmental Topic | Key Positive & Negative Impacts |
|---|---|
| Option 1 - Do Nothing | |
| Population | Loss of up to 96 residential properties, the majority of the lower village short term (3 to 10 years) and higher village long term (20 years).<br>Risk to human life and health.<br>Loss of land and water based amenity and recreation facilities, tourism, the local economy and community structure.<br>Loss of part of Cleveland Way National Trail coastal path, ENCAMS Seaside Award and access to protected bathing beach. |
| Landscape, townscape, seascape and visual amenity | Changes will be seen to the high value landscape with short and long term impacts on the integrity of:<br>North York Moors National Park;<br>The North Yorkshire and Cleveland Heritage Coast;<br>Runswick Bay Village Conservation Area (long term loss); and<br>The high (national) visual and landscape value assigned to Runswick Bay.<br>Long term would create a natural landscape of aesthetic potential |
| Flora and fauna | Smothering of marine habitats within recommended MCZ from erosion debris in the short term with increased pollution risk due to sewerage infrastructure damage and properties. Erosion to a section of North Yorkshire Moors Important Bird Area.<br>Potential to revert to a more naturally functioning coast in the longer term negating the impact of coastal squeeze associated with sea level rise for inter-tidal habitats on the upper shore (within the recommended MCZ). |
| Cultural, architectural and archaeological heritage | Adverse effect on cultural and architectural heritage on the North Yorkshire and Cleveland Heritage Coast in the short and long term. |
| Geology and coastal morphology | The natural geomorphological processes would proceed, resulting in cutting back of the cliffs where they have been artificially held by the defences.<br>No significant impact on the geological exposures at Runswick Bay SSSI or Staithes-Port Mulgrave SSSI is envisaged. |

| Environmental Topic | Key Positive & Negative Impacts |
|---|---|
| Water resources | Potential release of sediments and pollutants into coastal waters through erosion and damage to Yorkshire Water infrastructure in the short term. Adverse effects on coastal water quality in the medium and long term. Conflicts with the objectives of the Water Framework Directive in relation to the associated waterbodies and the water quality objective linked to the Bathing Water Directive.<br><br>The creation of a more naturally functioning coastline in the longer term could be considered to create a more natural water body but could be offset by the effects of a potential release of sediments and pollutants. |
| Traffic and transport | Adverse impacts in the short term, and in the medium to long term on the access roads in and out of Runswick Bay Village. No access for local residents, businesses or visitors to this stretch of the North Yorkshire and Cleveland Heritage Coast. |
| Option 2 – Do Minimum | |
| Population | Short term protection then after an estimated 20 years:<br><br>Loss of up to 96 residential properties, the majority of the lower village medium term and higher village long term (20 years).<br><br>Risk to human life and health.<br><br>Loss of land and water based amenity and recreation facilities, tourism, the local economy and community structure.<br><br>Loss of part of Cleveland Way National Trail coastal path, ENCAMS Seaside Award and access to protected bathing beach. |
| Landscape, townscape, seascape and visual amenity | Short term protection then changes will be seen to the high value landscape with medium and long term impacts on the integrity of:<br><br>North York Moors National Park<br><br>The North Yorkshire and Cleveland Heritage Coast<br><br>Runswick Bay Village Conservation Area (long term loss)<br><br>The high (national) visual and landscape value assigned to Runswick Bay<br><br>Loss of car parking facilities and bus routes for access to the above, and the Cleveland Way National Trail.<br><br>Long term would create a natural landscape of aesthetic potential. |
| Flora and fauna | Short term there would be no change to existing conditions. Smothering of marine habitats within recommended MCZ from erosion debris in the medium term with increased pollution risk due to sewerage infrastructure damage and properties. Erosion to a section of North Yorkshire Moors Important Bird Area.<br><br>Potential to revert to a more naturally functioning coast in the longer term negating the impact of coastal squeeze associated with sea level rise for inter-tidal habitats on the upper shore (within the recommended MCZ). |

| Environmental Topic | Key Positive & Negative Impacts |
|---|---|
| Cultural, architectural and archaeological heritage | Short term protection. Adverse effect on cultural and architectural heritage of the North Yorkshire and Cleveland Heritage Coast in the medium and long term |
| Geology and coastal morphology | The natural geomorphological processes would proceed, resulting in cutting back of the cliffs where they have been artificially held by the defences.<br>No significant impact on the geological exposures at Runswick Bay SSSI or Staithes-Port Mulgrave SSSI is envisaged. |
| Water resources | Short term, no change from existing conditions. Potential release of sediments and pollutants into coastal waters through erosion and damage to Yorkshire Water infrastructure in the medium term. Adverse effects on coastal water quality in the long term. Conflicts with the objectives of the Water Framework Directive in relation to the associated waterbodies and the water quality objectives linked to the Bathing Water Directive.<br>The creation of a more naturally functioning coastline in the longer term could be considered to create a more natural water body but could be offset by the effects of a potential release of sediments and pollutants. |
| Traffic and transport | Adverse impacts in the short term, and in the medium to long term on the access roads in and out of Runswick Bay Village. No access for local residents, businesses or visitors to this stretch of the North Yorkshire and Cleveland Heritage Coast. |
| Option 3 – Rock armour apron | |
| Population | Up to 100 years protection from existing conditions:<br>The risk to properties, amenities, recreation facilities, tourism, the local economy and community structure would be significantly reduced compared to the current situation.<br>Risk to human life and health significantly reduced. |
| Landscape, townscape, seascape and visual amenity | Short, medium, long term up to 100 years:<br>Adverse visual impact along the shoreline within Runswick Bay, affecting views of the natural landscape and seascape from rock armour. Beneficial impact on the townscape and built environment from limits to erosion damage. |

| Environmental Topic | Key Positive & Negative Impacts |
|---|---|
| Flora and fauna | Protection of the cliff from erosion would protect the cliff habitat of the North Yorkshire Moors Important Bird Area, although there would be some permanent loss on inter-tidal habitat. This loss would be unlikely to affect its overall birds feeding resource in the short term, but would result in a loss over time due to coastal squeeze.<br><br>Loss of inter-tidal habits extending approximately 13m from the seawall (within the recommended MCZ) through direct impact includes boulders of a type uncommon along the Yorkshire coast. The ecology of the boulder communities could re-establish within 5 years with mitigation. No natural regression - Medium to long term inter-tidal habitat extent would be further reduced as a result of coastal squeeze with sea level rise. |
| Cultural, architectural and archaeological heritage | Some adverse impact on the setting of listed buildings and the Conservation Area short term, may assimilate into the landscape in the long term.<br><br>Physical protection of the cultural and architectural heritage of Runswick Bay and on the North Yorkshire and Cleveland Heritage Coast in the medium and long term. |
| Geology and coastal morphology | The coastal protection structure would prevent the coastline from responding to existing environmental conditions and not allow the natural regression of the coastline.<br><br>Could affect the condition of rock exposures along the coast (local and limited in extent).<br><br>No significant impact on the geological exposures at Runswick Bay SSSI or Staithes-Port Mulgrave SSSI is envisaged. |
| Water resources | Addresses the risk from potential release of sediments and pollutants into coastal waters from erosion damage to sewage infrastructure and properties in the medium term, which would have beneficial effects on the existing coastal water quality.<br><br>The benefits in terms of coastal water quality could be offset by the restriction of natural processes. |
| Traffic and transport | Access roads in and out of Runswick Bay Village for local residents, businesses or visitors this stretch of the North Yorkshire and Cleveland Heritage Coast will be protected in the short, medium and long term. |
| Option 6 – Rock armour fillet (reduced section rock apron) | |
| Population | Up to 100 years protection from existing conditions:<br><br>The risk to properties, amenities, recreation facilities, tourism, the local economy and community structure would be significantly reduced compared to the current situation (although less so than Option 3).<br><br>Risk to human life and health significantly reduced |

| Environmental Topic | Key Positive & Negative Impacts |
|---|---|
| Landscape, townscape, seascape and visual amenity | Short, medium, long term up to 100 years:<br>Adverse visual impact along the shoreline within Runswick Bay, affecting views of the natural landscape and seascape from the rock armour fillet extending approximately 7 to 8m (to a a lesser degree than Option 3 due to reduced size).<br>Beneficial impact on the townscape and built environment from visual erosion damage. |
| Flora and fauna | Protection of the cliff from erosion would protect the cliff habitat of the North Yorkshire Moors Important Bird Area, although there would be some permanent loss on inter-tidal habitat. This loss would be unlikely to affect its overall birds feeding resource in the short term, but would result in a loss over time due to coastal squeeze.<br>Loss of inter-tidal habits extending approximately 7 to 8m from the seawall (within the recommended MCZ) includes boulders of a type uncommon along the Yorkshire coast. The ecology of the boulder communities could re-establish within 5 years with mitigation.<br>No natural regression - Medium to long term inter-tidal habitat extent would be further reduced as a result from coastal squeeze with sea level rise. |
| Cultural, architectural and archaeological heritage | Physical protection of the cultural and architectural heritage of Runswick Bay and on the North Yorkshire and Cleveland Heritage Coast medium and long term<br>Adverse impact on the setting of listed buildings and the Conservation Area short term (less so than that of the larger Option 3) Unlikely to be significant. Any impact may reduce over time as the new defences assimilate into the landscape.<br>Any impact would reduce over time as the new defences assimilate into the landscape would be outweighed by the protection afforded to designated and non-designated features of archaeological and heritage importance in the short, medium and long term. |
| Geology and coastal morphology | Coastline would not respond to the existing environmental conditions or allow the natural regression of the coastline.<br>Could affect the condition of rock exposures along the coast (local and limited in extent).<br>No significant impact on the geological exposures at Runswick Bay SSSI or Staithes-Port Mulgrave SSSI is envisaged. |
| Water resources | Would prevent the potential release of sediments and pollutants into coastal waters from erosion in the medium term, which would have beneficial effects on the existing coastal water quality.<br>Benefits in terms of coastal water quality could be offset by the restriction of natural processes. |

| Environmental Topic | Key Positive & Negative Impacts |
|---|---|
| Traffic and transport | Access roads in and out of Runswick Bay Village for local residents, businesses or visitors this stretch of the North Yorkshire and Cleveland Heritage Coast would be protected in the short, medium and long term. |
| Options 7 and 8 Combined – Reduced length rock armour fillet to seawalls with rock groyne | |
| Population | Up to 100 years protection from existing conditions:<br>The risk to properties, amenities, recreation facilities, tourism, the local economy and community structure would be significantly reduced compared to the current situation (although less so than Option 3).<br>Risk to human life and health significantly reduced. |
| Landscape, townscape, seascape and visual amenity | Short, medium, long term up to 100 years:<br>Adverse visual impact along the shoreline within Runswick Bay, affecting views of the natural landscape and seascape from the rock armour fillet extending approximately 7 to 8m (a lesser degree than Option 3 due to reduced size).<br>Beneficial impact on the townscape and built environment. |
| Flora and fauna | Protection of the cliff from erosion would protect the cliff habitat of the North Yorkshire Moors Important Bird Area, although there would be some permanent loss on inter-tidal habitat. This loss would be unlikely to affect its overall birds feeding resource in the short term, but would result in a loss over time due to coastal squeeze.<br>Loss of inter-tidal habits extending approximately 7 to 8m from the seawall (within the recommended MCZ) includes boulders of a type uncommon along the Yorkshire coast. The ecology of the boulder communities could re-establish within 5 years with mitigation. No natural regression - medium to long term inter-tidal habitat extent would be further reduced as a result from coastal squeeze due to sea level rise. There would be additional loss of habitat beneath the new rock groyne, which would extend further into the inter-tidal area, affecting habitats of higher value (within the recommended MCZ).<br>No natural regression - medium to long term inter-tidal habitat extent would be further reduced as a result from coastal squeeze due to sea level rise. |
| Cultural, architectural and archaeological heritage | Physical protection of the cultural and architectural heritage of Runswick Bay and on the North Yorkshire and Cleveland Heritage Coast medium and long term.<br>Adverse impact on the setting of listed buildings and the Conservation Area short term from new rock armour fillet and new rock groyne. Any impact may reduce over time as the new defences assimilate into the landscape.<br>Would be outweighed by the protection afforded to designated and non-designated features of archaeological and heritage importance in the short, medium and long terms. |

| Environmental Topic | Key Positive & Negative Impacts |
|---|---|
| Geology and coastal morphology | Coastline would not respond to the existing environmental conditions or allow the natural regression of the coastline.<br><br>The groyne, which is located slightly further north, could also alter coastal currents unpredictably such that in the long term, the morphology could be adversely affected.<br><br>Could affect the condition of rock exposures along the coast, local and limited in extent. However, in the short and medium term, the overall impact on coastal geology would be greater than for Options 3 and 6).<br><br>No significant impact on the geological exposures at Runswick Bay SSSI or Staithes-Port Mulgrave SSSI is envisaged. |
| Water resources | Would prevent the potential release of sediments and pollutants into coastal waters from erosion in the medium term, which would have minor beneficial effects on the existing coastal water quality.<br><br>Benefits in terms of coastal water quality could be offset by the restriction of natural processes. |
| Traffic and transport | Access roads in and out of Runswick Bay Village for local residents, businesses or visitors this stretch of the North Yorkshire and Cleveland Heritage Coast would be protected in the short, medium and long term. |

# Appendix B - Preliminary WFD Assessment

## Introduction

**Proposed Development**: Runswick Bay Coastal Protection Scheme

**Proponent:** Scarborough Borough Council

## Overview

This Technical Note presents a baseline review and a Water Framework Directive (WFD) assessment for the proposed Runswick Bay Coastal Protection Scheme on the North Yorkshire coast. It has been prepared by CH2M HILL on behalf of Scarborough Borough Council in July 2015.

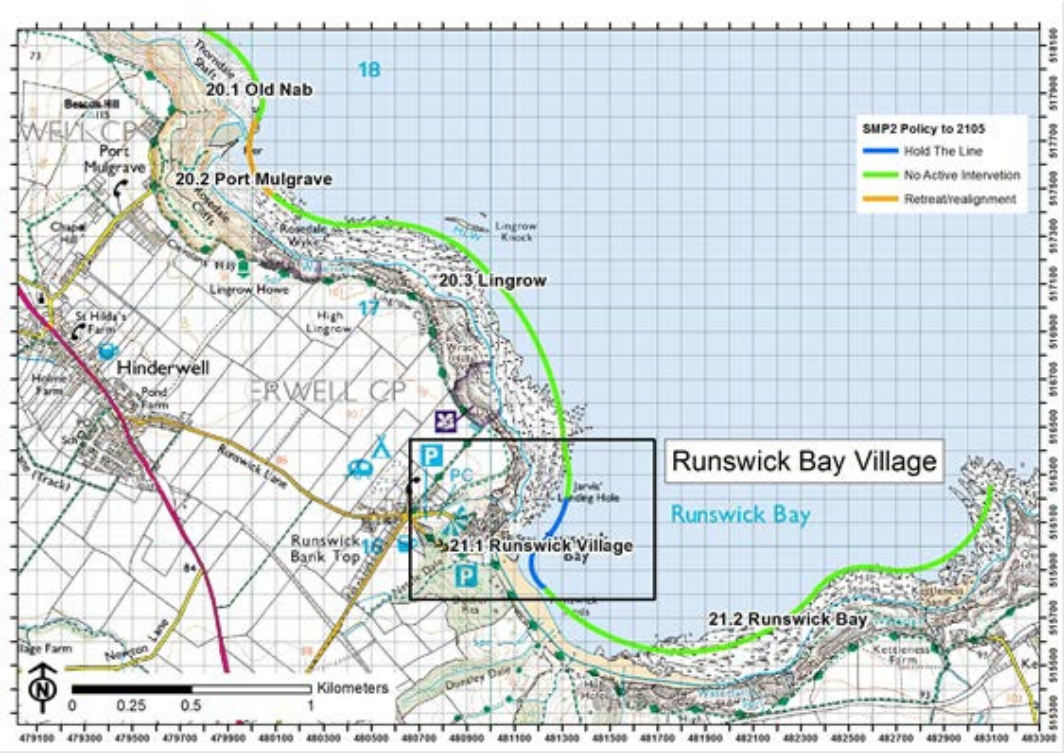


Figure B1: Location map of Runswick Bay

This assessment collated relevant information on the proposed scheme and the water bodies that could be affected. This was used to inform an assessment of the hydromorphological and ecological impacts of the proposed scheme. The aims of this assessment are to:

- Evaluate the potential impacts of the proposed work on WFD hydromorphology and ecology quality elements based on a proportionate and robust approach and including consideration of opportunities for mitigation;
- Provide an assessment of the scheme's compliance with WFD environmental objectives; and
- Provide a statement of compliance with WFD objectives, or identify the need for an exemption test under Article 4.7.

## Legislative background

The WFD (Directive 2000/60/EC) requires all natural water bodies to achieve both good chemical status and good ecological status (GES). The River Basin Management Plans (RBMP) outline the actions required to enable natural water bodies to achieve GES. Artificial and heavily modified water bodies may be prevented from reaching GES due to the modifications necessary to maintain their function. They are, however, required to achieve good ecological potential (GEP), through implementation of a series of mitigation measures outlined in the applicable RBMP.

The key drivers of the WFD are the objectives as detailed below. These are repeated in the summary section of this assessment where it is noted whether or not the proposed scheme is in compliance with the objectives and the need for further assessment.

There are four key objectives against which the impacts of proposed works on a water body need to be assessed to determine compliance with the overarching objectives of the WFD:

- Objective 1: The proposed scheme does not cause deterioration in the status of the biological elements of the water body;
- Objective 2: The proposed scheme does not compromise the ability of the water body to meet its WFD status objectives;
- Objective 3: The proposed scheme does not cause a permanent exclusion or compromise achieving the WFD objectives in other bodies of water within the same River Basin District (RBD); and
- Objective 4: The proposed scheme contributes to the delivery of the WFD objectives.

The first three obligations must be met to avoid infraction of the WFD. The delivery of the fourth objective is central to the Environment Agency's implementation of the WFD, where it can be supported through its operational activities and through consenting and permitting, where appropriate.

## The Proposed Scheme Description

Runswick Bay is a small picturesque village on the North Yorkshire coast. The older part of the village, is located in the Bay close to the sea and has been designated as a Conservation Area for its historic and aesthetic value.

The rock armour fillet is being promoted as the preferred option for a coastal protection scheme at Runswick Bay. This new rock armour will provide protection to the toe of the seawall to limit outflanking, undermining and scour. It is proposed to be constructed in front of the existing seawall in the intertidal area between the Yorkshire Water pumping station in the south, past the outlet of Runswick Beck and around the convex seawall at Cauldon Cliff, extending for approximately 30 or 40 metres north of Upgarth Hill seawall. The scheme location is highlighted in purple on Figure 2. The rock fillet will rise approximately two thirds of the way up the seawall, to a height of 4.7m AOD (approximately 2 meters) using rock sized at 3 to 6 tonnes. The sides of the fillet will have a slope of 1 in 2, giving and overall width at its base, of 7 to 8 metres.

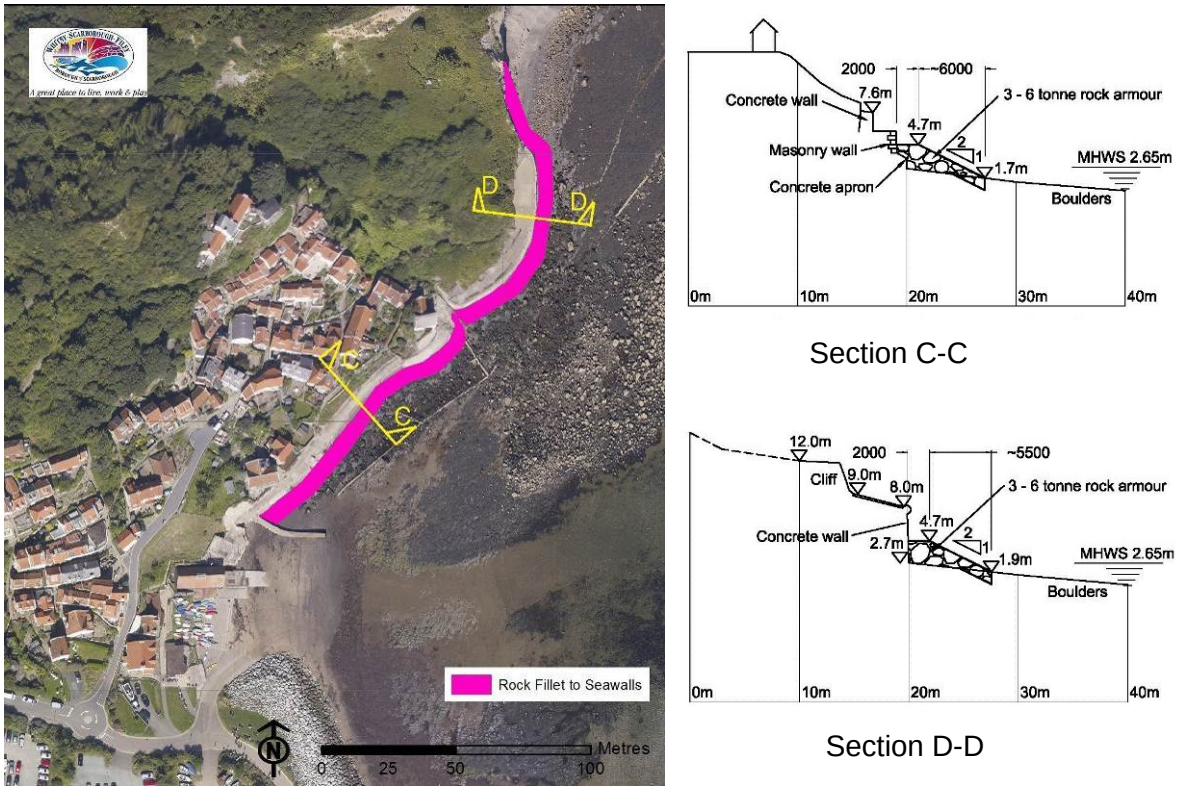


Figure B5: Outline plan and sections of the proposed coastal protection scheme for Runswick Bay. Appropriate location of the Scheme is highlighted as a purple line. Scheme drawing for sections C-C and D-D are inserts into the image.

Ongoing patch and repair works will be required throughout the 100 year design life to retain the integrity of the seawall and regular monitoring will be undertaken of the defences, particularly after storm events.

Yorkshire Water installed and now maintain the foul water pumping station located on the seawall. In addition, they have pipework within the foreshore to which they would lose some access to with the construction of the proposed scheme. Consequently, Yorkshire Water have proposed re-locating their pumping station inflow pipework out of the foreshore to within the existing seawall footprint, although the existing storm water overflow pipe would remain. This means that enabling works are required before any main works can begin. It will be necessary for Yorkshire Water to have undertaken the diversion of their pipelines prior to rock placement. It is preferred that the diversion will have been completed and commissioned before the main works start on site.

## Need for the scheme

The area has a history of coastal instability and coastal erosion presents a risk. This is predominantly as a result of wave over-topping and deterioration of the existing seawall to the village and community of Runswick Bay. The coastal protection scheme has been proposed to address this risk.

## River Basin Management Plan (RBMP) context and baseline conditions

Waterbodies considered by this assessment

The proposed scheme lies within the Humber River Basin District within the 'Esk Transitional water body'. The two river waterbodies flowing into Runswick Bay are the Runswick Bay South Coastal Area and the Runswick Bay Middle Coastal Area. The key characteristics of the water body, taken from the RBMP (2009) Annex B, are considered in Tables B1, 2 3 and 4. It should be noted that this RBMP is currently been updated and the revised plan is due to be published in December 2015.

There are no river or lake water bodies in close proximity. The underlying groundwater body is the Esk and Yorkshire Coast Ravenscar.

## Current status of the waterbodies

The current status of the waterbodies of the highlighted above is presented in the tables below. These tables also present the water bodies' classification.

**Table B1: Esk transitional water body WFD elements and classification**

| Element | Classification |
|---|---|
| Water body ID | GB510402703400 |
| Water body name | Esk transitional water body |
| Typology description | Moderately exposed mesotidal |
| Hydromorphological status | Heavily modified |
| Mitigation Measures Assessment | n/a |

| Table B1: Esk transitional water body WFD elements and classification | |
|---|---|
| **Element** | **Classification** |
| | Justification for not achieving good status by 2015 – Disproportionately expensive |
| Current ecological potential | Moderate |
| Current chemical status | Does not require assessment |
| Status Objectives (overall) | Good by 2027 |
| Status Objectives | Good ecological potential by 2027 |
| Overall risk | At risk |
| Protected areas | Freshwater Fish Directive |
| Biological elements | Fish – Moderate<br>Invertebrates - Moderate |
| Supporting elements | Dissolved Inorganic Nitrogen – Moderate<br>Dissolved Oxygen - High |
| Supporting conditions | Tidal Regime –Freshwater Flow Supports Good |

| Table B2: Runswick Bay South Coastal Area water body WFD elements and classification | |
|---|---|
| **Element** | **Classification** |
| Water body ID | GB10427068730 |
| Water body name | Runswick Bay South Coastal Area |
| Typology description | Low, Extra Small, Calcareous |
| Hydromorphological status | Not designated A/HMWB |
| Mitigation Measures Assessment | n/a<br>Justification for not achieving good status by 2015 – Disproportionately expensive |
| Current ecological status | Moderate |
| Current chemical status | Does not require assessment |
| Status Objectives (overall) | Good by 2027 |
| Status Objectives | Good ecological status by 2027 |
| Overall risk | At risk |
| Protected areas | Bathing Water Directive |
| Supporting conditions | Quality and Dynamics of flow – Supports Good<br>Morphology – Supports Good |

| Table B3: Runswick Bay Middle Coastal Area water body WFD elements and classification | |
|---|---|
| **Element** | **Classification** |
| Water body ID | GB10427068740 |
| Water body name | Runswick Bay Middle Coastal Area |
| Typology description | Low, Extra Small, Calcareous |
| Hydromorphological status | Not designated A/HMWB |
| Mitigation Measures Assessment | n/a<br>Justification for not achieving good status by 2015 – Disproportionately expensive |
| Current ecological status | Moderate |

| Table B3: Runswick Bay Middle Coastal Area water body WFD elements and classification | |
|---|---|
| **Element** | **Classification** |
| Current chemical status | Does not require assessment |
| Status Objectives (overall) | Good by 2027 |
| Status Objectives | Good ecological status by 2027 |
| Overall risk | At risk |
| Protected areas | Bathing Water Directive |
| Supporting conditions | Quality and Dynamics of flow – Supports Good<br>Morphology – Supports Good |

| Table B4: Esk and Yorkshire Coast Ravenscar groundwater body | |
|---|---|
| **Element** | **Classification** |
| Water body ID | GB40402G702300 |
| Water body name | Esk and Yorkshire Coast Ravenscar |
| Current overall status | Good |
| Status Objectives (overall) | Good by 2015 |
| Status Objectives | Good Quantitative Status by 2015, Good Chemical Status by 2015 |
| Overall risk | At risk |
| Quantitative status | Good |
| Quantitative element /status | Impact on Wetlands –Good<br>Impact on surface water – Good<br>Saline intrusion – Good<br>Water balance - Good |
| Chemical status | Good |
| Chemical element /status | Drinking water protected area - Good<br>General chemical test - Good<br>Impact on Wetlands –Good<br>Impact on surface water – Good<br>Saline intrusion – Good<br>Water balance - Good |
| Protected areas | Drink Water Protected Area |

## Potential impacts

Overview and screening criteria

The purpose of this section is to screen potential impacts for the water bodies' listed above quality elements and identify any need for further, more detailed, assessment. The quality elements that are within the scope of this screening assessment are listed in the tables below. The justification for quality elements not in scope is provided after each table.

| Table B5: Esk transitional water body elements and supporting elements in scope | |
|---|---|
| Hydromorphological elements | In scope |
| Biological quality elements | In scope |
| HMWB hydromorphological mitigation measures1 | Not in scope |
| Chemical elements2 | Not in scope |
| Bathing Water Directive3 | Not in scope |
| Freshwater Fish Directive4 | Not in scope |

HMWB hydromorphological mitigation measures[1] – There are no proposed mitigation measures for this waterbody noted in the RBMP.

Chemical elements[2]. The operation of the scheme has no implications in relation to the release, dispersal or persistence of chemical contaminants or waste water and will have no influence on the existing pressures related to phosphate, pesticides or other pollutants. This is assuming the application of best practice construction methods.

Bathing Water Directive[3], and Freshwater Fish Directive[4]– The proposed works will have no effect on the microbial quality criteria for bathing waters or effects to freshwater fishes. Works are unlikely to be undertaken during high tides so reduction in water quality due to increased sedimentation is unlikely.

Esk transitional water body - hydromorphological elements and Biological quality elements, will be taken forward into the assessment below.

| Table B6: Runswick Bay South Coastal Area and Runswick Middle Coastal Area water bodies elements and supporting elements in scope | |
|---|---|
| Hydromorphological elements[1] | Not in scope |
| Biological quality elements[2] | Not in scope |
| HMWB hydromorphological mitigation measures[3] | Not in scope |
| Chemical elements[4] | Not in scope |
| Bathing Water Directive[5] | Not in scope |
| Freshwater Fish Directive[6] | Not in scope |

Hydromorphological elements[1] and Biological quality elements[2] – The waterbodies are located 500m to the south of the proposed scheme. Therefore the scheme is unlikely to influence these elements

HMWB hydromorphological mitigation measures[3] – There are no proposed mitigation measures for this waterbody noted in the RBMP.

Chemical elements[4] - The operation of the scheme has no implications in relation to the release, dispersal or persistence of chemical contaminants or waste water and will have no influence on the existing pressures related to phosphate, pesticides or other pollutants. This is assuming the application of best practice construction methods.

Bathing Water Directive[5] and Freshwater Fish Directive[6]– The proposed scheme and associated works will have no effect on the microbial quality criteria for bathing waters or effects to freshwater fishes. Works are unlikely to be undertaken during high tides so reduction in water quality due to increased sedimentation is unlikely.

Runswick Bay South Coastal Area and Runswick Middle Coastal Area water bodies Based on the scoping exercise described above these water bodies will not be taken forwarded into an assessment.

| **Table B7: Esk and Yorkshire Coast Ravenscar groundwater body elements and supporting elements in scope** | |
|---|---|
| Quantitative element[1] | Not in scope |
| Chemical element[2] | Not in scope |
| Protected Areas[3] | Not in scope |

Quantitative element[1], Chemical element[2] and protected areas[3] will not be influenced by the proposed scheme. The groundwater body does not extend into the intertidal area where the work will be undertaken.

Esk and Yorkshire Coast Ravenscar groundwater body - Based on the scoping exercise described above this water body will not be taken forwarded into an assessment.

## Strategic Assessment of the Preferred Option

A Strategic Environmental Assessment has been undertaken to support the Strategy Appraisal Report in the consideration of options to provide coastal protection to the village of Runswick Bay. The SEA concluded in the following in relation to the preferred option (rock armour fillet):

‘This option [rock armour fillet] would prevent the potential release of sediments and pollutants into coastal waters through erosion in the medium term, which would have minor beneficial effects on coastal water quality. No significant impact on surface or ground water envisaged except in the immediate vicinity of the bay. Benefits in terms of coastal water quality could be offset by the restriction of natural processes, such that no significant impact on compliance with WFD objectives is envisaged’.

## Consideration of likely impacts

The likely impacts of the proposed scheme are presented alongside the relevant WFD quality element in Table B8.

| Table B8: Consideration of likely impacts - WFD QUALITY ELEMENTS | |
|---|---|
| Construction of the 220m of coastal protection | |
| Hydromorphological elements | |
| Residence time; Water depth; Thermal regime | No effect; the proposed scheme will have no impact on the local tidal regime or local water depth. |
| Abrasion (associated with velocity); Turbidity / sediment loading and salinity | No effect; the proposed scheme will increase width of the current defended line but there will be no change in wave action, current velocities etc. There will be a reduction in the sediment and pollutant release through erosion which would have minor beneficial effects on coastal water quality. |
| Land elevation; Inundations (tidal regime); Episodicity of flows and inundation; Beach water table | No effect; the proposed scheme will have no impact on the local tidal regime and it will not affect the local relationship between water and land levels. |
| Shoreline complexity or heterogeneity; substrate conditions | No effect; The proposed scheme will increase the volume of hard (rock) substrate in the intertidal area and act to restrict natural processes in the long term. However, this represents a continuation of the existing regime and the 220m of rock armour fillet is considered to be insignificant at the waterbody scale. |
| Connectivity with shoreline | No effect; The proposed scheme will increase the volume of hard (rock) substrate in the intertidal area further limiting connectivity with the shoreline. However, the existing defence regime limits connectivity and continuation of this is considered to be insignificant at the waterbody scale. |
| Biological quality elements | |
| Phytoplankton:<br>Taxonomic composition; Average abundance;<br>Planktonic bloom frequency and intensity; Biomass | No effect on phytoplankton. |
| Macrophytes and phytobenthos:<br>Taxonomic composition;<br>Average macrophytes and phytobenthic abundance | Not applicable (none present). |
| Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed, salt marsh):<br>Composition | No Effect; The SEA investigated options to reduce the accumulation of algae accumulation on the beach at Runswick Bay. Further study was highlighted as being required to investigate if reducing these accumulation would improve bathing water quality.<br><br>The proposed scheme will reduce in the width of the intertidal area in the long term however the rock armour fillet material (assuming it is appropriately sourced materials) would provide substrate for algae growth and it is would be unlikely there would be a limited effect. Other aquatic flora may be affected in the short term through the direct impact of the works and the placement of imported rock. However, it is assumed that these flora will re-establish and this would be promoted by re-seeded activities noted is the SEA as mitigation. |
| Benthic invertebrate fauna:<br>Composition; Abundance | No effect; Permanent loss of benthic invertebrates under the footprint of the rock armour fillet and temporary loss associated with the use of construction plant. Recolonization is likely occur where temporary loss are noted, but clearly not where permanent losses are. There would also be losses associated with coastal squeeze. However, these losses are considered to be insignificant at a waterbody scale. |

| Table B8: Consideration of likely impacts - WFD QUALITY ELEMENTS | |
|---|---|
| Fish fauna:<br>Species composition and abundance; Sensitive species;<br>Age structure of communities | No effect; The intertidal area will present opportunities for fish fauna in shallow rock pool. Species diversity, as reported by the University of Hull (Hull, 2014), is limited and the proposed scheme will reduce some of these opportunities however these losses are considered to be insignificant at a waterbody scale. Further, mitigation may see enhancement of these rock pool features which may benefit species noted (e.g. shanny and Rock gunnel) |

## Cumulative effects

To ensure that the proposed scheme does not act in cumulative with other schemes/projects, a further assessment has been undertaken evaluating the impact of schemes/projects where effects are recorded to similar features in the same water body.

The following projects/scheme have been identified within the same water body:

- North East Shoreline Management Plan 2 (SMP2) - River Tyne to Flamborough Head (February 2007)
- Whitby Coastal Strategy 2 (January 2012)
- Robin Hood's Bay Strategy Study (January 2011)
- Whitby Church Street Flood Alleviation Scheme Project Appraisal Report (Ongoing)
- North Yorkshire and Cleveland Heritage Coast Management Plan, 3rd Review (2008-2013)

All of these plan and strategy can be screened out from further cumulative effects assessment as they are all either geographically remote from the proposed scheme or, as in the case of North Yorkshire Cleveland Heritage Coast Management Plan, would not result in development that would affect the waterbodies noted.

## Summary

The proposed scheme will not have significant effect on any biological, hydromorphological elements in the Esk transitional water body.

## Need for detailed assessment

There are four key objectives against which the impacts of proposed works on a water body need to be assessed to determine compliance with the overarching objectives of the WFD:

- Objective 1: The proposed scheme does not cause deterioration in the status of the biological elements of the water body;
- Objective 2: The proposed scheme does not compromise the ability of the water body to meet its WFD status objectives;
- Objective 3: The proposed scheme does not cause a permanent exclusion or compromise achieving the WFD objectives in other bodies of water within the same RBD; and
- Objective 4: The proposed scheme contributes to the delivery of the WFD objectives.

The Esk transitional water body will not require any further detailed assessment for the proposed scheme, specifically because:

- **Objective 1:** The proposed scheme not will cause deterioration in status of the biological elements of the water body.
- **Objective 2:** The proposed scheme not will compromise the ability of the water body to meet its WFD status objectives i.e. there will not be a deterioration in the status of the biological elements of the water body.
- **Objective 3:** The proposed scheme will not cause a permanent exclusion or compromise WFD objectives in other water bodies within the same RBD. There are no other water bodies in proximity to the scheme.
- **Objective 4:** The proposed scheme will not contribute to the delivery of the WFD objectives in the Humber RBMP. Through the scheme's design it will look to preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone where possible.

A detailed compliance assessment is therefore not required.

# Reference

Hull S.L and Johnson M. 2014. Runswick Bay Coastal Protection Scheme: Rapid Marine Ecology Overview. CEMS, University of Hull. Report for Scarborough Borough Council.

Hull S.L and Johnson M. 2015. Runswick Bay Coastal Protection Scheme: Rapid Marine Ecology Overview - addendum. CEMS, University of Hull. Report for Scarborough Borough Council.

# Glossary

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| Air quality management area (AQMA) | Area defined by the local authority as an area requiring management because air quality levels do not meet national air quality objectives |
| Agricultural Land classification | A series of six grades classifying soil in terms of its suitability for agriculture, from 1 (excellent) to 5 (very poor) |
| Ancient Woodland | Land continuously wooded since 1600 in England and Wales or 1750 in Scotland. |
| Ancient Semi Natural Woodland | Sites that have retained woodland and shrub cover since 1600, previously the site of original woodland. They may have been managed by coppicing and allowed to regenerate naturally. |
| Aquifer | An underground layer of rock with water storage capability. |
| Area of Outstanding Natural Beauty (AONB) | Areas formally designated under the National Parks and Access to the Countryside Act (1949) to protect parts of the countryside of high scenic quality that cannot be selected for National Park status as they do not have opportunities for outdoor recreation. The Countryside Agency is the government agency responsible for designating AONBs and advising the government. |
| Archaeological Priority Areas | An area specified by Local Planning Authorities to help protect archaeological remains that might be affected by development. |
| Baseline | A description of the present state of the environment with the consideration of how the environment would change in the future in the absence of the plan/programme/project as a result of natural events and other human activities. |
| Baseline studies/ survey | Collection of information about the environment which is likely to be affected by the project |
| Biodiversity Action Plan (BAP) | An agreed plan for a habitat or species, which forms part of the UK's commitment to biodiversity in response to the Convention on Biological Diversity, Rio de Janeiro 1992 |
| Brownfield site | A site which has been previously developed, often a disused factory site or industrial area. |
| Catchment abstraction management strategy (CAMS) | Used to manage water resources to balance the need for abstraction and management of the aquatic environment in consultation with local interested parties. |
| Catchment | A surface water catchment is the total area that drains into a river. A groundwater catchment is the total area that supplies the groundwater part of the river flow. |
| Catchment Flood Management Plan | A high level plan carried out by the Environment Agency in order to manage the risk of flooding to people, property and the |

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| (CFMP) | environment in an integrated way. These plans form the basis of future flood risk management proposals. |
| Character area | An area of land with distinctive landscape features resulting from an interaction of wildlife, landforms, geology, land use and human activity as defined by the Countryside Agency. |
| Conservation Area | An area designated under the Town and Country Planning Act, 1990 to protect its architectural or historic character. |
| Countryside and Rights of Way (CRoW) Act 2000 | This Act applies to England and Wales and has five parts: -<br>Access to the countryside<br>Public rights of way and road traffic<br>Nature conservation and wildlife protection<br>Areas of outstanding natural beauty<br>Miscellaneous and Supplementary<br>This act increases the protection of SSSIs. Environment Agency plans/programmes/projects must gain consent for works in or near SSSIs using a CRoW form. |
| Countryside Character Areas | Sub-divisions of England into areas with similar landscape character as categorised by the Countryside Agency. These are used when assessing the impact of a plan/programme/project on its local landscape. |
| Critical Ordinary Watercourses (COWs) | Stretches of Ordinary Watercourse that have been classified as critical in terms of flood risk by the Environment Agency and local Authorities. Many COWs are currently being reclassified as Main River for the Environment Agency to take over responsibility from the local authority or Internal Drainage Board. |
| Cumulative Impacts | The combined impacts of several projects within an area, which individually are not significant, but together amount to a significant impact. |
| Department for Environment, Food and Rural Affairs (DEFRA) | The government department responsible for flood management policy in England |
| Ecological Impact Assessment (EcIA) | An assessment of the potential effects of a proposed development on species, habitats and sites that are of value to conservation or protected by national and/or international legislation. |
| Ecosystems Services | The services that ecosystems provide which can provide value to people and the wider environment. Includes: Supporting services (e.g. oxygen production), Provisioning services (e.g. fuel), Regulating services (e.g. climate), Cultural services (e.g. recreation). |
| English Heritage<br>(EH) | Government statutory advisor on the historic environment, funded jointly by the government and by revenue from properties and members. |
| Environmental | A standalone report or section within another environmental |

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| Action Plan (EAP) | impact assessment document which ensures that constraints, objectives and targets set in the main Environmental Report/Statement are actually carried out on the ground. Actions are separated into those to be carried out before, during and after construction. |
| Environmental Impact Assessment (EIA) | "EIA is an assessment process applied to both new development proposals and changes or extensions to existing developments that are likely to have significant effects on the environment. The EIA process ensures that potential effects on the environment are considered, including natural resources such as water, air and soil; conservation of species and habitats; and community issues such as visual effects and impacts on the population. EIA provides a mechanism by which the interaction of environmental effects resulting from development can be predicted, allowing them to be avoided or reduced through the development of mitigation measures. As such, it is a critical part of the decision-making process." **www.iema.net/eiareport** |
| Environmental Report (ER) | (1) The document produced for projects that do not require statutory environmental impact assessment, but where environmental impact has been carried out. This includes projects that require planning permission from the local authority but the effects of the proposal will not be significant. An ER usually follows the same template as an Environmental Statement, but is less detailed.<br>(2) The document produced to describe the strategic environmental assessment process carried out for strategies. This report can be standalone or contained as an appendix to a strategy. |
| Environmentally Sensitive Area (ESA) | An area of particularly high landscape, wildlife or historical importance within which DEFRA offered inducements to encourage farmers to adopt agricultural practices to safeguard or enhance those features. Payments have now been superseded by the ESS |
| Environmental Statement (ES) | The document produced to describe the environmental impact assessment process where statutory environmental impact assessment is required. |
| Flood alleviation scheme (FAS) | Scheme designed to reduce the risk of flooding in a given area |
| Flood Cell | A discrete area subject to flooding from failure of defences at a specific point or length. |
| Flood defence | A structure (or system of structures) that reduce flooding from rivers or the sea |
| Floodline | Environment Agency flood warning system, accessible by telephone or internet and updated every 15 minutes |
| Flood risk management strategy (FRMS) | A long term (50 years or more) plan for coastal or river management to reduce the risk of flooding and carry out. They are more detailed than CFMPs. |

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| Flood management unit (FMU) | A river or coastal reach subject to flooding from similar processes. Such a unit may consist of one or more flood cells |
| Flood risk mapping | A system of maps created by the Environment Agency to show areas that are at risk of a flood that has a 1 in 100 chance (or higher) of occurring in any given year |
| Geographical Information Systems (GIS) | A computer based system for capturing, storing, integrating, manipulating, analysing and displaying data spatially. |
| General Permitted Development Order (GPDO) | The Town and Country Planning (General Permitted Development) Order 1995 sets out what may be built without needing planning permission. Part 15 applies specifically to the Environment Agency |
| Habitats Directive | EC Directive (92/43/EEC) on the Conservation of natural habitats and of wild flora and fauna. Implemented (with the Birds Directive (79/409/EEC)) in the UK as the Conservation (Natural habitats and wild flora and fauna) Regulations (1994). This establishes a system of protection of certain flora, fauna and habitats considered to be of International or European conservation importance. Sites are designated as Special areas of conservation (SACs), special protection areas (SPAs) and/or Ramsar sites. Any developments in or close to these designated areas are subject to the Habitat Regulations for approval of English Nature. Together these sites are referred to as the Natura 2000 network. |
| Health impact assessment | "A combination of procedures, methods and tools by which a policy, programme or project may be judged as its potential effects on the health of a population, and the distribution of those effects within a population." World Health Organisation. |
| Higher level scheme | See ESS |
| Indicative landscape plan (ILP) | Overlay of existing environment and scheme proposals to highlight environmental constraints and opportunities including designated sites and landscape character. |
| Land Drainage Regulations | The Environmental Impact Assessment (Land Drainage Improvement Works) Regulations (SI 1999 No. 1783) apply to **improvement works** to land drainage infrastructure undertaken by land drainage bodies, including the Environment Agency. Such works are **permitted development** and therefore not subject to the Town and Country Planning EIA requirements. |
| Local Biodiversity Action Plan (LBAP) | A local plan with targets to protect and enhance biodiversity to achieve national targets and also to protect locally important species |
| Local Nature Partnerships | Local Nature Partnerships were one of the key proposals made in the June 2011 **Natural Environment White Pape**r. Their purpose is to bring a diverse range of individuals, businesses and organisations together to create a vision and plan of action about how the natural environment can be taken into account in |

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| | decision making in that area. |
| Local Nature Reserve (LNR) | Nature reserves designated under the National Parks and Countryside Act (1949) for locally important wildlife or geological features. They are controlled by local authorities in liaison with English Nature. |
| Main river | A watercourse designated by DEFRA. The Environment Agency has permissive powers to carry out flood defence works, maintenance and operational activities on main rivers. Responsibility for maintenance rests on the riparian owner. |
| Marine Management Organisation | An executive non-departmental public body established under the Marine and Coastal Access Act 2009 with responsibilities including marine licensing and working with Natural England and others to manage a network of marine protected areas (marine conservation zones and European marine sites). |
| Mitigation measures | Actions that are taken to minimise, prevent or compensate for adverse effects of the development. |
| National Nature Reserve (NNR) | Nature reserves designated under the National Parks and Countryside Act (1949) for nationally important wildlife or geological features (these may be the best examples in the country). They are controlled by English Nature. |
| National Rivers Authority (NRA) | A predecessor of the Environment Agency. |
| Natural Areas | Sub-divisions of England, characterised by wildlife and natural features. There are 120 Natural Areas in England. Designations are managed by English Nature. |
| Natural England | Natural England is an Executive Non-departmental Public Body responsible to the Secretary of State for Environment, Food and Rural Affairs. Their purpose is to protect and improve England's natural environment and encourage people to enjoy and get involved in their surroundings. Their aim is to create a better natural environment that covers all of our urban, country and coastal landscapes, along with all of the animals, plants and other organisms that live with us. |
| Nature Improvement Areas | 12 new nature zones in England covering hundreds of thousands of hectares receiving Government funding to create wildlife havens, restore habitats and encourage local people to get involved with nature. |
| Nitrate vulnerable zone (NVZ) | Area where surface or ground waters are above the standards set by the Nitrates Directive (91/676), as implemented in England and Wales by SI2164/2002 |
| Ordinary water course | A watercourse not designated as main river. The local authority or Internal Drainage Board has permissive powers to maintain them. |
| Ramsar site | Wetland site of international importance listed under the Convention on Wetlands of International Importance under the Conservation of Waterfowl Habitat (Ramsar) Convention 1973. |

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| Riparian | Area of land or habitat adjacent to rivers and streams |
| Scheduled monument | Nationally important historic sites, buildings or monuments identified by English Heritage and designated by the Secretary of State for Culture, Media and Sport. Any work affecting a scheduled monument must gain consent from English Heritage under the Ancient Monuments and Archaeological Areas Act (1979). |
| Scoping | The process of deciding the scope or level of detail of an EIA/ SEA. During this stage the key environmental issues (likely significant effects) of a project/strategy are identified so that the rest of the process can focus on these issues. Issues may result from the proposal itself or from sensitivities of the site. |
| Screening | (1) For environmental impact assessment, the process of deciding which developments require an environmental impact assessment to be carried out and whether this will be statutory.<br>(2) For strategic environmental assessment, the decision on which plans, strategies or programmes require strategic environmental assessment to be carried out and whether this will be statutory. |
| Screening opinion | Statutory opinion from the competent authority as to whether a proposed project requires statutory environmental impact assessment according to the Environmental Impact Assessment Regulations. |
| SEA Directive | European Directive 2001/42/EC “on the assessment of the effects of certain plans and programmes on the environment” |
| SEA Regulations | The regulations transposing the SEA Directive into UK law |
| Site of Special Scientific Interest (SSSI) | Nationally important sites designated for their flora, fauna, geological or physiographical features under the Wildlife and Countryside Act (1981) (as amended) and the Countryside Rights of Way (CRoW) Act (2000). |
| Special Area for Conservation (SAC) | Sites of European importance for habitats and non bird species. Above mean low water mark they are also SSSIs. |
| Special Protection Area (SPA) and proposed Special Protection Area (pSPA) | An area designated for rare or vulnerable birds, or migratory birds and their habitats, classified under Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC). They are also SSSIs. Proposed sites receive the same protection as fully protected sites |
| Standard of protection (SoP) | The level of protection from flooding, for example an SoP of 1 in 100 means that the flood defences in an area provide protection from floods up to a size of flood with a probability of occurring of 1 in 100 in any year |
| Strategic Environmental Assessment | SEA is a process designed to ensure that significant environmental effects arising from proposed plans and programmes are identified, assessed, subjected to public participation, taken into account by decision-makers, and monitored. SEA sets the framework for future assessment of development projects, some of which require Environmental |

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| | Impact Assessment (EIA). SEA is carried out according to the requirements of the SEA Directive 2001/42/EC |
| Strategy | See Flood Risk Management Strategy |
| Sustainable development | A concept defined by the Brundtland Report (1987) as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" |
| Sustainable urban drainage systems (SuDs) | A system of controlling the quality and quantity of water run-off so as to prevent flooding or pollution. |
| Washland | Area of land adjacent to a watercourse, which is allowed to flood when the watercourse overtops its banks. |
| Water Framework Directive (WFD) | EC Directive (2000/60/EC) on integrated river basin management. The WFD sets out environmental objectives for water status based on ecological and chemical parameters, common monitoring and assessment strategies, arrangements for river basin administration and planning and a programme of measures in order to meet the objectives. |
| Water level management plan (WLMP) | A plan that sets out water level management requirements in a defined floodplain area (usually an SSSI) which is designed to reconcile different needs for drainage. |

# Appendix C – Indicative Landscape Plan

# Scarborough Borough Council

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Floods happen. Be prepared:

https://www.gov.uk/browse/environment-countryside/coasts