# COAST PATH MAINTENANCE AND EROSION CONTROL AT PORTH Y RHAW PROMONTORY FORT, SAM Pe273



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Pembrokeshire Coast National Park





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## Coast path maintenance and erosion control at Porth y Rhaw promontory fort, SAM Pe273

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#### SUMMARY

Porth y Rhaw is a well preserved and impressive multivallate coastal promontory fort, and a Scheduled Ancient Monument (SAM Pe273). The Pembrokeshire Coast Path National Trail cuts across the outer rampart and has been causing considerable erosion problems. Repair works were undertaken by the Pembrokeshire Coast National Park, in consultation with the owners (the National Trust) and Cadw, to repair some of the erosion, to improve the condition of the footpath and to provide a sacrificial surface on the most heavily eroded parts of the footpath. All works were undertaken with archaeological supervision, and a photographic record was made.

#### INTRODUCTION

Porth y Rhaw (NGR SM786242) is a fine example of a multivallate coastal promontory fort, one of over 50 which line the Pembrokeshire coast and are crossed or bypassed by the long-distance trail – the Pembrokeshire Coast Path National Trail. The site (PRN 2721) is a Scheduled Ancient Monument, SAM Pe273. It is owned by the National Trust.

The site was partly excavated by Cambria Archaeology between 1995 and 1998 (event record number 30942) when part of the interior and a small section of the inner bank were investigated, along with trial trenches in the outer defences. The excavation revealed elements of at least eight roundhouses, suggesting that the fort was densely occupied. Successive re-building of one of the roundhouses may imply that the fort was in use for a substantial period of time.

In general, the earthworks are well preserved, with the banks towering above the footpath. However, at the west end of the site, the National Trail enters the fort across one of the outer defences and this has caused substantial erosion into the bank. The path, at this point, was also starting to 'braid', spreading the erosion further into previously undisturbed areas. At its eastern end, the path again crosses the outer bank before it exits the area of the fort and continues along the coastal edge. At this point, the path runs dangerously close to the cliff-edge.

Consultations between Cadw, the National Trust and Pembrokeshire Coast National Park Authority resulted in a proposal to carry out works at both the east and west ends of the path to try and control the erosion problems, and prevent future braiding of the path.

#### METHODOLOGY

#### Constraints

The whole site is a Scheduled Ancient Monument, so consent was needed for any ground-disturbing works. Porth y Rhaw is within easy reach of both St Davids and Solva, and, in addition, is situated just outside a caravan park at Nine Wells. This means that this section of the path is used very frequently. The majority of the use follows the official line of the path, across the outer bank at the west end and then around the outside of the main defences but unofficial paths, or 'desire lines' cross into the interior of the fort at a number of points. Most of these are no cause for concern, however, at the east end of the site a heavily eroded path leads across the defences right at the cliff edge. This is of concern due to its impact on the archaeology, but also due to its proximity to what is a relatively unstable cliff.

Approaching from the north, a footpath comes down a narrow valley and then, at its end, swings to the east and re-joins the coast path. There is a sudden, and quite dramatic view of the fort's earthworks. Care needed to be taken that any works on the footpath would not adversely affect this view of the monument – any works done here would have a strong aesthetic impact, as well as an archaeological one.



Figure 1: general location of Porth y Rhaw promontory fort.

#### **On-Site Works**

A management scheme was drawn up which involved works to three parts of the monument (see figure 2). Descriptions of all the works, and selected photographs are included in this section of the report. Further photographs are included in the Appendix.



Figure 2: Porth y Rhaw promontory fort, showing the existing line of the footpath and those areas which were due for repair/maintenance works.

**Area 1**. At the east end of the footpath a new route was put in place. The old route passed very close to the cliff edge, and was also so close to the ramparts that strong desire lines were leading into the interior of the fort and eroding through the outer ramparts. The new route was created by 'punching' a hole through an extant hedgebank and using that material to block the existing route, which passed through a hole in the hedge nearby. Access is still possible into the interior of the fort, but since the obvious route up and across the ramparts is now closed off it is hoped that people will be discouraged from going this way. It is also clearer now where the official line of the coast path runs.

The exposed section through the hedgebank (revealed when the gap was created) was photographed to record the structure of the bank. The material reclaimed from this bank was used to create a new bank, blocking the old line of the path. This was built to mimic the appearance of the existing hedgebanks.



Figure 3: showing the location of repairs carried out in area 1.



Photo 1: In the foreground, the lines of stone show where the existing footpath is being blocked. These stones will form the facings of the new, low hedgebank which is being built in such a way as to quickly blend in with the surrounding boundaries. Behind this, a new gap is being created to route the path around the bank of the rampart.



Photo 2: Looking east along the footpath, the rampart is to the right of the picture. The line of the old path continued straight on and is now blocked, the new path is the one which swings to the left and passes through a new gap in the hedgebank. This will help to route visitors away from the cliff edge and also away from the most heavily eroded area of the earthworks.

**Area 2.** In this area, the footpath climbs up, and crosses, the shallow outer rampart before running alongside it. The path had eroded deeply into the rampart and was very muddy and slippery in bad weather. Consequently it was also very braided, as people tried to avoid walking in the mud.

Works here were designed to encourage people to only walk on one route, and to provide a sacrificial surface at sensitive points along the route. Steps were inserted into the steepest parts of the path (in order to make it easier for people to walk) and simple drains, or grips, were laid across the path to divert water off the route and into the adjacent stream valley. This will both make the path more pleasant to walk on, and also avoid erosion caused by rainwater run-off from the ramparts cascading down the paths. Finally the braided sections were infilled with stones and spoil, and only the main path left. All works were carried out under archaeological supervision and with minimum ground disturbance.

Steps These were formed of reclaimed kerbstones picked for their colour; which was sympathetic to the colour of the natural stone in this area. The stones were dug in as little as possible – for most of them it was possible to lay the stone over the existing ground surface, and then build up underneath them to bed them in. On a few occasions the stones had to be slightly dug in, but disturbance was kept to an absolute minimum and in no cases exceeded 50mm – it did not penetrate below the topsoil.

Once the stones were laid in place, an aggregate from the nearby Brawdy quarry was used to bed them in, and to provide a sacrificial erosion surface for people to walk on. In total, three sets of steps were put in place. At the western end of the path, where it first enters the site, the steps were simply replacing an old set of wooden steps. The two other sets were both new.

*Grips* These were formed of a single reclaimed kerbstone dug into the ground surface, and running diagonally across the path. A slight channel left on the upslope side of the grip enables the water to run off into the stream channel. The grips were dug in to a depth of around 100mm, with the linear 'slots' being dug at the smallest possible dimensions. No archaeological features or soil horizons were noted in these small slots, though it is possible that soil changes were not

observed simply because of the small size of the trenches. No artefacts were recovered during this work.

*Infilling*. The braided paths next to the new steps were infilled using some of the aggregate from the Brawdy quarry, and also the small amounts of spoil which were gathered from digging in the grips and steps. The aim was to make these paths less attractive to walkers, so some stones were left on the surface. Where possible, the areas were re-turfed but there was not sufficient turf available for this to be done in all places. It is hoped that in the Spring 2007 the area will naturally re-vegetate – if it does not, then re-turfing will have to be carried out in the future.



Photos 3 and 4 (above): Showing the footpath before any works were carried out. Photo 3 (left) shows the path running to the east, where the figures are standing in the photograph is the point at which it crosses the ramparts. The path was very worn and was, at points, continuously braiding causing a wider area of disturbance. Photo 4 (right) shows the main path cutting into the earthwork of the outer rampart.



Photos 5 and 6 (above): showing the steps under construction. Photo 5 (left) shows how little ground disturbance was needed to bed the stones in place. Photo 6 (right) demonstrates how the steps will help to dictate a single route - the path to the left of the steps was later infilled.



Photos 7, 8 and 9 (above and below) showing one set of steps under construction. The steps are built up from the ground surface (above left) and the aggregate is introduced (above right) to fill the gaps and bed the steps securely in place. Photo 9, below, shows this set finished.





Photos 10 and 11. Above: the small trench dug for the grips. Below: the grip in place. This will help to drain surface water into the ditch (right of picture) rather than running down the footpath.

Photo 12 (above): the same view as shown in photo 3, with steps and a sacrifical surface in place. The repairs are still very 'new' and have not yet re-vegetated. In the interim, the stony layer over the path to the left of the steps should help to discourage people walking on it.

Photo 13 (above): the repaired path, with the impressive ramparts of Porth y Rhaw clearly showing. This is the view from the main approach to the site, so it was important that any works here did not increase the visual impact of the footpath.

**Area 3**. At this point, the footpath crosses a stream and enters the earthworks of the promontory fort. The stream was undercutting the footpath, and would, eventually, have begun to undercut the earthworks of the fort's defences. Works here consisted of using large stone blocks to slightly alter the course of the stream, directing most of the force of the water towards the other side of the stream valley away from the undercut area. This was potentially a very sensitive archaeological area so the stone blocks were built up against the existing slope – there was no additional ground disturbance.



Photo 14: showing works to the stream. The footpath can clearly be seen at the top of the picture. The stream was undercutting the path, and would eventually have eroded into undisturbed archaeological deposits. These reclaimed kerbstones were used to build up a barrier, diverting the main force of the stream

away from the sensitive area and protecting the footpath from inevitable collapse. By building up a defence in this way there was no need to carry out any additional ground-disturbing works.

#### **FUTURE MANAGEMENT**

These repairs will need monitoring throughout the next growing season. If they are not re-vegetating then parts of them will have to be re-turfed. It is hoped that no further work will be necessary.

#### REFERENCES

Crane, P: 1999: Porth y Rhaw Coastal Promontory Fort, Solva: Archaeological excavations 1995 – 98. Unpublished report held by Cambria Archaeology, report number, project record 30942.

#### **APPENDIX: PHOTOGRAPHIC RECORD**

Above left: area 1, the hedgebank before work starts. Above right: beginning to build a low hedgebank to block the old path

Above left: making a gap in the hedgebank Above right: creating a new, low hedgebank; earth core and stone facing.

Above left: laying turf over the new 'hedgebank' – this is deliberately low to blend in with the adjoining boundaries. Above right: The section through the old hedgebank. The stones on the outside both provide some 'facing' and are long enough to key into the earth core, providing stability to the structure. The whole thing has turfed over, and the thick layer of soil and turf provides extra stability.



Above left: close-up of the section through the hedgebank Above right. Area 2: transporting stone to build the steps. Work was carried out when the ground was dry in order to avoid causing disturbance whilst doing this.



Above left and right: laying the steps in place



Above left and right: very limited ground disturbance necessary to level the stones in.



Above left and right: digging a small trench to hold the stone grips