



## **Cell 1 Regional Coastal Monitoring Programme Walkover Inspection Surveys 2022**

**Northumberland  
County Council**

**October 2022**

# Northumberland County Council

## Walkover Inspection Surveys 2022

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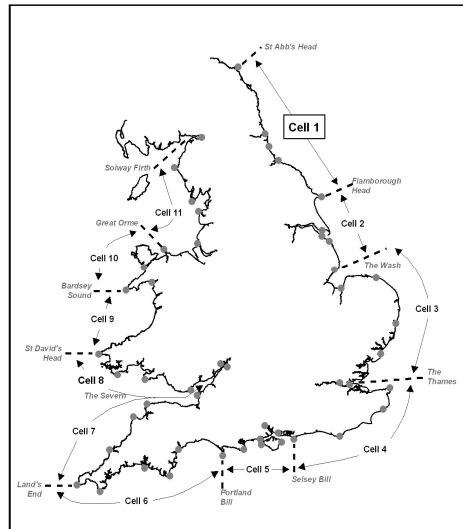
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<sup>1</sup> Scarborough Borough Council is acting as lead authority on behalf of all Local Authorities within 'Coastal Cell 1'

## Preamble

The Cell 1 Regional Coastal Monitoring Programme covers approximately 300km of the North East coastline, from the Scottish Border (just south of St. Abb's Head) to Flamborough Head in East Yorkshire. This coastline is often referred to as 'Coastal Sediment Cell 1' in England and Wales (Figure 0-1). Within this frontage the coastal landforms vary considerably, comprising low-lying tidal flats with fringing salt marshes, hard rock cliffs that are mantled with glacial till to varying thicknesses, softer rock cliffs, and extensive landslide complexes.



**Figure 0-1 - Sediment Cells in England and Wales**

The Cell 1 Regional Coastal Monitoring Programme commenced in 2008 and is managed by Scarborough Borough Council on behalf of the North East Coastal Group. The programme is funded by the Environment Agency, working in partnership with the following organisations.



The main elements of the Cell 1 Regional Coastal Monitoring Programme involve:

- beach profile surveys
- topographic surveys
- cliff top recession surveys
- real-time wave data collection
- bathymetric and sea bed characterisation surveys
- aerial photography
- walkover inspection surveys

Royal HaskoningDHV has been appointed to provide Analytical Services in relation to the Cell 1 Regional Coastal Monitoring Programme 2021 - 2027.

The present report is **Walkover Inspection Surveys 2022** and provides a summary of the main findings from the walkover inspections of Northumberland County Council's frontage that are undertaken once every 2 years.

In addition, separate reports are produced for other elements of the programme as and when specific components are undertaken, such as beach profile, topographic and cliff top surveys, wave data collection, bathymetric and sea bed sediment data collection, and aerial photography.

# 1. Introduction

## 1.1 Study Area

Northumberland County Council's coastal frontage is approximately 100km in length extending from Scottish Border in the north to Hartley in the south, as shown in **Figure 1-1**. In accordance with previous coastal inspection surveys, this frontage is sub-divided into approximately 146 built asset lengths and 203 natural asset lengths (349 total assets). Detailed maps showing the location of each of these assets are presented in **Appendix A**.



**Figure 1-1: Northumberland County Council study area**

## 1.2 Methodology

This section presents the approach taken by the asset inspectors for the Northumberland County Council coastal frontage.

The walkover inspection surveys for the Northumberland County Council frontage were undertaken on various dates between late May and October 2022. The weather experienced during the inspections was generally clear and fine with no access or visibility problems caused by adverse weather.

The frontage has been split into a number of 'asset lengths' (**Appendix A**), as defined in the National Flood and Coastal Defence Database (NFCDD) that was established by the Environment Agency.

The walkover inspections cover both built defence assets and natural defence assets such as cliffs, slopes and dunes. All assets were visually inspected, photographed and graded based on their condition and an estimate made of their residual life.

For built assets the grading classification was undertaken in accordance with the Condition Assessment Manual (EA, 2012), with estimates made of the urgency of any necessary repairs. An extract of the grading classification for built assets is presented in **Table 1-1**. For ease of reference the built asset photographs presented in this report have also been bordered with the colours key indicated below.

Grade	Rating	Description
1	Very Good	'As built' condition or cosmetic defects that have no effect on performance.
2	Good	Minor defects that will not reduce overall performance of the asset.
3	Fair	Defects that could reduce overall performance of the asset.
4	Poor	Defects that would significantly reduce overall performance of the asset.
5	Very Poor	Severe defects resulting in overall performance failure of the asset.

*Table 1-1: Condition assessment grading for man-made assets.*

In addition to the above grading classification, for natural assets such as cliffs and slopes the same five-point activity scale used in previous walkover inspections within Cell 1 was used. This grading classification is presented in **Table 1-2**. For ease of reference the natural asset photographs presented in this report have also been bordered with the colours key indicated below.

Grade	Class	Description
1	Dormant	Features with no interaction with marine processes.
2	Inactive	Features with no visible evidence of erosion or landsliding activity.
3	Locally active	Features with localised evidence of small erosion or landsliding activity.
4	Partly active	Features with widespread evidence of small erosion or landsliding activity or areas of intense erosion or landsliding.
5	Totally active	Features with large-scale or intense erosion or landsliding.

*Table 1-2: Condition assessment grading used for natural assets (cliffs/ slopes).*



This report provides an overview of the findings from the walkover inspections, summarising each locality in general but also specifically identifying individual assets in 'poor' or 'very poor' condition. It is anticipated that this summary will help identify areas for maintenance or capital investment. Full details of the inspection of each asset are provided in **Appendix B**.

In addition to this report, full details of the inspection and a selection of appropriate photographs have been entered into the SANDS (Shoreline And Nearshore Database System) database and provided along with this report with SANDS viewer software. Additionally, all data from the obsolete Northumbrian Coastal Group MS Access database previously used for Northumberland coastal defence inspections from 2002 to 2010 has been imported to the SANDS database and a new asset data display form "Northumberland Sea Defence" has been created in SANDS to allow easy viewing of the data.

## 2. Overview

The following significant findings were observed during the 2022 inspections:

- **Green's Haven** (also known as Fisherman's Haven) – The breakwater remains in poor condition and there has been loss of beach levels on the landward side resulting in undermining. Potential failure of the breakwater will impact on the cliff and access to the south. There is an increasing need to examine the impact this would have on access, and this point is highlighted by the SMP refresh process. More generally, the cliffs show fairly frequent activity in terms of slippages and there have also been occasional rock falls. Signs are erected warning holiday makers at the caravan park of unstable cliffs. The various lengths of concrete apron and concrete/brick walls are in poor condition (with one section of apron breaking up notably) and the whole bay would benefit from targeted maintenance.
- **Magdalene Fields** - The cliffs continue to be susceptible to local and occasional slumping in the upper soft material. Previous slumps have cut the cliff top back to the footpath in places at the Golf Course, with the path being relocated away from the edge and warning signs erected.
- **Berwick and north bank of the River Tweed** - The Berwick Pier underwent substantial refurbishment during 2012/13, including repair of a significant void midway along the leeward face and replacement of the concrete deck. These repairs are holding well. There is however some indication of voids in the walkway over the inner section of the breakwater which needs to be investigated. The masonry seawall along Pier Road remains in fair condition overall, but as previously reported there is abrasion and damage to the coping, as well as outflanking and localised collapse of the wall's concrete sloping revetment 'tie-in' at its western end. The historic masonry wall of Fisher's Fort remains in relatively good condition although some local areas would benefit from re-pointing. A vertical crack was observed on the roundhead and, although there is no clear visual evidence that this crack has widened, a precautionary approach now would be to undertake more detailed monitoring of this crack.
- **South bank of the River Tweed** - The Reno mattresses on the south bank of the Tweed remain in poor condition. Before substantial repairs are made to this structure it would be recommended that the need for defence here is reviewed, with potential to allow naturalisation of frontage. Some of the piles to the timber retaining wall behind the RNLI station have entirely rotted. The stability of the short section of wall needs to be investigated.
- **Scremerston Cliffs** – Further inspection of the Scremerston cliffs (in line with recommendations in the SMP refresh process) indicate no risk to the railway line at present. Some areas are, however, affected by saturated land above the cliff crest. While this currently appears to pose no direct risk to the railway, this should be monitored during subsequent inspections.
- **Beal** – There is a low point in the flood embankment between the new sluice and the main Beal Sluice. This was highlighted in 2016 but no repair has been made at the time of the 2022 inspection. There appears to have been some further deterioration of the edge protection to the right hand bank at the Sluice.
- **Warren Mill** – The wall at Warren Mill has been substantially rebuilt. There appears to have been growth of *Spartina* on the mud foreshore but continued erosion and creeks forming in the upper marsh above this.
- **Budle Bay** – The jetty at Heather Cottages might be considered a public safety hazard, but has not significantly altered in condition since the 2016 inspection. There has been a change in patterns of accretion and erosion linked to the entrance to the Bay, with continued erosion of the dunes to the south of the jetty but little change to Budle Point.

(Note: The SMP Refresh process has recommended splitting the Warren Mill to Harkess Rocks into three sub-policy units reflecting the different issues and behaviours. This would be subject to a formal review.)

- **Holy Island** – The repairs made to the highway and the harbour pier returned both assets to good condition in 2016. The repairs remain effective and in good condition to the present day.
- **Seahouses Harbour** – Significant repairs made to the North Pier of Seahouses harbour involving concrete encasement along its full length, underwater repairs to pier head stub and replacement of copestones and handrails remain in good condition. The Inner Pier remains in similar condition to 2020 with some signs of undercutting and loss of mortar between joints.
- **Beadnell** – As reported previously, the sea wall (Nacker's Hole) and stone-filled mattresses (Lady's Hole) at Beadnell North are in poor condition and capital works are strongly recommended. A small rock revetment has been constructed in between assets 1701/C31 and 1701/C34. Concrete has been poured on the crest to the north to provide a flat storage area. The condition of the harbour is poor in places, with abrasion, undermining and scour evident. In places, this has led to the loss of blockwork from the structures. The access steps and grouted stone revetment to the north of the harbour is severely undermined and at risk of collapse.
- **Embleton Bay** – There has been little substantive change around Newton-by-the-Sea and around much of Embleton Bay, with local erosion associated with the area of the Embleton stream.
- **Howick Haven** – The substantial embryo dune growth within Sugar Sands has been sustained in 2022.
- **Boulmer** – The rock revetment constructed in 2016 has improved the condition of the defences at Boulmer village.
- **Alnmouth Beach** – There is significant variation along the frontage with some areas of accretion and some of erosion. There has been some growth in the upper beach around the southern end of the car park.
- **River AIn** – The wall to the riverbank footpath, between the B1338 and the spit of land was repaired in 2018. There is some minor undercutting of the concrete toe and damage to its downstream end. There is slight undercutting of the new Boat Club wall. These defects need monitoring rather than specific action.
- **Church Hill, Alnmouth** – The low masonry wall around the foot of Church Hill had collapsed along a length of approximately 10m prior to the 2016 inspection. Concerningly the collapsed section has not been repaired and adjacent sections of wall remain in very poor condition. Work should be undertaken to avoid a larger scale collapse that potentially could lead to slumping of Church Hill. Further around Church Hill (into the estuary) another short section of lower wall has collapsed. The whole end-section of the wall needs rebuilding.
- **Warkworth Harbour** – North Pier remains in a collapsed section at its seaward end as previously reported. It is understood that this crack and rotation occurred in the end of the structure soon after its construction. Although not formally defined as a coastal defence asset, the North Jetty is in a largely dilapidated condition.
- **Amble** – Broomhill Quay and Little Shore Wave Basin repairs remain in good condition.
- **Druridge Bay** – There is ongoing erosion immediately south of the terminal end of the rock revetment adjacent to the outfall of Ladyburn Lake. These cliffs here are in poor condition with recent erosion impinging on the flanks of the road carriageway.
- **Cresswell** - The cliffs fronting the Golden Sands Holiday Park, just north of Snab Point, have previously been subject to slippage, cutting the cliff top right back to the coast road. At this location, the gabions at the cliff toe are now almost entirely obsolete. It is likely that further recession at this point will occur, thus affecting the coast road.

- **Lynemouth Bay** – Ongoing erosion of the colliery spoil beaches and cliffs is causing the release of other refuse (plastics, rubber tubing, construction rubble, etc.) onto the foreshore. The large rock armour revetment constructed in front of the Power Station in 1995 and subsequently extended around the coal stocking yard in 2005 remains in good condition.
- **Newbiggin Bay** – The beach continues to attract sediment and wind-blown sand on the promenade remains in need of ongoing management.
- **Hawks Cliff** – A section of cliff collapsed in November 2019 (taking away the England Coast Path waymark with it) and this local area has since been fenced off (initially temporarily and then more permanently) and the footpath diverted further inland still, into the adjacent fields. New signs have been erected warning of the eroding cliffs.
- **North Blyth** – The previously failed section of gabion basket above the rock revetment has been repaired.
- **Blyth South Beach** – Works to the seawall fronting a recently extended property at Beachway appear poor. Holes have increased in size in the corroded steel sheet piling at the southern end of the promenade. The channel of Meggies Burn has been artifically cut back to a more direct discharge to sea, avoiding undercutting the terminal timber groyne. Dunes along the bay have significantly recovered since the storm-damage that was experienced shortly prior to the 2018 inspections
- **Collywell Bay** – The gabions at the foot of the access ramp remain defective.

### 3. Condition Assessment

#### 3.1 Scottish Border to Berwick-on-Tweed Pier (MU 1)

This management unit is approximately 7km in length and extends from the Scottish Border in the north to the Berwick Pier in the south.

This frontage includes 19 assets, comprising mostly natural assets being steep and high exposed rock cliffs with occasional man-made defences.

Inspection of the frontage between the Scottish Border and Marshall Meadows Point is limited because the face of the cliff cannot easily be viewed. However, the cliffs along this length appear stable and there are no obvious signs of cracking in the cliff top. The footpath along the cliff top is wide, well maintained and set back from the cliff edge.



*Start of inspection at Scottish Border (/0601C01)*



*Wide, well maintained footpath set back from the cliff edge (/0601C01)*



*High stable cliffs (/0601C01) 2022*

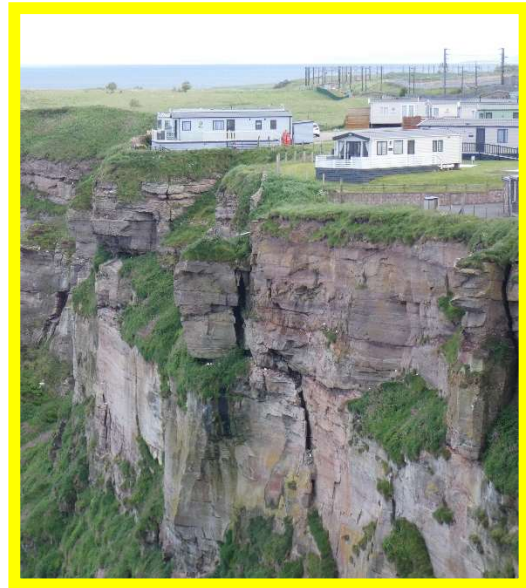


*High stable cliffs (/0601C02)*

The cliffs at Marshall Meadows Bay are fractured in places adjacent to the caravan park but have been in this condition for some time with no apparent signs of collapse between subsequent inspections. At the time of the inspections, no recent movement was observed in terms of either rock falls in the harder rock base or slumping in the overlying softer material, although both processes remain the characteristic behaviour of these cliffs. There is one area of large overhang, but this has not collapsed for some time.



*Fractured cliffs at Marshall Meadows Bay (/0601C02) - 2016*



*Fractured cliffs at Marshall Meadows Bay (/0601C02) - 2022 (no change)*



*Cliffs in front of the holiday park at Marshall Meadows Bay (/0601C02) 2022*



*Rock overhang in cliffs at Marshall Meadows Bay (/0601C02/ 3) 2022*

The cliffs along St John's Haven continue to appear highly stable as they are fronted by a wide rock platform. This rock platform narrows to the south and the occurrence of caves and arches increases. The arch of Needle's Eye remains a prominent feature along this stretch. The East Coast Main Line runs between Berwick and Edinburgh, close to the cliff top along this section. However, given the overall stability of the cliffs seen through the period of inspections, there is no significant risk identified.



*Stable cliffs at St. John's Haven (/0601C04) 2022*



*Needle's Eye (/0601C05) 2022*

Further south, again the cliffs remain stable in to the area north of the golf course (/0601C06) with no significant failure of the upper bevel at the crest of the cliffs. There is no apparent risk to the footpath.



*Stable cliffs (/0601C06) 2022*



*Northern end of golf course (/0601C06) 2022*

The cliffs at the northern section of Magdalene Fields (along the agricultural land north of the golf course) have previously been affected by a local rock fall and the debris from this remains on the foreshore. There is cracking along a measurable section of footpath at the cliff top indicating a slump in the overlying softer material may occur in the future as a consequence of the rock fall. Elsewhere along this section, the cliffs continue to be susceptible to local and occasional slumping in the upper soft material. Slumps previously noted at Brotherston's Hole were not as visible during the 2022 survey due to vegetation growth. Previous slumps have cut the cliff top back to the footpath in places at the Golf Course. In the harder rock base, there are numerous caves, fissures and rock overhangs.



*Localised slumping at Brotherston's Hole reported in 2018 (/0701C01)*



*Localised slumping at Brotherston's Hole less visible in 2022 (/0701C01)*



*Caves at base of cliffs (/0701C02) 2022*

Between Burgess' Cove and Shapers' Head the hard rock base is highly fissured and areas of partial slumping have occurred in the overlying softer cliff material, cutting the cliff top back to the fence line in some locations. Previous observations of a large overhanging section of cliff face left after a rock fall were also observed during the 2020 inspection. No further change was observed in 2022. There is a concrete pavilion and access steps located towards the south of the bay which are in generally in poor condition with signs of abrasion around the waterline. It appears that the fronting brickwork reported as being lost between 2018 and 2020 has not been repaired and there is some undercutting of the Northumbrian Water sewage treatment works outfall pipe across the foreshore.



*Cliff face overhang (/0701C02)*



*Concrete pavilion structure in fair/poor condition, missing brickwork from fronting wall (/0701C02)*

South of Shapers' Head the cliffs continue to be characterised by large vertical fissures, caves along the base and local slumps in the overlying softer material.



Green's Haven (also known as Fisherman's Haven) Breakwater remains in poor condition, with some further damage and the evident risk of undermining due to loss of beach. Ongoing horizontal cracking and spalling along much of its length is likely to lead to further damage of the crest. Whilst the structure is well founded on rock, this is being undercut. Although the structure is in poor condition it is still performing the function of retaining sand but with clear losses possibly related recent severe storms. The structure does provide protection to the frontage to the south and with the potential for loss of beach and access as the structure fails. The current policy is to address safety issues but not to reinstate the structure. The implications of this need to be considered through a review of impacts on the wider area (Note: Refer to the recommendations of the SMP refresh process, 2022).



*Green's Haven Breakwater (/0701C04) 2020*



*Damaged section on breakwater crest (/0701C04) 2022. Further damage and undermining.*



*Sand accumulation and embryo dune growth at toe of cliffs in lee of Breakwater (/0701C05)*

The steel, timber and concrete access steps at the root of the breakwater are generally in good condition. Despite there being two deep caves in the cliffs at the base of the steps, these appear to be stable with no change observed since the last inspection. This is likely to be affected by loss of breakwater (/0701C04)

The cliffs around Green's Haven show fairly frequent activity in terms of slippages and rock falls. Signs are erected warning holiday makers at the caravan park of unstable cliffs. One slippage, just to the north of the southern access steps, has left a length of fencing suspended in mid-air (unchanged since 2016). Further change was observed in 2022.



*Slumping in cliffs at Green's Haven (/0701C06) 2020*



*Slumping in cliffs at Greens' Haven (/0701C06) 2022*

Various lengths of concrete apron and walls extending around the centre of the bay remain in poor condition and provide limited protection to the soft cliffs behind. One short section of wall in particular has outflanking due to slope slippages and the toe apron is actively breaking-up. Concrete access steps at the centre of the bay and the concrete steps at the south end of the bay remain in fair condition but the adjacent ramp at the southern steps is in poor condition. General attention is required to address routine issues.



*General view of condition across bay (/0701C06 to C10) 2022*



*Short seawall with active breaking-up apron (/0701C07) 2022*

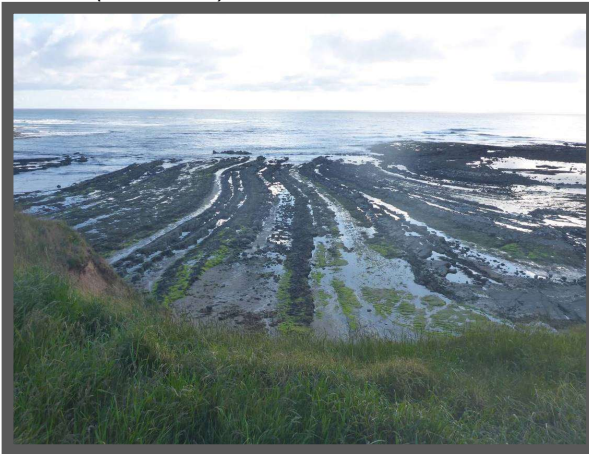
The cliffs along the southern part of Magdalene Fields are actively slumping and the fence and footpath have been moved away from the edge in response. There are signs of tension cracks in the cliff top path, suggesting the slumping remains ongoing. The foreshore is characterised by impressive rock platform.



*Slumping cliffs along Magdalene Fields Golf Course (/0701C12) 2020*



*Slumping cliffs along Magdalene Fields Golf Course (/0701C12) 2022*



*Impressive rock platform fronting cliffs (/0701C12)*



*Slumping cliffs along Magdalene Fields Golf Course (/0701C12) 2022*

At Meadow Haven, just north of the Berwick Pier, there is a wide foreshore known as Little Beach, backed by wide, stable and well vegetated dunes. Embryo dunes are present over the southern end of the frontage (towards the North Breakwater). There is no evidence of dune growth further north.



Sand beach and dunes along Little Beach (/0701C13)

### 3.2 *Berwick-on-Tweed Pier to Spittal (MU 2)*

This management unit is approximately 5.5km in length and extends from the breakwater on the north side of the Tweed estuary to the southern extent of Spittal.

This frontage includes 20 coastal defence assets, comprising mostly of man-made defences including sea walls, breakwaters and revetments along the foreshore of Berwick-on-Tweed and Spittal town.

The Berwick Pier underwent substantial refurbishment during 2012/13, including repair of a significant void midway along the leeward face and replacement of the concrete deck.



*Berwick Pier in good overall condition following refurbishment in 2012/13 (/0701C14 & C15)*

The new repairs remain in good condition, but some minor cracking, which does not seem to have worsened since the previous inspections, is evident in the older (inland section) deck. Vegetation growth is occurring in some of these cracks. In addition, some of the concrete render on the crest of the outer wave wall is spalling along the seaward sections and the older, inner section of this wave wall is heavily abraded on its landward face.

Over the inner section of the structure, between the root of the breakwater and the first return, cracking is noted in the main walkway. In several locations associated with this cracking there was a hollow sound when tapped. This might merely be associated with the cracking of the walkway but might also indicate some voiding. There is no evidence of significant change in the level of the surface nor is there any evidence of loss of integrity of the landward vertical face of the structure.



*Older (inland) sections of cracked deck and abraded wave wall on Berwick Pier (/0701C15) Repairs to deck of Berwick Pier (/0701C14/15)*

There is an accumulation of gravel and cobbles at the root of Berwick Pier, which has become vegetated and indicates stability.

The masonry seawall along Pier Road remains in fair condition overall, with occasional minor cracking and frequent spalling of the concrete coping. At the breakwater end, there is some minor undermining of the toe. Over the main length, in addition to spalling of the concrete the coping is being affected by vegetation indicating significant loss of integrity. The central masonry slipway continues to deteriorate, although not to a substantially greater degree than previously noted. The nearshore section of the outfall is encased in concrete which has cracked notably. At the western end there is outflanking and localised collapse of the wall, although this does not appear to have worsened since the previous inspection and appears to have changed little since first reported in 2004.



*Eastern end undermining (/0801C07)*



*Deterioration of the coping (/0801C07)*



*Local failed section of slipway over foreshore outfall (/0801C07)*



*Western end failure of wall (/0801C07)*

The historic masonry wall of Fisher's Fort remains in relatively good condition although some local areas would benefit from re-pointing. Previous repairs have been made at the junction of the wall and the roundhead. Where the wall has a toe apron several of the blocks in the apron are heavily abraded. There is a large vertical crack in the wall at the roundhead and, although there is no clear visual evidence that this crack has become worse, the crack continues up to the crest of the wall and there has to be an assumption that some movement is still occurring. This is now highlighted as a potential concern. The tidal flap valve in the wall is operational.



*Berwick's historic town walls in good overall condition (/0801C06)*



*Abrasion to toe (/0801C06)*



*Vertical crack in wall at roundhead (/0801C06)*



*Vertical crack in wall at roundhead (/0801C06)*

The short sections of masonry seawall (with concrete deck) fronting the properties at Gardo's Battery are in fair condition and where fronted by a rock revetment this remains in good condition with armour well packed. The timber slipway at this location is obsolete.



*Rock revetment in good overall condition (/0801C04)*



*Wall in fair overall condition (/0801C05)*



*Obsolete timber slipway (/0801C05) 2020*



*Obsolete timber slipway (/0801C05) 2022*

The Berwick quayside (north bank) consist mostly of sheet piled walls, with a short masonry wall extending around the dock area. The steel piles, concrete capping beam, ladders and timber fenders are all in good condition. As noted in the previous inspection the masonry wall in the small dock is in fair condition with some blocks broken and abraded and a number of open joints evident that would benefit from re-pointing. Voids are appearing at the blockwork access steps to the small dock.



*Steel sheet piled quay walls in good overall condition (/0801C03)*



*Masonry quay walls in dock area in fair overall condition with some open joints, cracks and abrasion (/0801C03)*



Defence length 121AA901A0901/ C04 runs from the southern jetty at the entrance of the Berwick Dock through to the area of the Pier and IRB Station at Carr Rock. The defence comprises two sections, the first being a masonry revetment protecting land formerly occupied by sheds (removed between 2006 and 2008). This section has undergone previous repairs and despite minor loss of pointing is generally in fair condition.

The main section of defence, protecting the open grass area in front of Dock Road, comprises gabion (Reno- mattress) defence. Much of the exposed original square mesh baskets have failed along the toe and continues to deteriorate. The small infill stone has formed a wedge at the toe of the structure. A new upper layer of mattress was constructed by 2006. At the southern end of defence 901/ C04 a different type of mesh has been used (constructed by 2006), using a wrapped wire basket as opposed to a square welded mesh. There now is general corrosion of the wire. There is continued loss of integrity of the baskets, although as yet no substantial erosion to the natural bank.

This defence seems unlikely to suffer catastrophic failure. However, the SMP2, calls into question the benefits associated with continued defence of this area. Before investing further repairs, the need for which in areas are becoming urgent, as a safety issue, the need for defence needs to be reviewed.



*Masonry revetment 901c04 at northern end -2016.*



*Minor loss of pointing 2020*



*901c04 continued damage 2022.*



*901c04 continued damage 2022.*

Defence lengths 121AA901A0901/ C05, and C06 comprise a section of masonry / concrete wall linking through to the Spital Pier. Previous reports highlight the main risk being the condition of the masonry and gaps between masonry. These are old structures and can only really be assessed in term of change rather than in terms of immediate condition.

There is little change to the main Pier. However, particularly around the outlet pipe there is further loss of pointing compared to 2020.



901c05/06 in 2008 showing toe level and condition of masonry.



901c05/06 further cracking and loss of pointing 2022.



901c06 in 2008.



901c06 - 2022. Little change since 2008

Despite some repairs spalling of the concrete support structure to the RNLI Station continues. The timber piles to the timber retaining wall behind the RNLI station are in poor condition with at least one pile having totally rotted. The wall may now fail.



901c06 - spalling to RNLI structure.



901c06 – loss of integrity of timber retaining wall.

The beach level to the eastern end of the main jetty were noted to have reduced in 2018 compared to 2016, but only to the same extent as in 2008. Beach levels have dropped further in 2022, reflecting a change in the position and alignment of the main channel. The change along this section has been linked to behaviour of Sandstell Point (discussed later).

It has only been possible to provide a superficial inspection under the structure but there is no obvious deterioration. This needs to be reviewed given the development of the area above.



*901c07 high sand levels 2016.*



*901c07 – reduced beach levels 2022, continuing change since 2018.*

Beach levels along the 901c08 frontage, through to Sandstell Point, remain relatively stable but with a degree of erosion of the dune compared to 2020; the beach face has improved compared to the condition in 2012 / 2016. To the northern end there has been erosion of the dune but extension of the spit.



*901c08 – 2020, stable since 2017*



*901c08 – 2022, slight erosion*

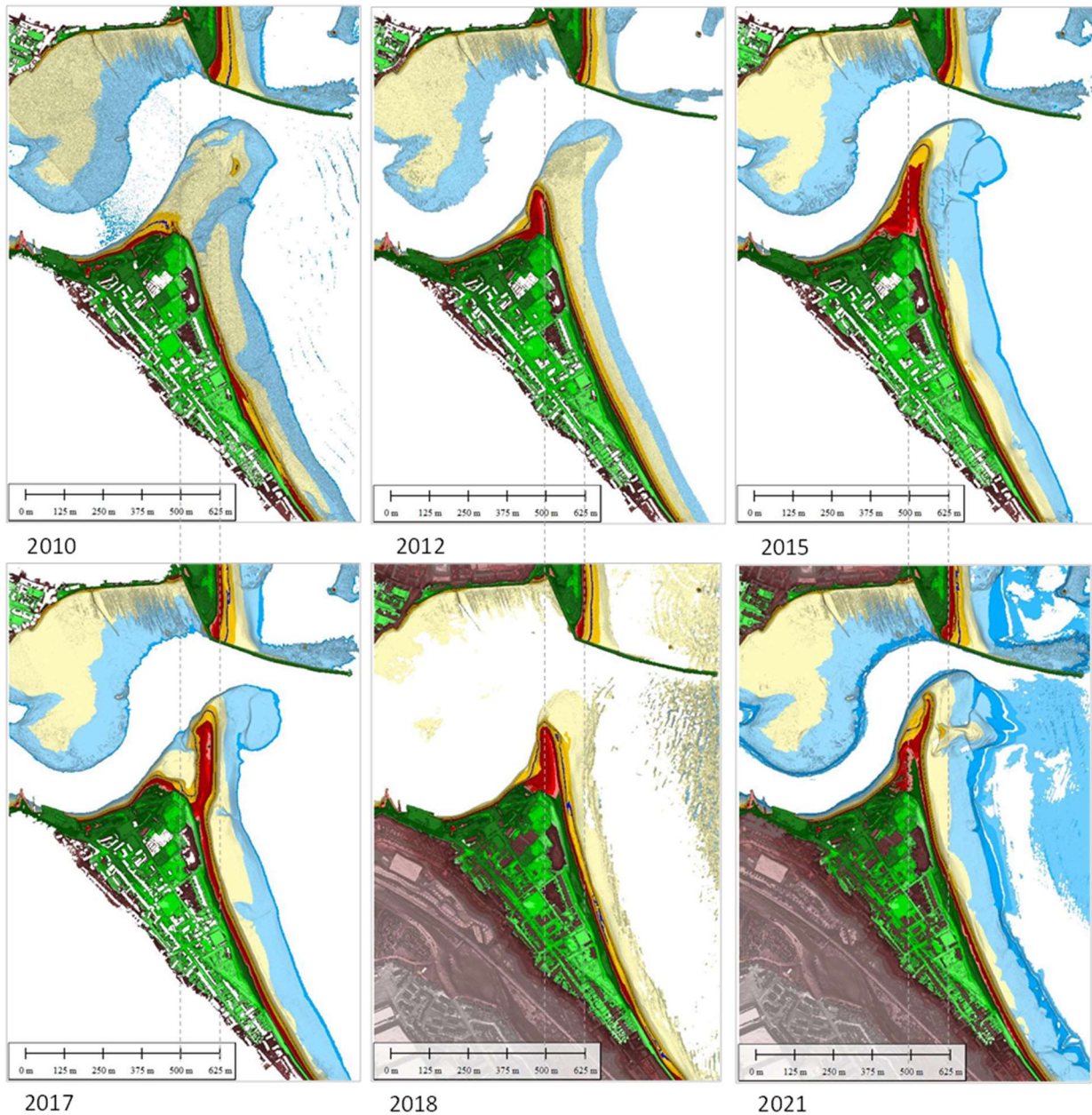


*901c08 – fully developed front dune 2016.*



*901c08 – slight erosion since 2020 but with embryo dune growth to spit.*

These changes are linked to the change in the Sandstell Point bank across the mouth of the estuary and the associated movement of the channel. A comparison of this change based on LiDAR images from 2010, 2012, 2015, 2017, 2018 and 2021. The SMP recommends that a buffer zone is recognised to allow for change.



*Comparative plot of LiDAR.*

The changes in the Point influences changes across the head of Spittal Point as discussed below.

The beach levels around defence lengths 121AA901A0901/ C09 and C10 remain high and both defences remain in good condition. The general change in the position of the dune crest associated with Sandstell Point provides additional protection to these defences. This suggests a further westward movement of the spit since the LiDAR image shown in 2018 above as shown in the LiDAR plot for 2021.



901c09 – high beach levels 2018.



901c09 – growth of dune to inner head of Sandstell Point 2022.



901c10 – high beach levels 2018.



901c10 – high beach levels 2022.

Beach levels along the northern section of the open coast 121AA901A1001/ C01 continue to be high, with groyne substantially buried. However, in comparison with 2020 there is increased exposure of the rock armour. This again reflects to slight shift in the position of the sand spit shown in the LiDAR plot for 2021.



1001 c01 – Northern end, showing cliffing of beach around headland 2020.



1001 c01 – showing exposure of rock armour 2022



*1001 c01 – 2018 showing increased beach width with groyne buried.*



*1001 c01 – 2022 beach levels return to those similar to 2018.*

Beach levels and hence the pressure on this frontage was identified in the SMP as being closely associated with the position and shape of the sand bar and channels at Sandstell Point. The monitoring continues to confirm this. This suggests that the frontage (and the area to the south) is dependent on broader scale change rather than purely changes to the local profile.

Beach levels remain relatively high over defence length 121AA901A1001/ C02 with no deterioration in the defence. Beach levels have reduced slightly since 2020.



*1001 c02 – 2022 continued development of embryo dune .*



*1001 c02 – 2022 loss of embryo dune since 2020*

Beach levels to 121AA901A1001/ C03 have increased from 2018, to a similar level to 2016, particularly over the norther section. Since 2020 levels have fallen slightly. However, there remains a healthy beach to the defence. The crack or failed repair identified in 2014 remains in the same condition (this crack has remained the same since 2010). There is some general loss of joint sealant but this does not appear to be detrimental to the performance of the wall.



1001 c03 – 2020



1001 c03 – 2022 slight reduction in beach level

The beach levels in front of the rock revetment 121AA901A1001/ C04 remain high with a slightly increased crest width. beach levels are substantially higher than 2006.

Generally over the whole Spital frontage (121AA901A1001), while there has been some slight loss in beach levels since 2020, beach levels have remained high in comparison to earlier inspections such as 2006. At southern end of the main defence (1001 C03) beach levels are comparable to 2018.



1001 c04/ 05 – low foreshore levels in 2006.



1001 c04– 2022 high beach level sustained

Since the slight additional slippage to the coastal slope at the southern end of 1001 c05 noted in 2018, there has been no further change in the coastal slope. Slippage here appears to be of the lower soils resting above the sloping rock and does not appear to affect the upper slope. There is no obvious deterioration of the retaining wall above the slippage area.



1001 c04/ 05 – 2022 no substantial change.



1001 c05 – 2022 no substantial change in coastal slope.

### 3.3 Spittal to Cheswick Sands (MU 3)

This management unit is approximately 6.5km in length and extends from the south extend of Spittal seawall in the north to Cheswick Sands in the south. This frontage includes approximately 8 coastal defence assets, comprising mostly high natural coastal cliffs through to the dune system at Cocklawburn / Salt Pan Rocks. The frontage, even down towards the Salt Pan Rocks dunes, is strongly controlled by a wide and high rock platform. Locally at Salt Pan the dunes are backed by boulder clay cliffs.

Between Spittal and Sea House farm (Scremerston) the high cliffs continue to exhibit slow erosion but with no assets at risk. In line with recommendations from the SMP refresh project (2022) further consideration was given to risk to the railway. Even at the closest position to the crest of the cliff the railway line is well set back. In some areas the stability of the upper slope is subject to slumping due to ground water. However, the railway line is well set back in these areas and, as noted in the SMP, the risk may occur in the long term. There is one section where there is a masonry wall supporting the upper slope and this appears to be in good condition. There has been little change in beach levels. appear not to have changed since 2018 and there is a small area of embryo dunes (shown on image) that has changed very little since 2016. Beach levels and coastal slope have changed little over 121AA901A1101/ C02 and C03. The old lime kiln in C02 continues to deteriorate slowly.



*1101/c01 general position of railway line in relation to cliff and coastal slope*



*1101/c01 Short section of infill upper slope wall.*



*1101/c01 general view of cliffs and beach to north of Sea House 2016.*



*1101/c01 general view of cliffs and beach to north of Sea House 2022.*





*1101/c02 2022 coastal slope and historic structure. 1101/c03 2022 coastal slope*

Sea House Farm (1101/c04) is possibly founded to the underlying rock rather than being reliant on the eroding vegetated surface cover. There is little change to the concrete protection around the outfall. It remains cracked with areas of local undermining but there seems to be not immediate risk. The old masonry structure has suffered significant failure. There is no change to the coastal slope compared to 2018, although minor slumping occurs.



*1101/c04 2022 Outfall and concrete slope protection, cracked and minor undermining. 1101/c04 2022 general slope, no change.*

Further south of Sea House Farm, (1101/c05) the shoreline reverts to a generally hard rock basal cliff with varying thickness of surface deposits. Some sections continue erode but where the road comes down to the Cocklawburn beach the cliff remain relatively stable, with little change since 2018.



*1101/c05 Critical section of frontage closest to road 2016 1101/c05 2022 Critical section of frontage closest to road. No change.*

There has been erosion since 2020 since 2020, with the dune face similar to that in 2018 over the dune frontages 121AA901A1201 / C01, C02 and C03. Previous years have shown that beaches and the dune face can be subject to periods of erosion.



1202/c01 northern end 2018



1202/c01 northern end 2022

There is no evidence of further erosion of the back face of the dune in the bay to the south of Far Skerr. Beach levels built between 2018 and 2020 but have reduced again in 2022, with slightly greater exposure of the rock outcrops compared to 2018. The main pathway leading down into the this bay is still at risk.

In the area around Cheswick Rocks there was erosion prior to the 2018 inspection and the area was recovering slightly. In 2020, this recovery continued and has been sustained in 2022, with no substantial cut back of dune since 2020.



1201/c01 south of Far Skerr. 2018



1201/c01 south of Far Skerr 2022.



1201/C02 Cheswick Rocks 2018



1201/C02 Cheswick Rocks 2022

### 3.4 Cheswick Sands to Bamburgh Moor (MU 4)

This management unit is approximately 29.5km in length and extends from Cheswick Sands in the north to Bamburgh Moor on the northern outskirts of Bamburgh town in the south and encompasses the Lindisfarne National Nature Reserve. The unit is broken down into four different frontages.

#### Cheswick and Goswick to Beal Point

This frontage includes the major dune system running as a series of dune ridges through to the northern section of the sand/mud flats lying behind Holy Island.

To the northern end of this area the dunes continue erode slowly, cutting back to crest of dune ridge but maintain slope and vegetation.



1201/ C02, C03 – 2006 showing erosion but dune system further forward than present day



1201/ C02, C03 – 2018 showing set back of frontage but some re-vegetation.



1201/ C02, C03 – 2020 showing no significant change since 2018 but with further re-vegetation.



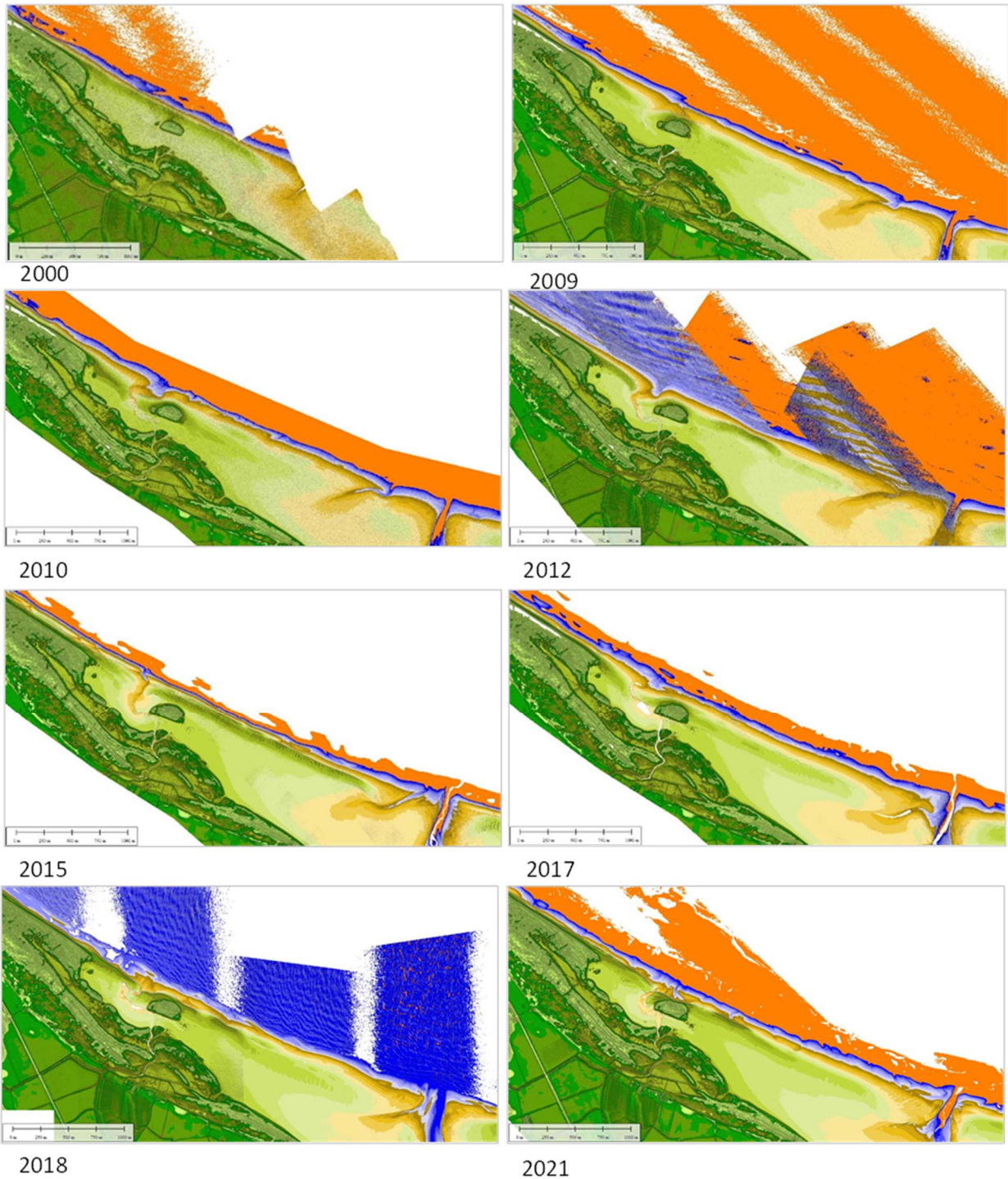
1201/ C03 – 2022 little embryo dune growth but no significant change to main dunes since 2020.

The dunes at the southern end of 1201/C03 show continued growth to the south, across the seaward mouth of the North Low, with growth of embryo dunes in this area. The inspection in 2014 highlighted some erosion over the central area of 1301/C01 (around the entrance channel to the North Low and further south around the Beachcomber access point). It is recognised that it is quite difficult to directly compare sections over this relatively featureless zone of the shoreline and a comparison has been made of LIDAR 2000, 2010, 2012, 2017, 2018 and 2021.

While there are major changes in the position of the lower shore bar (tending to have been pushed back in line with the small island) there is noted to have been substantial growth of the southern part of length 1201/C03, which appears to have continued in 2022 with the growth of embryo dunes as noted above. This would support previous observation of southerly sediment transport.

With this southerly growth of 1201/C03, there has been a narrowing of the North Low outlet channel to the south of the dune island, creating a wide flat lagoon area behind the lower shoreline. The dunes to the back of this area have advanced, with a general width of embryo dune continuing to develop in 2022.

To the south of the dune island there was noted to be the growth of a ridge of low dune starting to develop in the 2018 inspection. This is shown in the 2018 LiDAR, with these low dunes consolidating even further by 2020 continuing through to 2022. Overall, the indications appear to be one of accretion with the development of a higher beach and dune vegetation between the island dune and the main dune face of the North Low. Uncertainty over future development of this area in response to beach levels and sea level rise was highlighted in the SMP refresh process.



3001/C01 LiDAR plots

The features discussed above are shown in the following images.



*1301/C01 – general continued development of embryo dunes 2022.*



*1301/ C01, 2022 North Low sluice*



*1301/C01 – Dune ridge growth from south of Dune Island*



*1301/ C01, embryo dunes to southern end of the unit.*

The north Low Sluice appears in fair condition.

Further south there continues to be slight growth along the toe of the dune to the north of the Beachcomber access.



*1301/C01 – 2022 at Beachcomber access showing continued dune development.*



*1301/ C01, 2022 north extent of embryo dunes.*

The area of growth continued on to the slight apex in the coastline where the dunes are steeper dunes but with little evidence of new erosion. Beyond the apex, the development of upper salt marsh growth continues to provide significant shelter to the back dune.

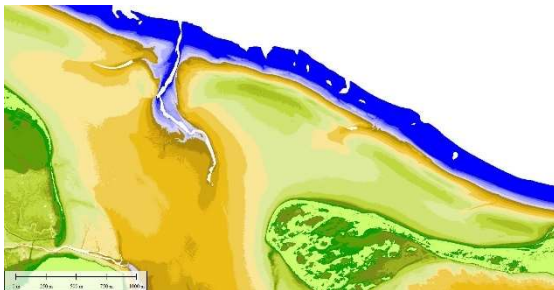


1401/C31 – 2022 At apex in the coast with little erosion.



1401/ C31, 2022 back dune behind high saltmarsh.

As the shoreline swings, around towards the South Low channel the area to the north of the channel continues to convert to saltmarsh. It was noted in the 2018 inspection report that this seems strongly influenced by the changes around low water, typically 1 km seaward. This is shown in the comparison between the 2017 and 2018 LiDAR for the area. There is little change shown in subsequent LiDAR plots (2021).



1401/C31 – 2017 LiDAR



1401/ C31, 2018 LiDAR

The LiDAR does pick out the distinct growth of the lower foreshore ridge and associated increase in foreshore levels encroaching from the north. The observed response of the upper beach 2022 indicates that this process of growth has continued. The salt marsh to the north and south of the South Low has developed, with the vegetation to the north changing to low scrub, cut through by deep creeks.



1401/C31 – 2022 developing salt marsh.



1401/ C31, 2022 saltmarsh development

The area behind the new sluice, constructed as part of the Northumberland 4shores project shows little change. Between the new sluice and the main Beal Sluice (121AA901A1401C01) there is still a low point in the bank. This was previously highlighted and poses a threat to the area beyond the main Beal Sluice. The bank needs to be reinstated.



1401/C31 – 2022 little change in area landward of new sluice.



1401/ C31, 2022 no improvement to low area of the bank to area of South Low.

There is minor damage / undercutting to edge bank protection either side of main Beal Sluice. This appeared to have worsened in 2020 but with little change by 2022.



1401/C01 – 2020 undermining of edge protection.



1401/ C01, 2020 view of entrance channel. .

The frontage between Beal Sluice and the Holy Island causeway remains generally healthy with good vegetation growth. This is highlighted below in comparison to 2016.



1401/C02 – 2016 at corner to South Low Channel.



1401/ C02, 2022 indication of saltmarsh growth. .

## Beal to Elwick

*At the request of Natural England, the 2022 walkover inspection around Lindisfarne National Nature Reserve (from Holy Island causeway (at Beal) to Ross Point) has been adapted since previous surveys to avoid walking on/through the saltmarsh. Instead, the foreshore was viewed from the handful of publicly accessible points along the frontage allowing the general condition of the saltmarsh to be assessed. This however resulted in swathes of the frontage not being inspected, including between Elwick and Guile Point.*

From the landfall of the Holy Island causeway, near Beal, south to Fenham Burn, the shoreline is characterised by a good fronting width of saltmarsh and mud and sand flats. The marsh becomes narrower and patchier towards Fenham Mill, and again along the section between Lowmoor point and Tealhole Point, at the outfall of Fenham Burn. Beyond the Fenham Burn the width of saltmarsh tends to reduce, before widening again past the windmill at Whitelee Letch . Generally, the marsh fronts a low earth bank to rising land behind and overall is in fair condition.



1401C23 – Wide vegetation looking north towards the causeway



1401C23 – Wide vegetation looking south over The Swab.



1401C23 – Looking south towards Fenham Mill



1401C23 – Looking south from Lowmoor Point

Several defects along the frontage reported previously are noted below, however these were not inspected in the 2022 inspection due to the aforementioned access restrictions.

- Around Fenham Mill there are several localised defences including a timber retaining wall and an *ad-hoc* stone revetment fronting the Fenham Mill Cottages, both of which were in poor condition in 2020 and mostly covered with dense vegetation.
- The slipway which lies slightly to the south of the Mill Cottages was in a poor condition in 2020 with extensive cracking and spalling of concrete visible. The low masonry wall adjoining the Mill property is in good condition. The small sandstone cliff, north of Lowmoor Point, was showing signing of erosion in 2020.



- Towards Tealhole Point there was some ongoing erosion in 2020 which was threatening the field boundary. In sections, local piling up of rock has been undertaken to mitigate this.
- The timber bridge over the Fenham Burn was in fair condition in 2020, however one tread had been displaced and required attention.



1401C23 – Informal defences adjacent Fenham Mill



1401C24 – Healthy, but narrowing, marshland beyond Fenham burn

### **Elwick to Budle Bay**

East of the bird hide at Elwick there is a flood embankment fronted by saltmarsh. The embankment is protected by an asphalt and stone revetment which remains in a good general condition despite being largely overgrown. As noted in previous inspections, locally there are some areas of the embankment in poor condition, due to the presence of voids and loose or missing stones.

The retaining structure on the seaward face of the embankment, approximately 500m east Elwick bird hide, was not inspected in 2022 as it is only accessible via the saltmarsh. However, in 2020 it was reported to be in poor condition with the timber support posts having rotted away, potentially resulting in minor rotational movement. The overall structure appeared at that time to continue to be effective in preventing sea flooding to a local low-lying bank of farmland across Ross. However, a few areas would benefit from routine maintenance by the local landowner to infill gaps in the stones.



1401C98 – (Photo from 2020) retaining structure in fair condition. Rotten timber support posts and minor rotational movement.



1401C98 – Densely vegetated embankment.

Further along the frontage is a bracken-covered coastal slope leading to the Ross Point dunes. This was again not inspected in 2022 however was reported in 2020 to be mostly stable with some signs of erosion at the toe and historic blow-outs. Several significant burrows were also observed.

The dunes at Old Law remain in good condition. The shallower landward side of the dunes is well vegetated, stable and fronted by a wide cobble berm. Two navigation beacons are present at Guile Point, one directly on the foreshore and the other on the dunes. Along the seaward face of the spit the dunes rise steeply from the beach, particularly around the northern end, the localised erosional activity observed during the 2018 inspection had not worsened in the 2020 or 2022 inspections. An unvegetated embryo dune appears to have formed slightly to the north of Wide Open and this appears to be offering some protection to the dunes at their southern extent.



*1401C99 – some evidence of erosion to dune toe*



*1401C99 –Embryo dune fronting southern end of the asset*

The dunes along Ross Back Sands appear very stable with continued signs of accretion and embryo dune growth, notably to the south of the beach. The fronting foreshore is wide and healthy. The dunes at Ross Links extend towards Budle Bay where a wide, sporadically vegetated intertidal plateau has developed. This transitions into saltmarsh and mudflats in the north of Budle Bay. An area of upper beach to the south of Ross Back Sands was fenced for nesting shorebirds at the time of the inspections.



*1401C06 – Wide healthy beach fronting well vegetated dunes*



*1401C06 – Embryo dunes observed to the south of Ross Back Sands*

Various walls and grouted stone revetments, riprap and concrete retaining walls extend around Links End towards the sluice at Ross Low channel. Overall, the assets remain in fair condition however all are showing signs of deterioration. Significant animal burrowing along the frontage is compromising several of the assets. The two grouted masonry revetments to the north of the frontage are in the worst condition with extensive cracking visible leading to washout of material either by animals or by marine process. Lowering of the foreshore in localised areas has caused undermining of the revetments.



*1401C26 – Vegetated intertidal flats at transition between Budle Bay and Ross Sands.*



*1401C27 – Localised section to the north of mortared revetment failed. Extensive cracking and washout of material.*



*1401C29 – Undermining of revetment as a result of lowering beach levels.*



*1401C29 – Failed section of the grouted stone revetment.*

The concrete retaining walls to the south are also showing signs of deterioration but appear stable. The face of the walls are heavily abraded. As reported previously, the timber structure at the toe of the southern wall has failed.



1401C27 – Mature vegetation growth through revetment.



1401C13 – Heavily abraded concrete retaining wall



1401C14 – Grouted stone revetment in poor condition.



1401C15 – Concrete wall in fair condition. Timber toe erosion protection in poor condition.

The sluice at Ross Low channel remains in good condition including the capping beams, hand-railings and ladders. The access gate to the seaward face of the sluice is heavily overgrown creating a health and safety risk for the maintenance team. The steel sheet pile walls on either side of the structure show signs of corrosion. It is recommended that a more detailed inspection is undertaken to establish the extent of the corrosion. The rock revetments on either of the sheet piles are in fair condition despite their uneven profile. Mature vegetation was noted to be growing through the revetment to the north.



1401C17 – Uneven rock revetment profile



1401C18 – Good condition sluice at Ross Low channel. Corrosion on adjacent steel sheet piles.

Along the Chesterhill Slakes in Budle Bay the saltmarsh remains in a fair condition overall with the narrow but well vegetated marsh appearing unchanged since 2020. Chord Grass (*Spartina*) and Common Glasswort were noted to be growing on the foreshore. Marsh edge erosion was again noted, worsening towards the south towards Warren Mill.



1401C21 – Looking south across Chesterhill Slakes



1401C21 – Evidence of salt marsh erosion in Budle Bay

Budle Bay to Bamburgh Moor

To the western side of Warren Mill there is still slow erosion of the back upper marsh to frontage 1501/C08 but with lower growth of spartina over the mud flats.

At Warren Mill, the wall fronting the private land at the head of the bay was repaired in 2019/2020 as part of redeveloping the land behind as an open grassed area. There is no evidence of deterioration.



1501/C08 – lower spartina growth in front of eroding back marsh.



1501/C02 – Wall to new development.

There is not noticeable change to the rock structure along the edge of the stream (1501/C03) although along the main natural section of this frontage, as with 1501/C08, there is continuing slow erosion of the well-established upper marsh, with formation of deep local creeks, associated with vegetation growth to the mud flats.



1501/C03 – rock wall to Warren Mill.



1501/C03 – formation of deep creeks within saltmarsh.

The revetment fronting the B1342 appears in fair condition although somewhat overgrown and in need of repointing. The upper marsh continues to erode slowly with the development of local creek systems. In places these small creeks, where they occur at the toe of the revetment cause very local undermining. To the front of the well-established upper marsh there is further spartina growth over the mud flat.



1501/C04 – heavily vegetated revetment



1501/C04 – very local undermining due to back creek development.

Frontage 1501/05 changes from a heavily wooded coastal slope changing to a shingle bank backed by a low bank to raising land. There is local erosion at the toe of the slope, with local failure associated, generally with trees. The road in this area is set back and there is no apparent risk from erosion.



1501/C05 – natural bank running to heavily wooded section.



1501/C05 – local bank failure but no apparent risk to road.

The frontage to the south of the jetty (1501/C06 south) continues to erode, with the lower foreshore eroding down to rock debris, while the sand spit (noted in previous inspections) has continued to develop with good dune growth. There has been further erosion to the southern face of the old jetty. As previously noted this developing situation seems to be determined by the change in the channel position (held by the jetty and areas of harder substrate), with the loop of channel pushing up against the end of the jetty.



1501/C06 – erosion down to stone on foreshore south of Jetty



1501/C06 – continued development of sand spit to south of frontage.



1501/C06 – Wide dune south of jetty 2008



1501/C06 – continued erosion of dune 2022

The old Jetty remains in poor condition but has not significantly deteriorated since 2018. Despite the erosion to the dunes south of the jetty, the properties do not appear to be at risk.

To the north of the Jetty, the beach has been maintained but with some erosion to the north.



1501/C06 – South face and core of Jetty 2020



1501/C06 – South face and core of Jetty 2022



1501/C06 – Upper beach north of Jetty



1501/C06 – general view north of jetty with limited growth at toe of dune.

Budle Point remains relatively unchanged with some embryo dune growth to the north face, although the orientation of the spit may have changed orientation. There has been some local dune toe growth between Budle Point and Harkness Point, improving the situation from 2018.



1501/C06 – Budle Point 2022



1501/C06 – Growth of embryo dunes to north face.

Along the frontage down to the Golf Club, there has been loss of some areas of embryo dune growth noted in 2020 but this varies over the length. There is an area of significant land slip at the crest of the coastal slope close to the lookout point and golf club. This continues develop slowly. There is no significant change since 2020. The slip is considered to be due to ground water and slope instability, rather than triggered by persistent erosion of the toe.



1501/C07 – areas of dune toe growth



1501/C07 – slow continued slippage at crest of coastal slope.



### 3.5 Holy Island (MU 5)

This management unit is approximately 15.5km in length and extends around the entire shoreline of Holy Island. This frontage includes approximately 25 coastal defence assets, comprising mostly low natural cliffs and sand dunes. The inspection proceeded anti-clockwise around the island, commencing from Chare Ends, where the road turns and rises up onto the main island.

The damage to the causeway road at Chare Ends reported during the 2012 and 2014 inspections was repaired and resurfaced prior to the 2016 inspections. The repairs are holding well to the present day.



*Repaired road surface and kerb at Chare Ends in 2016 (4901c01)*

The dunes extending south from the causeway road towards The Basin are well vegetated and remain stable. There is evidence of small-scale sand accretion and embryo vegetation growth at their toe. Where salt marsh fronts the dunes, it is in healthy condition.

At The Basin, the dunes make way to gentle coastal slopes and then low cliffs which are fronted by a gravel and cobble ridge. The low cliffs are locally active with several lengths bare of vegetation and occasional sumps. However, this does not appear to have worsened since the previous inspections.



*Stable dunes approaching The Basin (/4901c02).*



*Low cliffs at The Basin (/4901c03).*

South of The Basin the cliffs increase in height and whilst mostly stable are eroding in places. At the small bay sheltered by St Cuthbert's Isle, the narrow sandy beach is backed by a cobble berm. No noticeable change is apparent to the beach which appears stable since the 2008 inspection, and erosion of the low grass bank which was evident in some previous inspections was not apparent at the time of any inspections since 2016.



*Eroding section of higher cliff (/4901c03).*



*Beach in shelter of St. Cuthbert's Isle (/4901c04).*

Following a short section of hard rock cliff, there is a shingle beach at the boat houses west of the pedestrian footpath to Heugh headland. This beach appears stable and previously reported problems in 2010 and 2012 regarding poor condition at the toe of the low masonry wall which extends to the south were not observed.

The highly fissured hard rock outcrop of Steel End provides natural sheltering to the harbour and bay to the north. Following successive inspections from 2008 onwards which reported several defects with the harbour pier, a major repair of the structure was undertaken prior to the 2016 inspections, with concrete encasement of upper sections. This has improved the condition of the pier to good and the repairs remain effective. Problems previously noted, associated with undermining were not observed due to high beach levels at the toe.



*Improvement works to harbour pier (/4901c09)*



*Improvement works to harbour pier (/4901c09)*

Within the harbour bay (The Ouse), the sand and gravel beach appears stable with little change evident over a number of recent inspections. Erosion and cliffing of the soft earth embankment around the north side of the bay adjacent to the path out to Lindisfarne Castle remains noticeable.



*Beach within Harbour bay (The Ouse) remains sable (4901c10).*



*Slopes around the north side of the bay (4901c11).*

At Lindisfarne Castle, there does not appear to have been any further notable slumping in the soft earth slopes.



*Wall And cliff below castle east of erosion matting (/4901c12-c13).*



*Cliff below castle east of erosion matting (/4901c12).*

The shingle ness at Castle Point remains in a healthy condition over almost all of its extent, but there is minor erosion and cliffing of the grassed low cliffs on the north face where it nears the path.



*Shingle ness at Castle Point remains in a healthy condition – south face (/4901c014)*



*Shingle ness at Castle Point remains in a healthy condition – north face (/4901c014)*

The low coastal slopes between Castle Point and Emmanuel Head are fronted by wide and high shingle berms and are relatively stable and in good condition. There is some evidence of shingle 'washover' during storms in the form of washover fans deposited above the crest. North of Brides Hole, cliffs become higher and these continue to show ongoing intermittent erosion and slumps. After

the 2018 inspections warning signs have been erected where the path is close to the cliff top, warning of the “high eroding cliff edge”. In the vicinity of one of these signs, the fencing has been blown over and needs re-erecting. The cliff toe is mostly protected by a cobble berm, with some sections fronted by low rock platform.



*Relatively stable shingle bay near Sheldrake Pool with washover fans (/5001c03)*



*Erosion of soft cliffs remains an ongoing process (/5001c04) and fencing needs re-erecting.*

In Sandham Bay, west of Emmanuel Head, the dunes to the west and east of the bay are stable where they are protected by the cobble spit and rocky reefs of Castle Head Rocks. As in 2020, the higher dunes in the centre of the bay were also generally stable (in contrast to 2018 inspections), despite being largely bare of vegetation.



*View of Sandham Bay from Emanuel Head (/5001c08).*



*Dunes in Sandham Bay (/5001c08).*

There is continued evidence of local rockfalls along with erosion and cliffing of the softer material in the cliffs at Nessend. However, this is localised and does not represent significant concern.



*Locally active cliffs at Nessend (/5001c07).*

The dunes at The Links, in the shelter of Back Skerrs rocks appear very stable, with minimal change since the walk over inspections began in 2004. The dunes between Back Skerrs and the causeway road to the mainland are well vegetated with only localised evidence of erosion from previous storms. The very wide and flat sandy beach appears stable or accreting. Between where the causeway meets the island and Chare End where the road bends away towards the main tourist car park, the road is protected by a width of salt marsh and wide sand flats to the south and the dunes and wide beach to the north.



*Well vegetated dunes at Snook Point (/5001c10).*



*Salt marsh (/5001c011).*

### 3.6 Bamburgh Moor to Seahouses (MU 6)

This management unit is approximately 8km in length and extends from Bamburgh Moor on the northern outskirts of Bamburgh town to the southern extent of Seahouses in the south. This frontage includes approximately 25 coastal defence assets, comprising mostly low coastal slopes and sand dunes in the north and the man-made defences and Harbour at Seahouses.

There is no evidence of erosion of the dune /coastal slope north of Bamburgh since 2018. While the embryo dunes to the north of the castle have not developed since 2020, there has been little signs of erosion.



*General view showing exposed rock platform north of Bamburgh 2022.*



*Embryo dune growth evident just north of castle and along main dune frontage 1601/ C05. 2022*

There is again little signs of erosion down to Islestone Rocks (121AA901A1601C05), however, little evidence of embryo growth noted in 2020. Where slight local cliffing of the dune towards Islestone Rocks was noted in 2018, the upper beach at the toe of the dune remains present in 2022.

“The Dice” provide a useful reference point for this frontage and as shown below highlight: the steep cliffing in 2006, the slight growth of the dune immediately to the Dice in 2008, slight improvement generally to the dunes in 2010 and the significant growth of embryo dunes behind and to the south of the Dice in 2016. While there has been slight cut back of the embryo dunes noted above, the frontage remains relatively stable.



*View of the dune at “the Dice” 2006*



*View of the dunes at “the Dice” 2008*



*View at "the Dice" 2010.*



*View at "the Dice" 2016, 1601/ C05*



*View at "the Dice" 2020.*



*View at "the Dice" 2022*

Beyond Islestone Rocks, the dune systems remain relatively healthy with no assets at risk apart from at Monks House 121AA901A1601/ CO3.



*1601/ C02. Little change from 2018*



*1601/ C03 slight erosion locally*

Over 1601/C02 there has been little apparent change, while to the northern section of 1601/C03 there has been some minor erosion.

Towards Monks House, there has been slight erosion of the dune face, with the dune actually overlying harder "boulder clay" which is exposed in places.

There has been some low dune growth in front of the properties. To the south of the properties, where there was erosion and cliffing of the dune in 2018, there is a higher beach and the dune has not suffered

further significant erosion. Immediately north of this slight headland there is, however, evidence of erosion 121AA901A1601C04.

South towards the southern end of St Aiden's Dunes, There is dune face cliffing, indicating erosion since 2020. Overall the frontage appears to be slowly eroding with periods, such during 2020 when the toe builds forward slightly.



*1601/C03 embryo dune growth in front of Monks House properties*



*1601/ C03 Dune to south of Monks House.*



*1601/C04. 2020 with higher beach and little cliffing*



*1601/C04. 2022 showing cliffing and further erosion.*

The sea wall to the south of St Aiden's dunes along Seafield Road remains in good condition.



*1701/C54 – no substantial change*



*1701/C54 – slight erosion*

As identified in the 2014 and 2016 inspections there is general separation of the coping and the upper section of the wall. However, there is no loss of coping nor further displacement. While there is some

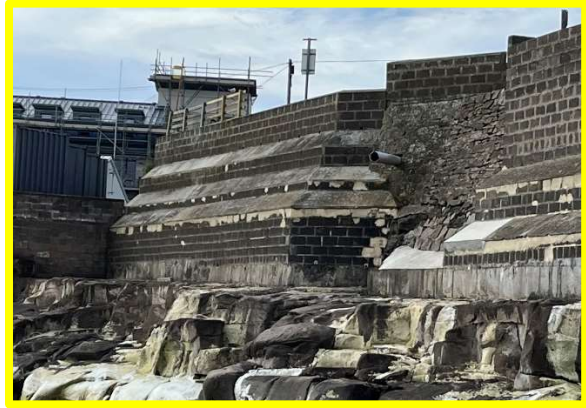


outflanking to the northern end of the wall this has not significantly worsened since 2006. The slight erosion of the bank at the southern end has not worsened.

The defences immediately to the north of Seahouses harbour (1701C02 to C04) have undergone maintenance repair works since 2020. The missing sections of the lower cope fronting 1701C02 and 1701C03 have been repoured. The damaged concrete blocks, typically below the sloping copes, have also been refaced across 1701C02 and 1701C04. The loss of mortar from the masonry wall at 1701C03 remains. The assets remain in fair condition despite the repairs.



*Maintenance repair works since 2020 to concrete apron and blockwork (1701C02)*



*Maintenance repair works since 2020 to concrete apron and blockwork (1701C03 and 1701C04)*

There has been no significant deterioration to the two concrete walls to the storage yard and outer parking area. However, as reported previously, there are significant cracks to the parapet wall at 1701C06 that extend through the whole structure. Due to the risk of vehicle impact destabilising the damage sections this area should be repaired.



*Storage yard wall in good condition (1701C05)  
Significant cracking to parking area wall (1701C06)*



*Significant crack through parapet wall (not worsened since 2020) 1701C06*

The wave reduction rock feature, at the root of the pier, had not changed since 2020, although previously displaced rocks were still evident on the foreshore. The need for any improvement should be reviewed against whether the structure still reduces wave impact.

In 2019, the outer main North Pier was repaired with concrete encasement along its full length. It remains in good condition. A detailed inspection as part of the aforementioned works, revealed the pier head was in good condition and did not require any repairs. Underwater repairs were also completed to the stub of asset 1701C08, addressing the undermining and scouring reported in previous inspections.



*Rock armour wave reduction and Repaired outer wall 1701C06 & 1701C07*



*Pier head appeared in good condition 1701C08*



*South east corner to stub, underwater repairs not visible 1701C09*



*Concrete encasement and cope repair to inner face of north breakwater. 1701C09*

The inner face of the north pier has been repaired with a concrete encasement. The damaged cope stones and handrails have been replaced. The wall has not deteriorated and remains in very good condition.

The rock armour revetment which lies along the inner face of the Inner Pier remains in good condition. It has been reported previously that some movement of the rock armour has occurred with a minor drop in the crest level evident, this has not worsened. The concrete wall behind the revetment, forming part of asset 1701C10, is heavily abraded. The north face of the Inner Pier is in worse condition than the adjacent walls (fair condition) with open joints and voids noted. There is evidence of previous repointing repairs.



*Inner face of the Inner Pier 1701C10*



*Inner face to North Pier 1701C11*



*Masonry wall in fair condition 1701C13*

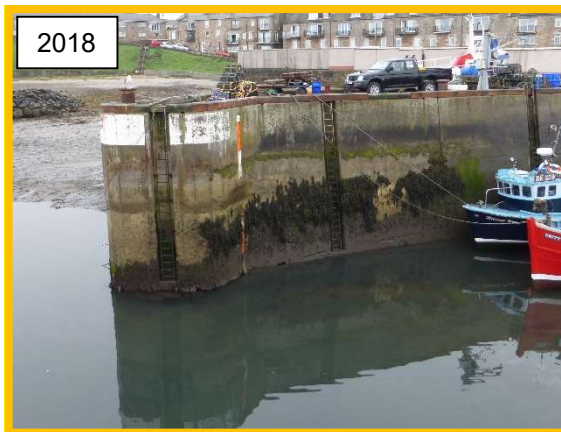


*Undercutting of slipway not visible 1701C12*

The masonry wall (1701C13), adjacent to the slipway, is in fair condition with some localised damage to blockwork and open joints facilitating vegetation growth. One of the access ladders was noted to be poor condition and should be removed and replaced if required. Undercutting of the end of the slipway itself has been reported previously although not observed in 2022.

Previous inspections have reported several scour holes present around the base of the roundhead and inner face of the Main Pier. In 2022, a combination of a higher low tide and vegetation growth concealed these defects. It is recommended that a dive survey is undertaken to establish the extent of these voids, particularly as marine vegetation may obscure further damage.

The outer face of the Main Pier comprises of a historic masonry wall with adjoining slipway. The wall is heavily pock marked, particularly at its seaward end, and it was again noted as having localised areas of missing mortar and one full height (toe to deck) open joint / crack. It is recommended that this is monitored as it may indicate some lateral movement of the wall.



*Scour holes and possible undermining around low water mark 1701C14*



*Pock marked, abraded outer face 1701C14*

The wall to the south of the main harbour area has remained in good condition overall. The significant vegetation growth through voids between the cope and masonry wall, reported in 2020, has been removed. However, the voids themselves remain and should be repointed to prevent further growth. In 2022, higher beach levels concealed the previous reported undercutting of the concrete access steps to the north end of 1701C16. This should be monitored and underpinned if re-exposed in the future.



*Good condition overall – areas of fair condition where cope is breaking away with vegetation growing through (1701C15)*



*Undercutting of toe of steps concealed (1701C16)*

No change was observed to the concrete walls and slope fronting Crewe Street in the 2022 inspections. The assets remain in good condition with no obvious signs of cracking or deterioration. The slope remains well vegetated and stable. The joint sealant is intact and remains in good condition.



*Wall and slope in good condition (1701C17)*



*Wall and slope in good condition (1701C18)*

To the south of the concrete recurve wall lies a tipped rubble slope with a vegetated upper slope to its rear. No change since the previous survey was identified in 2022. In order to improve the effectiveness of the defence it is recommended that the tipped rubble slope is reprofiled and supplemented in order to better defend the properties and caravan site to its rear. The foreshore fronting the slope was heavily rutted with plant/vehicle tracks.



*Tipped rubble slope (1701C19)*



*Heavily rutted foreshore fronting rubble (1701C19)*

The Outer Breakwater was reinforced and encased in 2008. This structure has suffered no significant damage since then, although horizontal cracking was observed in the encasement on the landward face. It was not possible to access the seaward end of the breakwater (1701C21) due to a security gate and warning sign. A general inspection of the inner face was made from across the harbour where evidence of spalling of the concrete cope was noted. However due to the distance, tide and extensive marine vegetation growth, a detailed inspection was not possible.



*Damage to the cope stones noted – Inspection from afar only (1701C21)*



*Horizontal cracking to seaward face (1701C20)*

### 3.7 Seahouses to Beadnell (MU 7)

This management unit is approximately 2km in length and extends from the southern extent of Seahouses in the north to the northern extent of Beadnell town in the south. This frontage includes two coastal defence assets, comprising low coastal slopes and sand dunes.

To the south of Seahouses (1701C22) the erosion to the crest of the access ramp has continued. However, it is believed that this still does not pose a significant risk at present due to the width of ramp available. It is recommended that this is monitored and the possibility of a more formal defence explored. Further along the frontage there is the ongoing development of embryo dunes giving way to the slowly eroding cliffs around North Sunderland Point. Areas of cliff undercutting are noted, particularly under the colony of nesting seabirds. These areas are easily accessible from the beach and should therefore be monitored closely.

At North Sunderland Point, the long sea outfall (LSO) manhole chamber, reported in 2020, is now all but detached from the cliff due to the ongoing erosion. Evidence of increased erosion activity in this area was also noted with slumping of material seen at the toe of the small cliff.



*Eroding access ramp (1701C22)*



*Slumping of cliff material adjacent to Long Sea Outfall (LSO) (1701C22)*

Beyond North Sunderland Point erosion continues to the thin boulder clay ridge, running along the seaward face of the golf course to the Annstead Burn. Access along the ridge has been closed off and the ridge is no longer passible, with the eastern most of the golf club ponds at being at risk of tidal encroachment. There is an ongoing erosion and recovery cycle around the north bank of Annstead Burn. This poses no significant risk to the road or bridge.



*Narrowing and retreat of ridge 1701C23*



*limited erosion to golf course 1701C23*



*Minor erosion of foredune (1701C23)*



*Embryonic dune growth to the south of Annstead Burn (1701C23)*

Further south, the main Annstead Dunes appear healthy and well vegetated. As reported previously there are some signs of erosion with minor cliffing occurring at the foredune. However, it appears that the dunes are recovering with embryonic dune growth noted. The areas of dunes most affected by erosion appear to be the access points. These should be monitored to ensure dunes remain healthy in these areas. Access through the dunes should be controlled to prevent sprawl of unauthorised access points.

### 3.8 Beadnell to Links House Farm (MU 8)

This management unit is approximately 6.5km in length and extends from the Beadnell town in the north to Links House Farm in the south. This frontage includes approximately 32 coastal defence assets, comprising man-made defences and a harbour at Beadnell and a wide natural dune system to the south.

At Beadnell Haven there are private defences, consisting of dumped rock and informal rock armour revetments. The defences have remained unchanged since 2020. However, as reported previously, the defences do not provide a robust defence and would need improvement to adequately protect the properties immediately behind. One property remains defenceless and the retreat of the small slope is still at risk of outflanking the defences on either side of it.



*Dumped rock fronting properties at Beadnell Haven (1701C24)*



*Informal rock armour fronting properties at Beadnell Haven (1701C24)*

The masonry blockwork wall to the north of Dell Point (Red Brae), previously reported as being in poor condition, has been subject to repairs works and is now in fair condition. The outflanking to the south and void in the centre have been patched with blockwork. The repairs should be monitored for signs of deterioration. The concrete wall to the south has experienced negligible change since the previous survey and remains in fair condition.

The soft earth cliffs around Dell Point (Red Brae) appear to be experiencing a consistent ongoing retreat, with the soft upper slope retreating at a faster rate, particularly at the most easterly point of the headland. A concrete bagwork wall at the crest of the cliff has been outflanked and is now redundant.



*Masonry blockwork wall in poor condition. (1701C25)*



*Masonry blockwork wall repaired in 2022 (1701C25)*





*Fair classification of wall north of Dell Point, minor outflanking at southern end (/1701C27)*



*Ongoing erosion of cliffs around Dell Point (/1701C28)*

The seawall fronting the property at the north end of the main Beadnell North bay, formed of precast concrete units, is showing signs of deterioration and is locally in poor condition (fair overall). The units, particularly at the north of the asset, are spalling and cracking resulting in rust staining from the reinforcement. To the North of this wall, the cliffs show signs of accelerated erosion with the private access gate at the top of the cliff now backed by a steep, almost vertical, drop.

A small rock revetment now bridges the gap between assets 1701C31 and 1701C34. The revetment remains in fair condition, some evidence of tipping of inert material was observed on the crest. Concrete has been cast on the crest of the revetment to the north to provide a flat storage. As reported previously the concrete is beginning to be undermined but has not worsened since 2020. In 2022, an area of the upper beach fronting the revetment has been fenced off for nesting shorebirds.



*Precast vertical seawall in poor condition locally (/1701C31)*



*Concrete cast onto the crest of the revetment to provide flat storage area ( /1701/C32)*

The various masonry seawalls at Nacker's Hole have undergone some repairs works since the previous inspection. The notable undermining of the concrete toe has been underpinned and a section of abraded concrete toe has also been repaired. It appears the wall has also recently been repointed along much of its length. Despite the repairs the wall remains in fair to poor condition with sections still heavily abraded. It is also understood that a significant sinkhole opened up on the pavement above the wall in February 2021 caused by issues with the wall itself. It is recommended that the improvement works proposed in the Beadnell North PAR (also covering Lady's Hole) be implemented as soon as funding becomes available to prevent failure of this seawall.



*Repaired undermining of seawall at Beadnell North (Nacker's Hole) (1701C36)*



*Repaired section of abraded concrete toe at Beadnell North (Nacker's Hole) (1701C36)*



2021

*Sink hole above seawall at Nackers Hole in 2021 (1701C36)*

Further south at Lady's Hole, the rock-filled mattresses remain in very poor / failed condition and in need of repair with burst baskets along the toe. The improvement works proposed in the Beadnell North PAR (also covering Nacker's Hole) should be implemented as soon as funding becomes available. A steep single beach, possibly in part formed of the failed gabion fill, is offering a reasonable level of protection in the meantime. The masonry wall to the north of the gabions is being outflanked due to erosion.



*Failed mattresses at Beadnell North (Lady's Hole) (1701C39)*



*Outflanking of wall to north of gabions (1701C38)*

Further south there are smaller rock-filled gabion baskets protecting several properties at the southern end of Lady's Hole. In past inspections, these have been observed to be splitting in places, although not to the same extent as the larger mattresses further north. High beach levels in 2022 again concealed the majority of the gabions. However, the crest of the baskets that was visible were severely distorted and in poor condition. It is noted that the crest of the gabions baskets is lower than that of the adjacent structure and as a result erosion has started to bypass the gabions into the residential garden.

The neighbouring residential property to the south is fronted by a section of newer gabion baskets that have been replaced recently. They are in good condition albeit with a slightly uneven crest. The last 5 gabions baskets that were not replaced are heavily corroded and appear at risk of bursting.

The seawall fronting the southern property in Lady's Hole remains in good condition. The previous grout repairs remain effective and the wall has a consistent profile with none of the concrete blocks visibly lifted. Any vegetation growth in the joints should be removed to avoid deterioration.



*Damage to gabion basket wall at (Lady's Hole) gabion wall – partially submerged to high sediment levels. (1701C40)*



*Erosion bypassing the gabion baskets (1701C40)*



*New gabion basket wall in good condition. (1701C41)*



*Concrete revetment in good condition, evidence of grout repairs at southern end (1701C42)*

The headland of Beadnell Point (Ebb's Nook) remains in a stable condition. Further erosion was observed in 2020 to the small cliffs fronting the properties on Harbour Road. It is recommended that a formal defence is considered here due to the proximity to the houses behind.

To the east of the lime kilns is stone terraced retaining structure with an upper sloped masonry revetment. As reported previously, the structure remains in fair condition overall, however there is a couple of notable defects that require attention. A large crack is observed through one of the stone terraces indicating potential slope movement. There is also ongoing loss of blocks to the west. Since the 2020 inspection, a timber fence has been installed on the slope to prevent unauthorised access.

The old gabions at the intersection with revetment are heavily corroded and are at risk of failing.

The rock revetment at the intersection of the coastline and the harbour also appears to be effective and stable with a consistent profile throughout.



Ongoing erosion to slopes fronting properties (1701C44)



Significant cracking to the stone terraced structure (1701C45)



Damage to retaining wall adjacent lime kiln. (1701C45)



Rock revetment in good condition (1701C46)

The structures at Beadnell Harbour are generally in fair to poor condition with masonry walls and concrete coping showing signs of abrasion and cracking. The inner walls appeared to be in better condition. A void was noted at the toe of the outer face adjacent to the rock armour in 2022. As reported previously, there is ongoing evidence of toe undermining and several open joints and missing blockwork on both the outer and inner face of several of the structures. It is highly recommended that the undermining is monitored closely and a more detailed structural inspection is undertaken, possibly including a dive survey. Particularly as a recent breach required emergency repair works.



Potential voiding beneath outer face of pier adjacent to rock armour (1701C47)



Seaward face appears in fair condition (1701C50 & 1701C51)



*Undermining of Beadnell Harbour wall (inner face of southern wall) (/1701C51)*



*Missing blocks at Beadnell Harbour wall (inner face of northern wall) (/1701C52)*

At the northern end of Beadnell Bay, adjacent to the harbour, the poured concrete revetment protecting the access steps remains in poor condition. It is undercut and partially collapsed in places.

Elsewhere within Beadnell Bay, the section of dunes fronting the caravan park and car park are suffering ongoing erosion, particularly around beach access points. A timber beach fence has been installed in places to help control access through the dunes and direct the high volume of visitors who visit this beach throughout the summer months. It is understood the dunes here are subject to ongoing conservation efforts with the clearance of Sea Buckthorn and the transplanting of marram grass in recent years.



*Undermining and partial collapse of grouted stone revetment adjacent access steps. (/1701C53)*



*Timber beach fence in Beadnell Bay to control access (/1701C53)*

Coastal asset 1801C01 lies to the north of Brunton Burn / Long Nanny outfall and is comprised of a wide flat sandy beach with high vegetated dunes behind. The dunes appear healthy with evidence of embryonic dunes forming in places.

As reported previously, the dunes looking onto Brunton Burn itself are actively eroding dislodging the fence line along the crest in 2020. The fence line had been reinstated in 2022. A temporary flight of access steps, formed of scaffolding boards and poles, has been provided in this area to maintain access from beach to the Long Nanny Bridge.

To the south of the watercourse outlet itself a shallow well vegetated marshland area is developing.

The southern section Beadnell Bay is covered by 1901C01 and comprises of large vegetated dunes fronted by a wide sandy beach. Sections of the foreshore are fenced off in the summer months due nesting shorebirds including Little Terns. The dunes are generally healthy and well vegetated along the frontage, however there are local signs of erosion in places. The rock headland to the south of the asset (Snook

Point) appears to be stable with no signs of erosion and a reasonable accumulation of large beach material along its northern flank.



*Vegetated dunes fronted by wide sandy beach (1801C01)*



*Access steps to connect beach to Long Nanny Bridge (1901C01)*



*Eroding dunes to the south of Beadnell Bay (1901C01)*



*Looking North from Snook Point down Beadnell Bay (1901C01)*

### 3.9 Newton Link House to Dunstanburgh Castle (MU 9)

This management unit is approximately 6km in length and extends from Newton Links House in the north to Dunstanburgh Castle in the south. This frontage includes 6 coastal defence assets, comprising mostly natural dunes.

The vegetated dunes in Football Hole remain in good condition, with erosion limited to access path through the dunes themselves. Embryonic vegetation growth at the toe remains healthy. Around the headlands at either end of Football Hole larger beach material has accumulated offering some protection to the dunes and headland in this area. Erosion to upper soft layers of the cliff is observed to the Southern headland, aggravated by footfall along the coastal path.

Previous inspections have reported localised erosion of the coastal slope at Newton Point headland leading to the National Trust repositioning the adjacent fenceline. In 2022 the slope appeared stable and well vegetated.



*Stable dunes in Football Hole 1901C02)*



*Vegetated slopes to the south west of Newton Point headland viewed through new gate/(2001C01)*

The dunes within Newton Haven have been subject to quite severe erosion in the past. However, since 2014 the dunes have recovered with accreting sand levels and embryonic vegetation growth at the toe identified in 2016, this growth has continued through to 2022. The foreshore appears slightly lower than in 2020 but with little change against the dune.



*2001/C02 continued development of dunes 2022*



*2001/C03 good growth at toe of dunes 2022*

Despite this continued improvement the long-term sustainability of some of the bungalows must be questioned at the most vulnerable section at the intersection of Newton Haven and Embleton Bay where the shore protrudes seawards in the lee of Embleton Out Carr rocks. At present, however, the dunes

remain relatively stable. There has been minor erosion to the toe of the dunes between 2020 and 2022 but this has not impacted on the main dune.



*2001/C03 initial growth of toe of dune 2018*



*2001/C03 stable 2022*

There has been general accretion of the dune toe around Embleton Bay since 2018, with the exception of the areas north and south of the burn outlet. Over the frontage to the north of the Burn the upper beach is higher than 2020. To the south of the Burn there has been a local but quite severe section of erosion caused by the change in position of the outlet. This change in the outlet appears to have been driven by the building of the beach into the area of the Burn.



*2001C04 2022 higher upper beach*



*2001C04 2022 higher upper beach*



*2001C04 2018 Intermittent erosion and dune growth).*



*2001C04 2022 local but significant erosion due to configuration of the outfall channel*



The dunes to the southern end of the bay are stable and show growth at the toe, remaining in good condition. The coastal slope behind the cobble bank remains stable.



*2001/C04 embryo dune growth to southern end*



*2001/C04 cobble bank remains stable*

The hard rock cliffs at Dunstanburgh Castle are highly stable, and there is no further significant rockfall.



*2001C05 stable cobble bank*



*2001C05 no change to Castle Point*

### 3.10 Dunstanburgh Castle to Boulmer (MU 10)

This management unit is approximately 9.5km in length and extends from Dunstanburgh Castle in the north to Boulmer in the south. This frontage includes approximately 23 coastal defence assets, comprising a mix of man-made defences and a Harbour at Craster and natural defences.

The gentle coastal slopes from Dustanburgh Castle to Craster Harbour are well protected by a shingle/ boulder/ rock outcrop foreshore and are generally in good condition.



2101C01 no change



2101C02 no change

To the north of the Craster harbour, the low wall remains in fair condition and there has been no further erosion around the outfall manhole.



2201 C02 no change



Wall and start of Pier (/2201C02 / C03)

Within Craster Harbour there continues to be little change since the 2018 inspection with all structures remaining in a fair condition. The landward and seaward faces of both north and south harbour arms show noticeable signs of heavy abrasion and spalling along the crest wall. This is not unexpected for a structure which was built in 1906.

There is no obvious change to the crack towards the end of the Northern Pier. The inner face of the wall has been screeded but some spalling is still evident.



2201C03 Crack in north pier. No change



2201C03 Inside face (crest wall) at crack

There is very slight undermining of the new blockwork wall to the outfall by the slipway, but no further undermining of the slipway.



2201/C07 Slipway no change



2201/C06 Blockwork wall

Further repairs have been undertaken to the inner facing crest wall of the South Pier. In places the outer coat of these repairs has fallen off. This appears to be a continuing problem. The outer face of the South Pier has minor undermining at its toe but this is not considered serious. No change to the head of the pier.



201/C10 no significant change



2201C11 Front face of Pier no change

There is little indication of change to the frontages south of the Harbour, with no significant erosion since the 2018 inspection. Localised slumping still occurs in places in the till, but this does not threaten the footpath or properties. There is no sign of change along the frontage covering the southern end of the village.



2201/C12 rock revetment at toe of slope



2201/C13 no change



2201/C14 no change to natural cliff



2201/C15 no erosion.

The coastline south of Craster to Howick (2301/C01) consists largely of hard sloping rock upper shoreline with vegetated upper covering with little erosion. Beyond Cullernose Point the rock cliffs steepen to the back of a wide rock platform.

There continues to be slow undercutting of the cliffs south of Cullernose Point, where the road comes close to the cliff line. At present, there does not appear to be a major issue at this point.



2301/C01 no change



2301/C02 Cullernose Point.



2401/C01 slow undercutting of cliff



2401/C01 slow undercutting of cliff

The high masonry wall around The Bathing House near Howick is in good condition with no signs of undermining, abrasion or loss of mortar. To the south of the Rumbling Kern headland there is a short length of masonry wall that is being outflanked by erosion. The main coastal path is set well back from this defence.



2401/C02 Bathing House wall



2401/C02 outflanking of local masonry wall to south of Rumbling Kern. No worse than 2020.

South of Rumbling Kern, at Howick Haven, there are several short sections of old masonry wall that continue to deteriorate. These are slowly deteriorating but do not appear critical in terms of significant risk. However, locally, failure of sections of wall could impact on the coastal path. The rest of this frontage consists typically of low clay cliff with no serious erosion.



2501/C01 series of masonry walls to coastal path.



2501/C01 masonry wall in poor condition being outflanked.

The footbridge just to the north of Iron Scars has various defects associated with its piers and toe protection to the piers. While not at risk of failure the structure is in need of some maintenance. Beach levels within the area have recovered in 2020 but have reduced in 2022.



*2501/C01 Undermining of concrete at southern bridge abutment. However limited deterioration since 2020.*



*2501/C01 lower beach levels around supports to northern side..*

The bays of Sugar Sands and Howdiemont Sands remain healthy sandy beaches backed by stable dunes, with mature and embryonic vegetation. There appears to be higher upper beaches compared to 2020 but possible loss of some areas of embryo dunes.



*2501/C01 Sugar Sands with growth of dune toe*



*2501/C01 Howdiemont Sands dune toe growth*

An outfall pipe extends across the rocky shore platform at Longhoughton Steel. The rock platform at Longhoughton Steel and Boulmer Steel result in a stable shoreline, with only very local areas of erosion. There appears to have been small areas of dune toe growth, with very little obvious change since 2020.



*2501/C02 outfall pipe*



*2501/C02 no significant change*

### 3.11 Boulmer to Seaton Point (MU 11)

This management unit is approximately 2.5km in length and extends from Boulmer in the north to Seaton Point in the south. This frontage includes approximately 7 coastal defence assets, comprising mostly natural vegetated coastal slopes, with rock and block revetments at Boulmer village.

At Boulmer village, a capital coast protection scheme was undertaken between April and May 2016 to address the problems of erosion identified in previous reports. Originally, the defences comprised two separate sections of stacked concrete blocks, one to the north of the village and one to the south.

Previous attempts to provide some defence in the central section were made on an *ad hoc* basis by local residents by tipping small boulders and reprofiling beach sand. However, in December 2013 the North Sea storm surge caused erosion of the frontage, threatening properties at both the northern and southern ends where the concrete blocks became outflanked.

In response to this, Northumberland Estates (in liaison with Northumberland County Council) received approval to place rock armourstone from nearby Howick Quarry as an emergency defence scheme to prevent loss of properties.

A scheme involving the placement of more rock armourstone as a defence toe to the coastal slope and backfilling and reprofiling with beach sand above the rock toe was constructed in May 2016. There has been some accretion of the upper beach over much of the area since 2020, with the rock revetment to the central area of the frontage becoming vegetated.



2601/C01 local rock revetment, higher upper beach.



2601/C02 Block revetment, no change



2601/C03 New rock revetment toe (2016) well vegetated.



2601/C05 (blocks) and C04 (rock), no change

To the south of the village is a length of low natural dunes. These remain in fair condition. While the upper beach is possibly higher, there appears to have been a cut back of areas of embryo dunes developed in 2020. It was noted in 2018 that there was embryo dune development to the southern end. There is less evidence of this growth but again the upper beach level seems higher.

The outfall at the northern end of the frontage is damaged at its seaward end.



*2601/C06 dunes with toe growth since 2018*



*2601/C06 (southern end) Local toe growth*

Further south, towards Seaton Point, there is evidence of toe dune growth over much of the 2601/C07 frontage. This growth has been sustained through to 2020, with higher beach levels around the Point. However, despite higher beach levels there is on-going erosion to the cliff.



*2601/C07 stable dunes with toe growth.*



*2601/C07 on-going erosion to cliff south of Seaton Point.*



### 3.12 Seaton Point to Foxton Hall (MU 12)

This management unit is approximately 2km in length and extends from Seaton Point in the north to Marden Rocks near Foxton Hall in the south. This frontage includes 7 coastal defence assets, comprising a mix of man-made defences and natural coastal slopes. There are various bungalows to the cliffs to the northern end of the bay and the golf course and properties to the central and southern sections.

Where there is a rock platform around the northern part of the bay there are dunes and coastal slopes suffering moderate erosion, this has continued in 2022. Local attempts at protection have failed. There have been further cliff failures particularly at the northern end where the cliff is higher. Over the southern section of the frontage there has been little new erosion and there appears to be a higher shingle upper beach.



2601/C08 continuing erosion



2601/C08 more substantial shingle beach

The access steps to Foxton Bay are protected by rock armour. Erosion of the cliffs either side continues as noted in 2016 and previously. The upper shingle level to the north seems to be higher than 2020, potentially indicating that shingle movement across the frontage may be being constrained.



2601/C09 2022 higher shingle levels



2601/c09 slightly lower sand beach to steps.

Just to the south of the access steps, the eroding cliffs continue to erode, with erosion of the toe followed by slumping of the cliff. It is noted that the wrack line in 2022 is closer to the cliff than in 2020 (this may be related to storms earlier in the year, although potentially indicating lower upper beach levels). It has been noted that sand martins are nesting in the upper sections of cliff.

The ongoing erosion has caused the fence to become lost in places. This has been a long-term problem, investigated in the past by the Golf Club. As noted in 2016, erosion is now cutting back to the fencing.



*2701/C01 Eroding cliff to golf course 2020*



*2701/C01 further cliff slumping, with minor erosion at the toe 2022.*

Beyond the small stream and valley running through the cliff the coastal slope remains well vegetated.

At Foxton Hall, the eroding cliffs reduce to a well vegetated earth slopes that are protected by a shingle and cobble berm. There has been slight slippage in the face of the slope between 2018 and 2020, continuing through to 2022. In front of the properties there is localised timber breastwork. Remnants of an earlier concrete structure remain on the shore.



*2701/C02 some slope failure continuing since 2018*



*2701/C03 Timber breastwork and low masonry wall fronting property*

The slightly higher beach levels at the footpath access to the beach, provides some protection to the small 'breakwater' wall coming around the headland and extending seaward. The landward section is concrete and in fair condition. There has been no obvious deterioration.

### 3.13 Foxton Hall to Birling Carrs (MU 13)

This management unit is approximately 9.5km in length and extends from Marden Rock near Foxton Hall to Birling Carrs rocks in the south. This frontage includes 18 coastal defence assets, comprising a number of man-made defences at Alnmouth and other natural coastal slopes and dunes.

South of Foxton Hall, the backing slopes are well protected by foreshore boulders and rocky shore platform, although slumping has occurred locally. In contrast to many other areas, beach levels in this section have fallen and there is slight erosion at the toe compared to 2108.



*2701/C04 slope remains relatively stable but lower beach with slight erosion 2020.*



*2701/C04 loss of embryo dunes just north of groyne 2020.*



*2701/C04 slope remains relatively stable. Slightly higher upper beach but lower foreshore 2022.*

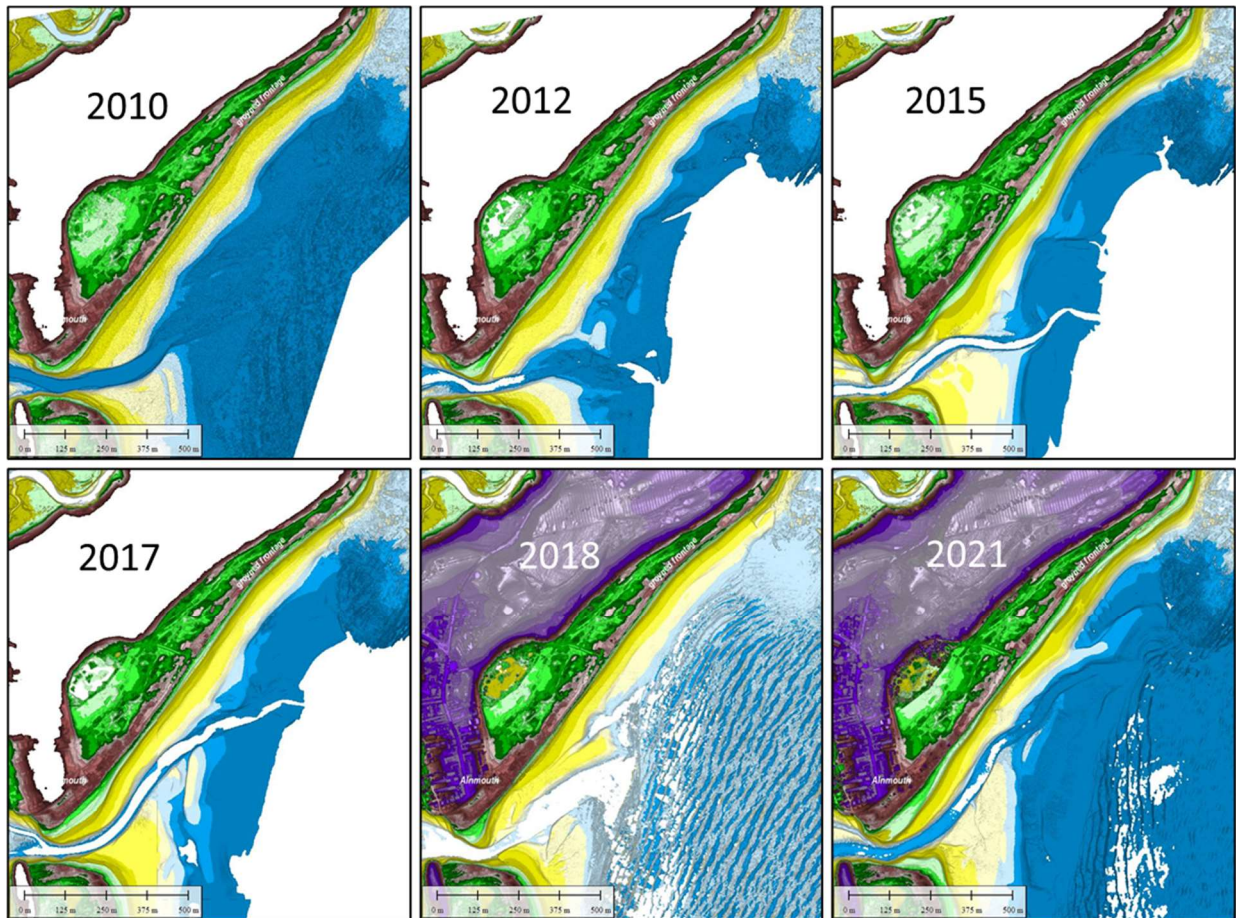


*2701/C04 Slightly higher upper beach but lower foreshore 2022.*

Further around the Marden Rocks headland into the northern part of Alnmouth Bay there are a series of five timber groynes over the northern part of the Alnmouth beach. Previous inspections show significant variation in the beach, with groynes being buried and then exposed. In 2022, over the northern part of the frontage, generally the lower end of the groynes tend to be more exposed. Over the southern section of groynes the whole beach remains relatively stable. In both areas the higher upper beach covers areas of previous erosion of the dunes. There are many gaps in the groynes and as noted previously some of the timbers are rotten. Overall the groyne field is in poor condition.

In general, and related to the whole open coast frontage, there is known to be large changes in the movement of sediment influenced by and influencing the entrance to the Aln. This can be seen from a quick review of LiDAR (2010, 2012, 2015, 2017, 2018 and 2021) shown below. This is critical in reviewing the condition and performance of individual sections of defences. Most notably, rapid change occurs around the mouth of the Aln, with growth, retreat and movement around the southern length of the Alnmouth open beach and across the channel to the northern end of the southern dunes.

However, as shown in the 2021 plot, the influence of change in the channel can be seen to effect the northern length of the beach, affecting in particular the lower foreshore, as noted above in discussing the groyne.



*Change in beach shape over the whole frontage.*

Specifically, in relation to defence unit 2701C05 and 2701C06, it may be seen beach width decreased between 2015 and 2017. During the 2018 inspection, there was evidence that the back face between groyne had suffered erosion but that there was some slight indication of recovery locally. From 2018 LiDAR (after the 2018 inspection) it may be seen that the north end of the beach narrowed and that there was narrowing of the beach in front of the golf course. However, between these two areas the beach with increases in association with the nearshore spit.

In the 2021 plot, there has been a general smoothing of the beach width (while narrowing at the northern end), with restoration of the beach width in front of the Golf Course and south to the mouth of the estuary. There is also the indication that the channel still sets hard against the Church Hill frontage.

The groyne frontage (2710/C05) has been discussed above with the 2022 inspection photographs presented below. Given the broader scale processes, there is a question over the effectiveness of the groyne and this should be examined before any improvements to the groyne are made.



*2701/C05 northern, higher upper beach but lower foreshore.*



*2701/C05 slight growth in general foreshore to south.*

Further south, into 2701/C06, the gains in embryo dunes noted in 2020 have been consolidated with some growth of upper dune. The concrete blocks to the dune face remain buried. Further south the accretion has allowed development of a forward ridge, developing as more mature dune.



*2701/C06 northern, concrete blocks buried.*



*2701/C06 southern, development of forward embryo dune ridge.*

At the start of the car park frontage (2701/C07) there has been some continued growth around the access point by the Boathouse, with the upper beach rebuilding against the eroded dune face further south. Similarly, there is more substantial growth of the upper beach over 2701/C08, connecting through to growth around the entrance to the estuary.



*2701/C07 little change at northern end of car park.*



*2701/C07 less direct erosion compared to 2020 to southern end of car park.*



2701/C08 2020.



2701/C08 higher upper beach in 2022.



2801/C01, growth at the nose.



2801/C01, upper beach growth to southern face of the nose.

There is little change of the beach levels against the two walls 2801/C02 and C03.



2801/C02 Masonry wall with concrete and cobble toe apron. Little change.



2801/C03. Masonry wall at Boat Club with slight undercutting. Little change.

Fully within the Estuary, there appears to have been change to the foreshore and marsh along the Peases Park area (2801/C04),

The footpath along the estuary extends away from Peases Park and is protected by an older low masonry wall which has benefited from repointing and local rebuilding of a collapsed section (reported during the 2014 inspections). The wall is still missing some blocks and further repointing may be required. However, in general the wall seems to be in fair condition. Salt marsh in front of this wall is in good condition, although generally low and muddy in front of wall itself.



*2801/C06 Masonry wall fronted by salt marsh, no change*



*2801/C06 Masonry wall fronted by salt marsh, no change*

A small spit of land comprised of natural ground extends into the estuary. This may exist over harder sediments as it causes the channel to meander around it. Along its northern face there continues to be significant erosion.



*2801/C09 Eroding face of raised area in 2018*



*2801/C09 increased erosion 2022*

Between the spit of land and the B1338 road bridge over the River Aln, the wall to the riverbank footpath has undergone substantial repair prior to the 2018 inspection. Over the repaired section there has been some local minor undermining of the concrete toe. To the downstream end of the defence there is slight damage to the wall. These areas of concern need to be monitored but repairs are not considered to have any urgency.



*2801/C10 Local undercutting of concrete toe to repaired section*



*2801/C10, slight damage to downstream end.*

On the south bank of the River Aln, downstream of the B1338 road bridge, the flood embankment has been deliberately breached in one area as part of the Northumberland 4Shores project to create new intertidal habitat. Saltmarsh and tidal flats in the estuary are in very healthy condition. Along the estuary edge covering the 2801/C12 frontage the old masonry wall has changed little but there has been continued erosion of the saltmarsh face. This appears to be linked to changes in the channel position.



*Area of managed realignment (/2801C11)*



*Healthy saltmarsh (/2801C12)*



*Area of managed realignment (/2801C11)*



*Healthy saltmarsh (/2801C12)*



The low masonry wall around the bottom of Church Hill collapsed prior to the 2016 inspection along a length of approximately 10m, with erosion of the land behind occurring since. This situation is known, since the eroded area has been fenced-off since 2018 to prevent public access. The situation is only slowly deteriorating, but it remains concerning that this failure remains unrepaired and that adjacent sections are also in very poor condition with five other areas of notable defects. A report has recently been prepared considering options for repair and funding sources are being sought to enable its recommendations to be taken forward to prevent further unravelling of the wall.



*Collapsed section of wall at Church Hill with erosion of the land behind (/2801C13)*



*Collapsed section of wall at Church Hill with erosion of the land behind (/2801C13)*



*Displaced blockwork in wall at Church Hill (/2801C13)*



*Movement along section of wall at Church Hill (/2801C13)*

The dunes along the south bank of the River Aln are principally stable. The previously reported local eroding section, centred around a tree, where the channel of the River Aln comes closest to shore, has experienced minimal further erosion since the 2020 inspections. At the mouth of the river, the channel deflects away from the south shore to a more northerly alignment and the dunes to the south side become stable, with signs of accretion and embryonic dune growth at their toe.



*Eroding dunes by tree on south bank of River Aln (/2901C01)*



*Otherwise generally stable dunes (/2901C01)*

The dunes along the open coast between the River Aln and the rock platform at Birling Carrs were impacted by the winter 2021/22 storms and have suffered some erosion. There is visible slumping of the dunes and vegetation and in one area there is an apparent depression or blow out. There however is evidence in some sections of subsequent recovery.



*Notable depression or blow out in the dunes at mid-point of Alnmouth Dunes frontage (/2901C01)*



*Slumping of dunes following winter 21/22 storm damage along Alnmouth Dunes frontage (2901C01)*

### **3.14 Northfield to Warkworth Harbour (MU 14)**

This management unit is approximately 3km in length and extends from the caravan site at Northfield to the North Pier at Warkworth Harbour. This frontage includes only 1 coastal defence asset, comprising a natural defence of partially vegetated dunes.

The dunes immediately north of the rocky outcrop of Birling Carrs are currently relatively stable, sitting atop a rock ledge and behind a rocky shore platform. There was one area where a localised slip had occurred of the natural material overlying the bedrock. There is a pillbox in the dunes on the northern side of the headland and two informal access tracks through the dunes from the caravan park to the beach.



*Rock platform and ledge at Birling Carrs (/2901C02)*



*Localised slip at Birling Carrs (2901C02)*

In the northern section of the Warkworth Dunes (which extend south from Birling Carrs to Warkworth Harbour), the dunes have observed some erosion following the winter 2021/22 storms. The section between Birling Carrs and the access track through the dunes from Warkworth Dunes Car Park has 134 no. concrete anti-tank blocks on the upper shore (set-off from the due toe by around ten metres), and the section from the access track south as a further 164 no. concrete anti-tank blocks. Behind these blocks, the upper beach has accreted sediment and the dunes have been slumping. Some of the concrete blocks are very heavily abraded, but re-bar is only exposed in three of the blocks. As the frontage approaches Warkworth North Pier, the beach widens and the dunes are in healthy condition, recovering from some winter storm damage.



*Warkworth Dunes with some localised slumping (/2901C02)*



*Warkworth Dunes protected by tank blocks (2901C02)*



*Dunes protected by tank blocks, some recovery (/2901C02)*

*Dunes recovering following winter 2021/22 storm damage (2901C02)*

### **3.15 Warkworth Harbour and Amble (MU 15)**

This management unit is approximately 3km in length and extends from the North Pier at Warkworth Harbour to Pan Point at Amble. This frontage includes 14 coastal defence assets, comprising mostly of the man-made structures at Warkworth Harbour.

The large armourstones along the exposed north face of the North Pier continue to appear in fair condition. The masonry blockwork at the seaward end is also in fair condition with no obvious gaps or cracks. The revetment on the south face of the Pier is also in fair condition as is the concrete deck. However, the seaward end of the North Pier remains in very poor condition with extensive abrasion of the concrete and a missing section of deck. The large crack (~1m wide) and rotation of the tip of the pier identified during the previous inspections is still a cause of concern although no further movement appears to have occurred. It is understood that this crack and rotation occurred in the end of the structure soon after its construction.

The spending beach between the North Pier and the (dilapidated) North Jetty is wide and healthy, with rock armourstone at the toe of the dunes along part of the length and natural dune elsewhere. Although not formally defined as a coastal defence asset, the North Jetty is in a largely dilapidated condition.



*Rock armourstones on north face of North Pier (/3001C01)*



*Rock armourstones on south face of North Pier (/3001C03)*



*Seaward end of North Pier in very poor condition (/3001C02)*



*Revetment and dunes along wide spending beach in lee of North Pier (/3001C04)*

The concrete quay wall at the western end of Amble quayside (/3001C05) is generally in good condition with only minor localised cracks visible in the concrete deck. The masonry walls in the small dock basin (/3001C05 & C06) are generally in fair condition, but have several open joints between blocks which would benefit from repointing and one area of concrete spalling. At the eastern end of Amble quayside, the previously repaired Broomhill Quay (/3001C06) appears in good condition with no cracking or settlement of the deck or obvious defects in the face of the wall.



*Quay wall in good overall condition (/3001C05)*



*Dock basin in fair overall condition (/3001C06)*

At the east end of Broomhill Quay the timber linkspan bridge erected 2008/09 is still in very good condition. Previously the low vegetated bank that was eroding at the intersection of South Jetty and Little Shore Wave Basin (/3001C07) had been protected, to a degree, by rock armour and tipped construction waste. In around 2015, the area was improved with the construction of some beach huts and the provision of more formalised defence in the form of gabion baskets and fronting rock armour. Although the area looks in good condition and is now much improved, there appears to be erosion around some of the gabions. The low masonry wall along the back of the enclosed bay is generally in good condition although one or two missing stones were noted. This wall is protected by a well vegetated area of healthy dunes/links (/3001C08 & 09). The South Jetty is in good condition along the length enclosing the Little Shore Wave Basin (/3001C11), with no gaps in the timber decks, all hand railing intact and the steel sheet piling forming the half-tide barrier remaining effective. It was noted that the fixings of the sub structure are starting to corrode and should be monitored going forwards.



*Rock and boulders provide additional erosion protection at root of linkspan bridge (/3001C07)*



*Gabions fronting beach huts (/3001C08)*



*Wide sandy beach and healthy low dunes (/3001C09)*



*Good condition of South Jetty (/3101C11)*

The concrete seawall (/3001C10) along Bay View road, to the rear of Little Shore Wave Basin, continues to be in good condition following the works that were completed in 2018/19.



*Repairs return sea wall along Bay View to good overall condition in 2020 (/3001C10)*



*Seawall at Little Shore Wave Basin repaired to good condition in 2020 (/3001C10)*



*Repairs return sea wall along Bay View to good overall condition in 2020 (/3001C10)*



*New access steps to Little Shore Wave Basin in good condition in 2020 (/3001C10)*

At the junction (/3101C01) between South Pier and South Jetty on the seaward face the repairs made in 2018 remain in good condition. The pier head itself (/3101C01) is not accessible for close inspection but appears in fair condition when viewed through the gate. During the repairs to the South Pier and South Jetty, some flows of water were observed under the pier, these were not fully addressed and the defect was reported to the Harbour Master.



*South Pier in fair condition, possibly some voiding at base. (/3101C01)*



*Repairs at junction of South Pier and South Jetty (seaward face) made in 2018 (/3101C01)*

The condition of the inner face of South Pier (/3101C02) does not appear to have changed significantly since the last inspection and remains in fair condition along most of its length. The seaward face of the South Pier (/3101C02 & C03) is generally in fair condition with frequent horizontal cracking at the south end. The access steps at the south end of the Pier (/3101C03) are highly abraded and, as these provide the only access to the beach, present a public safety hazard. Although the concrete stub groyne is also highly abraded it still serves its current function to retain the rock armour on the north side.



*Inner face of South Pier in fair condition (/3101C02)*



*Abraded but functional stub groyne (and rock armour) on seaward face of South Pier (/3101C02)*

There is no noticeable change in the condition of the concrete wall protecting Cliff House and Pan Point (/3101C04). This structure continues to show numerous cracks and cold joints throughout. Some cracks expose corroded and broken reinforcement bars, and toe undermining is still observed at the westerly end.



*Heavily abraded access steps to Pan Point (/3101C02)*



*Cracks in private seawall around Pan Point (/3101C04)*

### **3.16 Amble to Beacon Hill (MU 16)**

This management unit is approximately 2.5km in length and extends from Pan Point at Amble to Beacon Hill at High Hauxley in the south. This frontage includes 11 coastal defence assets, comprising a number of seawalls and low vegetated natural cliffs.

The seawall fronting Paddler's Park children's play area (/3101C05) to the south of Pan Point is generally in fair condition. It shows some historic signs of undermining which has historically been repaired. Some minor abrasion, localised cracks and spalling to the wave return wall and setback wall were noted.



*Seawall in fair condition with corrosion, spalling and some cracking, this is typically limited to the cope (/3101C05)*



*Some staining of the back wall (/3101C05)*

The earth slopes and dunes along Amble Links (/3101C06) have previously been reported as showing signs of erosion, with cliffing along much of the frontage. However, at the time of the present inspections the earth slopes and dunes appeared generally stable with only local areas of very minor slumping. Rock armourstone has been placed at the centre of the embayment and adjacent to the seawall at the south end, the rock is typically isolated units rather than a solid revetment, as such the rocks appear to be mobile.

The concrete seawall at Island View headland (/3101C07; constructed in 2003) at the south end of the dunes is substantial and remains in good condition. There are numerous very localised and shallow toe undermining at the interface with the bedrock, these should be monitored in future surveys to understand the rate of progression. Previous evidence of the onset of outflanking at both ends has been addressed by concrete tie-in structures.





*Dunes and low slopes above rock ledge (/3101C06)*



*Substantial seawall in overall good condition (/3101C07)*

The low vegetated cliffs and dunes north of Wellhaugh Point (/3101C08 & C09) were stable at the time of the present inspection as per the past three inspections. The outfall structure remains in a dilapidated condition and previous recommendations for either removal or repair remain valid, it presently is in an unstable condition and represents a risk to the public.



*Low dunes north of Wellhaugh Point (/3101C09)*



*Dilapidated but largely buried outfall (/3101C09)*

The seawall at Wellhaugh Point has rock armour along the crest and remains in good condition, there are some localised masonry defects which should be repaired before they get progressively worse. The rocky cliffed headland around Wellhaugh Point (/3101C10/11) is stable and protected by a wide rock shore platform. As the cliffs blend into low dunes, a rock ledge is present at the base and the frontage remains relatively stable. In one location, a set of timber steps has been provided to enable access to the foreshore through the low dunes.



*Low dunes north of Wellhaugh Point (/3101C10)*



*Rock headland around Wellhaugh Point (/3101C10/11)*

Further to the south, the dunes (/3101C12) are generally stable initially except for a few discrete areas suffering from localised slumping in the face. In one of these areas the concrete rubble noted in 2016 inspections on the dune crest and was reported to have fallen to the foreshore in 2020, it now remains on the dune face with minimal change. With progression south, a cobble berm is notable at the upper beach, overlaying sand. This helps to stabilise these dunes further, although some local slumping in the front face continues and nearer towards the Beacon Hill headland the erosion worsens and peat layers and petrified tree stumps are visible.



*Dunes slumping, exposing concrete rubble (/3101C12)*



*Cobble berm fronting dunes. Petrified tree stumps at base. Dunes slumping (/3101C12)*

At one location within these dunes is a rust-stained outfall with concrete encasement and rock armour side protection. At another location is a set of access steps with gabion protection and rock armour. However, because the rock is small and too light to remain stable on the upper beach it has become scattered around. The gabions are in fair condition.



*Rust-stained outfall within generally stable dunes (/3101C12)*



*Access steps through dunes protected at base with gabions (/3101C12)*

### **3.17 Beacon Hill to Cresswell (MU 17)**

This management unit is approximately 11km in length and extends from Beacon Hill at High Hauxley in the north to Cresswell in the south. This frontage includes 23 coastal defence assets, comprising mostly of vegetated dunes and cliffs with occasional man-made defences.

Around Beacon Hill, the dunes are formed on top of a rock ledge base and initially are stable. However, where the rock base ends, south of Beacon Hill, the dunes become less stable and there is a section of informally dumped rock armour aimed at reducing risks to properties near the cliff top at Low Hauxley. This armour is loosely packed but appears in fair condition, although occasional slippages remain ongoing in the cliffs behind.



*Stable dunes on rock ledge around Beacon Hill (/3101C13)*



*Loosely placed rock armour at Low Hauxley (/3101C14)*

There is a short length of low, undefended dune which has an outfall in one location and some informal access routes through to backing properties.



*Outfall with large headwall at Low Hauxley (/3201C02) Access through dunes at Low Hauxley (/3201C02)*

South of here (down to and beyond the beach access ramp) the coastal margin is protected by rock revetment in front of further properties. This is in good condition and towards its southern end forms an overlap to the subsequent concrete block revetment which extends further south. This has a number of large gaps between the blocks, with some rotational displacement apparent at the southern end. Erosion and cliffing of the low earth bank above the blocks continues, with ongoing dumping of construction waste.



*Wide rock revetment in good condition (/3201C03) Rotational displacement at southern end of concrete block revetment (/3201C04)*

Immediately south of this revetment is an outfall in poor (but draining) condition, the flap valve has failed and no longer providing any back flow protection. It is clearly evident that terminal erosion extends around 100m south of the end of the defended section, cutting the dunes back.



*Rock revetment in fair condition (/3201C05) around poor but functional outfall*

The dunes merge into low cliffs sitting on top of a lower exposed peat layer. The peat has been relatively stable, timbers that had been previously exposed on past inspections remain. The upper beach is healthy and the dunes/low cliffs are relatively stable. The telegraph pole which makes a distinctive marker at the crest of the low cliffs is now undercut around its concrete foundation base and will ultimately be lost to erosion.



*Petrified timbers exposed in base of dunes (/3201C07)*



*Telegraph marker pole becoming undermined at base through erosion (/3201C07)*

The outfall of Hauxley Nature Reserve was ‘daylighted’ by Northumberland Wildlife Trust (although seaward parts of the structure and the adjacent concrete blocks remain on the beach), creating a more natural aesthetic in line with the recommendations of the *Druridge Bay Adaptation Study*. The drainage from the reserve now occurs along a natural open channel and then alongside the remnant outfall structure, across gravel, cobbles and boulders. It is understood that ultimately the remnant structural sections will be removed. At the present time, the drainage is working well, the previously covered geotextile has become observable again indicating some localised erosion (likely by foot traffic).



*View from landward to seaward of ‘daylighted’ open channel section of outfall from Hauxley Nature Reserve, exposed geotextile in black (/3201C09)*



*Drainage occurring alongside of remnant outfall structure through gravel, cobbles and boulders (/3201C09)*

The dunes along Togston Links continue to erode with slumping evident along most of the frontage. Sand martins are nesting in the upper sections and in places the erosion comes quite close to the Country Park’s road.

The large structure at the outfall to Ladyburn Lake remains in good condition. The adjacent slipway belonging to the Hadston Scaurs Boat Club remains in fair condition, as does its protective rock revetment. However, the revetment continues to be actively outflanked at the southern end resulting in unravelling of the structure with some rocks displaced across the foreshore and severe cut-back terminal erosion of the low vegetated earth cliffs to the south. These cliffs are in poor condition with recent erosion impinging on the flanks of the road carriageway.



*Concrete outfall and adjacent rock revetment (/3201C12)*



*Terminal erosion beyond end of defended section of dune resulting in cut back to road (/3201C14)*

Around 100m south of the rock revetment, the wide vegetated dunes become less active and are protected by a cobble berm along the toe. Where the berm ends the protection is provided instead by concrete blocks. Generally, throughout Druridge Bay, the dunes were stable and healthy at the time of the inspections and upper beach levels were notably high and wide with the cobbles and block barely visible. Towards the south of the bay two previously collapsed outfalls have been repaired. The creek that discharges the Northumberland Wildlife Trust pond at Creswell was not fulling at the time of the site visit and it was apparent that excavation works had been recently undertaken to try and maintain a channel.



*Healthy dunes in Druridge Bay with concrete blocks over short length, note high sand levels (/3201C15)*



*Evidence of excavation works to maintain a channel for the Creswell Northumberland Wildlife Trust pond. (/3201C16)*

Closer to Creswell, sandstone emerges at the base of the dunes and at the shore platform, with the dunes remaining very stable and healthy. Immediately north of Creswell the foreshore builds seaward in the form of a tombolo in the lee of The Scars outcrop. This frontage is protected initially by scattered concrete blocks (largely buried at the time of the inspections) and then by rock revetment. These structures are in fair condition. The revetment itself is fairly loosely packed and some stones have scattered, but it appears to remain effective.

### 3.18 Cresswell to Snab Point (MU 18)

This management unit is approximately 1km in length and extends from Cresswell in the north to Snab Point in the south. This frontage includes 5 coastal defence assets, comprising mostly low rock cliffs and vegetated slopes.

The revetment in the lee of the Scars blends into a low concrete wall built at the back of the rocky foreshore with rock armour continuing behind the wall to protect the vegetated earth cliffs. There appears to have been some addition of tipped construction rubble in and amongst the rock armour stones. The wall is generally well founded on the rock foreshore and in fair condition with minor cracking and staining. However, there are local areas of more significant defects such as undermining, crest abrasion and break-up of some of the numerous previous patch repairs. The earth face along the non-protected upper slope continues to show signs of ongoing slumping.

To the south of Cresswell the low concrete wall and interlocking concrete unit revetment is largely in good condition and the area of apparent settlement towards its southern end has not worsened since it was first observed.



*Low concrete wall and rock revetment at Cresswell (/3201C18)*



*Low concrete wall and interlocking concrete unit revetment at Cresswell (/3201C19)*

The low earth cliffs backing Stank Letch Rocks show evidence of slumping along much of their length although slopes are very vegetated and this does not appear to be recent. There has been previous loss of fencing and timber access steps at this location and a new warning sign has been erected by the landowners.



*Low earth cliffs backing Stank Letch Rocks (/3201C20)*



*Low earth cliffs backing Stank Letch Rocks (/3201C20)*

In the sandy bay, south of Stank Letch Rocks, the earth cliffs/dunes are mostly stable and there are three outfalls: two on the beach and a buried concrete case pipeline flowing to the sea. The norther beach outfall

is in poor condition while the southern outfall, flowing from the Golden Sands Holiday Park, is in good condition with some scour protection cobbles added. At the time of the inspections, July, beach levels were quite high showing a Summer profile. There is a haul road access towards the north of the bay and both steps and an access slope converging at another point on the foreshore slightly further south. At these locations, a wide cobble berm provides protection at the toe of the cliffs/dunes.



*Access to the north of the bay (/3201C21)*



*Slippage north of the car park (/3201C21)*

Further south still, fronting the Golden Sands Holiday Park just north of Snab Point, the cliffs become more active once again, where the cobble berm at the toe is sparser. There is one area where a slippage has previously occurred, cutting the slope crest back to the road edge. Some emergency repair works seem to have taken place but the slope is still unstable and further slippage has occurred. This issue requires immediate attention. The rock-filled mattresses at the toe are now so broken as to be almost obsolete. It is likely that further recession at this point will occur, thus affecting the coast road. Immediately south of this former landslip area, the cliffs are composed of harder rock, but there have been several local rock falls/topples and other areas look vulnerable.



*Failed section of cliff adjacent to coast road (/3201C22)*



*Gabions failing and slumping cliff (/3201C22)*

There are private defences north of Snab Point comprising timber breastwork retaining walls. These were initially built around 2008 but have been further developed over time and are in fair to poor condition, since erosion of the toe of the structures has left voids under the retaining timber screen and the timber piles concrete plugs exposed to wave attack. Generally, further south around the end of Snab Point, there are frequent local rock falls caused by notching by marine action in the underlying rock ledge and, consequently, occasional local slumps/ cliffing of the upper softer material.





*Private timber/rubble retaining defences north of Snab Point (/3301C01)*



*Slumping soft cliffs above rock ledge around Snab Point (/3301C01)*

### **3.19 Snab Point to Beacon Point (MU 19)**

This management unit is approximately 2.5km in length and extends from Snab Point in the north to Beacon Point in the south. This frontage includes 8 coastal defence assets, comprising a mix of vegetated soft cliffs, colliery spoil beaches /cliffs, and man-made defences around the Lynemouth Power Station.

The northern section of Lynemouth Bay is encased within a rocky and sandy foreshore bay topped with a rocky cliff with nesting fulmar and protected in the north by Snab Point, transitioning southwards into a low rock cliff base overlain with softer material (/3301C02). The soft material is covered by considerable vegetation. Both types of cliff were showing symptoms of localised moderated erosion.



*Relatively stable rock cliffs at northern end of Lynemouth Bay (/3301C02)*



*Transition to a low rock Cliff covered by soft material (/3301C02)*

Progressing southwards, the colliery spoil has formed a small cliff above the natural sandy beach, and in front of a densely vegetated sand dune, of approximately 1m high at around the high water mark (/3401C01). Erosion processes are more active towards the south where the rock outcrops or bedrock do not protect the beach. Here the dune transitions to a cliff with some erosion and localised slumps. Refuse becomes more frequent from here to the south of the colliery low cliff.



*Discarded refuse visible in the cliffed edge of the colliery spoil beach (/3401C01)*



*Slumps on Cliff (/3401C01)*

The next section (/3401C05), shoreline fronting Lynn Hill, from the centre of Lynemouth Bay to the River Lyne, is less well protected by the rapidly receding spoil beach. Where the spoil beach tapers out the man-made (spoil) cliffs are actively eroding, releasing spoil and, in many places, refuse to the foreshore. This is also evident along the south bank of the River Lyne and, albeit less frequently, along the open coast south of the River Lyne to the Power Station (3401C06).



*Rapidly eroding colliery spoil beach north of River Lyne leading to erosion of backing man-made cliffs, releasing colliery spoil and refuse to the foreshore (/3401C05)*



*Rapidly eroding colliery spoil beach south of River Lyne leading to erosion of backing man-made cliffs, releasing colliery spoil (and by the river mouth, refuse) to the foreshore (/3401C05)*



*Colliery spoils cliff. Collapsed slab showing evidence of rapid erosion rate (3401C06)*



*Lyne River Mouth flanked by the colliery spoils cliff (3401C06)*

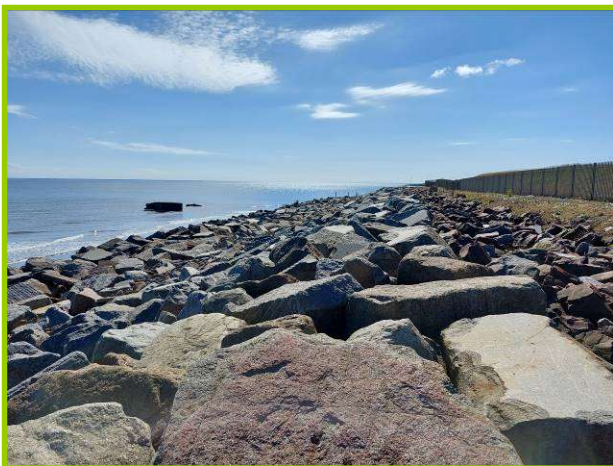
The large rock armour berm revetment constructed in front of the Power Station in 1995 (/3401C08) and subsequently extended around the coal stocking yard in 2005 (/3401C07) remains in good condition. Rock armour is angular and well packed with no displaced stones or movement at the toe. Minor erosion was observed behind the crest.



*Rock revetment north extension (/3401C07)*



*North Rock Revetment end and outfall channel (/3401C07)*



*Revetment tie-in at southern end of Power Station largely buried by spoil cliffs / land (/3401C08)*



*Power Plant water outfall through the rock revetment (/3401C08)*

At the southern end of the revetment (/3401C03), rapid erosion of the spoil beach was previously observed over the 2017/18 winter, exposing the buried tie-in of the revetment and initially causing some concern. However the tie-in extends some distance landward (currently largely remaining buried) and the rapid erosion has reduced. Erosion of the spoil cliff extension continues.



*Power station rock revetment south end and cracks in spoils cliff top (/3401C03)*

*Cliff of spoils – south end of rock revetment (/3401C03)*



*South end of rock revetment berm covered by Spoils (/3401C03)*

*Rock revetment tie-in embankment covered by colliery spoil (/3401C04)*

Between the Power Station and Beacon Point the shoreline again comprises colliery spoil, with erosion of the high spoil cliff in the north continuing. The central and southern sections of this bay are quite stable with lower sandy cliffs tapering to a low cobble and boulder berm fronting colliery spoil and wide backing natural dunes. A birds nesting area has been set up at the top of the beach.



*Water accumulation between the spoils berm and the rear soft natural dunes (3501/C01) Birds nesting area (/3501C01)*

### **3.20 Beacon Point to Spittal Point (MU 20)**

This management unit is approximately 4km in length and extends from Beacon Point in the north to Spital Point at the south of Newbiggin Bay. This frontage includes 16 coastal defence assets, comprising a mix of low cliffs and the seawalls of Newbiggin-by-the-Sea.

The cliffs leading around the headland to Beacon Point comprise of a hard rock base 'ledge' and a thin overlying layer of softer material. The typical tendency is for small-scale rock falls and occasional local slumps in the soft material but nothing active was noted at the time of the inspections. In one area timber boarding has been used to stabilise the path's edge. The cliffs here are fronted by an extensive rock ledge and therefore the recession rates are low and the events are highly localised.

At Newbiggin Moor, within the shallow bay fronting the golf course, the cliffs are unprotected by rock platform and have no rock base. This is an active zone subject to damage, particularly the north end, during storms, and recovery (sand accumulation and vegetation growth) during Summer season calmer weather.



*Currently relatively stable cliffs around Beacon Point (/3501C11)*



*Cliffs/dunes at Newbiggin Moor golf course (/3501C04)*

The cliffs fronting Newbiggin Caravan Park comprise three distinct sections.

1. The northern section is unprotected by coastal defences or rock platforms and is in poor condition with active erosion continuing through a series of regular local slumps. The Caravan Park has

previously erected warning signs along the cliff top footpath and realigned short lengths of its boundary fencing. Static caravans are dangerously close to the active cliff edge.

2. The central section is protected by concrete blocks and remains in fair condition and no significant slumps have been detected since last inspection.
3. The southern section is protected by a rock ledge but, despite this, frequent local slumps remain evident. Two pill boxes are located on the rock ledge and erosion of the surrounding soft cliff material has left these structures perched precariously. However, this erosion has not worsened since the previous inspection.

In both the central and southern sections, rubble has been tipped down the cliff face.



*Active slumping at northern section fronting caravan park (/3501C05)*



*More stable central section fronting caravan park (/3501C06)*



*Southern concrete pill box perched on rock ledge (/3501C07)*



*Northern concrete pill box perched on rock ledge (/3501C07)*

Extending between Newbiggin Point and Church Point is a continuation of the rock ledge, with overlaying softer material, interspersed with a series of ad-hoc defences to 'patch' local areas. At Beacon End a short length of concrete seawall is present which appears in fair condition on the seaward face. Abrasion and initial undermining of the toe, as well as undermining of the south return wall had not progressed since last inspection (2020). Active erosion, cliffing and slumping of the soft cliff material behind the structure seems similar to the previous inspection, despite Storm Arwen (Nov 2021).



*Seawall with undermining and outflanking (/3501C08)*

The second length of concrete wall is further south around Newbiggin Point and remains in very poor condition. The tie-in sections are actively breaking-up. Although the damage at the northern tie-in looks recent, this situation was first noted in 2008. Erosion of the soft earth cliffs behind the structure has not progressed significantly since 2020. The erosion of the upper soft cliff exposed refuse that was buried in the made-ground and it is still visible.



*Second length of seawall with undermining and outflanking (/3501C10)*



*Second length of seawall with undermining and outflanking (/3501C10)*

Between Newbiggin Point and the church the cliffs are composed of a continuation of the low irregular rock ledges with overlaying soft material which remains actively slumping locally. Where the rock ledge has become locally eroded, short sections concrete and masonry walls have been built to infill crevices in a number of areas. All of these structures, as well as sections of the rock ledges, are experiencing severe undermining and toe abrasion, although still structurally competent. The second wall (from the north) also now has voids in the sloping crest, although this has not worsened in the past 4 years. Several other walls have cracking in the deck or voids opening between the concrete and the rock and all would benefit from some local maintenance.



*Severe undermining of masonry walls and rock ledge (/3601C01)*



*Voiding at crest of small wall in 2020 (/3601C01)*

The vertical concrete seawall at Church Point remains in overall fair condition. However, there is a reasonable amount of abrasion at the toe and crest as well as signs of local undermining between the toe and rock slab. The recurved section of seawall to the west of Church Point is well founded on the rock foreshore and generally in good condition. Slight undermining of the concrete apron nearer its western end remains although this is unlikely to affect the stability of the structure.



*Church Point seawall in fair overall condition with localised undermining of toe protection (/3601C12)*



*Recurved section of Church Point seawall in good condition. Toe apron cracked. Rusty handrailing (/3601C13)*

The start of Newbiggin Bay is marked by a rock armour breakwater, built along the edge of Hully Rocks and extending from just offshore of Church Point. This structure is in good condition though there are some smaller rocks displaced across the foreshore on the seaward side. The profile and crest level along the structure appears stable with no signs of displaced rock, toe erosion or settlement.





*North breakwater in Newbiggin Bay in overall good condition (/3601C14)*



*Outfall crossing underneath the North breakwater in Newbiggin Bay in overall good condition (/3601C14)*

The offshore breakwater in the centre of the bay was constructed in 2007 and comprises inter-locking Core-loc concrete armour units. At the centre of the bay the salient / tombolo in the lee of the breakwater is growing and will soon will connect the breakwater to the beach at low tide. Although this structure could only be inspected from the beach tombolo end, it appears in good condition with a uniform crest and no signs of displaced units or settlement.



*Detached breakwater in central Newbiggin Bay remains in good condition (/3601C16)*



*Salient/tombolo developed in lee side of the detached breakwater (/3601C16)*

In Newbiggin Bay the Maritime Centre at the north end of the bay was opened in 2012. The sea walls along Newbiggin Bay are well protected by very healthy beach levels following replenishment operations in 2007 and subsequent net accretion of sand in the lee of the detached breakwater. This has led to windblown sand on the promenade which at the time of the inspection had been swept clear, although 'dunes' were forming in areas of backing car park and play areas.

The high recurved seawall and promenade at the centre of the bay are in good condition. High beach levels mean the lower stepped seawall and piled toe which was previously identified as being vulnerable to erosion and undermining was completely buried. Access steps and handrails were also substantially buried. All joints appear well sealed.

At the south end of the bay the vertical section of seawall is protected by a rock revetment. This revetment is part of the defences that were in poor condition prior to the 2007 scheme, but is now almost completely buried by high beach levels. Where visible, this rock revetment continues to appear in good condition. High beach levels have also resulted in windblown sand on the promenade. Handrailing and some ancillary elements present high levels of corrosion.



*High beach levels and wind-blown sand to rear of promenade in central sections of Newbiggin Bay (/3601C07)*



*High beach levels in central sections of Newbiggin Bay (/3601C07)*



*Healthy beach levels fronting rock revetment. Corroded handrailing and posts (/3601C08)*



*High beach levels and embryo dune vegetation growth at southern end of Newbiggin Bay (/3601C09)*

At the south end of Newbiggin Bay the soft earth slopes are largely stable and protected by a wide beach with new dune vegetation growth evident on the foreshore.

At Spital Point there is no evidence of new rock falls or slips in the overlying softer material since the previous inspection, but the path along the thin ridge has been fenced off.

### **3.21 Spital Point to Blyth Harbour (MU 21)**

This management unit is approximately 6.5km in length and extends from Spital Point to the East Pier of Blyth Harbour. This frontage includes 19 coastal defence assets, comprising a mix of low vegetated cliffs and man-made revetments and seawalls at Cambois and North Blyth.

On the south side of Spital Point, the Newbiggin-by-the-Sea storm outfall and slipway remains very well protected by rock armour and the concrete headwalls appear in good condition.



*Rock revetment around sewage outfall Outfall (/3601C11)*



South of the outfall, there is a short section of cliffs fronting Links Quarry which are in poor condition, with significant erosion and cliffing along most of the length. Large quantities of rubble and quarry waste have been tipped down its seaward face. However, slumping in the soft material continues, releasing waste and debris onto the foreshore.



*Haul access to the rocky foreshore at the cliff toe (/3701C01)*



*Construction waste materials dumped at the toe of the soft cliff (/3701C01)*

Hawks Cliff is known to typically experience gradual, local erosion caused by occasional rock falls in the harder rock base leading to subsequent slumping in the upper soft material. The rock falls are caused by preferential erosion along a mudstone layer leading to undercutting and collapse of the overlying sandstone. Previously, over the severe winter of 2009/10, the whole length of these cliffs had been active. A number of local rock falls, fractures, overhangs, slump in some of the overburdening till and a noticeable section of partially collapse cliff was evident. In 2018, the footpath along this section of cliffs was closed in the interest of public safety due to previous severe erosion episodes. The England Coast Path was then implemented and new signage erected, advising walkers to keep to the path which was well away from the cliff edge. Despite this, a section of cliff collapsed in November 2019 (taking away the England Coast Path waymark with it) and this local area has since been fenced off (initially temporarily and then more

permanently) and the footpath diverted further inland still, into the adjacent fields. Recent slumps can be observed, probably caused by Arwen Storm. New signs are erected warning of the eroding cliffs.



*Collapsed section of Hawks Cliff (/3701C02)*



*Collapsed section of Hawks Cliff (/3701C02)*



*Active sections of Hawks Cliff (/3701C02)*



*Active sections of Hawks Cliff (/3701C02)*

The cliffs directly fronting the northern section of Sandy Bay Caravan Park are relatively well protected by a sandstone boulder berm at their toe and here the seaward face of the slopes is well vegetated. However, further south the slopes and cliffs become more unstable and are actively eroding. In places, recession of the cliff top has occurred to within a few meters of the caravans. There are three near-shore rock breakwaters that have helped stabilise the cliffs immediately in their lee, but erosion continues along the remain cliff length immediately to the south to the mouth of the River Wansbeck.



*Slopes stabilised at the lee of the breakwaters  
(/3701C03)*



*Erosion recommences to immediate south of rock  
berms (/3701C03)*

As the coastline turns west at the mouth of the River Wansbeck, there is a sandstone cobble berm which has helped stabilise the dunes on the northern bank. Within the estuary itself there are healthy dunes, sandflats and salt marsh and the channel of the River Wansbeck estuary diverts away from the north bank, more towards the south bank, around a large sand spit. No changes have been identified since last inspection.



Sand accumulating at the River Wansbeck  
mouth embankment.  
(/3801C01)



Start of embankment (/3801C01)

On the south bank of the River Wansbeck, the private defences of the *Wansbeck Boat Club*, are partially collapsed and presenting some erosion on the leeward, although still providing shelter to the boat club, hence not failed. This situation has not progressed much since the last inspection 2020.



*Wansbeck Boat Club retaining wall leeward erosion – local defect (/3801C02)*



*Wansbeck Boat Club retaining wall (/3801C02)*

The undefended section of cliff (/3801C02) within the estuary mouth is very stable because the estuary channel is not directly at the toe of the cliff, leading to a good accumulation of sand, boulders and vegetation above the high tide mark.



*Accumulation of sand at the toe of the cliff (/3801C02).*



*Built up sandy beach protecting a stable cliff on the right side. (/3801C02)*

Progressing from the sheltered estuarine frontage with its stable cliffs to the more active open coastline of Cambois Bay there is a transitional section of cliff fronting Cambois House (/3801C02). These cliffs have previously been in poor condition with slips along the entire frontage and more significant erosion and cliffing of the upper slope further south. However, estuary channel meandering away from the cliff toe at Cambois House, is building up sand accumulation at the toe. Further to the south the beach strand cuts back locally and cliffs present signs of moderate erosion at the toe. Vegetation is growing on the cliff face and beach is well built up.



*Waterline cut back with moderate toe erosion (/3901C01)*



*Some sand protecting the cliffs, south of Cambois House (/3901C01)*

The rock revetment to the south of the Cambois Links Car Park slipway remains largely in good condition although many of the concrete retaining panels embedded within the structure are breaking up and rust-stained from corroding rebar. This is not an issue since the revetment is well supported and sand is covering the armour stone toe. The well vegetated slope behind the revetment is stable with no signs of erosion. Two disused, corroded and failed outfall pipes remain crossing the beach at the southern end of the revetment, presenting a H&S hazard.



*Failed and disused outfall – H&S risk (/3901C05)*



*Rock revetment protecting former foundry site (/3901C05)*

At the end of the revetment, the low earth cliffs to the immediate south (/3901C03) have experienced terminal erosion along a length of approximately 100m. Since the 2020 inspection, the strand has retreated backwards and there are some signs of recent localised erosion. The soft cliffs merge almost imperceptively into vegetated dunes. Overall, the dunes remain stable and well vegetated.



*Erosion of cliffs at south end of the section (/3901C03)*



*Cliffs protected by relatively wide and high beach (/3901C03)*

The next section of low clay cliff/dunes (/3901C04), associated with the landfall works for export cables from the Blyth Offshore Demonstrator Windfarm (BODF), is built in lee of the Rockers outcrop. Following some storm damage to the dunes, the repair works included sand-filled geotextile bags and marram grass turves plantation which is keeping the dunes healthy and stable. The geotextile bags are visible at some points. The beach strand narrows going southwards, with waterline going up to the cliff/ dunes toe near the south end.



*Sandbags and reinstated dunes at cable landfall layout (/3901C04)*



*BODF cable landfall signposts (/3901C04)*



*Waterline near the toe of the cliff (/3901C04)*



*Stable and healthy dunes with moderate toe erosion (/3901C04)*



The North Blyth frontage is protected entirely by man-made defences. At the northern end, this comprises a substantial rock revetment with rock-filled gabions along the crest. Despite some displaced stones along the toe and areas of slight settlement of the profile, the rock structure remains in good condition, although at the north end of this revetment there has been cut-back erosion in the soft cliffs. Efforts appear to have been made to address this by tipping smaller rock armour which has provided some protection to the structure. No further erosion has been observed since 2020.



*Rock outcrops protecting the north end revetment toe (/4001C01)*



*Localised cliff slide producing revetment movement and gabions failure on top of cliff (/4001C01)*

The slope of the revetment seems to be more steep than recommended (1V:1.5H). This may have led to observed localised cliff stability failure and fall of some gabions baskets. This issue does not seem to have progressed since the 2018 inspection. However, more gabions along the crest are breaking apart due to their corroded steel frames. Some effort has been made to reinforce these frames, but the issue continues. The ramp from the beach to the car park is in good condition however, localised rock slumping beneath has undermined the edge of the concrete slab, which will eventually fail.



*Beach access ramp (/4001C01)*



*Ramp concrete slab undermining – needs to be repaired (/4001CO1)*

The remaining four assets defending the North of Blyth, down to the port's mouth are owned by the Port of Blyth. These assets are:

- A section of cliff protected by rock revetment (/4001C02), held by a steel breastwork, later completed with larger armour stone at the toe embedding the steel breastwork.
- A further section of cliff, fronting the Alcan aluminium and coke processing plants, protected by a composite structure (/4001C03) of timber breastwork on a mass concrete wall, with an upper slope of tipped rubble.

- A concrete seawall (/4001C04) extending to Blyth East Pier and including some concrete groynes over the bedrock plate to dissipate wave action.
- Blyth East Pier (/4001C05), an inclined concrete wall with a timber trestle on top.

In the 2020 inspection these assets were not accessible, hence all comparisons are made with the 2018 inspection observations.

The (/4001C02) steel breastwork is largely in a poor condition with extensive corrosion and numerous failed members. This issue is not relevant to the structural integrity of the revetment, since the upper armour rocks now rest on the newer and larger amour rocks of the toe. This interlocking process may have produced some erosion and slumps observed in 2018 at the cliffs crest behind the revetment. These slumps do not seem to have progressed. In some areas construction waste and smaller rocks were tipped at the crest in a likely attempt to protect these sections.



*Steel framework separating old and new rock armour – no need for repairs as it has no function due to new rock armour below (/4001C02)*



*New rock armour placed at toe to create a stable slope, protecting the damaged steel (/4001C02)*

The timber breastwork of the composite structure (/4001C03), sits on a concrete apron with rock armour at the toe. The timber is in poor condition, including broken vertical timber boards and rotten horizontal wallings. The upper rubble and industrial waste slope presents significant erosion, due to material migration among the breastwork gaps and unstable slopes, exposing the timber tiebacks to corrosion. Whereas no further movement or undermining was observed there is a risk that without further maintenance the breastwork may fail, resulting in partial collapse of the access roadway above. The toe protection seems to be in good condition.



*Industrial waste that looks unstable and could collapse over the structure (/4001C03)*



*Corroded holdings and rotten timber screen – are in poor conditions and requires repairs (/4001C03)*

The concrete seawall (/4001C04) extending to Blyth East Pier is generally in fair structural condition, with no visible evidence of undermining or movement. The toe of the wall as well as the groynes of this section are showing noticeable abrasion from the shingle and cobbles present (agitated by wave action). The wall presents some vertical cracks, gaps in vertical joints between some adjacent sections and numerous horizontal cracks at the parapet level. The parapet is in very poor condition, presenting large horizontal cracks, most prevalent at access points through the wall's crest. It is at risk of collapse of localised sections and in need of urgent repair. The north end of the parapet presents massive abrasion with some loss of crest level. There were also numerous defects in the deck, although no evident damage to the area behind this.



*Sea wall that has experienced moderate amount of erosion – needs to be monitored carefully or repaired (/4001C04)*



*Parapet in poor condition with missing and broken walkway slab sections – signs of undermining (/4001C04)*

The last asset of this coastal section, the Blyth East Pier (/4001C05) is generally in fair condition with no noticeable signs of undermining at the toe or movement in the sub structure or superstructure. The flood defence crest level of the structure seems unaltered. However, significant issues were detected on the timber trestle on top of the wall with missing sections of the deck. The first section of this deck is supported by concrete frames presenting heavy corrosion and concrete spalling. The second section of the deck, supported by long timber legs embedded within the wall, has no handrails and the concrete cover of the timber legs is missing.



*Seawall in fair condition – missing sections of trestle deck (/4001C05)*



*Timber deck supported by timber legs – not accessible (/4001C05)*

### 3.22 River Blyth (Harbour Mouth) (MU 22)

No coastal defence assets are located within the harbour mouth of the River Blyth estuary frontage.

### 3.23 Blyth Harbour to Seaton Sluice (MU 23)

This management unit is approximately 5.5km in length and extends from the West Pier of Blyth Harbour in the north to Seaton Sluice in the south. This frontage includes 21 coastal defence assets, comprising a mix of vegetated dunes and manmade defences at Blyth and harbour structures at Seaton Sluice.

#### Blyth South Beach

The northern section of Blyth South Beach comprises a wide sandy beach backed by narrow vegetated dunes. At the rear of the dunes is a brick boundary wall to the Royal Northumberland Yacht Club and Port of Blyth. Beach levels at the spending beach area between the West Pier and the South Pier have on most previous surveys been very healthy, but during the 2018 inspections were drawn-down, resulting in storm-damage to the dune face. Before the 2020 inspections, the beach levels had recovered to healthy levels and remained in this state in 2022. Embryo dune vegetation growth was noted above the high water line.



High beach levels in spending beach (/4201C10)



Brick boundary wall to rear of dunes (/4201C10)

The dunes immediately south of the jetty are well vegetated and have embryo vegetation growth at the toe. They remain stable with no signs of erosion. The brick boundary wall is generally in fair condition with some vertical cracking in the brickwork and occasional loss of mortar at joints in the concrete coping. A slightly seaward rotation in the wall was noted at the south end. Although no recent signs of movement were apparent, this should continue to be monitored for further change.

Further south, the boundary wall changes to a concrete post and plank construction. This wall generally remains in a fair condition, occasional cracked concrete planks. The dunes remain wide and well vegetated for the majority of their length, narrowing at the far south end.



Concrete boundary wall (/4201C11)



Stable dunes (/4201C11)

Further south, towards the outfalls that cross the foreshore, the dune width narrows considerably and the seaward face of the dunes has become cliffed by past erosion events, although at the time of the survey there was modest sand accumulation and embryo dune vegetation growth at the toe. Despite this, at the very southern end gabion baskets have become exposed at the dune toe. Also, around this location, remnants of an obsolete timber groyne and obsolete concrete structure (either a groyne or an outfall chamber) were noted just protruding the beach surface. As noted in previous reports, this section of dunes needs careful consideration by the Port of Blyth as there is a risk of breaching through the haulage road to the port.



*Dunes width narrows with progression to south (/4201C11)*



*Very narrow dunes with gabions at toe becoming exposed (/4201C11)*

Along the southern-most section of the port boundary wall, the now extremely narrow dunes are protected along the seaward face and toe by cobble-filled gabions, with a cobble berm on the upper beach at their toe. The gabions are in poor condition (worsening with progression from north to south) and several have split, spilling cobbles onto the beach (supplying sediment to the beach berm), and remain unrepaired. Replacement of broken gabions in conjunction with consideration of longer-term management options for the undefended dunes further north therefore remains important to prevent loss of the dune and collapse of the boundary wall.



*Gabions protecting very narrow strip of dunes (/4201C03)*



*One example of several failed gabions (/4201C03)*

South of the gabions at Blyth South Beach is a short section of original sea wall that protects fairly recently constructed backing properties. The original wall is generally in fair condition although the poured concrete apron at the southern end remains undermined. The wall has been extended (prior to the 2020 inspections) as a condition for retrospective planning permission for the properties. The tie-in of the extended wall to the gabion-fronted section of dunes further north has progressed since 2020 but does not appear to be well engineered (poor condition) and it is unclear whether or not this is intended as a final solution or further work remains planned. It also appears that the extended wall has been cast against the original wall and it is unclear whether any construction bonds have been engineered at this interface,

or how the extended wall has been founded on the foreshore. The cobbles and boulders at the toe of the wall appear to be effective in protecting the toe. At the south side of the original wall, above the circular concrete pile section, the words "WALL NOT FiNiSHed Pebble FeatuRe TO ADD" [sic] remain painted on the wall face (these were also observed in 2020).



*Original and extended sea walls protecting new properties (/4201C04)*



*Interface of original and extended sea walls (/4201C04)*



*Tie-in section of wall at failing gabions under construction in 2020 (/4201C04)*



*Tie-in section of wall at failing gabions further protected by 2022 (/4201C04)*

South of the beach access slipway, a short section of sea wall is old but in in fair condition with occasional abrasion and cracks, especially to the access steps at the wall's southern end. Previous repairs have been made to this structure and it will need to be maintained into the future.



*Sea wall (/4201C05)*



*Seawall and access steps (/4201C05)*

South of the access steps is a short (approximately 100m) section of good condition but narrow dune, which entirely covers the backing sea wall. These dunes terminate at a set of access steps which mark the northern end of the sea wall which forms a promontory in the shoreline alignment. This wall is generally in fair condition, although with numerous cracks. However, specifically at the northern end there is considerable abrasion and staining of the wall and some minor cracking, and some of the drainage holes are totally blocked. There is also considerable undermining and abrasion of the access steps at the northern end of the sea wall. Although some damage has previously been addressed, especially at the access steps and coping, these ongoing issues at the northern end could usefully be addressed through improvement works. Overall the sea wall is structurally fair but aesthetically poor (especially at the northern end) and the access steps are somewhat dangerous.



*Abrasion and undermining of access steps (northern end of sea wall) to seawall (/4201C06)*



*Abrasion and staining to sea wall at its northern end (/4201C06)*

The seawall merges seamlessly into the main promenade and setback amenity area towards the north of Blyth South Beach which underwent notable regeneration in 2009/10. The new promenade decking, is faring well. The sea wall fronting the promenade was largely buried by beach sand at the time of the 2020 inspections, but lower beach levels in 2022 meant that more of the wall face was visible. The sea wall is largely in good condition, but locally with some minor cracks (some now with vegetation growth) and gaps at construction joints as well as a few areas of abrasion leading to exposed and corroded reinforcement bars. This situation remains unchanged from previous inspections and maintenance of the sea wall would be beneficial to prevent more significant deterioration.



*Sea wall fronting regenerated Blyth seafront – northern end of Blyth promenade (/4201C07)*



*Sea wall fronting southern end of Blyth promenade (/4201C08)*

At the southern-most end of the sea wall, where it ties-back into the undefended dunes, the steel sheet piles protecting the return section of seawall remain in a highly corroded stated, with the condition remaining downgraded since 2020 from fair to poor due to the presence of three voids through the steel piles, with wash-out since 2020 of the underlying beach/dune sand upon which the wall was built.



*Steel sheet pile end to promenade (/4201C08)*



*Voids in steel sheet pile end to promenade (/4201C08)*

The three timber groynes forming a groyne field at the southern end of the sea wall/promenade and further south towards Meggies Burn have previously been identified, collectively, as being in poor condition, with missing timber planks, arson damage and many sizeable gaps.

The most northerly groyne is actually the fairest of the three and appeared effective in trapping small quantities of beach sand on its northern side on the upper beach. The access ramp at the landward end of this groyne is in fair condition.



*Northern groyne (/4301C01) – generally fair condition but overall groyne field is poor*



*Northern groyne (/4301C01) – generally fair condition but overall groyne field is poor*

The central groyne is in poor condition, with numerous missing timber boards. Deterioration appears ongoing as one timber board was washed-up on the upper beach near to the central groyne.





*Central groyne (/4301C01) – poor condition*



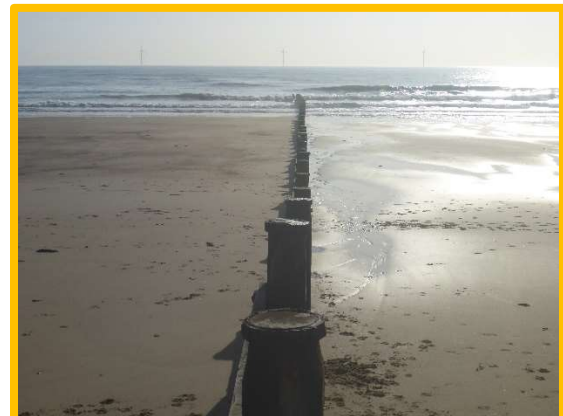
*Central groyne (/4301C01) – poor condition*

The undefended dunes between the central and southern groynes were in good condition, with sand build-up on the upper beach. However, at the southern groyne there remains erosion at the interface between the groyne and the dune due to people using this route as an access to bypass the groyne when walking along the beach. The southern groyne itself has a modest effect in trapping beach sand on its northern side, but still has notable defects at its seaward end where the distal end of the groyne has collapsed and not been repaired since first noted in 2018.

Since the 2020 inspections, a wider-scale change has been observed linked to the alignment of the channel of Meggies Burn. During an event in 2019, the channel diverted northwards from its outlet, running directly along the toe of the dunes (causing dune erosion) before turning abruptly to run along (and in some locations beneath) the alignment of the groyne. This led to the opening (and rapid infilling by Council operatives) of a sink hole on the northern side of the groyne and the collapse of part of the structure which was repaired. However, the channel remained in this alignment at the time of the 2020 inspections. At some point before the 2022 inspections, the channel has been re-engineered to a more direct route to sea from its outlet, with the 2019/2020 channel being mechanically infilled with surrounding beach sand.



*Meggie's Burn channel undermining southern groyne in 2020 (/4301C01)*



*Southern groyne in 2022 with the channel re-engineered to a different alignment (/4301C01)*

The dunes between the southern groyne and Meggies Burn outfall experienced erosion at their toe when the channel was in its alternative location in 2019 and 2020. The dunes had not recovered from this by the time of the 2022 inspections, although fresh erosion was not apparent.



*Previous dune erosion between southern groyne and Meggies Burn (/4301C01)*



*Previous dune erosion between southern groyne and Meggies Burn (/4301C01)*

The channel of Meggies Burn has been re-engineered to a more direct route to sea from its outlet, flowing against the rock training arm that was constructed in 2016 on the southern flank and a newly-constructed berm of beach sand and cobble on the northern bank.



*Re-engineered channel alignment at Meggies Burn (/4301C01)*

South of Meggie’s Burn outfall, but remaining within the slight embayment in coastal alignment, the dune stabilisation works implemented in 2015 (coupled with the beneficial effect of the rock training arm constructed in 2016) continue to be effective, encouraging sand accumulation and embryo dune growth at this location. However around a dozen of the sand-filled geotextile bags placed on the face of the dunes along the south flank of Meggie’s Burn remain slightly exposed (although this situation has not worsened since the 2020 inspections). Christmas trees have been placed to encourage local sand accumulation.



*Dune restoration to south side of Meggies Burn (/4301C02)*



*Slight exposure of a small number of sand-filled geo-bags at Meggies Burn (/4301C02)*

Further south along the open coast of Blyth South Beach, the dunes have continued to recover from the erosion that was observed during the 2018 inspections to the extent that they can be classified as being in good condition. Concrete blocks that were previously exposed at the toe of the dunes remained completely buried. There is one point in the centre of the bay where the dunes are slightly lower and flatter (where works with sand-filled geo-bags was undertaken in 2006 and where Christmas trees have been placed to encourage local sediment accumulation) but even here the dunes remain healthy. At the southmost end, towards Seaton Sluice, the dunes remain highly stable with notable embryonic vegetation growth.



*Dunes fully recovered from 2018 erosion (/4301C02)*



*Dunes fully recovered from 2018 erosion (/4301C02)*

The two sections of low masonry wall at Sandy Island remain in good and fair condition, respectively, with some trampling and wind-blown erosion of the dunes behind the southerly wall.



*Northern wall in good condition (/4401C01)*

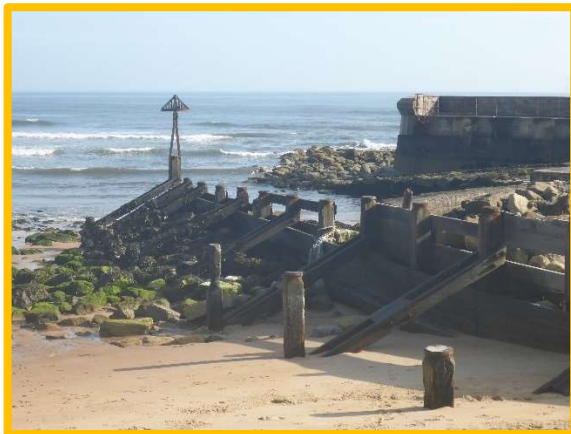


*Southern wall in fair condition with some dune erosion behind (/4301C02)*

The general feeling with respect to the dunes and beaches within Blyth South Beach is that the whole frontage suffered notable storm damage in the March 2018 storms (the 'Beast from the East' and the subsequent 'Mini Beast'). This resulted in draw-down of beach sand, lowering beach levels and causing dune face erosion in the central bay. However, by the summer 2018 inspections there were already signs of recovery throughout the bay in terms of accreting upper beach levels and this clearly has continued, quite significantly, through the 2020 inspections to the present day. Furthermore, the problems at the southern groyne and dunes between there and Meggies Burn have been addressed by re-engineering the alignment of the channel of the burn since the 2020 inspections.

### **Seaton Sluice**

The timber groyne at the mouth of Seaton Burn remains in poor condition showing signs of timber damage and missing planks where it retains rock armour. The area of retained land behind the groyne has received infill of debris to prevent undermining of the concrete deck and appears very unsightly. At the time of the 2020 inspections, there was a large deposit of sand in the entrance to Seaton Sluice harbour but this has been cleared (either mechanically or by a spate) and currently is suitable to ensure safe navigation.



*Timber groyne at Seaton Sluice harbour (/4401C02)*



*Sand bar removed from mouth of Seaton Sluice harbour*

The western bank of the Seaton Sluice harbour is a masonry wall largely in fair condition, possibly owing to the fact that the original wall is believed to have been re-constructed as a concrete structure faced with masonry blocks. However, there are some open joints that would benefit from filling. Some loss of mortar and gaps between blocks was also observed.

The wall along the inner north bank of the harbour includes a boat ramp. This ramp was repaired along a previously collapsed section, but still has large gaps in the joints at the top and bottom of the ramp and undermining on the inner face at the toe. However, this has not worsened since the previous inspections. One sink hole that was reported on the bankside during the 2020 inspections has been infilled.

The rest of the masonry quay wall along the inner north bank of the harbour is generally in fair condition with little change since the previous inspection. Some slight bulging of the wall was apparent as well as missing mortar and gaps between blocks.

Along the south bank of Seaton Sluice harbour, the west end of the masonry quay wall is generally in fair condition with no movement apparent. There is however some noticeable loss of mortar and gaps between blocks at the west end of the wall. At the east end, the concrete coping is highly abraded and cracked with a number of large gaps and some missing blocks along the bottom of the wall. However, this has not worsened since the previous inspection.

The masonry quay wall along the east bank of Seaton Sluice harbour is generally in fair condition with local areas of abrasion and settlement, some missing mortar and gaps between blocks as noted in previous inspections. These should be repaired through routine maintenance.



Wall on west side of harbour (/4401C04)



Wall on west side of harbour (/4401C08)

### Rocky Island

The deep man-made cutting separating Rocky Island from the main land provides a secondary channel to Seaton Sluice harbour. This channel has high vertical rock faces topped with masonry walls retaining the overlying soft material. These walls remain in a fair to poor condition (poorest nearest the bridge on the mainland-side). In the many areas of missing blockwork, pigeons were observed nesting.

[Note that the timber fencing at the mainland cliff top extending along the channel separating Rocky Island from the mainland is broken in many places and these are covered by orange plastic mesh fencing. These damaged areas should be repaired with a permanent fencing solution.]

At the western end of Rocky Island is a large concrete pier build in 1995 with a shallow grouted stone revetment extending along its leeward face. The pier remains generally in a good condition with no signs of movement and only minor cracking and loss of joint sealant. (Note that the scheme's commemorative plaque has been lost or stolen since the 2020 inspections and the handrails are extensively rusted). The poured concrete slurry revetment on the wall's leeward side however is actively breaking up (this is outside of the marine environment, on land above the deck of the pier). This is causing soil erosion of the land to continue.

Extending eastwards from the pier, along the northern side of Rocky Island is a length of masonry sea wall fronted by a rock platform. There is missing mortar and gaps between blocks along much of its length. In one or two areas, there are missing blocks and in many locations, there are abraded blocks. The gridded-mesh on the railings at the crest of the wall are missing along much of this section, or heavily rusted where remaining.



*Pier wall (/4401C10)*



*High masonry wall (/4401C11)*

The remainder of the northern face of Rocky Island is undefended hard rock cliff mantled with softer material. There continues to be no noticeable change to the cliff since the previous inspection with fractures to the hard rock structure, occasional rock overhangs and local rock falls. However, one sections of low timber fencing used to prevent public access to the cliff edge is lying flat and should be re-erected in the interests of public safety.

### **3.24 Seaton Sluice to Hartley (MU 24)**

This management unit extends from Seaton Sluice harbour in the north to Hartley. The Northumberland portion of this unit is approximately 1.5km in length and includes 10 coastal defence assets, comprising a mix of medium/ high cliffs and man-made seawalls.

#### **Collywell Bay**

The undefended cliffs at the headland north of Collywell Bay continue to appear less fractured than those along Rocky Island and, other than occasional local rock falls, appear relatively stable. It is noted that new timber fencing had been erected along the cliff top path section between the southern side of the headland and the Collywell Bay seawalls.

Collywell Bay comprises several different seawall types. At the north end, the near vertical concrete wall continues to remain generally in good condition with some minor cracks and staining with more significant spalling along the upper protruding section.

To the south, the adjacent section of wall is of similar construction but includes a sloping brickwork revetment supporting the upper part of the cliff. The concrete section of the wall is in generally good condition despite loss of mortar at the recurve along most of the wall and noticeable abrasion along the base above the stepped toe. At the centre of the upper masonry wall the full height crack in the brickwork identified during the 2012 inspection does not appear to have worsened.



*Near-vertical seawall (/4401C14)*



*Seawall with upper brickwork retaining wall (/4401C15)*

The short tie-in section of wall further south remains in good overall structural condition. The toe at the interface of this tie-in with the higher wall to the north should continue to be monitored for any signs of undermining that could lead to failure. Immediately south of this wall there is a short section of undefended rocky cliff and a short section of brickwork/ concrete wall which joins the concrete wing-wall of the access ramp. The brick section of wall is generally in a poor condition, with several missing bricks along the base. The concrete section of wing-wall (constructed in 1904) has a large horizontal crack along the base and appears to have rotated seaward slightly. The toe of the ramp and the lower sections of the wing-wall are very heavily abraded.



*Short length of tie-in sea wall (/4401C16)*



*Abraded access ramp (/4401C16)*

The high vertical concrete sea wall at the centre of Collywell Bay is generally in fair condition, tending to poor in local areas of defects. Maintenance work to fill three notable vertical cracks is still required, however no movement was apparent at these locations. There has been some local worsening in condition since the previous inspection with one area of break-away at the concrete toe. The large toe apron and access steps along part of this wall remain highly abraded and cracked in places, with exposed rebar showing. However, the apron provides a large mass of concrete in front of the sea wall, so remains effective.



*One of three notable vertical cracks in the sea wall (/4401C17)*



*Abraded toe apron of sea wall (/4401C17)*

The concrete seawall at the south end of Collywell Bay is generally in good condition but above the wall slips in the vegetated earth slopes remain apparent, but only appear partially active with no material visible on the foreshore. The gabions that protect the toe of the coastal slope above the beach access ramp at the southern end of the bay are splitting in places. The access ramp itself has some undermining where it joins the rocky shore platform, although this has not worsened since the previous inspection. There is also some undermining and onset of outflanking where the ramp joins the undefended cliffs at its other end. However, none of these defects have worsened since the 2020 inspections.



Sea wall with slumping cliffs above (/4401C18)



Break-up of gabion baskets (/4401C19)

The harder rock cliffs extending from Crag Point to the southern boundary of Northumberland County Council's frontage, part-way along Hartley Cove, have some fracturing to the rock structure. As a result of this fracturing, several rock falls have occurred leaving numerous overhangs and in places caves have formed at the base of the cliffs. However, no change was evident since the previous inspection and the rockfalls appear to be past incidents rather than recent. Fulmar were nesting along the cliffs, indicating relative stability. Along the final section, adjacent to the agricultural fields and caravan park where the narrow footpath is close to the cliff top, the hard rock base of the cliffs experiences occasional rock falls, triggering slumping in the overlaying till upper cliff. This is not compromising the footpath, but the 'Beware Dangerous Cliff' and 'No Cycling' signs along this section of path are old and barely readable.



#### 4. Comparison with Previous Assessment

The previous formal assessment across the whole study frontage was undertaken in summer 2020. Since that time, it is notable that several areas have benefited from maintenance, repairs or capital schemes. However, some sections of defence have suffered from further minor deterioration since the previous inspections. Also, the most notable changes along the natural frontages since 2020 exist along undefended dunes and the foreshore beaches, which generally experienced further deposition (recovery) following the erosion that was observed prior to the 2018 inspections during preceding winter storms.

#### 5. Problems Encountered and Uncertainty in Analysis

All assets were inspected at suitable stages of the tide and in good weather conditions. Therefore, there were no major problems encountered during the inspections.

Locally at Lindisfarne National Nature Reserve (from Holy Island causeway to Ross Point) the walkover inspection has been adapted since 2020 surveys, to avoid walking on/through the saltmarsh at the request of Natural England. Instead, the foreshore is now viewed from the handful of publicly accessible points along the frontage allowing the general condition of the saltmarsh to be assessed. However, this results in swathes of the saltmarsh frontage not being inspected, most notably considerable sections between Elwick and Guile Point.

Some short sections of frontage are fenced-off to protect nesting birds at particular times of the year. While the surveys are scheduled to try and avoid these times, a short section of Ross Back Sands and a short section of Lynemouth (south of the Power Station) were not inspected at close quarters in 2022 for this reason, although the coastline was inspected from outside of the fencing.

Some harbour structures were only viewed from a distance (e.g. seaward end of Blyth East Pier) or from the deck. In these cases, vessel-based or underwater inspections are recommended to inform future maintenance and capital works programmes.

#### 6. Conclusions and Recommended Actions

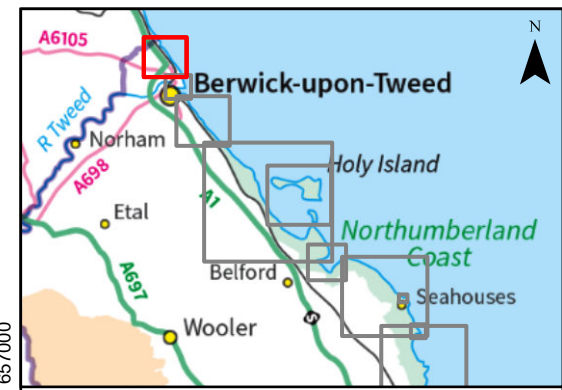
Further to the visual inspection of all NFCDD assets, specific conclusions and recommendations for individual assets are given in **Appendix B**.

In lieu of a decision for a suitable replacement a replacement for the NFCDD database, all condition assessment data and selected photographs have been uploaded to a SANDS (Shoreline And Nearshore Database System). This includes all data and photographs from the previous inspections since 2002 that were previously held on four separate MS Access Databases that had become obsolete. In order to facilitate easy comparison of new inspections to previous data for each asset a new asset data display form "Northumberland Sea Defence" has been created in SANDS.

# Appendices

# **Appendix A**

## **Asset Location Maps**



**Legend**

- Coastal Asset location
- NFCDD Asset Number*

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 Hybrid Reference Layer: Esri UK, Esri, HERE, Garmin, INCREMENT P, METI/NASA, USGS  
 OS Open Rasters: Contains OS data © Crown Copyright and database right 2020

Client:	Project:
North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 1**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

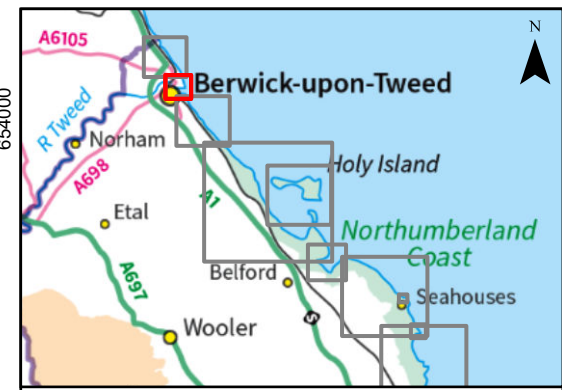
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Asset Inspection Report

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Co-ordinate system: British National Grid



**Legend**

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- NFCDD Asset Number

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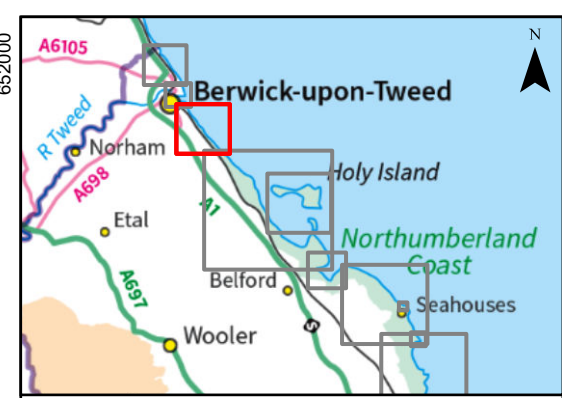
**Figure 1 - Map 2**  
**COASTAL ASSET LOCATIONS**  
**Northumberland County Council Frontage**

Report: **Asset Inspection Report**

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Co-ordinate system: British National Grid





**Legend**

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Title:

**Figure 1 - Map 3**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

Report:

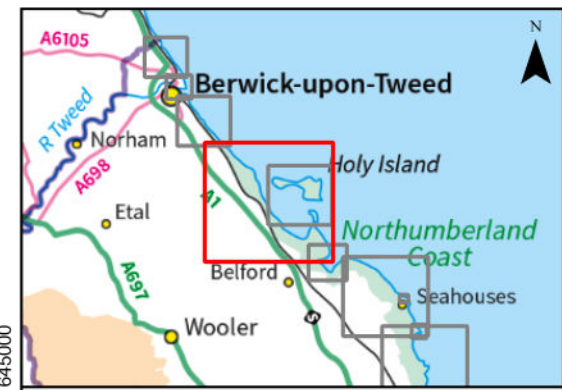
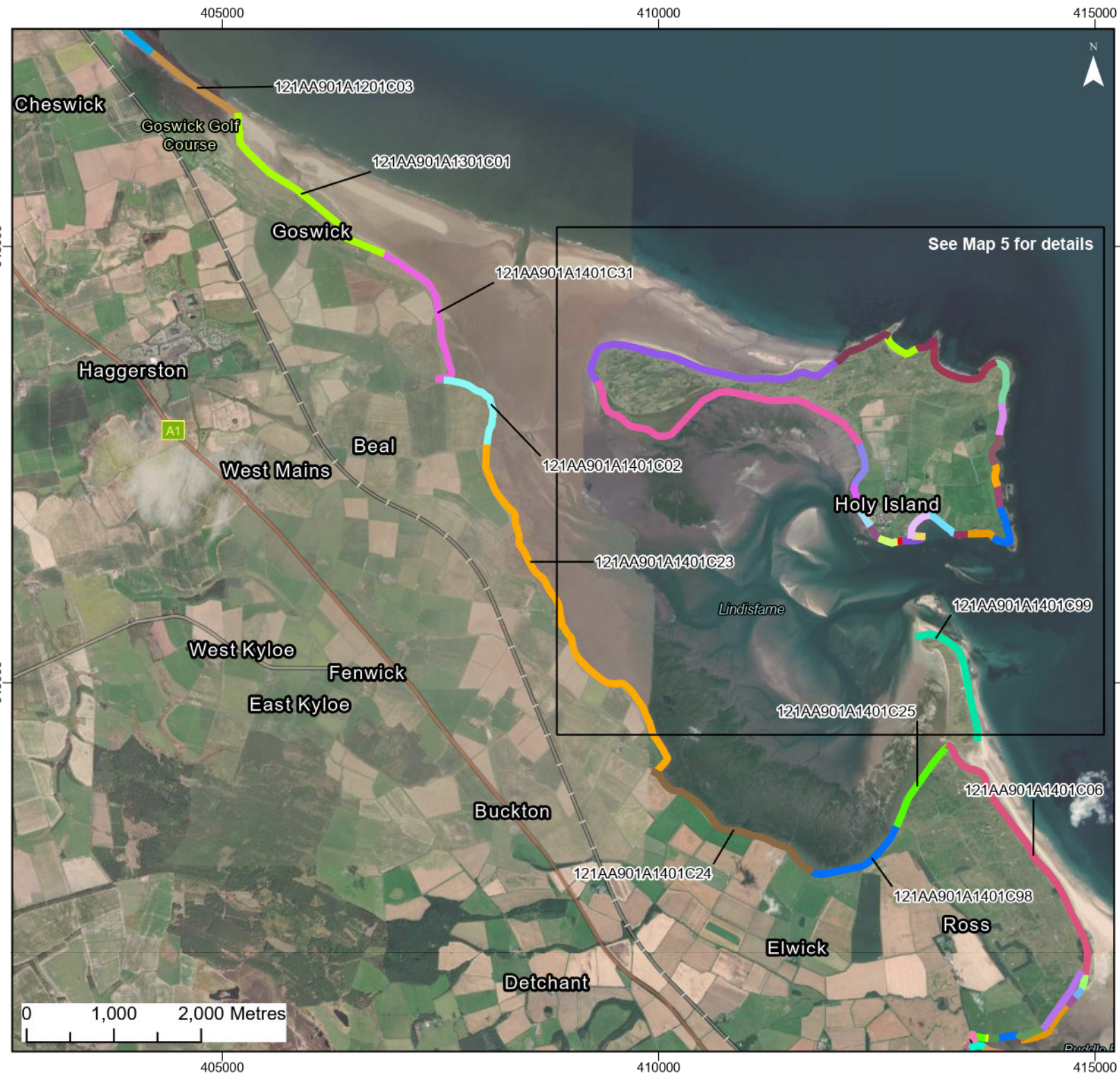
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**Legend**

- Coastal Asset location
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Title:

**Figure 1 - Map 4**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

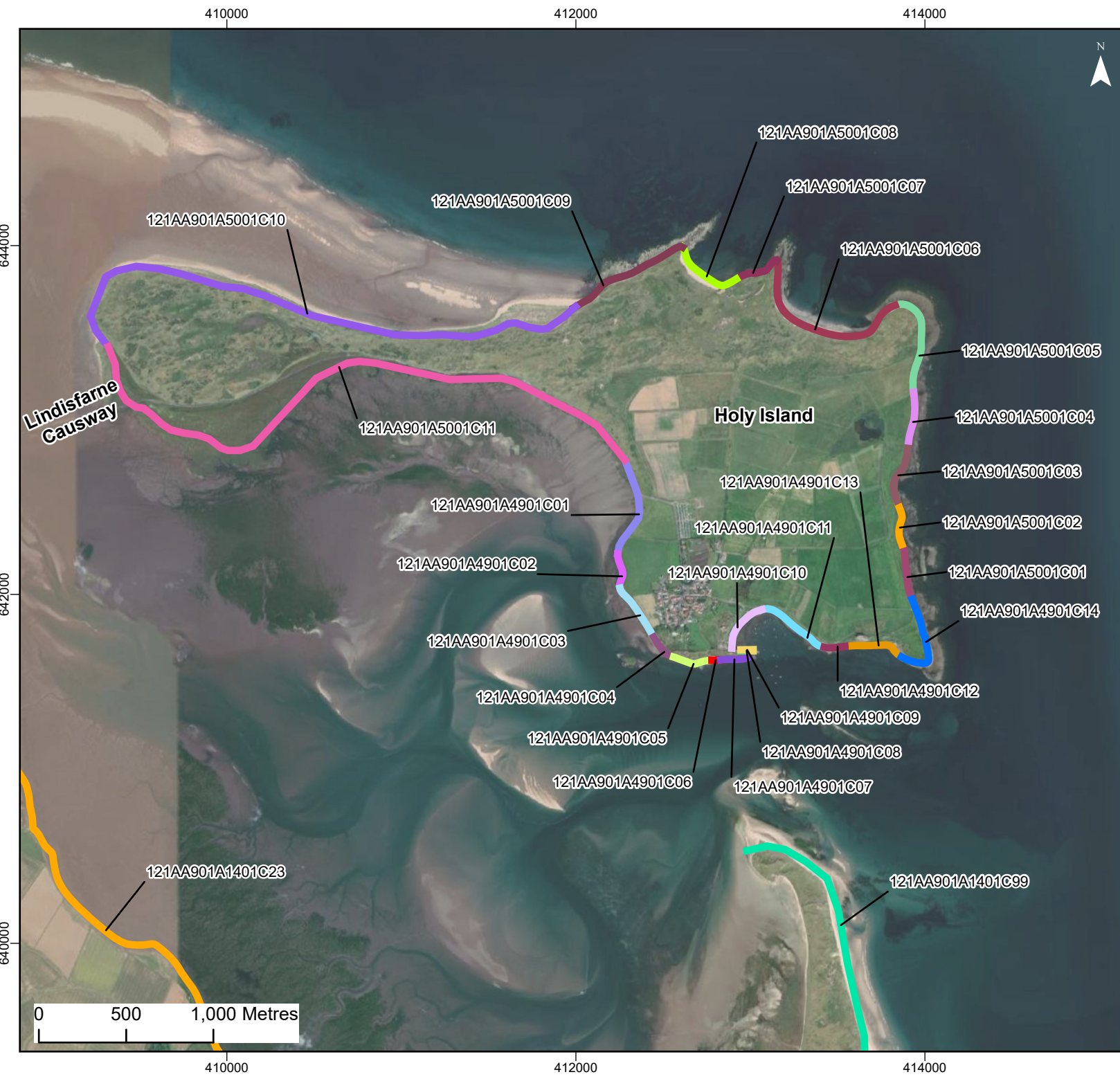
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Asset Inspection Report

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Co-ordinate system: British National Grid





**Legend**

- Coastal Asset location
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Title:

**Figure 1 - Map 5**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

Report:

Asset Inspection Report

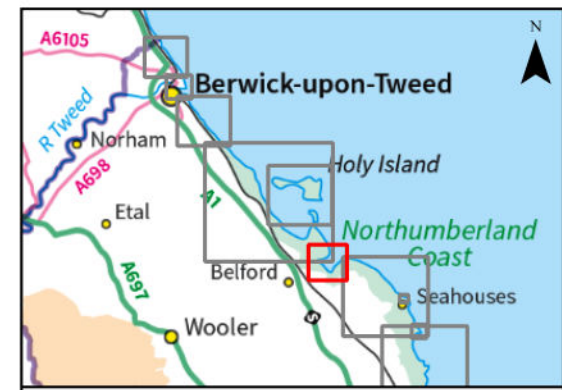
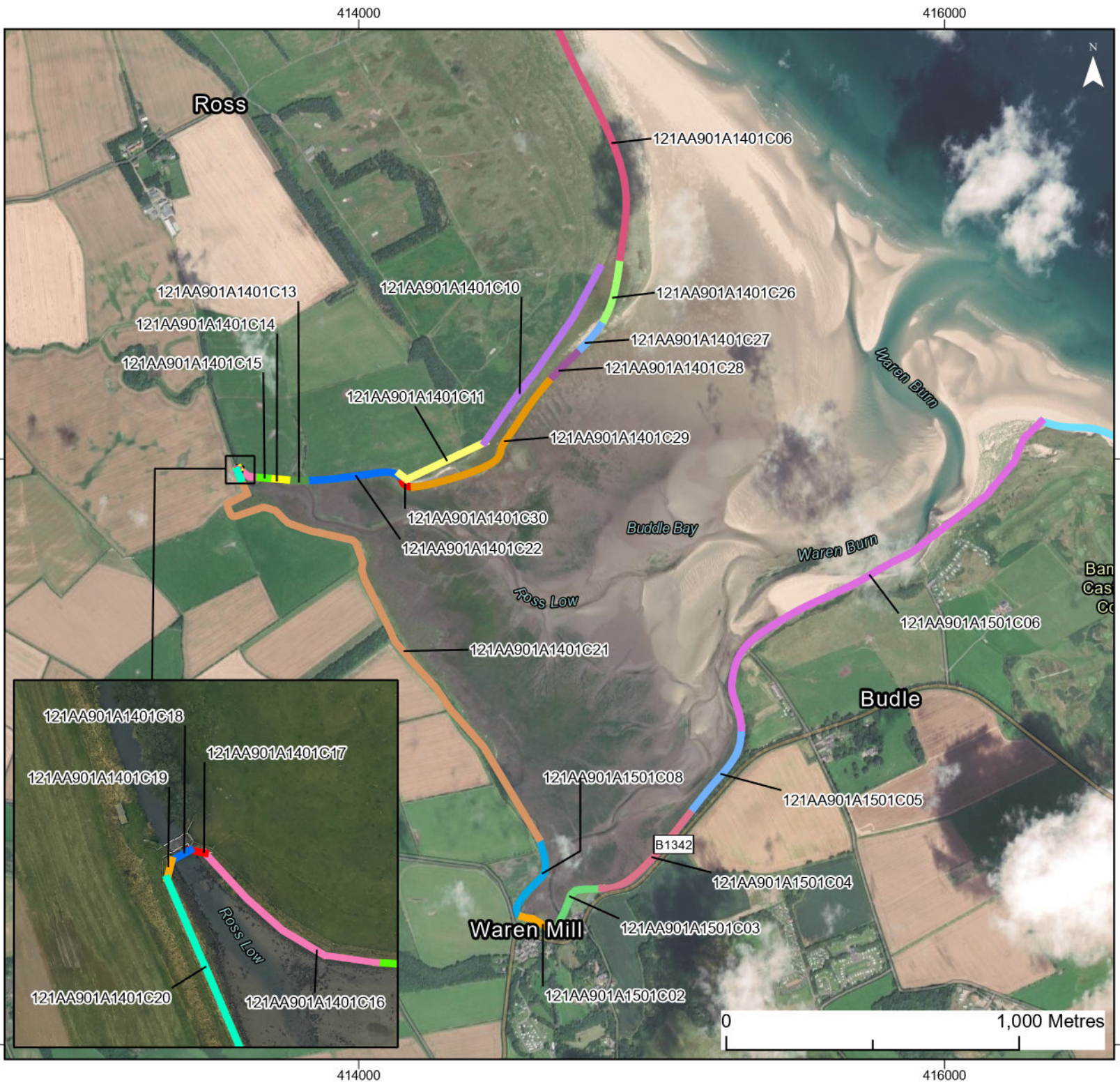
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**Legend**

- Coastal Asset location
- NFCDD Asset Number

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**Title:**

**Figure 1 - Map 6**

**COASTAL ASSET LOCATIONS**

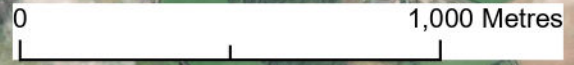
**Northumberland County Council Frontage**

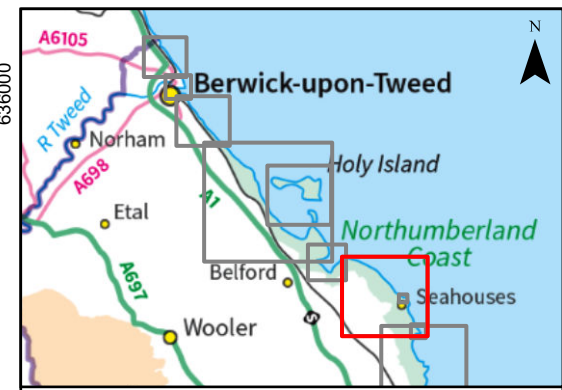
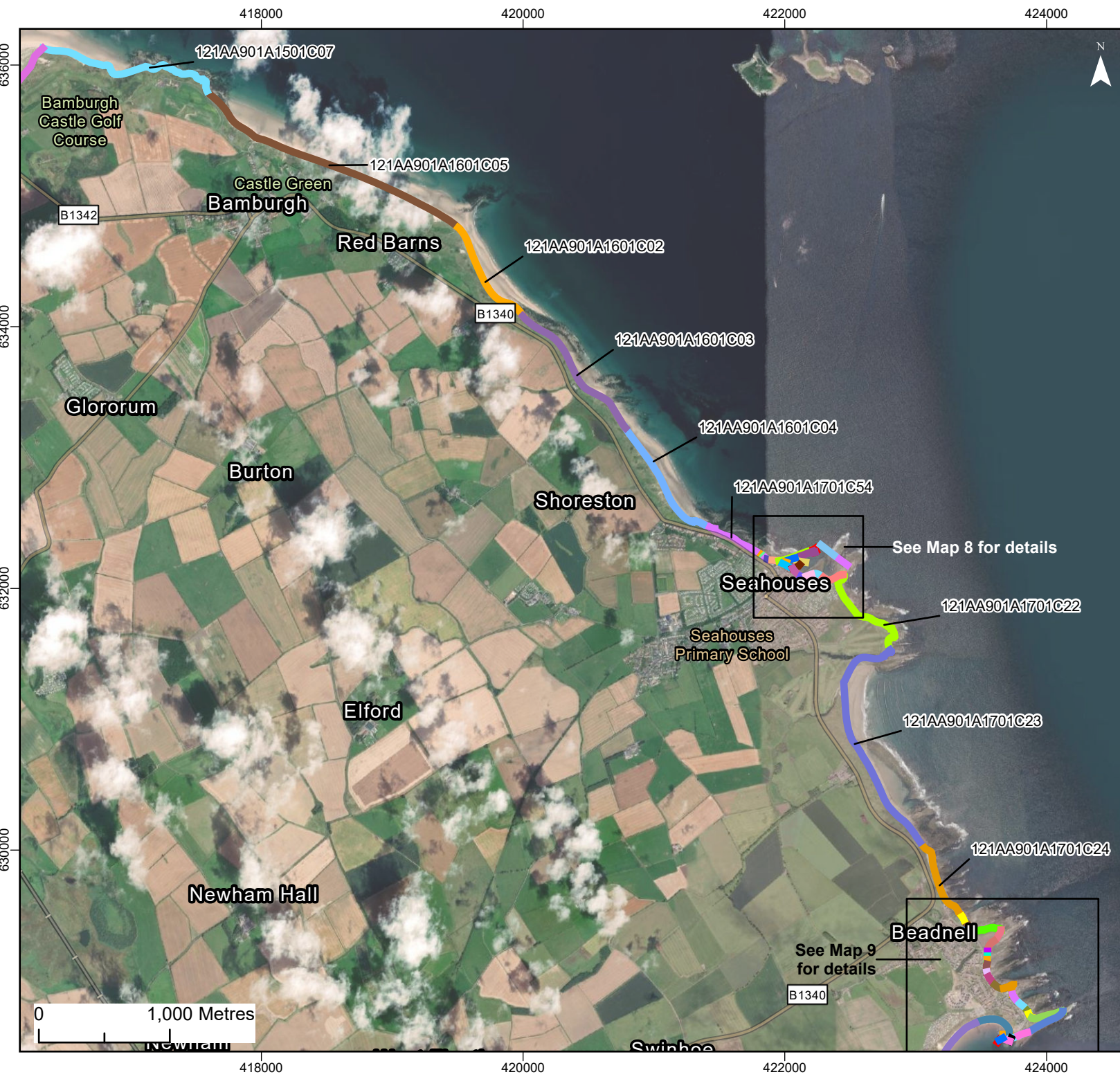
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**Asset Inspection Report**

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Co-ordinate system: British National Grid





**Legend**

- Coastal Asset location
- NFCDD Asset Number

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North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 7**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

Report:

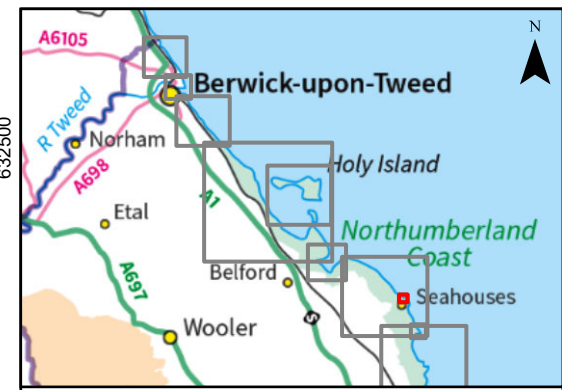
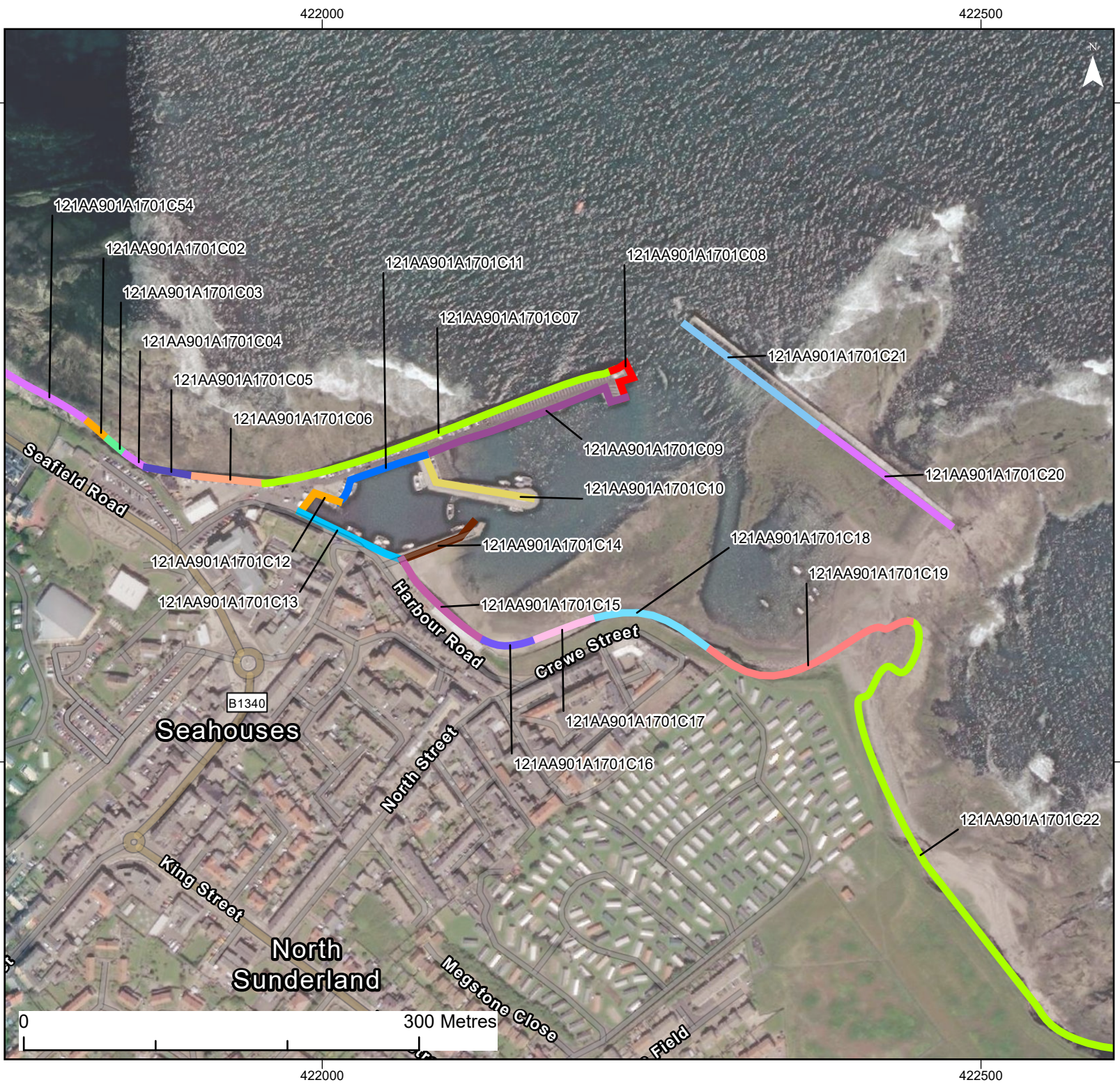
Asset Inspection Report

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**Legend**

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- NFCDD Asset Number*

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Title:

**Figure 1 - Map 8**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

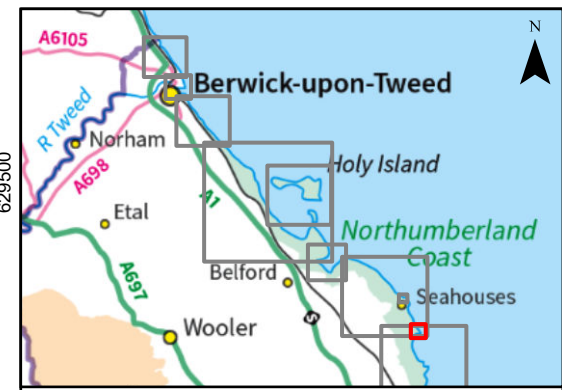
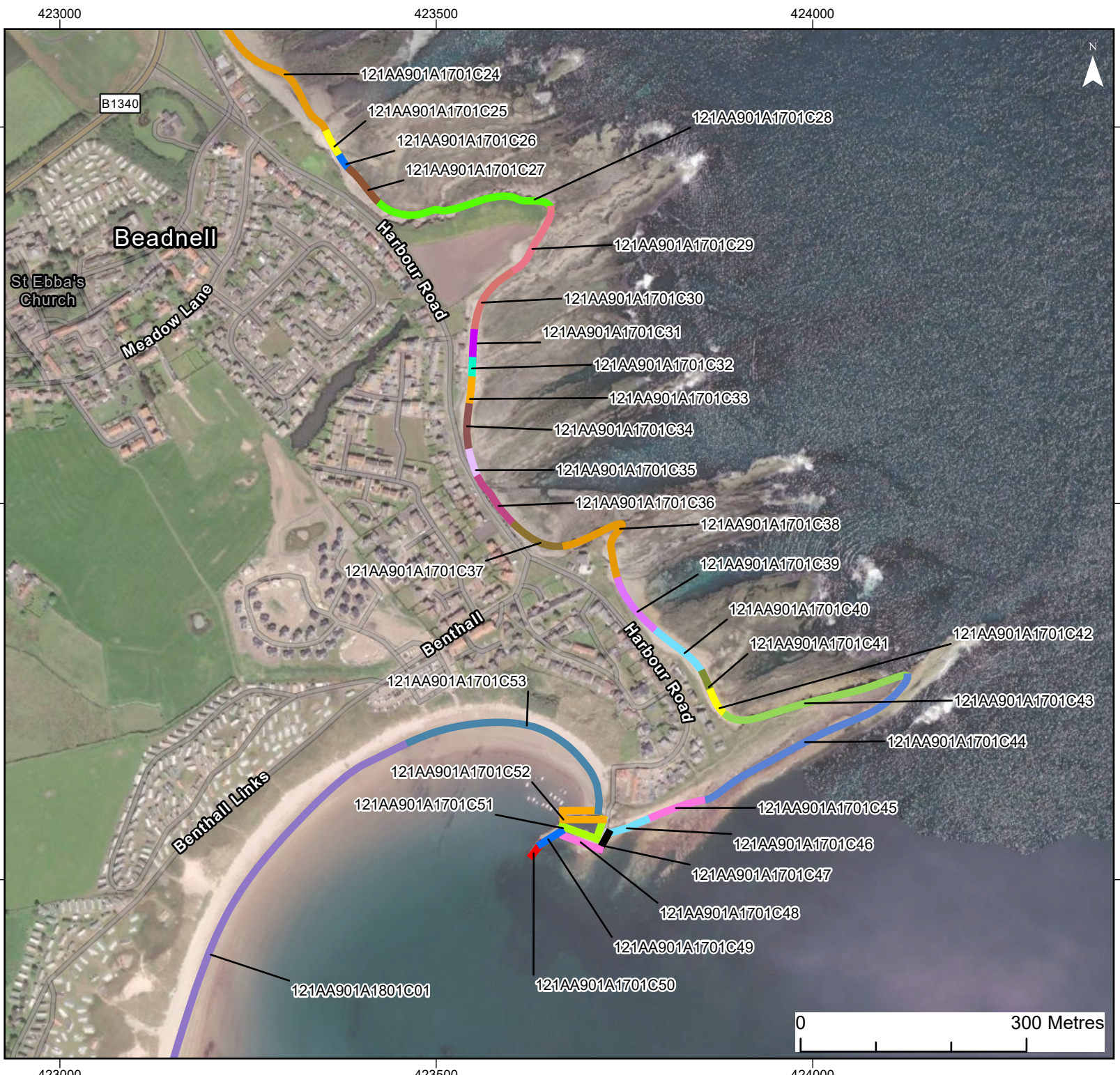
Report:

Asset Inspection Report

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid





**Legend**

- █ Coastal Asset location
- NFCDD Asset Number*

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Client:	Project:
North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 9**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

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Asset Inspection Report

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
0	n/a	TC	NJC	A4	1:7,000

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 Project: Cell 1 Regional Coastal Monitoring Programme

Title: **Figure 1 - Map 10**  
**COASTAL ASSET LOCATIONS**  
**Northumberland County Council Frontage**

Report: Asset Inspection Report



Revision:	Date:	Drawn:	Checked:	Size:	Scale:
0	n/a	TC	NJC	A4	1:40,000

Co-ordinate system: British National Grid





### Legend

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Client:	Project:
North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 11**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

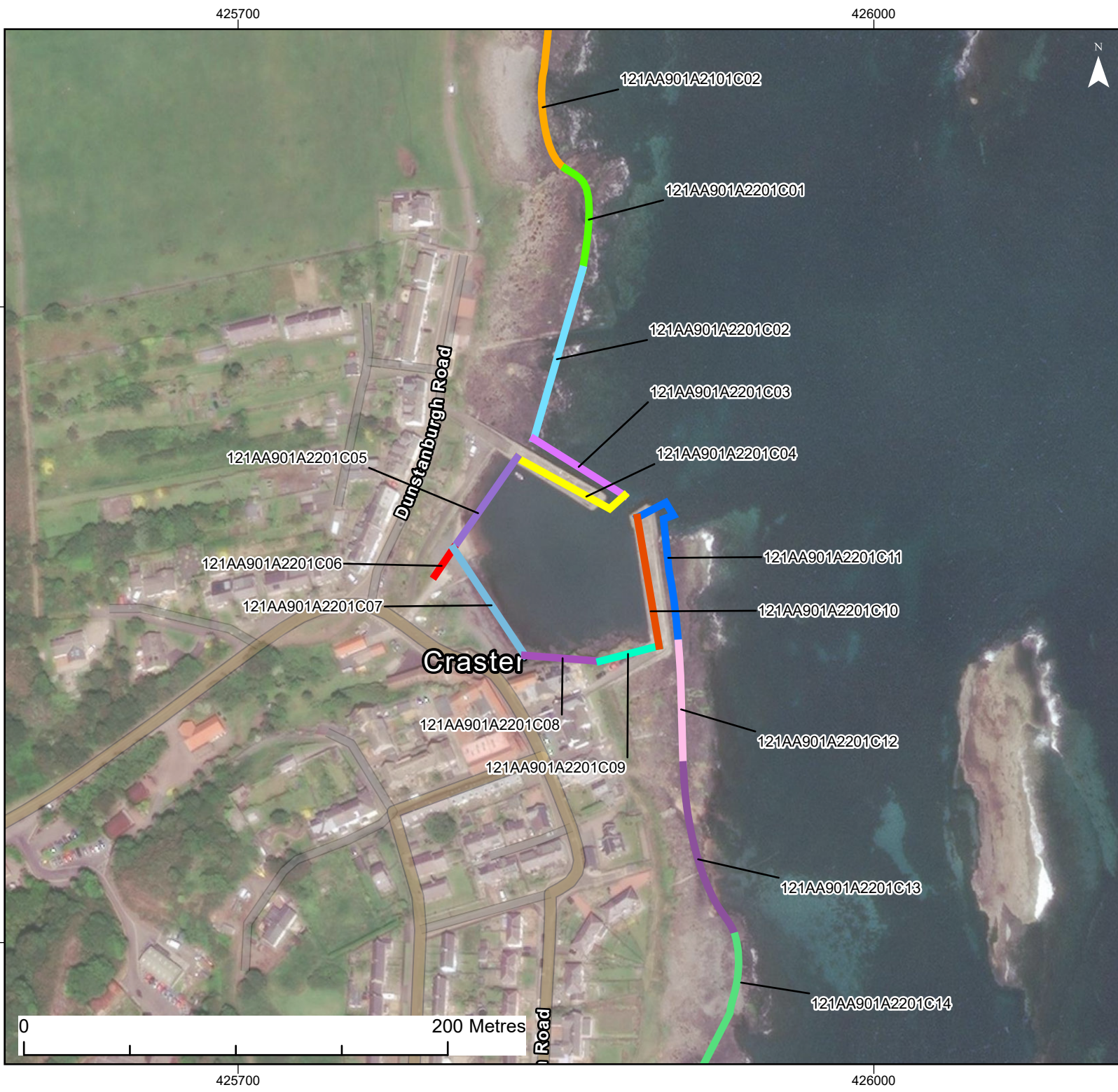
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Asset Inspection Report

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid





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Title:

**Figure 1 - Map 12**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

Report:

Asset Inspection Report

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid





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Title:

**Figure 1 - Map 13**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

Report:

Asset Inspection Report

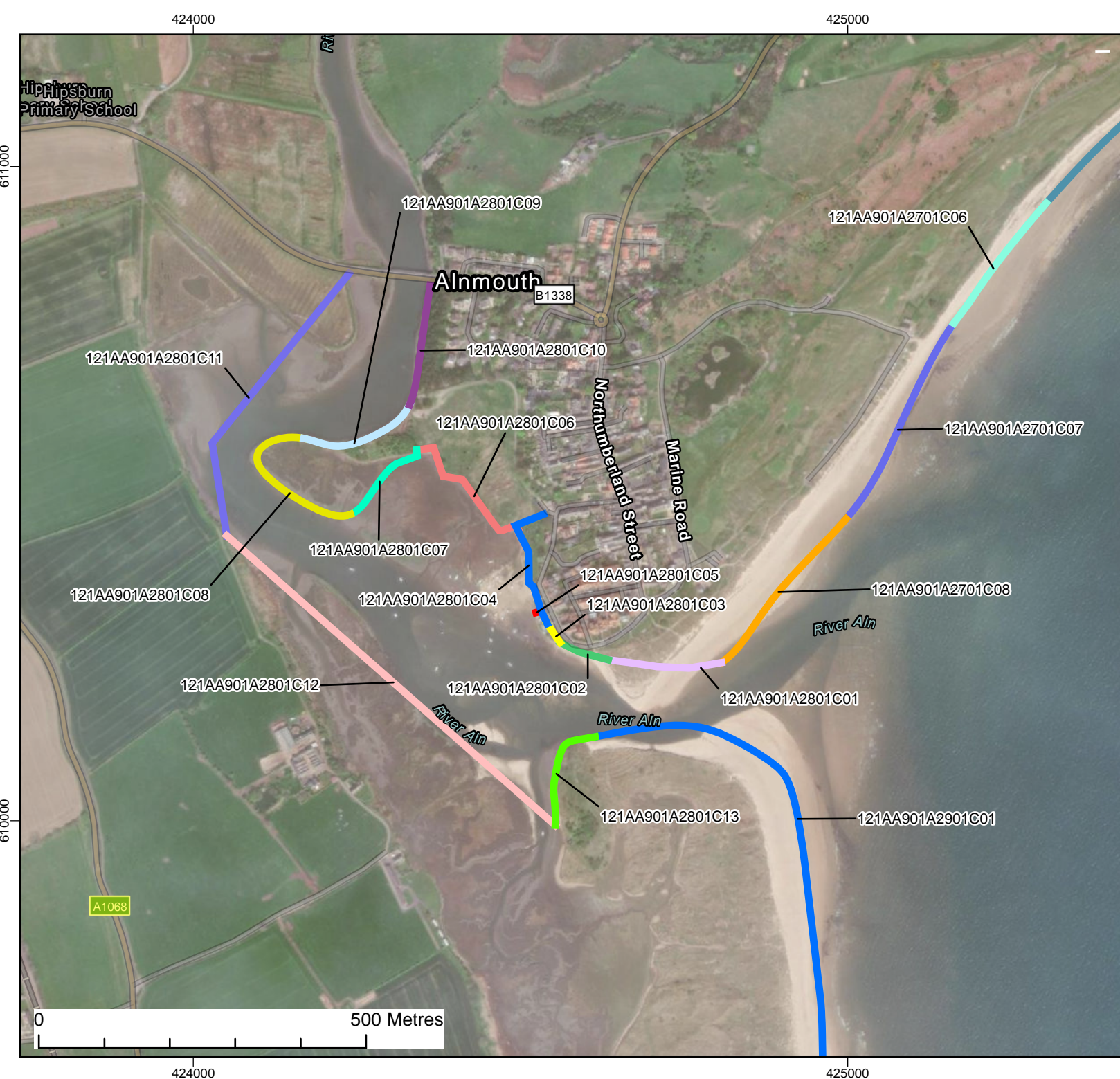
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Co-ordinate system: British National Grid

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Client:	Project:
North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 14**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

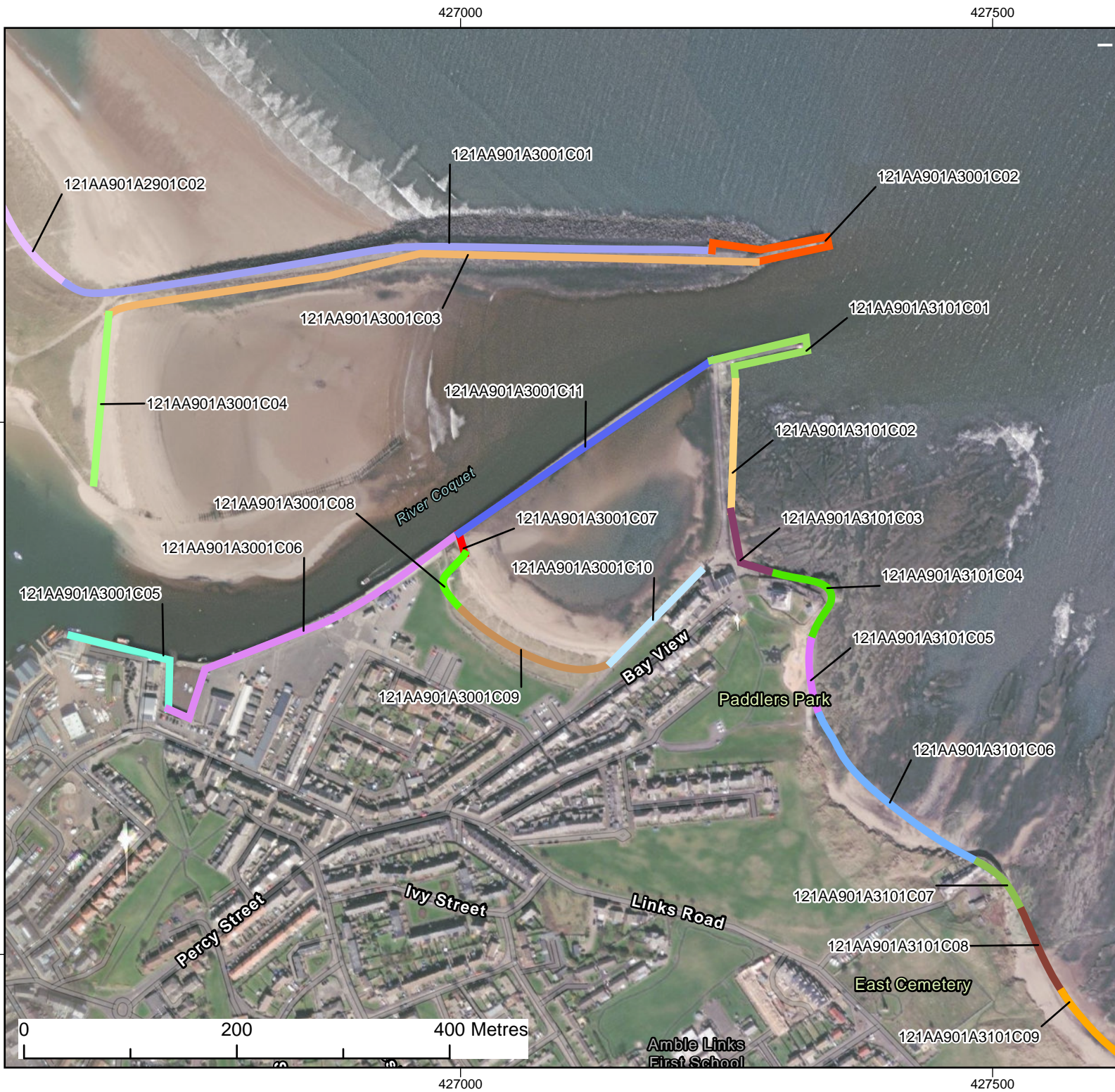
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Asset Inspection Report

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Co-ordinate system: British National Grid





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North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 15**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

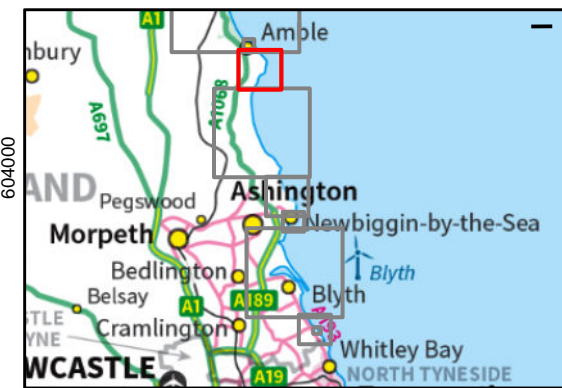
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Asset Inspection Report



Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid





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North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 16**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

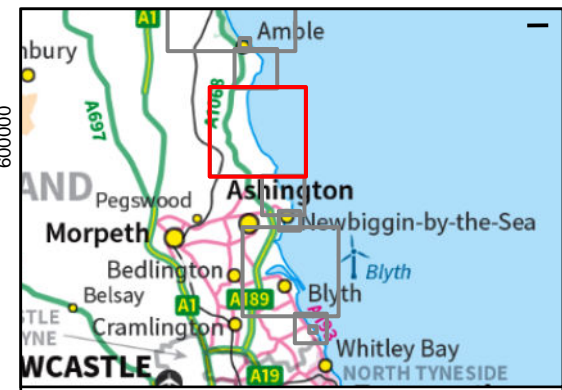
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Asset Inspection Report

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid





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Client:	Project:
North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 17**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

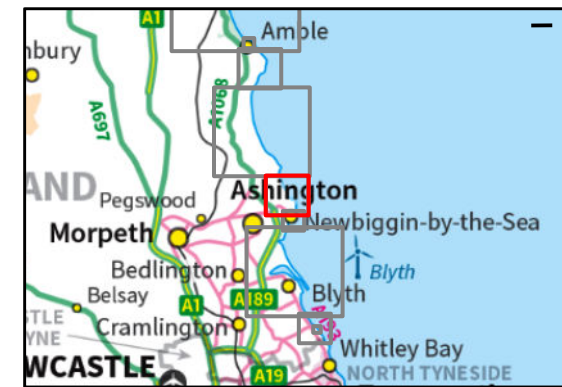
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Asset Inspection Report



Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid





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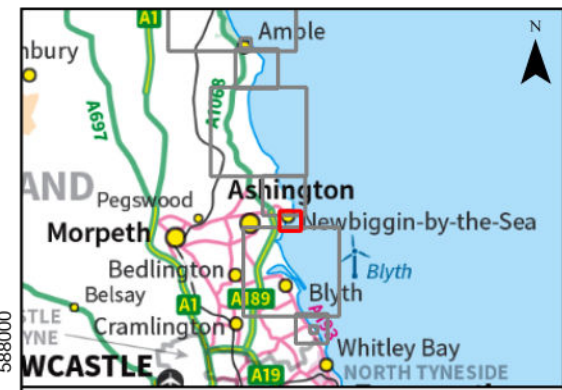
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**Figure 1 - Map 18**  
**COASTAL ASSET LOCATIONS**  
**Northumberland County Council Frontage**

Report:  
 Asset Inspection Report

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid





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Title:

**Figure 1 - Map 19**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

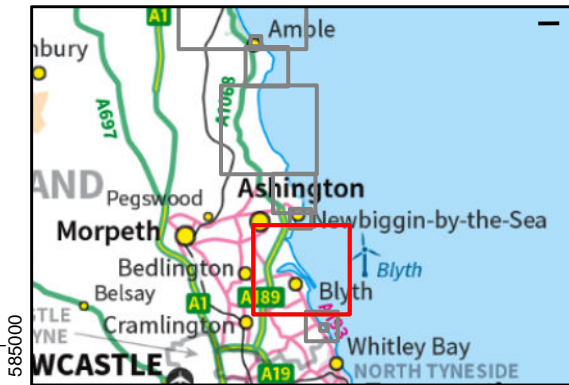
Report:

Asset Inspection Report

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid



**Legend**

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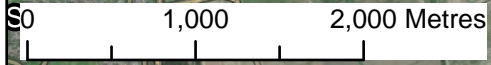
Client:	Project:
North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title: **Figure 1 - Map 20**  
**COASTAL ASSET LOCATIONS**  
**Northumberland County Council Frontage**

Report: **Asset Inspection Report**

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid



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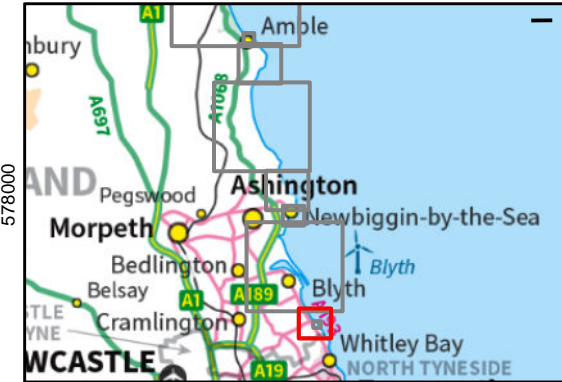
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**Legend**

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North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 21**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

Report:

Asset Inspection Report

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
0	n/a	TC	NJC	A4	1:15,000

Co-ordinate system: British National Grid

**Royal HaskoningDHV**  
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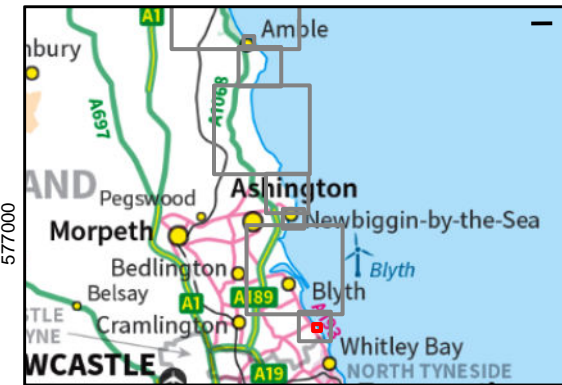
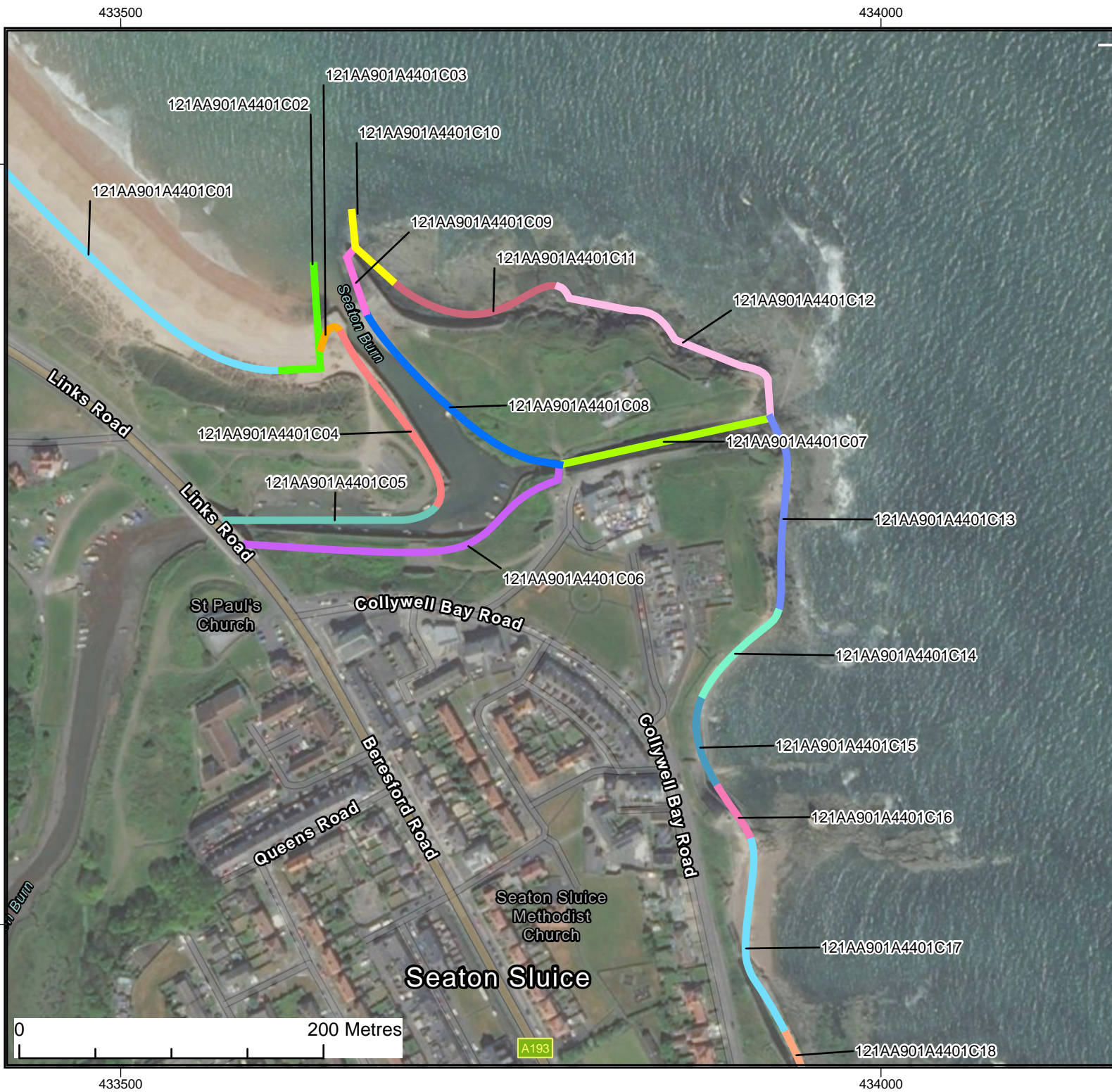
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**Legend**

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Client:	Project:
North East Coastal Group	Cell 1 Regional Coastal Monitoring Programme

Title:

**Figure 1 - Map 22**

**COASTAL ASSET LOCATIONS**

**Northumberland County Council Frontage**

Report:

Asset Inspection Report

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
0	n/a	TC	NJC	A4	1:3,500

Co-ordinate system: British National Grid



# **Appendix B**

## **Asset Condition & Recommendations**

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0601C01	Steep cliff.	Cliff - Scottish Border to Marshall Meadows Point	531.4	26/05/2022	Royal HaskoningDHV	No change evident from last survey. Relatively stable. Footpath, post and wire fencing in very good condition.	2	>20	None.	no repairs
121AA901A0601C02	Steep cliff within bay.	Cliff - Marshall Meadows Bay	425.2	26/05/2022	Royal HaskoningDHV	No change evident since last survey, Local slumps in softer upper cliff have cut cliff top back close to footpath in small number of areas. Post and wire fencing along footpath in good condition.	3	>20	None.	no repairs
121AA901A0601C03	Slumped cliff with rocky foreshore.	Cliff - Marshall Meadows Bay	167.7	26/05/2022	Royal HaskoningDHV	No change evident since last survey. Visible signs of rock fracturing in hard cliff in front of brick building. Future rock falls anticipated. A number of static caravans very close to cliff edge.	3	>20	Monitor cliff falls and alert caravan park as required.	no repairs
121AA901A0601C04	Steep exposed cliff to rocky foreshore.	Cliff - St Johns Haven	1374.4	26/05/2022	Royal HaskoningDHV	No change evident since last survey. Stable cliffs protected by wide shore platform.	2	>20	None.	no repairs
121AA901A0601C05	Steep hard cliff with rocky foreshore.	Cliff - Needles Eye	925.1	26/05/2022	Royal HaskoningDHV	Narrow rock platform. Cliffs with caves and arches at base.	3	>20	None.	no repairs
121AA901A0601C06	Slumped cliff with narrow beach and rocky foreshore.	Cliff - East Hope Bay	278.5	26/05/2022	Royal HaskoningDHV	No significant change since last survey.	3	>20	None	no repairs
121AA901A0701C01	Steep hard cliff with rocky foreshore.	Cliff - Brotherston's Bay	708.2	22/05/2022	Royal HaskoningDHV	Minor slumping at Brotherston's Hole, but this does not seem to have worsened since previous survey. Hard rock has caves, fissures and overhangs present. An outfall present at south end. Erosion has caused loss of footpath in places.	3	>20	Some realignment of footpath in respond to future erosion inland may be required	routine
121AA901A0701C02	Steep cliff above hard base with narrow beach above a rocky foreshore.	Cliff - Dodd's Well to Sharper's Head	689.4	22/05/2022	Royal HaskoningDHV	Dodd's Well discharges down cliff face towards northern end of frontage. Cliff overhang reported in 2018 remains evident. Concrete pavillion structure in poor condition. Static caravans within 20m of cliff edge, but no imeadiate threat at present.	4	>20	Monitor erosion (especially overhangs) and inform holiday park as required.	routine
121AA901A0701C03	Steep hard cliff fronting Caravan Park with a rocky foreshore.	Cliff - Green's Haven	176	22/05/2022	Royal HaskoningDHV	No significant change apparent since last survey. Very local rockfall at Sharper's Head. Vertical fissures and caves in hard rock. Occasional local slumps in overlaying softer material. Static caravans within 20m of cliff edge.	3	>20	Monitor cliff erosion and notify holiday park as required.	routine
121AA901A0701C04	Concrete breakwater with stepped inner face, founded to rock.	Breakwater - Green's Haven	103.4	22/05/2022	Royal HaskoningDHV	Signifcant change in beach levels since last inspection, with risk of undermining to southern face. Continued deterioration of structure.	4	1 - 5	on-going management required for public safety but, in line with policy, no major intervention.	urgent
121AA901A0701C05	Steep hard cliff with steps giving access to beach.	Steps	93.6	22/05/2022	Royal HaskoningDHV	No significant change since previous survey. Upper concrete steps, lower timber steps and hand railing in fair condition. Masonry retaining walls in good/fair condition, some repairs evident. Deep cave (1m x 2m x 5m deep) formed at base of cliff. Sand accumulation in lee of breakwater, with embryo dune growth.	3	11 - 20	Erosion protection to prevent enlarging of cave and potential collapse.	routine
121AA901A0701C06	Shale and mudstone cliff with sandy beach foreshore. Upper slope is vegetated.	Cliff - Green's Haven	72.8	22/05/2022	Royal HaskoningDHV	Rockfall leading to collapse of softer material. Rock debris remains on foreshore.	4	>20	Monitor erosion and advise holiday park as required.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0701C07	Wall and apron	Apron - Fisherman's Haven	61.9	22/05/2022	Royal HaskoningDHV	Masonry and concrete retaining walls in poor condition. Decrease in beach levels, concrete apron mostly exposed and now actively breaking up. Strandline at toe of steps.	4	11 - 20	Clear up concrete debris.	urgent
121AA901A0701C08	Steep cliff	Cliff - Fisherman's Haven	47.4	22/05/2022	Royal HaskoningDHV	Slumps in cliff have affected fenceline and land use of backing caravan park.	4	>20	Monitor erosion.	routine
121AA901A0701C09	Concrete wall fronting steep cliff.	Sea Wall - Fisherman's Haven	100.3	22/05/2022	Royal HaskoningDHV	No change since previous survey. Concrete wall in poor condition, abrasion and spalling of toe.	4	>20	Monitor beach levels and wall.	routine
121AA901A0701C10	Wall and apron	Wall/Apon/Bank - Fisherman's Haven	20.1	22/05/2022	Royal HaskoningDHV	Abrasion and spalling of concrete apron. Ongoing erosion and slumping of soft upper vegetated cliff. Cut back to within a few metres of fence and access road at crest.	4	>20	Monitor erosion and stability of access road.	routine
121AA901A0701C11	Steep cliff with step access to beach.	Steps - Fisherman's Haven	105.4	22/05/2022	Royal HaskoningDHV	No change since previous survey. Concrete steps and hand railing in fair condition, some abrasion and undermining at ramp now partially filled with rock and rubble. Ad-hoc rock armour, narrow beach.	3	11 - 20	Monitor undermining at access ramp.	routine
121AA901A0701C12	Steep hard cliff with narrow sandy beach and rocky foreshore.	Cliff - Colly Skerr	804.4	22/05/2022	Royal HaskoningDHV	Cliffs actively slumping. Fenceline and footpath moved away from cliff edge in response. Public warning notice of cliff erosion and footpath re-location.	4	>20	Move fence and path inland in response to erosion.	routine
121AA901A0701C13	Well vegetated dune with sandy beach in front. Concrete and masonry wall behind.	Dunes - Meadow Haven	257.6	22/05/2022	Royal HaskoningDHV	Wide, healthy and well vegetated dunes. New vegetation growth at dune edge. Wide sandy foreshore.	2	>20	None.	no repairs
121AA901A0701C14	Concrete and masonry breakwater with stepped crest - North face.	Breakwater - Meadow Haven	718.2	22/05/2022	Royal HaskoningDHV	No significant change since last survey. Refurbishment works undertaken to deck and south face in 2012/13. Seaward face of breakwater generally in good condition. No inspection of below water elements.	2	>20	Inspection of below water elements at some future interval.	no repairs
121AA901A0701C15	Concrete and masonry breakwater with stepped crest - South face.	Breakwater - Berwick	733.6	22/05/2022	Royal HaskoningDHV	Refurbishment works undertaken in 2012/13. New concrete deck and repointing of joints along outer section and new blockwork face at mid-length. All holding well. However, there is some indication of possible voids beneath the inland end of the walkway where there is visible cracking.	2	>20	Inspection of below water elements at some future interval. Need to monitor and potentially investigate voiding in inland end walkway.	routine
121AA901A0801C08	Grass embankment fronted by rocky foreshore with shingle beach.	Bund - Berwick City Walls	70.3	22/05/2022	Royal HaskoningDHV	No change since previous survey. Narrow but stable steep shingle beach, well vegetated at crest.	2	>20	None.	no repairs
121AA901A0801C07	Concrete wall.	Sea Wall - Berwick City Walls	484.8	22/05/2022	Royal HaskoningDHV	Concrete faced masonry wall in fair condition, some cracks/ spalling along cope. Localised undermining and loss of concrete facing/ crest apron at west tie-in (unrepaired since 2004). Slipway over outfall pipe continues to deteriorate with loss of cobbles.	3	11 - 20	Localised repairs to concrete cope and masonry slipway and western tie-in.	routine
121AA901A0801C06	High masonry wall around the Fisher's Fort.	Sea Wall - Berwick City Walls	247.8	22/05/2022	Royal HaskoningDHV	Heavy abrasion of masonry toe but no undermining apparent. Previous repairs to stonework and mortar jointing in good condition. Localised evidence of historic cracking. Vertical crack at roundhead tower. Need for more detailed monitoring of crack development.	2	>20	None.	detailed monitoring

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0801C05	Masonry wall with concrete cope fronted by sandy beach.	Sea Wall - Berwick City Walls	37.8	22/05/2022	Royal HaskoningDHV	No apparent change since last survey. Some signs of abrasion to masonry wall but wall and concrete capping slab generally in good condition. Wall protected by steep, narrow sand/ single beach with ad-hoc rock/ concrete on foreshore.	3	>20	None.	no repairs
121AA901A0801C04	Short section of rock revetment.	Revetment - Berwick City Walls	54.5	22/05/2022	Royal HaskoningDHV	Rock revetment in good condition, armour stones stable with no signs of erosion or movement at the toe. Structure extended east to slipway c2010. Timber slipway is obsolete.	2	>20	None.	no repairs
121AA901A0801C03	Steel sheet piles with concrete cope including short sections of masonry sea wall and a small dock area.	Other - Berwick City Wall	388.7	22/05/2022	Royal HaskoningDHV	Sheet piles in good condition, some minor corrosion. Minor cracks and spalling along cope and surfacing. Ladders and timber fenders in good condition. Masonry wall in basin is in fair condition, some cracks and movement evident, corrosion to hand railings.	2	>20	Monitor movement in masonry wall. Repair cracks. Replace corroded hand rails.	routine
121AA901A0901C04	Gabions with sloping grassy bank behind. Concrete and masonry revetment slope upstream of the gabions.	Bank and Revetment - Davies Batt	519.9	22/05/2022	Royal HaskoningDHV	Continued deterioration of many gabions along toe. Increased corrosion of lower baskets and loss of stone causing settlement/ slumping of crest. Newer circular mesh starting to be damaged.	4	1 - 5	The defence is unlikely to fail catastrophically. Re-assess benefits of maintaining defence, with potential for biodiversity benefits.	urgent
121AA901A0901C05	Concrete and masonry quay wall.	Sea Wall - South Bank	58.5	22/05/2022	Royal HaskoningDHV	No apparent change since last survey. Concrete facing to part of masonry wall in fair condition. Localised loss of mortar resulting in large gaps between masonry blocks near flap valve.	3	1 - 5	Replace mortar between masonry blocks.	routine
121AA901A0901C06	Masonry Pier protecting the small dock where the RNLI Lifeboats launch ramp is located and tipped rock revetment protecting the root of the pier.	Pier - Spittal Quay	158.6	22/05/2022	Royal HaskoningDHV	No significant deterioration, similar to last survey. Resurfacing undertaken. Localised cracks to concrete capping and exposed reinforcement. Deck and ladders in fair condition. Movement in rock armour at slipway. Spalling of repairs to RNLI concrete structure. Piles to timber pile to timber retaining wall to back of RNLI Station at risk	3	1 - 5	Investigate and repair timber retaining wall	urgent
121AA901A0901C07	Vertical timber retaining wall with large masonry toe.	Wall - South Bank	191.4	22/05/2022	Royal HaskoningDHV	No substantive change in defence. Timber retaining wall in fair condition, some loss of fill at repaired section. Ongoing deterioration of timber jetty and loss of deck boards. Beach levels lower at eastern end.	4	15	Secure access, replace missing boards. Detailed inspection beneath structure.	routine
121AA901A0901C08	Well vegetated dune with narrow beach to front.	Dunes - Spittal	305.2	22/05/2022	Royal HaskoningDHV	Wide, well vegetated dunes. Some minor erosion since last inspection. Narrower beach at western end. Growth of spit across mouth of estuary.	1	>20	Control pedestrian erosion. Review behaviour based on geomorphological review.	routine
121AA901A0901C09	Concrete wall and rock apron.	Sea Wall - Spittal Point	28.7	22/05/2022	Royal HaskoningDHV	The concrete wall in fair condition, gaps in construction joints at east end. Wall covered by dune.	2	>20	Review behaviour based on geomorphological review.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0901C10	Concrete revetment with rock armour.	Revetment - Spittal Point	40.2	22/05/2022	Royal HaskoningDHV	No change to rock armour fronting carpark, remains in good condition. Beach levels improved and dune growth.	2	>20	Review behaviour based on geomorphological review.	no repairs
121AA901A1001C01	Gabions fronted by rock armour.	Wall and rock armour - Spittal Point	217.6	22/05/2022	Royal HaskoningDHV	Rock revetment in good condition. Beach levels up to 2m higher than 2016 (only lower part of groyne visible). Groynes largely ineffective. No further damage to crest gabions.	3	20	Review behaviour based on geomorphological review. Potential to remove groynes.	routine
121AA901A1001C02	Concrete wave wall with handrails. Stepped access to the promenade.	Sea wall - Spittal Promenade	493.4	22/05/2022	Royal HaskoningDHV	Concrete seawall, hand railings, flap valves, joint sealant and blockwork promenade in good condition. Sustained beach levels, slightly lower than previous inspection in 2020. No embryo dunes.	1	>20	Requires consideration in review of geomorphology.	no repairs
121AA901A1001C03	Concrete wave wall with handrails. Stepped access to the promenade.	Sea Wall - Spittal Promenade	328	22/05/2022	Royal HaskoningDHV	Higher concrete seawall, hand railing and block work promenade in good condition. Localised area of joint sealant missing. Beach levels similar to 2018.	1	>20	Replace joint sealant.	routine
121AA901A1001C04	Rock revetment to end of seawall (Defence Code 10b/09/3).	Revetment - Spittal Promenade	60.1	22/05/2022	Royal HaskoningDHV	No significant change since last survey. Rock armour in good condition, some localised flattening/ displacement of toe rocks fronting seawall. Beach crest similar to 2018.	2	>20	None	no repairs
121AA901A1001C05	Vegetated cliffs fronted by rock foreshore/platform.	Cliff - Spittal Promenade	158.2	22/05/2022	Royal HaskoningDHV	No significant change since last survey. No worsening of coastal slippage. Slightly higher beach levels since 2018.	2	>20	None	no repairs
121AA901A1101C01	Vegetated cliff with rock platform foreshore, with railway behind.	Cliff - East of Scremerston	1665.9	22/05/2022	Royal HaskoningDHV	No substantive change since 2018.	3	>20	None	no repairs
121AA901A1101C02	Brick structure forming promontory in vegetated cliffs.	Other - Scremerston	19.9	23/05/2022	Royal HaskoningDHV	Slow deterioration of relic lime kiln and undermining and collapse of rock foundation. No significant change since 2016.	4	10	Monitor and consider repair or removal if considered unsafe.	no repairs
121AA901A1101C03	Vegetated cliff with rock platform.	Cliff - Scremerston	204.8	23/05/2022	Royal HaskoningDHV	Some localised rock falls apparent, large rocks on foreshore. Undercutting and slips of vegetation. No significant change.	3	>20	None	no repairs
121AA901A1101C04	Vegetated cliffs fronted by brick structure and outfall.	Other - Scremerston	134.9	23/05/2022	Royal HaskoningDHV	Further damage to the relic masonry lime kiln. No change to the concrete outfall structure fronting Sea House. Local undermining of concrete structure. No change in beach or coastal slope.	2	20	Investigate water seepage for general voiding. Confirm ownership/responsibility.	no repairs
121AA901A1101C05	Vegetated cliffs fronted by rock platform and narrow shingle beach.	Cliff - Scremerston	524.3	23/05/2022	Royal HaskoningDHV	Slow continued erosion. No significant erosion to critical area of road.	2	>20	None	no repairs
121AA901A1201C01	Vegetated dunes fronted by rock outcrops and sandy beach.	Dunes - The Skerris	1525.8	23/05/2022	Royal HaskoningDHV	Upper beach levels similar to 2018 in front of dune face, with erosion since 2020. No significant erosion of the dunes over the wider area.	2	>20	Monitor erosion of dunes/ soft cliffs and safety of relic fort structure at southern end. Develop longer term adaptation plan	no repairs

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121AA901A1201C02	Wide beach with rock outcrops with vegetated dunes behind.	Dunes - Cheswick Black Rocks	979.1	23/05/2022	Royal HaskoningDHV	No significant erosion of dunes, with higher upper beach levels compared to 2018.	2	>20	None	no repairs
121AA901A1201C03	Vegetated dunes fronted by sandy beach.	Cliff/Dune - Cheswick	1192.5	23/05/2022	Royal HaskoningDHV	Well vegetated wide dune system with generally bear face to forward dune but not obvious erosion. Growth of dune ridge to southern end.	2	>20	None	no repairs
121AA901A1301C01	Vegetated dunes fronted by a wide sandy beach.	Dune - Cheswick Sands	2387.5	23/05/2022	Royal HaskoningDHV	Wide flat foreshore with well vegetation wide dune system behind. Continued embryo dune growth since 2018. Minor changes at the North Low channel but generally accretion. Growth of low dune ridge south from the dune island.	2	>20	None	no repairs
121AA901A1401C31	Well established dune with saltmarsh to southern end.	Dune - Goswick Sands	1895.9	23/05/2022	Royal HaskoningDHV	Further development of low embryo dune over open coast section over most of the frontage, with local areas where there is little growth where there was previous erosion. Apparent progressive change in vegetation over area around South Low entrance indicating accretion. Low spot to embankment just north of South Low Sluice.	2	>20	Repair local low section of embankment	Urgent
121AA901A1401C01	Sluice with local stone protection to sides.	Sluice - Goswick Sands	21.1	23/05/2022	Royal HaskoningDHV	Sluice in good condition. Minor damage to stone pitching, with damage to right hand stone pitching. No substantial deterioration since 2020.	2	>20	Minor repairs to local stone pitching protection.	routine
121AA901A1401C02	Low natural coastal slope fronted by a sandy beach located just north of the Lindisfarne Causeway.	Slope - Goswick Sands	1123.2	23/05/2022	Royal HaskoningDHV	Wide well vegetated foreshore with vegetated embankment behind. Indication that saltmarsh is developing further forward.	2	>20	Review tidal access at Beal Point.	no repairs
121AA901A4901C01	Low vegetated dunes fronted by saltmarsh and boulder foreshore.	Dune - Holy Island	586.7	11/10/2022	Royal HaskoningDHV	Wide silty foreshore with road and low well vegetated dunes behind.	2	>20	None.	no repairs
121AA901A4901C02	Low vegetated cliff with saltmarsh and boulder foreshore.	Dune - Holy Island	204.2	11/10/2022	Royal HaskoningDHV	Narrow cobble beach in front of low earth cliff. Historic erosion and cliffing along most of length but not recent. Some vegetation growth on foreshore. Fence close to edge.	3	6 - 10	Monitor erosion.	no repairs
121AA901A4901C03	Sandstone cliff with rocky foreshore.	Cliff - Holy Island	341.5	11/10/2022	Royal HaskoningDHV	Cliffs relatively stable (vegetated) in parts, locally actively eroded again at southern end. Previous defects to low wall not visible.	3	11 - 20	None.	no repairs
121AA901A4901C04	Rocky foreshore going down to a shingle beach.	Foreshore - Holy Island	165.5	11/10/2022	Royal HaskoningDHV	Steep shingle foreshore fronting steep vegetated bank.	2	>20	None.	routine
121AA901A4901C05	Steep hard cliff fronted by a rocky foreshore	Cliff - Holy Island	227.4	11/10/2022	Royal HaskoningDHV	No change. Generally good along hard rock cliff, no further rock falls but rock highly fissured. Short section of soft cliff subject to occasional slumping.	2	>20	None.	no repairs
121AA901A4901C06	Masonry and concrete wall protecting concrete access ramp fronted by a rocky foreshore.	Wall - Holy Island	51.6	11/10/2022	Royal HaskoningDHV	Previous defects to toe of wall repaired.	2	6 - 10	None.	routine
121AA901A4901C07	Steep hard cliff fronted by a rocky foreshore.	Cliff - Holy Island	160.7	11/10/2022	Royal HaskoningDHV	Hard rock outcrop protecting harbour stable. No evidence of rock falls.	2	>20	n/a	no repairs

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121AA901A4901C08	Concrete quay with access steps. Concrete slipway.	Wall - Holy Island	69.4	11/10/2022	Royal HaskoningDHV	South side of harbour jetty in good condition. No undermining evident, some abrasion of concrete steps, boat ramp and deck in good condition. Recent repairs.	2	>20	None.	routine
121AA901A4901C09	Pier trunk leading out to quay.	Breakwater - Holy Island Pier	74.8	11/10/2022	Royal HaskoningDHV	Condition of harbour jetty improved to good following repairs made in 2016.	2	>20	None.	routine
121AA901A4901C10	Sandy beach with some shingle	Foreshore - The Harbour	302.6	11/10/2022	Royal HaskoningDHV	Beach appears stable. Low dunes behind cobble beach are healthy and well vegetated.	2	>20	None.	routine
121AA901A4901C11	Rubble or cobble bank with a rocky foreshore.	Bank - Holy Island	429.7	11/10/2022	Royal HaskoningDHV	Strand-line high on beach. Occasional localised undercutting and erosion of earth bank back to castle access track. Stone blocks and rubble scattered on foreshore. Shoreline becomes more stable towards east end.	3	11 - 20	Erosion protection at north end.	routine
121AA901A4901C12	Masonry wall fronted by a rocky foreshore.	Wall - Holy Island	161.7	11/10/2022	Royal HaskoningDHV	Ongoing erosion of earth bank in front of south end of dry stone wall causing undercutting of foundation. Some missing stones along crest and breakup of concrete coping.	3	11 - 20	Infill void under wall, replace missing stones, repair concrete coping.	routine
121AA901A4901C13	Steep hard cliff fronting Lindisfarne Castle with a rocky foreshore. Soft cliffs overlying rock at eastern end.	Cliff - Holy Island	308.6	11/10/2022	Royal HaskoningDHV	Hard rock sections generally stable. Some erosion in soft cliffs. Stones spilled out of rock-filled netting in upper cliff. Continued erosion of soft upper cliff at east end.	3	6 - 10	Maintain netting, extend netting at east end.	routine
121AA901A4901C14	Cobble and pebble bund fronted by a rocky foreshore.	Bund - Holy Island	532.6	11/10/2022	Royal HaskoningDHV	Shingle beaches healthy. Partial erosion, undercutting and collapse of low earth bank along local section on east side.	3	11 - 20	Repair collapsed wall. Realign fencing.	routine
121AA901A5001C01	Soft vegetated cliff fronted by a rocky foreshore.	Cliff - Holy Island	321.7	11/10/2022	Royal HaskoningDHV	Low earth cliffs shows ongoing erosion, cliffing and collapse along most of its length. Higher cliff has slumping along its length but this presents no immediate issues. At north end erosion exposing large quantity of pebbles in bank.	3	11 - 20	Continue to monitor.	no repairs
121AA901A5001C02	Cobble and pebble bund fronted by a rocky foreshore.	Bund - Holy Island	259.3	11/10/2022	Royal HaskoningDHV	Steep shingle foreshore and noticeable shingle ridge along crest. Shingle encroaching on low lying vegetated hinterland, possibly due to storm wave run-up.	2	>20	Continue to monitor.	no repairs
121AA901A5001C03	Low vegetated cliff with a rocky foreshore.	Cliff - Holy Island	365.1	11/10/2022	Royal HaskoningDHV	Steep shingle foreshore and well vegetated low lying hinterland behind. Localised erosion and cliffing of low earth bank at back of beach and some shingle encroaching on grass area.	2	>20	Continue to monitor.	no repairs
121AA901A5001C04	Steep shingle beach and well vegetated low earth bank behind.	Shingle Beach - Holy Island	284.5	11/10/2022	Royal HaskoningDHV	Historic erosion along much of earth bank exposing pebbles in bank but some regrowth of vegetation evident.	2	>20	None.	no repairs
121AA901A5001C05	Steep vegetated cliff with a rocky foreshore.	Cliff - Holy Island	610.8	11/10/2022	Royal HaskoningDHV	Ongoing erosion of high earth cliff along most of the frontage. Narrow shingle foreshore. Post and wire stock fencing erected in worst-affected areas remains mostly intact but with one section blown over and in need of re-erection.	3	6 - 10	Monitor erosion, repair fencing.	no repairs
121AA901A5001C06	Vegetated dunes fronted by a narrow sandy beach and a rock outcrop.	Dunes - Holy Island	1047	11/10/2022	Royal HaskoningDHV	Healthy width beach backed by high well vegetated dunes. Ongoing erosion and cliffing along much of the dunes face but some vegetation regrowth evident. Dunes to north and south ends protected by headlands and stable.	3	11 - 20	None.	no repairs



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121AA901A5001C07	Steep rock cliff fronted by a rocky foreshore with vegetated dunes behind.	Cliff - Holy Island	268.9	11/10/2022	Royal HaskoningDHV	Healthy width beach backed by high well vegetated dunes. Ongoing erosion and cliffing along much of the dunes face but some vegetation regrowth evident. Dunes to north and south ends protected by headlands and stable.	2	>20	None.	no repairs
121AA901A5001C08	Vegetated dunes fronted by a sandy beach.	Dunes - Holy Island	419.2	11/10/2022	Royal HaskoningDHV	Wide sandy beach backed by high but narrow vegetated dunes.	2	11 - 20	None.	no repairs
121AA901A5001C09	Steep vegetated dunes fronted by a rocky foreshore and boulders at dune toe.	Dune - Holy Island	712.3	11/10/2022	Royal HaskoningDHV	Well vegetated high and wide dunes to rear of rock platform with rock platform and narrow cobble beach. No signs of erosion of dunes.	2	>20	None.	no repairs
121AA901A5001C10	Vegetated dunes fronted by sandy beach.	Dune - Holy Island	3264	11/10/2022	Royal HaskoningDHV	Wide flat sandy beach with high and wide well vegetated dunes behind. Embryo vegetation growth along most of foreshore. No erosion of dunes evident.	2	>20	None.	no repairs
121AA901A5001C11	Sand flats with saltmarsh adjacent to causeway road.	Dune - Holy Island	3628.6	11/10/2022	Royal HaskoningDHV	Sand flats and saltmarsh protecting causeway road appear stable. Sporadic vegetation growth across wide area foreshore on north side of causeway. Previously noted damage to road surface near western end not observed.	2	>20	None.	no repairs
121AA901A1401C23	Natural coastal slope fronted by wide sand/mudflats, sheltered by Lindisfarne Causeway and Holy Island.	Slope/Bank - Fenham Flats	4504.9	10/08/2022	Royal HaskoningDHV	At the request of Natural England, the 2022 walkover inspection around Lindisfarne National Nature Reserve (from Holy Island causeway to Ross Point) has been adapted since previous surveys to avoid walking on/through the salt marsh ultimately resulting in some blind spots in the inspection.  Wide well established salt marsh backed by vegetated coastal slopes. Patchy shingle foreshore at south end. Sub-assets reported previously but not inspected in 2022 include; Timber retaining wall by Fenham Mill covered by dense vegetation and appears in poor condition. Ad-hoc stone retaining wall in poor condition. Slipway in poor condition, masonry wall directly south of slipway in good condition. 500m north of Fenham-le-Moor birdhide there is an actively retreating mud slope approximately 4m in height.	2	>20	Monitor timber retaining wall and stone retaining wall around Fenham Mill Cottage. Monitor erosion north of Fenham-le-Moor.	no repairs
121AA901A1401C24	Natural coastal slope fronted by wide sand/mudflats, sheltered by the Causeway and Holy Island. Located at the back of the bay, with slightly higher hinterland.	Slope/Bank - White Hall	2181.9	10/08/2022	Royal HaskoningDHV	At the request of Natural England, the 2022 walkover inspection around Lindisfarne National Nature Reserve (from Holy Island causeway to Ross Point) has been adapted since previous surveys to avoid walking on/through the salt marsh ultimately resulting in some blind spots in the inspection.  Wide well established salt marsh backed by vegetated coastal slopes. Timber bridge over the Fenham Burn is in fair condition, however it was reported previously that one tread has been displaced and requires attention.	2	>20	Repair damage to timber bridge.	routine

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121AA901A1401C98	Embankment with stone and asphalt reveted toe fronting lower-lying area of Ross.	Embankment - Cockly Knowes	1270.4	10/08/2022	Royal HaskoningDHV	<p>At the request of Natural England, the 2022 walkover inspection around Lindisfarne National Nature Reserve (from Holy Island causeway to Ross Point) has been adapted since previous surveys to avoid walking on/through the salt marsh ultimately resulting in some blind spots in the inspection.</p> <p>Wide and well vegetated salt marsh and backed by heavily overgrown pitched stone flood embankment. Some loss of binding resulting in gaps between stones. 500m east of Elwick birdhide is a retaining structure on the landward face of the embankment, timber supports have rotted away and minor rotational movmeent can be observed.</p>	3	>20	Remove vegetation, fill gaps between stones. Monitor rotational movement of short section of retaining structure.	routine
121AA901A1401C25	Natural coastal slope fronted by wide sand/mudflats, sheltered by the causeway and Holy Island. Located eastern end of the bay, with lowered land behind	Slope/Bank - Cockly Knowes	1076.4	10/08/2022	Royal HaskoningDHV	<p>At the request of Natural England, the 2022 walkover inspection around Lindisfarne National Nature Reserve (from Holy Island causeway to Ross Point) has been adapted since previous surveys to avoid walking on/through the salt marsh ultimately resulting in some blind spots in the inspection.</p> <p>Wide vegetation mudflats backed by well vegetated high dune ridge. One historic blowout at north end. Large burrows reported 2022.</p>	2	>20	None.	no repairs
121AA901A1401C99	Natural 'spit' of dunes, separated from Ross Point by wide opening.	Dunes - Guile Point	1542.9	10/08/2022	Royal HaskoningDHV	<p>No access north of wide open between late April and early August.</p> <p>Inland-facing side of dune spit shallower, well vegetated and stable. Seaward face showing some historic erosion and slumping along some of its length, particularly towards the northern end. The dune at the tip of the spit is steeper and shows signs of ongoing erosion. Some recent regrowth of vegetation along foreshore, particularly towards south of the asset. Unvegetated embryo dune developing along the seaward face of the asset.</p>	2	>20	Monitor erosion of seaward face and around northern tip.	routine
121AA901A1401C06	Low natural dune coastline, forming Ross headland. Sandy beach fronting the dunes.	Dunes - Ross Back Sands	3138.2	10/08/2022	Royal HaskoningDHV	<p>Wide flat foreshore backed by well vegetated low dune system. Embryo vegetation growth on foreshore continues. Wide Open used by nesting birds in June / July. Section of upper eback to the south of Ross Back Sands also fenced off in 2022 fo nesting shore birds. Embroyo dunes observed along much of the asset length in 2018, limited to the South of Ross Back Sands in 2020. develops into a sporadically vegetated intetidal plateau. Localised erosion of dune crest at informal access points.</p>	2	>20	Monitor erosion of dune crest at informal access points.	no repairs

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121AA901A1401C26	Low natural coastal slope forming northern part of the bay, fronted by wide sandy beach.	Slope - Budle Bay	245.6	10/08/2022	Royal HaskoningDHV	Wide flat foreshore backed by well vegetated sand spit. No significant change since last survey.	2	>20	None.	no repairs
121AA901A1401C27	Mortared rock revetment.	Revetment - Budle Bay	125.5	10/08/2022	Royal HaskoningDHV	Wide flat foreshore backed by grouted stone revetment and well vegetated embankment. Large crack in the north end of the defence with some rotational slipping evident. Washout of material through failure. Significant animal burrows along asset.	4	1 - 5	Repair damaged section of revetment.	routine
121AA901A1401C28	Low natural vegetated coastal slope fronted by mudflats.	Slope - Budle Bay	136.4	10/08/2022	Royal HaskoningDHV	Wide sandy foreshore backed by well vegetated embankment. Brea of embankment at north end. High beach levels at toe, occasional rip-rap stone visible but largely buried. Signifcant animal burrows along asset.	3	1 - 5	Maintenance	routine
121AA901A1401C29	Mortared rock revetment fronted by mudflats.	Revetment - Budle Bay	616.9	10/08/2022	Royal HaskoningDHV	Wide sandy foreshore backed by grouted stone revetment and vegetated embankment. Significant horizontal and vertical cracking at southern end, with localised slumping of embankment to rear. Ongoing lowering of foreshore and undermining of toe along most of the structure. Washout of material (by marine or animal) behind strucutre evident causing some significant horizontal cracking and localised broken sections along toe.	4	1 - 5	Repair damaged section of revetment at south end. Fill void along toe, repair cracks.	routine
121AA901A1401C30	Low natural vegetated coastal slope fronted by mudflats.	Slope - Budle Bay	72.2	10/08/2022	Royal HaskoningDHV	Wide well vegetated foreshore backed by heavily vegetated embankment.	3	>20	None.	no repairs
121AA901A1401C10		Ross South Dunes/Sea Defence	701.6	10/08/2022	Royal HaskoningDHV	Well vegetated earth bank in good condition. North end sheltered by vegetated spit. No signs of erosion of toe. Fronted by wide healthy salt marsh, narrowing in south.	2	>20	None.	no repairs
121AA901A1401C11		Ross South Dunes/Sea Defence	271.1	10/08/2022	Royal HaskoningDHV	Well vegetated earth slope fronted by wide healthy saltmarsh, narrowing in south with some localised erosion along toe.	3	>20	Monitor erosion at south western end.	no repairs
121AA901A1401C22	Rock revetment fronted by mudflats with a concrete toe visible for the final 50m (outfall end of area).	Revetment - Budle Bay	283.4	10/08/2022	Royal HaskoningDHV	Wide flat and well vegetated foreshore backed by grouted stone revetment. Extensive, mature vegetation growth through revetment, several areas where the face of the revetment has lifted from the general profile, with an associated cracking of grout blinding and occasional localised loss of stone material. Significant animals burrows above crest of revetment.	3	6 - 10	Remove vegetation from revetment. Repair damaged sections of revetment. Monitor crest level of embankment.	routine
121AA901A1401C13	Concrete sea wall with outfall.	Seawall - Budle Bay	121.6	10/08/2022	Royal HaskoningDHV	No change since previous survey. Healthy, stable foreshore with no signs of erosion at the toe of structure. Concrete retaining wall in fair condition with some full height vertical cracking but no lateral or rotational movement evident. Face of wall heavily abraded. Outfall structure in fair condition.	3	>20	Monitor cracks in wall.	no repairs

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121AA901A1401C14	Rock revetment fronted by mudflats.	Revetment - Budle Bay	32.8	10/08/2022	Royal HaskoningDHV	Wide flat and well vegetated foreshore backed by grouted stone revetment. Revetment heavily vegetated. Some erosion at west end and displacement of stones. Slumping of revetment stones from the crest evident resulting in a poor condition locally. Significant animals burrows above crest of revetment.	3	>20	Repair displaced stones along toe at east end.	routine
121AA901A1401C15	Concrete sea wall forming river bank.	Seawall - Budle Bay	110	10/08/2022	Royal HaskoningDHV	Narrow silty foreshore backed by low concrete seawall along toe of vegetated embankment. Timber toe erosion protection in very poor condition but no undermining evident. Poor quality finish of concrete. Full height vertical crack with some lateral movement apparent.	3	6 - 10	Monitor crack and lateral movement. Replace timber toe erosion protection.	no repairs
121AA901A1401C16	Rock revetment. Portions bound together with concrete mortar.	Revetment - Budle Bay	141.7	10/08/2022	Royal HaskoningDHV	Narrow silty channel bed backed by rip-rap along vegetated embankment. No undermining at toe, angular stone densely packed and in good condition. Some minor displacement of stones and vegetation along crest but no settlement observed.	3	>20	None.	routine
121AA901A1401C17	Steel sheet piles providing protection for sluice structure.	Sheet Piling - Budle Bay	17.2	10/08/2022	Royal HaskoningDHV	Sheet piles to east side of sluice remain in fair condition. Corrosion and marine growth apparent on the lower half, no lateral or horizontal movement. Previous survey reported piles having been repainted in 2008.	3	11 - 20	Detailed inspection undertaken and level of corrosion monitored.	routine
121AA901A1401C18	Sluice regulating flow in/out of river.	Sluice Gate - Budle Bay	6.7	10/08/2022	Royal HaskoningDHV	Sluice gates in good condition. Previous survey reported that the gates were cleaned and repainted in 2008. Gates, ladders and hand railing in good condition. Access gate overgrown.	3	11 - 20	Clear vegetation around structure.	routine
121AA901A1401C19	Steel sheet piles providing protection for sluice structure.	Sheet Piling - Budle Bay	59.5	10/08/2022	Royal HaskoningDHV	Sheet piles to west side of sluice remain in fair condition. Corrosion and marine growth apparent on the lower half, no lateral or horizontal movement. Previous survey reported piles having been repainted in 2008.	3	11 - 20	Detailed inspection undertaken and level of corrosion monitored.	routine
121AA901A1401C20	Rock revetment protecting the end of sheet piles.	Revetment - Budle Bay	181.9	10/08/2022	Royal HaskoningDHV	Rip rap stone revetment along well vegetated embankment. Some displaced stones along toe. Movement at toe causing some settlement and gaps along crest, initially noted in 2008 but has not worsened.	3	>20	Monitor settlement of structure.	no repairs
121AA901A1401C21	Low vegetated coastal slope.	Slope - Budle Bay	1445.5	10/08/2022	Royal HaskoningDHV	Wide flat mudflats backed by salt marsh and heavily vegetated embankment. Some Chord Grass and Common Glasswort growth noted on foreshore. Erosion along edge of marsh evident, worsening towards Warren Mill.	3	>20	Monitor salt marsh edge erosion.	routine
121AA901A1501C08	Coastal slope fronted by mudflats. Footpath and agricultural land behind.	Slope - Waren Mill	315.5	24/05/2022	Royal HaskoningDHV	Flat silty foreshore backed by saltmarsh and well vegetated embankment. Noticeable erosion of the upper saltmarsh. Loose tipped rock at corner where asset meets masonry wall.	3	>20	Monitor saltmarsh edge erosion.	routine
121AA901A1501C02	Mudflats backed by blockwork wall or revetment.	Wall - Waren Mill	137.5	24/05/2022	Royal HaskoningDHV	Wide flat silty foreshore backed by masonry retaining wall protecting private gardens. Wall repaired 2018/2020.	2	>20	Maintenance	routine

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121AA901A1501C03	Vegetated slope fronted by mudflats.	Slope - Waren Mill	222.8	24/05/2022	Royal HaskoningDHV	Wide silty foreshore with narrow saltmarsh and well vegetated earth embankment. Continuing evidence of erosion of upper saltmarsh.	2	>20	None	no repairs
121AA901A1501C04	Reveted coastal slope with road at crest, fronted by mudflats.	Revetment - Chesterhill Slakes	429.8	24/05/2022	Royal HaskoningDHV	Wide flat foreshore with some erosion to upper saltmarsh since 2016. the saltmarsh fronts an open stone revetment and masonry wall along road embankment. The revetment is heavily vegetated with some large gaps between stones. A viewing platform has been constructed out from the revetment. Minor under mining due to local creek formation.	2	20	Detailed inspection and repair to the stonework.	routine
121AA901A1501C05	Coastal slope and higher banks fronted by mudflats. Road behind.	Slope - Budle	326.7	24/05/2022	Royal HaskoningDHV	Flat narrow silty foreshore with salt marsh, narrowing at north end. Evidence of on-going marsh erosion and creek development. Heavily vegetated coastal slope with minor slip. Some mature trees close to foreshore edge.	2	>20	None	no repairs
121AA901A1501C06	Vegetated dunes fronted by a sandy bay.	Slope - Newtown Hill	1581.1	24/05/2022	Royal HaskoningDHV	Wide sandy beach backed by high well vegetated dunes. Continuing erosion of dune to south of old concrete pier, although not threatening properties. Beach levels to north of pier stable. Minor ongoing deterioration of relic concrete pier.	4	>20	Monitor dune face erosion. Control pedestrian erosion. Monitor safety of pier	routine
121AA901A1501C07	Vegetated cliff fronted by beaches of varying width and rock platforms.	Cliff - Bamburgh Moor	1448.7	24/05/2022	Royal HaskoningDHV	Rock ledges overlain by wide sandy beaches to high vegetated earth cliffs. Some minor erosion since 2020 inspection. Very minor worsening of crest slippage at golf club area (not obviously linked to toe erosion).	2	>20	None	no repairs
121AA901A1601C05	Wide sandy bay backed by extensive vegetated dunes with a rock outcrop at either end.	Dunes - Redbarns Links	2215.5	24/05/2022	Royal HaskoningDHV	Wide sandy foreshore backed by wide stable well vegetated dune system. Some historic erosion of toe and face along most of frontage. Vegetation regrowth on upper beach continues from 2018.	2	>20	None	no repairs
121AA901A1601C02	Wide sandy beach backed by extensive vegetated dunes, with a rock outcrop at each end of the frontage.	Dunes - Redbarns Links	868.5	24/05/2022	Royal HaskoningDHV	Wide sandy foreshore fronting wide well vegetated dune system. Previous erosion, cliffing and cutback along most of the dune toe. No substantive change since 2018.	2	>20	None	no repairs
121AA901A1601C03	Wide sandy beach with rocky outcrop backed by vegetated dunes.	Dunes - Greenhill Links	1191.9	24/05/2022	Royal HaskoningDHV	Rock outcrops protecting a wide sandy foreshore backed by wide well vegetated dune system. Loss of embryo dune since 2020. Slight erosion of cliff (dune face) just north of Monks House.	2	>20	Review long term approach to defence of property as highlighted in the SMP2.	routine
121AA901A1601C04	Wide sandy beach backed by vegetated dunes, with a rock outcrop at each end of the frontage.	Dunes - St Aidan Dunes	982.5	24/05/2022	Royal HaskoningDHV	Wide sandy foreshore fronting wide well vegetated dune system. Continued erosion since 2016, with potentially up to 2m erosion since 2018 at southern end and furtehr cliffing in 2022.	3	>20	Monitor erosion.	no repairs
121AA901A1701C54	Steep vegetated cliff with rocky/shingle foreshore with a 40m concrete wall.	Cliff/Wall - North Sunderland	515.8	24/05/2022	Royal HaskoningDHV	Some further erosion of natural cliff. No obvious deterioration in the wall and no further worsening of erosion to north end.	2	>20	Examine potential weakness in coping.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C02	Concrete blockwork wall with concrete apron.	Wall - Heela Hope	20.1	28/06/2022	Royal HaskoningDHV	High concrete blockwork retaining wall founded on rock foreshore. Structure well grounded, no undermining evident. Repair works undertaken since 2020 inspection including repaired copes and refaced blocks.	3	>20	None	routine
121AA901A1701C03	Old masonry wall with concrete apron.	Wall -Heela Hope	17.6	28/06/2022	Royal HaskoningDHV	Concrete toe well founded on rock foreshore. No undermining. Abrasion and gaps between masonry evident in main masonry wall however no obvious deterioration since 2008. Sloping cope repaired since previous inspection.	3	>20	Repoint gaps between masonry.	routine
121AA901A1701C04	Concrete blockwork wall with concrete apron.	Wall - Heela Hope	18.3	28/06/2022	Royal HaskoningDHV	High concrete blockwork retaining wall founded on rock foreshore. Structure well founded, no undermining evident. Repair works undertaken since 2020 inspection including repaired copes and refaced blocks.	2	>20	None	routine
121AA901A1701C05	Concrete recurved wall to boathouse, Car park and RNLI.	Wall - North Pier	37	28/06/2022	Royal HaskoningDHV	Concrete seawall founded on rock foreshore. Limited inspection limited due to difficult access to foreshore and behind crest due to RNLI property. Wall appears sound with no obvious movement cracking. Toe of wall is exposed in parts, marine vegetation growth prevented a detailed inspection of the wall toe.	3	>20	Access to RNLI property for more detailed inspection.	no repairs
121AA901A1701C06	Concrete wall with rocky foreshore, Car park, boatyard and RNLI behind.	Wall - North Pier	53.7	28/06/2022	Royal HaskoningDHV	Concrete seawall founded on rock foreshore. Significant horizontal crack/ spalling visible on both sides of wall at crest but does not appear to have worsened since 2008. Toe of wall appears well founded on rock foreshore. Remainder of wall in fair/ good condition.	4	11 - 20	Repair cracks.	routine
121AA901A1701C07	Concrete wall / breakwater forming outer harbour arm.	Wall/Revetment - North Breakwater	277.1	28/06/2022	Royal HaskoningDHV	Main harbour pier founded on rock foreshore. recent concrete encasement remains in a good condition. Crest wall in fair condition, repairs sound. No cracks in bitumen surfacing. Observed open joint at seaward end, joint being abraded and extends past roundhead repair.	2	>20	None	no repairs
121AA901A1701C08	Concrete head of the harbour arm. With concrete access steps with handrailing to the harbour.	Wall - North Breakwater	70.4	28/06/2022	Royal HaskoningDHV	Wall in good condition with only minor cracks, staining and spalling. Deck remains in good condition. Handrailing and ladders in fair condition. Detailed inspection as part of the pier repair works (in 2018) revealed pier head is in good condition. Under water repairs carried out to pier head stub addressing previous comments about undercutting and scour.	2	>20	None	No repairs.
121AA901A1701C09	Inner face of the concrete breakwater.	Wall - North Breakwater	145.9	28/06/2022	Royal HaskoningDHV	In 2018, the inner face of the north pier was repaired with a concrete encasement along its full length and remains in very good condition overall. New timber cope and access ladders installed as part of the works.	1	>20	None	no repairs

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121AA901A1701C10	Concrete inner pier.	Breakwater - North Sunderland	95.1	28/06/2022	Royal HaskoningDHV	Abrasion, loss of mortar between masonry, some larger gaps. Loss of mortar beneath timber cope along most of asset length. Small cracks in concrete wall. Rock armour in fair condition. Timber coping and concrete surfacing in good condition.	3	>20	Repoint joints and fill gaps between blocks.	routine
121AA901A1701C11	Concrete encased masonry wall	Wall - North Sunderland	78.3	28/06/2022	Royal HaskoningDHV	Concrete wall in good condition. Some minor vertical cracking and staining. Joint sealant, timber cope and ladders in good condition.	2	>20	None.	no repairs
121AA901A1701C12	Concrete encased masonry wall with concrete slipway to North.	Wall - North Sunderland	37.8	28/06/2022	Royal HaskoningDHV	Masonry walls in fair/good condition, minor loss of some mortar. Wall well founded on rock foreshore. Some undercutting at end of slipway. hand railing in good condition. Marine vegetation may obscure larger defects.	3	>20	Repair to mortar joints, monitor undercutting of slipway.	routine
121AA901A1701C13		Wall - North Sunderland	85.4	28/06/2022	Royal HaskoningDHV	Masonry wall in fair/good condition. Some weathering of blocks and loss of mortar to masonry sections. Concrete section of wall in good condition. Scour hole emerging at base of wall. Timber coping, ladders and surfacing in fair/good condition.	3	>20	Undertake detailed boat or dive survey. Monitor scour hole at base.	routine
121AA901A1701C14	Concrete pier	Wall - North Sunderland	62	28/06/2022	Royal HaskoningDHV	Concrete wall in good condition, some localised undercutting at toe, particularly at seaward end where a hole was visible. Masonry wall in fair/good condition, some weathering of blocks, loss of mortar on south face. Large vertical crack visible possible indicating lateral movement of a section of the south face, adjacent to moored boats. Timber coping, ladders and surfacing in fair/good condition. Outer face heavily pock-marked.	3	>20	Monitor undercutting. Undertake dive survey and detailed structural survey to monitor undercutting and movement in masonry wall.	routine
121AA901A1701C15	Old stone block wall with cabins, buildings and road above.	Wall - North Sunderland	88.2	28/06/2022	Royal HaskoningDHV	Some abrasion of masonry blocks and minor loss of mortar. Repairs to joints undertaken c2009, joints now in fair condition. Foreshore levels remain high at north end, no signs of undermining. Vegetation noted in 2020 removed, although voids remains.	2	>20	Repoint voids to prevent regrowth of vegetation.	routine
121AA901A1701C16	Masonry clad dwarf wall to steep grassy slope and steps has been replaced by concrete wall.	Wall - North Sunderland	41.5	28/06/2022	Royal HaskoningDHV	Concrete sea wall in good condition. No erosion evident in grass slope behind. Healthy beach levels along toe, some vegetation growth at east end. Scour reported in 2020 concealed by high beach levels.	2	>20	Repair scour of concrete steps if exposed.	routine

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121AA901A1701C17	Concrete wall fronting steep grassy bank with road and houses behind.	Wall - North Sunderland	43	28/06/2022	Royal HaskoningDHV	Vertical concrete seawall well founded on rock foreshore, no obvious cracking or signs of deterioration. Sealant to expansion joints replaced recently and in fair condition. No erosion evident in grass bank above wall.	2	>20	None.	no repairs
121AA901A1701C18	Concrete recurve wall with block slope behind.	Wall - North Sunderland	99	28/06/2022	Royal HaskoningDHV	Recurve concrete seawall well founded on rock foreshore. Joint sealant in good condition. No signs of cracking or deterioration.	2	>20	None.	no repairs
121AA901A1701C19	Tipped rubble slope with steep vegetated slope behind. Fronted by rocky foreshore.	Revetment - North Sunderland	166.1	28/06/2022	Royal HaskoningDHV	Rock foreshore backed by rock cliffs and vegetated slope. Tipping of boulders to control erosion. No recent erosion evident. Fronting foreshore heavily rutted with plant/vehicle tracks.	3	11 - 20	Monitor erosion.	no repairs
121AA901A1701C20	Northeast breakwater (aka Southern Breakwater). Low level concrete breakwater founded on bed rock built in the 1930s. Concrete encasement build in 2008.	Breakwater - North Sunderland	127.1	28/06/2022	Royal HaskoningDHV	Concrete breakwater generally in good condition. Toe well founded on rock foreshore, minor horizontal cracking to inner face, New security gate.	2	>20	None.	no repairs
121AA901A1701C21	Northeast breakwater with additional splash wall (aka Northern Breakwater). Reinforced concrete caisson filled with mixed material breakwater constructed in 1930 and founded to bed rock. The breakwater has a concrete deck. Concrete encasement 2008.	Breakwater - North Sunderland	124.3	28/06/2022	Royal HaskoningDHV	Some localised abrasion, cracking and spalling along lower structure, particular to the cope at the seaward end. Upper concrete crown wall in good condition, small vertical cracks. Wall well founded on rock foreshore, no signs of movement or scour.	2	>20	Repair cracks.	routine
121AA901A1701C22	Low level rock cliffs fronted by a rocky foreshore with a ramp down to the beach in front of the caravan park.	Cliff - Braidcarr Rocks	874.5	28/06/2022	Royal HaskoningDHV	Partial ongoing erosion of low vegetated upper cliffs along entire frontage. Some vegetation regrowth. Localised undermining of rock cliffs and recent localised rock falls at the south end of the frontage. LSO manhole now detached from cliff.	3	11 - 20	Review possible action to ramp from caravan park. Liaise with asset owner regarding LSO.	no repairs
121AA901A1701C23	Vegetated dunes with sandy beach to front. Rocky foreshore fronting the beach becoming more prominent to the south.	Dunes - Beadnell	1895.2	28/06/2022	Royal HaskoningDHV	Continued partial erosion of upper earth cliffs at north end. Narrow vegetated ridge adjacent to lakes liable to breach. Wide, stable and well vegetated dunes at south end, narrow cobble toe with localised erosion and cliffing, some vegetation regrowth.	3	6 - 10	None.	no repairs
121AA901A1701C24	Vegetated dunes fronted by a rocky foreshore.	Dunes - Beadnell	685.6	28/06/2022	Royal HaskoningDHV	Well vegetated and wide dune system appears stable. Narrow sandy foreshore. Historic erosion and cliffing along face appears to have stabilised with some vegetation regrowth evident.	3	>20	Monitor erosion.	routine
121AA901A1701C25	Masonry wall fronted by a sandy beach and a rocky foreshore.	Wall - Beadnell Haven	27	28/06/2022	Royal HaskoningDHV	Masonry blockwork wall well founded on rock foreshore. Heavy abrasion of blocks and some localised cracks. Mortar in good condition. The outflanking to the south and void in the centre have been patched with blockwork.	3	11 - 20	Continue to monitor.	routine
121AA901A1701C26	Short section of undefended cliff	Cliff	30.2	28/06/2022	Royal HaskoningDHV	Hard rock lower cliffs, well vegetated soft upper cliffs with some historic erosion evident. Shingle foreshore levels relatively high.	3	>20	None.	no repairs



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121AA901A1701C27	Concrete wall fronted by a sandy beach with a rock and residential properties behind.	Wall - Beadnell Haven	61.6	28/06/2022	Royal HaskoningDHV	Some minor vertical and horizontal cracking in concrete seawall. No erosion of vegetated bank above. Minor erosion of embankment at south end causing some outflanking. Erosion to toe noted at interface with rock to the south. Wide cobble berm along toe.	3	>20	None.	no repairs
121AA901A1701C28	Low level cliff fronted by a rocky foreshore forming headland.	Cliff - Dell Point	238.3	28/06/2022	Royal HaskoningDHV	Rock ledges on foreshore backed soft upper cliffs with partial erosion and undercutting evident along most of the frontage.	4	6 - 10	Monitor erosion.	no repairs
121AA901A1701C29	Eroding headland, clay over fractured rock.	Bank - Dell Point	103.8	28/06/2022	Royal HaskoningDHV	Rock ledges on foreshore backed by soft cliffs showing with partial erosion along most of the frontage.	4	11 - 20	Monitor erosion.	no repairs
121AA901A1701C30	Low cliffs with rocky foreshore.	Cliff - Red Brae	95.8	28/06/2022	Royal HaskoningDHV	Rock foreshore backed by high soft cliffs with crest well vegetated. Erosion and cliffing along most of the frontage. Previous tipping of garden and building waste over garden gate not observed. No immediate risk to properties. Garden gate backs onto almost vertical slope.	3	11 - 20	Monitor erosion.	routine
121AA901A1701C31	Precast vertical concrete wall protecting private property.	Wall -Beadnell	36.9	28/06/2022	Royal HaskoningDHV	Rock foreshore with narrow shingle/ rubble ridge along toe of precast concrete retaining wall. Precast concrete units are showing signs of deterioration and are locally in poor condition (fair overall). The units, particularly at the north of the asset, are spalling and cracking resulting in rust staining from the reinforcement.	4	11 - 20	Repair precast units.	routine
121AA901A1701C32	Rock revetment with rocky foreshore	Revetment - Beadnell	26.1	28/06/2022	Royal HaskoningDHV	Low partially vegetated earth bank replaced with small rock revetment pre 2018. Revetment is well graded and in good condition. Concrete poured over crest of revetment to the north to provide flat storage area in 2020.undermining of poured concrete to be monitored. In 2022, an area of the upper beach fronting the revetment has been fenced off for nesting shorebirds.	2	>20	None	no repairs.
121AA901A1701C33	Rock revetment with rocky foreshore fronting small section of masonry wall.	Revetment - Beadnell	35.7	28/06/2022	Royal HaskoningDHV	Low partially vegetated earth bank replaced with small rock revetment pre 2018. Small section of masonry wall remains to the South. No movement or gaps in wall. Revetment is well graded and in good condition.	2	>20	None	no repairs
121AA901A1701C34	Concrete blockwork wall fronted by a stony foreshore with a road and houses behind.	Wall - Beadnell	60.7	28/06/2022	Royal HaskoningDHV	Narrow shingle/ rubble ridge along toe of concrete blockwork wall. Toe well buried, no apparent movement or obvious deterioration to blockwork or joints. Minor spalling beneath coping. Post and rail fence behind wall in good condition.	2	>20	None.	no repairs
121AA901A1701C35	The wall is in three sections, the top section is a masonry wall, the middle section is concrete blockwork wall and the base being a concrete apron.	Wall - Beadnell	37.1	28/06/2022	Royal HaskoningDHV	Narrow shingle/ rubble ridge fronting lower concrete and masonry wall. Abrasion, horizontal cracking, missing sections of concrete toe apron. Abrasion to masonry blocks. Repointing works No overtopping damage.	3	11 - 20	Repair mortar joints. Repair missing concrete along toe.	routine

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121AA901A1701C36	Masonry wall with a concrete toe and a masonry splash wall. The wall is fronted by a sandy beach	Wall - Beadnell	79	28/06/2022	Royal HaskoningDHV	Low rock foreshore backed by higher masonry wall. The notable undermining of the concrete toe has been underpinned and a section of abraded concrete toe has also been repaired. The wall has also recently been repointed along much of its length. Some masonry blocks in lower wall remain very worn. Outfall missing flap valve. Significant sinkhole opened up at the crest of the wall 2021.	4	6 - 10	Continue to monitor.	urgent
121AA901A1701C37	Masonry wall. The wall is fronted by a shingle beach.	Wall - Beadnell	76	28/06/2022	Royal HaskoningDHV	High shingle foreshore backed by lower masonry wall. Masonry blocks and joints in fair/ good condition. Some limited mortar loss. Some displaced coping stones at south end. Some vegetation growth on foreshore.	3	11 - 20	Repair mortar joints. Replace coping stones.	routine
121AA901A1701C38	Low level rocky cliff forming headland.	Cliff - Whinstone Dyke	160.3	28/06/2022	Royal HaskoningDHV	Rocks ledges on foreshore backed by low rock cliffs with vegetation along crest. Some localised erosion along soft upper cliffs. The masonry wall to the north of the gabions is being outflanked due to erosion.	3	>20	None.	no repairs
121AA901A1701C39	Gabion mattress.	Gabions - Lady's Hole	87.2	28/06/2022	Royal HaskoningDHV	Steep narrow shingle foreshore with gabions, well vegetated earth bank behind. Gabions in very poor condition, most lower baskets burst. Upper gabions in fair condition, gabions buried at south end. Localised erosion of earth bank at north end.	4	6 - 10	Replace lower gabions.	routine
121AA901A1701C40	Gabion wall.	Gabions - Roan Rock	81.4	28/06/2022	Royal HaskoningDHV	Wide shingle beach backed by gabions and private gardens. Gabions mostly buried by high shingle levels. Some distortion and corrosion to seaward gabions. At least 1 burst gabion. Erosion has started to bypass the gabions into the residential garden.	3	11 - 20	Replace distorted and corroded gabions.	no repairs
121AA901A1701C41	Gabion wall.	Gabions - North of Beadnell Point	27	28/06/2022	Royal HaskoningDHV	Narrow shingle ridge fronting gabions and private gardens. Recently replaced gabions in good condition. Corrosion and distortion of 5No. gabions at south end that were not replaced with others. Toe of gabions well buried.	2	11 - 20	Replace corroded gabions.	routine
121AA901A1701C42	Concrete block revetment.	Revetment - North of Beadnell Point	38.1	28/06/2022	Royal HaskoningDHV	High shingle ridge with precast concrete block revetment and private gardens behind. No obvious deterioration to blocks, some minor vegetation growth to joints and toe. Minor mortar loss at north end. Small crack at back of steps. No erosion to gardens.	2	>20	None.	no repairs
121AA901A1701C43	Steep rock cliff with a rocky foreshore.	Cliff - Ebbe's Snook	250.4	28/06/2022	Royal HaskoningDHV	Rock ledges and boulder foreshore backed by steep rock cliffs. No significant change since last survey. Evidence of localised historic collapse.	2	>20	None.	no repairs
121AA901A1701C44	Low vegetated coastal slope.	Slope - Ebbe's Snook	322.7	28/06/2022	Royal HaskoningDHV	Inclined rock ledges backed by low well vegetated dunes. Some partial toe erosion evident along west end. Localised ad-hoc placement of boulders to prevent erosion only partially effective. Properties located 10-15m behind foreshore at risk. Ongoing localised erosion.	3	11 - 20	Consider formal erosion defence.	no repairs

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121AA901A1701C45	Masonry revetment with a stepped masonry toe.	Revetment - Beadnell	68.4	28/06/2022	Royal HaskoningDHV	Shingle foreshore backed by grouted stone wall and revetment. . A large crack is observed through one of the stone terraces indicating potential slope movement. There is also ongoing loss of blocks to the west. A timber fence has been installed on the slope to prevent unauthorised access. The old gabions at the intersection with revetment are heavily corroded and are at risk of failing	3	11 - 20	Remove vegetation. Repair undermined toe wall. Re-grout gaps.	urgent
121AA901A1701C46	Masonry wall forming old disused lime kilns, fronted by a rock revetment.	Wall - Beadnell	62.5	28/06/2022	Royal HaskoningDHV	Shingle foreshore burying toe of rocks. Rock armour angular, well interlocked and stable. Some rocks displaced along toe. Localised deformation and corrosion to buried gabions. Masonry lime kiln structure behind crest in good condition.	2	>20	Monitor movement of toe armour.	no repairs
121AA901A1701C47	Low masonry wall with concrete copping and concrete deck forming the root of the harbour. Fronted by a stony foreshore.	Wall - Beadnell Harbour	24.2	28/06/2022	Royal HaskoningDHV	Masonry wall, concrete crest wall and concrete apron in fair condition. Potential voiding on seaward face at toe. Some minor loss of grout, one small void above toe at seaward end. Significant cracking to concrete splash wall. Concrete repairs along crest appear good. New concrete pavement in good condition.	4	>20	Replace missing grout and toe undermining. Fill void.	urgent
121AA901A1701C48	Low masonry wall with concrete copping and concrete deck forming the Southern arm of the harbour. Fronted by a rock revetment.	Wall - Beadnell Harbour	58.2	28/06/2022	Royal HaskoningDHV	Lower masonry wall in good condition, no movement evident. New concrete crest wall (c2001) in good condition, joint sealant good, minor vertical cracks at joints. Rock armour stable, no signs of movement, boulder foreshore covering toe.	3	>20	None.	no repairs
121AA901A1701C49	Low masonry wall with concrete deck forming the southern arm of the harbour.	Wall - Beadnell Harbour	31.2	28/06/2022	Royal HaskoningDHV	Stepped masonry outer wall in good condition. Some historic slumping of blocks, no gaps evident. Mortar repairs and new concrete decking in good condition. Low foreshore levels resulting in undercutting and deep horizontal voids along most of leeward toe.	3	11 - 20	Fill voids along toe.	routine
121AA901A1701C50	Large concrete blockwork wall with concrete deck forming southern end of the harbour arm.	Wall - Beadnell Harbour	18.7	28/06/2022	Royal HaskoningDHV	Concrete breakwater in fair/good condition, no signs of movement. Localised undermining of toe apron at seaward end. Ladders in fair/ good condition.	3	>20	Monitor undermining.	routine
121AA901A1701C51	Masonry inner harbour wall.	Wall - Beadnell Harbour	82.7	28/06/2022	Royal HaskoningDHV	Recently rebuilt masonry quay wall (c2001) in good condition. No obvious deterioration to stone or concrete elements. Some localised undercutting at toe, believe to be due to historic maintenance dredging activities. Deck in good condition.	4	>20	Fill undercutting at toe.	routine
121AA901A1701C52	Masonry pier.	Pier - Beadnell	111.7	28/06/2022	Royal HaskoningDHV	Localised undercutting and gaps along toe of masonry wall, slight displacement of some blocks. No gaps between blocks. Spalling of concrete coping along most of length. Undercutting and partial collapse of grouted stone revetment protecting access steps.	3	>20	Fill voids along toe and replace missing blocks.	routine

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121AA901A1701C53	Soft vegetated cliff fronted by a sandy beach.	Cliff - Benthall Links	329.8	28/06/2022	Royal HaskoningDHV	Wide flat foreshore backed by wide well vegetated dunes. Some localised historic erosions along dune face but vegetation regrowth evident. Erosion at east end partly controlled by tipped rock. Timber beach fence has been installed control access through the dunes. Dunes here are subject to ongoing conservation efforts with the clearance of Sea Buckthorn and the transplanting of Marram Grass in recent years.	2	>20	Monitor erosion.	no repairs
121AA901A1801C01	Vegetated dunes fronted by a wide sandy beach.	Dunes - Beadnell Bay	1027.1	28/06/2022	Royal HaskoningDHV	Wide flat sandy beach with high vegetated dunes behind. Beach levels high along toe of dunes. Signs of historic erosion of face but none recent, some vegetation regrowth along toe.	2	>20	None.	no repairs
121AA901A1901C01	Vegetated dunes in front of Newton Links. Wide sandy foreshore forming south end of Beadnell Bay, with rock outcrops to south	Dunes	2415.7	28/06/2022	Royal HaskoningDHV	Sandy beach and boulders at south end fronting very well vegetated wide sand dunes. Historic localised erosion on dune face but some vegetation regrowth. Dunes on the North bank of Brunton Burn showing signs of ongoing erosion. A displaced fence line has been reinstated in 2022. A temporary flight of access steps, formed of scaffolding boards and poles, has been provided in this area to maintain access from beach to the Long Nanny Bridge.	3	>20	None.	no repairs
121AA901A1901C02	Vegetated dunes with rocky foreshore, forming small bay	Dunes - Football Hole	1061.4	28/06/2022	Royal HaskoningDHV	Wide sandy beach with rock slabs at headlands, backed by wide low very well vegetated sandy dunes. Strand line some distance from toe, localised historic erosion, cliffing and cutback along dune face, some new vegetation regrowth on foreshore.	2	>20	None.	no repairs
121AA901A2001C01	Natural vegetated coastal slope with sandy beach and a rocky foreshore	Coastal Slope	1012	25/05/2022	Royal HaskoningDHV	Rock slabs on foreshore backed by wide well vegetated soft earth slopes coastal. Signs of minor erosion along toe. No substantive change.	2	>20	None	routine
121AA901A2001C02	Low concrete wall in front of wide sandy beach. Backed by amenity area of Low Newton by the Sea	Sea Wall	68.6	25/05/2022	Royal HaskoningDHV	Concrete wall and ramp fronted by wide sandy beach and well vegetated bank. Some cracks in wall and localised spalling at joints. No cracks evident in ramp. Toe of wall and ramp well buried by high beach levels. Significant dune growth since 2018.	3	>20	None	routine
121AA901A2001C03	Vegetated dunes at back of wide sandy beach at south end of St Mary's Haven	Dunes - St Mary's Bay	621.8	25/05/2022	Royal HaskoningDHV	Wide sandy beach backed by well vegetated high sand dunes. Historic erosion and cliffing along much of dune frontage. Relic anti-tank blocks at headland fully buried. No change in dune	3	>20	None	routine
121AA901A2001C04	Vegetated dunes with wide sandy beach forming Embleton Bay	Dunes - Embleton	2239.4	25/05/2022	Royal HaskoningDHV	Wide sandy beach with occasional rock outcrops backed by well vegetated high sand dunes. Recovery of toe of duens since 2018, apart from locally around stream outlet where there is severe erosion.	2	>20	None	routine
121AA901A2001C05	Natural vegetated coastal slope with sandy / rocky foreshore	Coastal Slope - Embleton	843.1	25/05/2022	Royal HaskoningDHV	Cobble foreshore backed by low well vegetated sand dunes. No signs of erosion, no further cliff falls.	2	>20	None	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A2101C01	Gentle coastal slope & foreshore	Coastal Slope - Queen Margarets Cove	852.6	25/05/2022	Royal HaskoningDHV	Rocky foreshore backed by well vegetated low coastal slopes. No change.	2	>20	None	routine
121AA901A2101C02	Rocky coastal slope & foreshore	Coastal Slope - Oxberry Law	1297	25/05/2022	Royal HaskoningDHV	Well vegetated stable coastal slopes protected by rocky foreshore. No change.	2	>20	None	routine
121AA901A2201C01	Earth embankment fronted by rocky foreshore	Embankment - Craster Harbour	52.5	25/05/2022	Royal HaskoningDHV	Rocky foreshore backed by well vegetated low coastal. Outfall and manhole in fair/ good condition and well founded on rock. Some concrete repairs around manhole. Tipped rubble and slight erosion around manhole but no worse than 2018.	2	>20	None	routine
121AA901A2201C02	Low, near vertical masonry wall at back of rock platform foreshore.	Sea Wall - Craster Harbour	83.1	25/05/2022	Royal HaskoningDHV	Concrete and masonry wall well founded on rock foreshore. No movement apparent. Repairs to mortar in good condition.	2	>20	None	routine
121AA901A2201C03	Outer wall of northern harbour arm. Near vertical concrete encased masonry wall, extending above the deck of the arm.	Sea Wall - Craster North Harbour Arm	50.3	25/05/2022	Royal HaskoningDHV	Signs of heavy abrasion on crest of wall. Slight spalling of crack towards end. No substantial change since 2018.	3	>20	Monitor vertical crack.	routine
121AA901A2201C04	Inner wall of northern harbour arm. Vertical masonry face with concrete capping beam & deck.	Sea Wall - Craster Harbour	59.2	25/05/2022	Royal HaskoningDHV	Deck damaged but not significantly. No obvious movement in cracks.	3	>20	Monitor full height vertical crack.	routine
121AA901A2201C05	Near vertical wall, seems to be masonry encased in concrete, founded on raised rock. Silty/ sandy foreshore & roadway immediately behind	Sea Wall - Craster Harbour	52.1	25/05/2022	Royal HaskoningDHV	Signs of heavy abrasion on crest of wall but no real deterioration.	3	>20	None	routine
121AA901A2201C06	Concrete slipway over natural coastal slope in corner of harbour, with cobble foreshore.	Other - Craster Harbour	15.5	25/05/2022	Royal HaskoningDHV	Slipway and edge wall in good condition, no movement evident. Minor abrasion. Slight undermining at toe. Construction of wall supporting small boat park. No change since 2018.	3	11 - 20	None	no repairs
121AA901A2201C07	Natural cobbled slope & foreshore.	Coastal Slope - Craster Harbour	60.6	25/05/2022	Royal HaskoningDHV	No significant change since last survey. Sandy beach backed by shingle ridge and well vegetated crest.	2	>20	None	routine
121AA901A2201C08	Vertical masonry seawall, founded on rock,, with cobble foreshore & road & properties immediately behind.	Sea Wall - Craster Harbour	35.5	25/05/2022	Royal HaskoningDHV	Masonry wall remains in fair/good condition. No movement or loss of masonry, some large gaps between blocks along lower wall. Previous repairs to pointing along crest wall appears good.	3	11 - 20	Repoint wall	routine
121AA901A2201C09	Hard rock cliff, rising to the east, with little foreshore.	Cliff - Craster Harbour	28.7	25/05/2022	Royal HaskoningDHV	Rocky foreshore with stable rock cliffs above. Well vegetated crest. Some few loose rocks on foreshore. No significant change since last survey.	1	>20	None	no repairs

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121AA901A2201C10	Inner face of southern harbour arm. Near vertical concrete face & deck.	Sea Wall - Craster South Harbour Arm	61.4	25/05/2022	Royal HaskoningDHV	Concrete quay wall in fair condition, no movement. Heavy abrasion/ spalling along lower wall and at joints. Some gaps between joints. Possible undermining at seaward end, not accessible. Recent repairs to cracks in desk. Timber cope in poor condition.	3	>20	Investigate undermining at seaward end. Repair abraded concrete.	routine
121AA901A2201C11	Outer face of southern harbour arm. Near vertical concrete encased masonry, with rock foreshore	Sea Wall - Craster Harbour	86.1	25/05/2022	Royal HaskoningDHV	Wall well founded on rock foreshore. No signs of movement, some minor gaps along base. Some full height cracks, small void at bottom of southern crack. Further spalling to inner face of crest wall despite repairs.	3	11 - 20	Repair void, monitor cracks, repair coping.	routine
121AA901A2201C12	Rock revtment to coastal slope with property behind.	Revetment - Muckle Carr	57.4	25/05/2022	Royal HaskoningDHV	Rock armour angular, well interlocked and stable. No change evident since last survey.	3	>20	None	no repairs
121AA901A2201C13	Rock revetment providing toe protection to an earth embankment. Rock foreshore. Concrete outfall down the embankment and along the foreshore.	Revetment - Craster Harbour	85.8	25/05/2022	Royal HaskoningDHV	Wide rocky foreshore with rock armour protecting well vegetated coastal slope. Rock armour angular, well interlocked and stable. Vegetation along toe. No erosion evident in slope.	2	>20	None	routine
121AA901A2201C14	Natural vegeated slope above high rock outcrop.	Coastal slope - Muckle Carr	157.7	25/05/2022	Royal HaskoningDHV	Rock foreshore stable with no significant change since last survey. Low coastal slope well vegetated with slight erosion. Concrete outfall in fair/good condition.	2	>20	None	no repairs
121AA901A2201C15	Steep vegetated coastal slope with rock revetment at the toe, fronted by rocky foreshore. Evidence of rock gabions behind the rock revetment.	Coastal Slope - Muckle Carr	266.9	25/05/2022	Royal HaskoningDHV	Numerous tipping (e.g. grass cuttings) on slope. One area of very minor slippage, but no substantial change.	2	>20	None	no repairs
121AA901A2301C01	Low gentle cliff & rocky foreshore	Coastal slope - Black Hole	784.8	25/05/2022	Royal HaskoningDHV	Wide sloping rock foreshore backed by well vegetated coastal slope. No signs of erosion.	2	>20	None	no repairs
121AA901A2301C02	Steep hard rock cliff.	Cliff - Cullernose Point	314.7	25/05/2022	Royal HaskoningDHV	No significant change.	2	>20	None	no repairs
121AA901A2401C01	Rock cliff with wide rock foreshore. Forms a slight bay between Cullernose Point and Howick village	Cliff - Swine Den	743.8	25/05/2022	Royal HaskoningDHV	No significant change since last survey. Wide rocky foreshore with boulders backed by high well vegetated coastal slopes. Continued slow undercutting of cliffs. Localised rock falls. No properties at risk.	3	>20	None	no repairs
121AA901A2401C02	Low rock cliff with wide rock foreshore. Forms a slight headland south of Howick village	Cliff - Rumbling Kern	1069.7	26/05/2022	Royal HaskoningDHV	Sloping rocky foreshore backed by high well vegetated coastal slopes. No signs of erosion. Masonry wall forming seawall boundary to property in good condition. Minor slumping in the softer cliff.	2	>20	None	no repairs
121AA901A2501C01	Well vegetated dune system behind beaches. Headland cliffs control bays. Foreshore is mixture of rock platforms with sandy/stony beaches within smaller bays.	Cliff - Howick Haven	2325.6	26/05/2022	Royal HaskoningDHV	Stable wide beach and embryonic dunes particularly to south. Failing masonry walls to footpath. Some areas of masonry walls at bridge in poor condition but with no deterioration. Slightly higher beach levels compared to 2020 but with possible loss of embryo dunes.	3	>20	Consider repair of footbridge and steel piling and abutments. Review function of masonry walls.	routine

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121AA901A2501C02	Low rock cliffs / slope, with wide rock foreshore forming headland	Coastal Slope - Longhoughton Steel	791.7	26/05/2022	Royal HaskoningDHV	Very stable.	3	>20	Monitor erosion.	no repairs
121AA901A2601C01	Natural vegetated coastal slope with a sandy / rocky foreshore.	Coastal Slope - Boulmer Steel	236.1	26/05/2022	Royal HaskoningDHV	Some very minor slumps. Local protection to property in 2016. No substantial change.	4	11 - 20	None.	no repairs
121AA901A2601C02	Concrete block wall	Revetment - Boulmer	40	26/05/2022	Royal HaskoningDHV	No obvious deterioration. No damage and little change.	2	>20	None.	No repairs
121AA901A2601C03	Low sand/earth embankment with wide sandy beach, protected by rock revetment at toe of embankment.	Embankment - Berwick Stone	160.2	26/05/2022	Royal HaskoningDHV	Scheme to prevent erosion, completed in May 2016. Vegetation developing above rock. furtehr vegetation in 2020.	1	>20	None	no repairs
121AA901A2601C04	Rock revetment providing toe protection to earth embankment.	Revetment - The Torrs	81.5	26/05/2022	Royal HaskoningDHV	Improvements to original revetment made in May 2016 coast protection works. No change.	1	>20	None	no repairs
121AA901A2601C05	Large concrete blocks placed at toe of earth/sand embankment. Surrounded by rock placed following erosion of the embankment in Dec 2013 as 'emergency works'.	Revetment - The Torrs	75	26/05/2022	Royal HaskoningDHV	No obvious deterioration. Dec 2013 emergency works remain in good condition.	2	>20	None	no repairs
121AA901A2601C06	Vegetated natural coastal slope with a wide sandy beach & rock outcrops.	Coastal Slope - Boulmer Haven	1000.8	26/05/2022	Royal HaskoningDHV	Wide sandy beach backed by low well vegetated dunes. Outfall pipe damaged at seaward end.	2	11 - 20	None	no repairs
121AA901A2601C07	Low gentle rock cliff/slope with wide rock foreshore, forming a headland.	Cliff - Seaton Point	830.7	26/05/2022	Royal HaskoningDHV	Narrow sandy beach fronting high well vegetated dunes. Partial erosion and slipping of along much of toe previously noted but general improvement by 2020, sustained in 2022. Static caravans within 10m of cliff edge may be coming at risk. Continuing minor slippage.	3	11 - 20	Monitor ongoing erosion, liaison with caravan park as necessary.	no repairs
121AA901A2601C08	Low vegetated cliff, with wide sandy beach & shingle at back.	Soft Cliff- Seaton Point	228	26/05/2022	Royal HaskoningDHV	Narrow rocky foreshore backed by high well vegetated dunes. Partial erosion and slips in dune face along most of frontage. Cobble toe with some vegetation on foreshore. Strand line at toe. Slow erosion continues.	3	11 - 20	Monitor ongoing erosion, liaison with caravan park as necessary.	no repairs
121AA901A2601C09	Concrete access steps through embankment, with rock armour toes protection forming an apron. Wide sandy beach in front.	Other - Boulmer	134.9	26/05/2022	Royal HaskoningDHV	Sandy beach with concrete steps, rock armour and high vegetated slopes. Erosion outflanking to south side of structure, with rock added. Rock armour angular, loosely packed but stable.	3	11 - 20	Check condition of lower steps over next year.	no repairs
121AA901A2701C01	Relatively high clay cliffs with shingle at toe, & wide sandy beach. Cliff falling to the south. Whaw Burn discharges at south end	Cliff - Alnmouth	358.2	27/05/2022	Royal HaskoningDHV	Sandy beach backed by high vegetated slopes. Severe erosion and slippage of slope along most of frontage. Cliff top path remains closed. Golf course at risk. Cliff erosion since 2018.	4	11 - 20	Monitor ongoing erosion	no repairs
121AA901A2701C02	Vegetated slope/bank, with shingle margin at base & wide sandy beach in front. South of Whaw Burn	Coastal Slope - Foxton Hall	416.3	27/05/2022	Royal HaskoningDHV	Wide sandy foreshore with steep shingle ridge backed by high well vegetated coastal slope. Minor erosion of slope that has incared since 2018.	3	>20	None	no repairs

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121AA901A2701C03	Natural coastal slope with extensive rock foreshore with deteriorating breakwater structure.	Coastal Slope - Marden Rocks	79.5	27/05/2022	Royal HaskoningDHV	Wide sandy beach with narrow shingle ridge backed by low coastal slopes and private gardens. No erosion evident. Vegetation re-growth on foreshore. Rock groyne disintegrating at seaward end. Beach levels higher than 2018.	4	11 - 20	None	no repairs
121AA901A2701C04	Vegetated earth bank with shingle/cobbles at toe with extensive rock foreshore & sandy beach.	Embankment - Alnmouth	397.7	27/05/2022	Royal HaskoningDHV	Rock foreshore backed by high well vegetated earth bank. Partial erosion along toe at northern end with some localised slips evident. Generally lower beach levels since 2018.	3	>20	None	no repairs
121AA901A2701C05	Large concrete blocks forming toe of vegetated dunes, with wide sandy beach in front. Small groyne field within beach.	Revetment - Alnmouth Bay	522.2	27/05/2022	Royal HaskoningDHV	Wide sandy beach backed by low well vegetated dunes. Ongoing but localised erosion and cliffing of dune and undermining of post and wire fence. Groynes exposed, some gaps and missing planks and rotten piles. Variation in beach levels with erosion to northern end and slight accretion to south.	4	6 - 10	Review effectiveness of defence, potentially groynes are ineffective.	routine
121AA901A2701C06	Variety of protection types for toe of earth bank including concrete blocks, rock gabions and rubble.	Embankment - Alnmouth Bay	242.7	27/05/2022	Royal HaskoningDHV	Wide sandy beach backed by concrete blocks and low well vegetated earth bank north of carpark. Increase in upper beach level in 2020 sustained through to 2020	3	11 - 20	Review behaviour of beach.	routine
121AA901A2701C07	Vegetated dunes leading into the mouth of the Aln. Wide sandy beach strongly influenced by estuary channel.	Dunes - Alnmouth Bay	330.7	27/05/2022	Royal HaskoningDHV	Wide sandy beach backed by concrete blocks, well vegetated earth bank and a car park. Some vegetation growth on foreshore. Recovered slightly since 2020	3	6 - 10	Review management of the frontage, avoiding pressure for emergency works.	routine
121AA901A2701C08	Low sand dunes fronted by wide sandy beach	Dunes - Alnmouth Bay	291.1	27/05/2022	Royal HaskoningDHV	Wide sandy beach backed by concrete blocks along toe of high well vegetated dunes. Slight recovery since 2020.	3	11 - 20	Review management of the frontage, avoiding pressure for emergency works.	routine
121AA901A2801C01	Vegetated dunes with sandy beach	Dunes - Alnmouth Bay	173.8	27/05/2022	Royal HaskoningDHV	Narrowing vegetated dunes backed by road and properties. Growth at "nose" since 2020.	2	>20	Review management of the frontage, avoiding pressure for emergency works.	routine
121AA901A2801C02	Masonry wall with a concrete toe fronting vegetated dunes with road and residential properties behind	Sea Wall - Alnmouth Estuary	78.5	27/05/2022	Royal HaskoningDHV	Masonry wall generally in good condition, some minor abrasion of blocks and localised loss of mortar. Vertical cracks and signs seaward rotation of central section. Toe well buried at north end, low beach levels at south end but no signs of undermining. No significant change.	3	>20	Monitor movement of central section.	no repairs
121AA901A2801C03	Low masonry wall fronting Vegetated bank with a road and residential properties behind. In front of the wall is a mixture of rubble and concrete debris.	Sea Wall - Alnmouth Estuary	34.9	27/05/2022	Royal HaskoningDHV	Masonry wall fronting boat club. Some apparent deterioration in mortar. Slight undercutting of concrete toe.	3	>20	None	no repairs
121AA901A2801C04	Low masonry wall providing protection to a children's play area	Sea Wall - Alnmouth Estuary	208.1	27/05/2022	Royal HaskoningDHV	Masonry wall fronting playground in good condition. No signs of movement. All concrete coping slabs in good condition.	2	>20	None	no repairs



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121AA901A2801C05	Concrete access ramp fronting residential properties	Access Ramp - Alnmouth Estuary	8.4	27/05/2022	Royal HaskoningDHV	Concrete boat ramp in good condition, minor spalling along seaward edge. No signs of cracking or undercutting of toe.	2	>20	None	no repairs
121AA901A2801C06	Masonry wall with higher land behind fronted by saltmarsh. Walkway on top of the wall.	Sea Wall - Alnmouth Estuary	230.9	27/05/2022	Royal HaskoningDHV	Masonry wall with repairs have been undertaken and, despite some minor damage wall is in fair condition.	3	11 - 20	None	no repairs
121AA901A2801C07	Low earth bank fronted by saltmarsh	Embankment - Alnmouth Estuary	148.4	27/05/2022	Royal HaskoningDHV	Wide well vegetated foreshore backed by low vegetated bank. No significant change evident since last survey. Saltmarsh in good condition, some localised erosion evident along toe.	2	>20	None	no repairs
121AA901A2801C08	Saltmarsh to slightly higher land forming control point in estuary	Embankment - Alnmouth Estuary	263.1	27/05/2022	Royal HaskoningDHV	No significant change since last survey.	2	>20	None	no repairs
121AA901A2801C09	Saltmarsh	Saltmarsh - Alnmouth Estuary	184.8	27/05/2022	Royal HaskoningDHV	Ongoing significant erosion and undercutting of low vegetated banks along entire length of frontage.	4	6 - 10	Review behaviour causing erosion.	routine
121AA901A2801C10	Low masonry wall to edge of estuary. Walkway at the crest of the wall.	Sea Wall - Alnmouth Estuary	186	27/05/2022	Royal HaskoningDHV	Wall repaired. Local minor areas requiring pointing. Minor undercutting to repaired toe and damage to downstream end.	3	11 - 20	Routine repairs.	routine
121AA901A2801C11	Vegetated flood plain	Flood Plain - Alnmouth Estuary	476	27/05/2022	Royal HaskoningDHV	Healthy saltmarsh in River Aln estuary. No significant change evident since last survey.	2	>20	None	no repairs
121AA901A2801C12	vegetated flood plain	Flood Plain - Alnmouth Estuary	667.9	27/05/2022	Royal HaskoningDHV	Healthy saltmarsh in River Aln estuary.	2	>20	None	no repairs
121AA901A2801C13	Low masonry wall fronting a vegetated bank that is church hill	Sea Wall - Church Hill	174	27/05/2022	Royal HaskoningDHV	Continued washout of backfill resulting in collapse of central section of wall. Partial localised settlement at south end, full height cracks through mortar joints. Erosion impacting on slope of Church Hill.	5	1 - 5	Rebuild failed section of wall, replace missing blocks, repoint joints.	urgent
121AA901A2901C01	Partly vegetated dunes with wide sandy beach in front, forming central section of Alnmouth Bay.	Dunes - Buston Links	2617.3	15/06/2022	Royal HaskoningDHV	Wide sandy beach backed by high dunes, well vegetated in places but sparse in others. Along the open coast (Alnmouth Dunes) the dunes are generally stable and showing recovery following winter 21/22 storm damage. Localised erosion to the south, one area of dune depression or potential blow out is apparent, some embryo dune growth at the north.	2	>20	Monitor erosion.	routine
121AA901A2901C02	Partly vegetated dunes with wide sandy beach in front, forming south section of Alnmouth Bay & running down to Amble. Concrete cubes along northern section fronting Birling Links.	Dunes - Birling Links & Warkworth Dunes	3016.2	15/06/2022	Royal HaskoningDHV	Wide sandy beach backed by dunes that are protected by anti-tank blocks. Some blocks heavily abraded. Dunes are generally stable and showing recovery following winter 21/22 storm damage.	2	>20	Monitor erosion	routine
121AA901A3001C01	Harbour arm with rock armour inner & outer faces & concrete walkway on crest.	Breakwater - North Pier, Warkworth Harbour	610.5	15/06/2022	Royal HaskoningDHV	Rock armour stable with no change in profile, minor displacement of rock at toe, no major voids evident. No significant signs of damage to concrete blocks or masonry slope, appears stable. No signs of settlement, spalling or cracking to concrete crest.	3	>20	Monitor.	no repairs

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121AA901A3001C02	Concrete/masonry extension to pier, accommodating the navigation beacon	Sea Wall - North Pier (head), Warkworth Harbour	195.1	15/06/2022	Royal HaskoningDHV	Large voids in concrete face. Section of concrete deck missing. Full height crack and displacement of seaward 5m section. Full height vertical crack in south face continuing through deck with displacement evident. Safety risk to fishermen.	5	6 - 10	Repair to end section needed, but no coast protection benefit.	urgent
121AA901A3001C03	Harbour arm with rock armour inner & outer faces & concrete walkway on crest. Structure widens out at base	Breakwater - North Pier (central), Warkworth Harbour	612.9	15/06/2022	Royal HaskoningDHV	Masonry revetment in fair/good condition, repairs to gaps between block good. Some movement of small toe armour at seaward end. Large armourstone at root appears stable, no displacement or voids. Concrete deck in good condition, no settlement evident.	3	>20	Repair gaps in masonry, monitor toe armour and replace as necessary.	routine
121AA901A3001C04	Inside corner of North Pier. Sand beach with rock revetment.	North Wave Basin, Warkworth Harbour	158.6	15/06/2022	Royal HaskoningDHV	Rock revetment generally stable and in good/ fair condition. Some movement of rocks at toe and flattening of slope at south end. Sand has been placed and profiled over the revetment. Dunes well vegetated and stable, no erosion of dunes at crest evident.	2	>20	None.	no repairs
121AA901A3001C05	Vertical wall with concrete capping beam & tarmac surfacing behind forming quayside. No foreshore.	Quay Wall - Amble	141.3	16/06/2022	Royal HaskoningDHV	Concrete quay and timber cope generally in good condition, no signs of movement or settlement. Small localised cracks in deck. Limited access.	2	>20	Monitor below water elements for scour.	routine
121AA901A3001C06	Vertical wall with concrete capping beam and tarmac surfacing behind forming quayside. No foreshore.	(Quay) Wall - Amble	341.4	16/06/2022	Royal HaskoningDHV	Masonry walls in small dock in fair condition. Stone abraded, some gaps between blocks. Brickwork and timber repair to coping on south face. Main concrete quay wall and decking in good condition. Minor cracks. Repair of collapsed section now complete for some time and holding well.	3	11 - 20	Repointing of masonry wall. Monitor below water elements for scour.	routine
121AA901A3001C07	Gabions and rock	Revetment - South Jetty (Landward)	20.3	16/06/2022	Royal HaskoningDHV	Gabions protecting area against erosion. Some rock and boulders scattered for extra protection.	2	11 - 20	Monitor effectiveness of gabions.	routine
121AA901A3001C08	Gabions	Coastal Slope - Little Shore Wave Basin	66.4	16/06/2022	Royal HaskoningDHV	Gabions protecting area against erosion.	2	11 - 20	Monitor effectiveness of gabions.	routine
121AA901A3001C09	Low masonry wall at back of sheltered embayment, with partially vegetated sandy beach and dunes in front, and amenity area behind.	Dunes - Little Shore Wave Basin	156.2	16/06/2022	Royal HaskoningDHV	Wide stable dune system continues to develop along beach crest. Masonry wall well protected and generally in fair condition, some localised areas of missing blocks which require repair.	2	>20	Maintenance repairs to holes in wall.	routine
121AA901A3001C10	Low concrete seawall along side of embayment. Sandy beach to the west, exposed rock to the east. Backed by road / promenade.	Sea Wall - Little Shore Wave Basin	120.3	16/06/2022	Royal HaskoningDHV	Concrete wall previously in poor condition but repairs made in 2019 to cracks and undermined sections. Failing access ramp replaced with steps.	2	1 - 5	Repair cracks and voids in wall and ramp.	urgent
121AA901A3001C11	Timber jetty with walkway, forming a continuation of the quay alignment and linking up to the lighthouse. Sheltered 'lagoon' called Little Shore Wave Basin formed landward using "part-tide" barrier constructed from sheet piling.	Jetty - South Jetty	287.2	16/06/2022	Royal HaskoningDHV	Timber jetty generally in good condition. Timber piles, decking and hand railing in good condition. Half-tide barrier functioning well. Timber linkspan bridge in good condition. New lighting installed in 2012.	2	11 - 20	None.	no repairs

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121AA901A3101C01	Concrete pier head, housing the lighthouse, and linking up to the South Jetty structure.	Other - South Pier Head	187.5	16/06/2022	Royal HaskoningDHV	No access to Pier Head but appears in fair condition from a distance. Previous (2016) defects at root of Pier Head and its intersection with South Pier worsened over winter 2017/18 leading to failure. Now repaired in 2018 and repairs holding well.	3	>20	Fill cracks.	routine
121AA901A3101C02	South Pier, between mainland and South Jetty. Inner face: vertical concrete face with sloping concrete apron at toe, stony foreshore. Concrete deck. Outer wall vertical concrete with rock armour protection, and rocky foreshore.	Sea Wall - Amble South Pier	121.8	16/06/2022	Royal HaskoningDHV	Inner concrete apron in fair condition. Abrasion/spalling to inner face at South Pier repaired in 2019. Rock armour on seaward face appears stable and functional. Concrete stub groyne very abraded and undercut. Outer wall sound with local minor deterioration.	3	>20	Repointing and fill cracks. Replace missing blocks	routine
121AA901A3101C03	Vertical concrete seawall forming part of base of South Pier. Sandy/rocky beach in front, access and properties behind.	Sea Wall - Amble	83.6	16/06/2022	Royal HaskoningDHV	Heavy abrasion, cracks and spalling along most of wall, minor damage to crest and deck. Access steps highly abraded, uneven and unsafe. Holes in the deck where hand railing installed.	3	>20	Fill cracks wall face. Repair access steps.	routine
121AA901A3101C04	Rock cliffs and wide rock foreshore, forming headland. Concrete wall on the top of the rock cliff.	Cliff	98.9	16/06/2022	Royal HaskoningDHV	No significant change since last survey. Horizontal cracking and spalling along crest of wall, reinforcement steel exposed and corroding. Erosion of rock platform and some undermining at west end.	3	11 - 20	Repair cracks in wall	routine
121AA901A3101C05	Near vertical concrete seawall founded to rock. Steel handrailing provide protection for walkway.	Sea Wall - Amble	78.9	16/06/2022	Royal HaskoningDHV	No signs of movement or undermining. Localised abrasion and spalling along cope. New concrete surfacing installed 2013/14. Fair condition.	3	11 - 20	None	routine
121AA901A3101C06	Low vegetated cliffs with sand beach and rock foreshore. Some localised sections of rock armour protection to toe of cliffs.	Cliff - Amble	206	16/06/2022	Royal HaskoningDHV	Narrow sandy beach with rock ledges and well vegetated, wide dune system. Loosely placed armourstone at center and south end providing limited protection	3	6 - 10	Consider formal erosion protection along toe of dunes. Dune management.	routine
121AA901A3101C07	Concrete seawall around slight promontory, founded on rock outcrop.	Sea Wall - Amble	63.4	16/06/2022	Royal HaskoningDHV	Concrete wall in good condition. Well founded on rock slab, no signs of movement, very slight undermining. Gap in toe at south end. Localised loss of joint sealant. Loosely placed armourstone at north end. Concrete tie-ins at both ends.	2	>20	Repair cracks. Replace lost sealant. Monitor toe scour	routine
121AA901A3101C08	Low vegetated soft cliffs fronted by a beach and rocky foreshore	Cliff - Amble Links	85.2	16/06/2022	Royal HaskoningDHV	Narrow sandy beach with wide and well established dunes at north end of bay. Strandline at toe, occasional erosion and cliffing of earth bank. No properties at risk.	3	11 - 20	Monitor erosion.	no repairs
121AA901A3101C09	Vegetated dunes and wide sandy beach. Old concrete outfall structure on beach.	Dunes - Amble Links	243.6	16/06/2022	Royal HaskoningDHV	Sandy beach widens towards the south end. Wide well established and vegetated dunes behind. Outfall structure in poor condition with some undermining, is now unsafe.	3	>20	Repair or removal outfall.	urgent
121AA901A3101C10	Low masonry and block seawall backed by a narrow rock revetment at the toe of soft cliffs	Sea Wall - Wellhaugh Point	48.7	16/06/2022	Royal HaskoningDHV	Low masonry seawall with rock armour along crest. Wall well founded on rock foreshore, no undermining or movement, partially buried at south end. Rock armour stable. Slope well vegetated, no erosion	2	>20	Localised repairs to masonry	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3101C11	Vegetated cliff with rocky foreshore	Cliff - Amble	82.9	16/06/2022	Royal HaskoningDHV	Hard rock cliffs well vegetated long top. Appear to be mostly stable, some very local slumps have occurred. Caving at toe identified in three small areas in 2010 but this is not precipitating major failures. One larger cave/crevice is also present.	2	>20	None.	no repairs
121AA901A3101C12	Vegetated dunes/low cliffs fronted by beach. Outfall onto beach.	Dunes	1345.7	16/06/2022	Royal HaskoningDHV	Narrow shingle ridge and high well vegetated dunes. Partial erosion, cliffing and slumps in dune face along most of frontage. Outfall in poor condition, hole in concrete pipe. Initial deformation of gabions. Localised erosion of dune face at south end.	4	>20	Repair or remove outfall	routine
121AA901A3101C13	Vegetated cliff with rocky foreshore	Cliff - Beacon Hill	55.7	16/06/2022	Royal HaskoningDHV	Narrow shingle ridge with stable rock foreshore protecting well vegetated earth bank. Exposed earth on low slope but no evidence of recent erosion or slips.	2	>20	None.	no repairs
121AA901A3101C14	Rock revetment at promontory with vegetated cliffs behind	Revetment - Beacon Hill	46.9	16/06/2022	Royal HaskoningDHV	Rock armour stable although informally placed. Some rubble/rock placed to counter outflanking of revetment. Cliff well vegetated and relatively stable. Sparser rock at south end with less vegetation and more erosion.	3	>20	Monitor erosion	routine
121AA901A3201C01	Coastal slope fronted by narrow sandy/shingle beach	Higher Ground - Beacon Hill	156.3	16/06/2022	Royal HaskoningDHV	Wide sandy beach backed by high well vegetated earth bank. Localised erosion, cliffing and some slips evident. Properties within 10m of slope.	3	>20	Monitor erosion. Consider dune management.	routine
121AA901A3201C02	Rock armour revetment in front of low soft cliff. Sandy beach.	Revetment - Hauxley Links	140.8	16/06/2022	Royal HaskoningDHV	No significant change since last survey. Wide sandy beach backed by revetment and well vegetated low earth bank. Rock loosely tipped, some locally displaced stones. Toe buried by healthy beach, beach narrows at south end. No erosion along crest evident.	3	11 - 20	None.	no repairs
121AA901A3201C03	Wide rock armour revetment at toe of earth embankment.	Revetment - Hauxley Links	225.5	16/06/2022	Royal HaskoningDHV	Narrow sandy beach backed by rock revetment and low vegetated bank. Some displaced rock along toe but structure appears stable. Evidence of dumped rubble at south end. No sign of erosion along crest.	2	>20	None.	no repairs
121AA901A3201C04	Revetment comprising large concrete cubes place in an ad-hoc straight alignment at toe of earth embankment. Sandy beach in front.	Revetment/Embankment - Hauxley Links	170.8	16/06/2022	Royal HaskoningDHV	Narrow sandy beach. Concrete blocks heavily abraded, some settlement evident but no displacement. Significant erosion of earth slopes along most of frontage, ongoing dumping of building rubble having limited effect. No properties at immediate risk.	4	6 - 10	Consider formal revetment to protect upper slope.	routine
121AA901A3201C05	Rock armour revetment/bullnose extending beyond the adjacent line of defence, with vegetated dunes behind & sandy beach in front.	Revetment - Hauxley Links	52.7	16/06/2022	Royal HaskoningDHV	Some armour stones displaced but revetment generally in fair condition. Erosion of dunes behind revetment causing outflanking. Concrete pier/outlet structure in poor condition with undermining evident on the southern side and head.	3	11 - 20	Remove/repair outfall	routine
121AA901A3201C06	Partially vegetated dunes, with wide sandy beach	Dunes - Hauxley Nature Reserve	220.7	16/06/2022	Royal HaskoningDHV	Wide sandy beach and cobble berm backed by high, wide and well vegetated dunes. Ongoing erosion, cliffing and slumps along most of the dune face. Beach levels relatively healthy. No properties at risk.	3	>20	Monitor erosion.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3201C07	Soft sand upper cliff and clay/peat lower cliff, with sandy beach and rocky outcrops. In front of vegetated dunes	Cliff	232.4	16/06/2022	Royal HaskoningDHV	Seaward face of dunes showing signs of erosion along entire length. Loss of vegetation and cliffing of upper slope. Harder peat layer at toe exposed although eroding more slowly than dunes above. No properties at risk.	4	11 - 20	Monitor erosion.	no repairs
121AA901A3201C08	Soft sand upper cliff and clay/peat lower cliff, with sandy beach & rocky outcrops. In front of vegetated dunes	Cliff - Hauxley Nature Reserve	337.4	16/06/2022	Royal HaskoningDHV	Ongoing erosion of lower peat and upper dune at northern end. At southern end cliffs are eroding more rapidly with a more apparent softer clay at the toe.	3	11 - 20	Monitor erosion.	no repairs
121AA901A3201C09	Two small breakwater type structures, comprising large concrete blocks, running perpendicular for the shoreline, extending just beyond high water, protecting outfalls.	Breakwater - Togston Links	27.1	16/06/2022	Royal HaskoningDHV	Outfall 'daylighted' in 2016, with remnant outfall and concrete blocks for temporary protection. Geotextile in bank now visible again.	2	>20	Replace flap valve.	routine
121AA901A3201C10	Vegetated dunes with wide sandy beach	Dune - Togston Links	205.7	16/06/2022	Royal HaskoningDHV	Narrow shingle ridge with low well vegetated dunes. Partial erosion, cliffing and slumps along most of frontage releasing boulders onto beach.	3	11 - 20	Monitor erosion	routine
121AA901A3201C11	Vegetated dunes with wide sandy beach	Dune - Togston Links	682.7	16/06/2022	Royal HaskoningDHV	Narrow sandy beach backed by high well vegetated earth bank. Partial erosion, cliffing and slumps along most of frontage. Dunes stabilising at south end near outfall.	3	11 - 20	Monitor erosion near parking area.	routine
121AA901A3201C12	Reinforced concrete outfall/culvert with side walls & apron. Flows through earth bank onto mainly sandy beach. Concrete access ramp to south.	Outfall - Hadston Carrs	121.5	16/06/2022	Royal HaskoningDHV	Concrete outfall structure in good condition. Some minor cracks and staining. No signs of undermining or settlement of main structure. High beach levels burying access ramp.	2	>20	Monitor beach levels at access ramp for undermining.	routine
121AA901A3201C13	Rock Revetment	Revetment - Druridge Bay	140.7	16/06/2022	Royal HaskoningDHV	Some rocks displaced along toe, minor flattening of profile. No signs of erosion at crest. Significant outflanking at southern end continues causing some unravelling of rocks and risk to road	3	11 - 20	Extending revetment at south end.	urgent
121AA901A3201C14	Low soft cliffs/dunes with wide sandy beach in front forming northern section of Druridge Bay. Rounded pebbles (approx 200mm diameter) form informal toe of the dune.	Dunes - Druridge Bay	516.6	16/06/2022	Royal HaskoningDHV	Dunes stable along whole frontage. Erosion and cliffing of crest at south end by revetment, cutback starting to cause damage to road.	4	6 - 10	Extend existing revetment at north end to protect road.	urgent
121AA901A3201C15	High dunes/sand cliff with wide sandy beach seaward forming main length of Druridge Bay. Concrete blocks (approx 1m cubed) placed along the toe of the dune at between 2 and 3m centres buried to varying degrees by the beach.	Dunes - Chiburn Links	4339.6	16/06/2022	Royal HaskoningDHV	Healthy well vegetated dunes and healthy shingle beach at north, increasing in width and sandy towards south. High beach levels almost fully covering blocks.	2	>20	Monitor erosion	no repairs

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121AA901A3201C16	Vegetated dunes with wide sandy beach. Forms southern section of Druridge Bay. Several lakes and ponds discharge across the foreshore via outfalls.	Dunes - Blakemore	2888.4	16/06/2022	Royal HaskoningDHV	Wide sandy beach with wide well vegetated dunes. Beach levels high up dune, no signs of erosion. Coastline embayed around each of the outfalls, caused by erosion. Most erosion near outfall channels. Concrete blocks used locally to limit erosion.	2	>20	None.	routine
121AA901A3201C17	Shallow rock armour revetment protecting lower half of vegetated dunes.	Revetment - Cresswell	76.3	16/06/2022	Royal HaskoningDHV	Rock armour loosely packed, toe well buried at north end. Dune narrow but well vegetated, movement and crest erosion at north end. Some small rocks tipped at sound end. Concrete steps and handrail good, partly buried. Property close to cliff edge.	3	11 - 20	Monitor erosion of crest	no repairs
121AA901A3201C18	Low concrete wall built at the back of a rocky foreshore. Rock armour revetment behind wall protects vegetated cliff.	Sea Wall - Cresswell	139.4	16/06/2022	Royal HaskoningDHV	Wall well founded on rock. Some localised abrasion, spalling and rust-staining. Some of the numerous previous repairs starting to break apart. Some movement and gaps in rock armour at south end. Localised erosion of upper slope along most of frontage. Tipped rubble evident.	3	>20	Repair abrasion. Place additional rock armour.	routine
121AA901A3201C19	Concrete blockwork revetment with low concrete wall at toe and rock foreshore.	Revetment - Cresswell	102.8	04/07/2022	Royal HaskoningDHV	Concrete toe wall showing some signs of concrete spalling at the vertical joints. No signs of tilting. Weep holes draining properly. Overall condition good. The upper slope mesh made of concrete interlocking elements is in good condition with vegetation growing through it in the north side.	2	>20	Replace missing block. Monitor settlement.	routine
121AA901A3201C20	Natural soft cliff/ dune at the back of high rock foreshore.	Dunes - Cresswell	140.2	04/07/2022	Royal HaskoningDHV	High and stable rock foreshore forming an horizontal stratified wide berm. The rear natural soft cliff presents toe erosion and consequent slumps along most of the frontage. No significant changes since last inspection.	3	11 - 20	Monitor upper section erosion	no repairs
121AA901A3201C21	Vegetated cliff with wide sandy beach, forming a short shallow bay between outcrops of Stark Letch Rocks and Brig Head.	Dunes - Cresswell	246.4	04/07/2022	Royal HaskoningDHV	No change evident since last inspection. Three outfalls from fair to very poor condition, localised erosion at the soft vegetated slopes toe and some localised landslide near the timber steps.	3	>20	Monitor erosion.	no repairs
121AA901A3201C22	Vegetated embankment rising out of the dunes to the north, founded on rocky/ stony foreshore.	Cliff/Embankment - Cresswell	320	04/07/2022	Royal HaskoningDHV	Northern section with Gabions showing some degree of protection to the cliff toe but gabions desintegrating. Erosion of toe, cliffing and large scale global slip at south end of gabions, affecting the road barrier. Repairs to the road foundations show evidences of further slide. Road at risk. South end of section with rocky cliffs experiencing moderated erosion and slumps.	5	1 - 5	Large scale erosion protection/ slope stabilisation solution required.	urgent
121AA901A3301C01	Low earth/rock cliffs with rocky outcropping foreshore forming Snab Point. Local section of private timber/rubble retaining wall defence.	Cliff - Snab Point	970.3	04/07/2022	Royal HaskoningDHV	Rocky cliffs around the inner basing looking stable with plenty of vegetation growth. Timber terraced defences in fair to poor condition with some timber concrete foundation plugs exposed to wave action and gaps under the timber screen. Soft upper cliffs experiencing moderated erosion.	3	Nov-20	Protect toe of timber defences. Monitor erosion.	routine
121AA901A3301C02	Low rock cliff with rocky and sandy foreshore forming a bay which is sheltered by Snab point.	Cliff - Headagee	508.3	01/08/2022	Royal HaskoningDHV	Rocky cliff transitioning southwards to a low rock cliff topped with soft vegetated material. Some localised and moderated erosion is present.	3	>20	Monitor erosion.	no repairs

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121AA901A3401C01	Low vegetated soft cliff with rocky toe at back of beach comprising of colliery waste.	Cliff - Lynemouth	1108.4	01/08/2022	Royal HaskoningDHV	Sandy beach backed by a dune with a low colliery cliff in between. All elements sheltered at north by rock outcrops and exposed to erosion to the south, with the sand dune transitioning to a cliff with localised slumps. Refuse can be widely spotted in the colliery low cliff.	4	>20	Capital waste management scheme planned for 2021.	no repairs
121AA901A3401C05	Man-made cliff of tipped colliery waste. Beach comprised of colliery waste.	Cliff - Lynemouth	283.8	01/08/2022	Royal HaskoningDHV	Plenty of discarded refuse exposed by the rapid erosion of the spoil cliff on top of the sandy beach.	4	>20	Capital waste management scheme planned for 2021.	routine
121AA901A3401C06	Man-made cliff of tipped colliery waste. Tipping now ceased due to due to closure of mine. Due to extension of Power Station revetment (def.34/00/2) the area of colliery waste embankment is now reduced to area north of the Power Station drainage outfall.	Cliff (man-made)	340.2	01/08/2022	Royal HaskoningDHV	Rapid erosion of spoil cliff with sandy foreshore full of cobbles from spoil	4	>20	Control public access to crest. Consider environmental issues.	no repairs
121AA901A3401C07	Rock revetment. Original revetment constructed in 1995 was extended by April 2006 to encompass the coal stocking yard area adjacent to the Power Station.	Revetment - Lynemouth Power Station	216.6	01/08/2022	Royal HaskoningDHV	Rock revetment with a berm, rocks armour angular and well packed	2	>20	None.	no repairs
121AA901A3401C08	Power Station fronted by informal pathway below coastal slope. Seaward side of the pathway is protected by rock armour.	Embankment - Lyne Sands	258	01/08/2022	Royal HaskoningDHV	Rock revetment with a berm, rocks armour angular and well packed. Outfall pipe failed but outfall structure through the revetment in good condition. The spoil beach at the south end has stabilised, not posing a risk to the revetment at the moment.	3	11-20	Address outflanking at south end.	routine
121AA901A3401C03	Rock revetment currently buried by colliery spoil.	Revetment - Lynemouth Power Station	90	Not inspected. Buried.	n/a	The colliery spoil is in active erosion process, hence forming a cliff. Where rock revetment rocks are exposed these protect the toe of the colliery cliff.	n/a	n/a	n/a	n/a
121AA901A3401C04	Tie-in embankment currently buried by colliery spoil.	Embankment - Lynemouth Power Station	80	Not inspected. Buried.	n/a	The colliery spoil is covering entirely the tie-in embankment. The flood defence level and erosion protection of the embankment are improved by the presence of the spoil	n/a	n/a	n/a	n/a
121AA901A3501C01	Vegetated dune fronted by sand, shingle and colliery waste beach with some cliffing in the beach profile.	Coastal Slope - Lyne Sands	606.7	01/08/2022	Royal HaskoningDHV	Vegetated dune stable with some signs of cliffing to the south end. Shingle and colliery beach profile enclosing some water in front of the sand dunes. Top of colliery beach profile stable and with areas reserved for nesting.	3	11 - 20	Monitor erosion and outflanking at north end.	routine
121AA901A3501C11	Low soft cliff with vegetated top founded on rocky foreshore forming north side of Beacon Point headland	Cliff - Beacon Point	471.5	04/07/2022	Royal HaskoningDHV	Stable rock terraces and cliffs of varying height, showing some localised erosion and rock weathering and delamination. Upper earth vegetated slope showing moderated toe erosion.	3	>20	Monitor erosion.	routine

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121AA901A3501C03	Low soft cliff with stoney foreshore forming south side of Beacon Point Headland.	Cliff - Beacon Point	554	04/07/2022	Royal HaskoningDHV	No major changes since last inspection. Ongoing erosion at upper soft cliff and addition of a small timber retaining structure. Lower layers of cliff showing water filtrations. Black fine gravel accumulating at the south end toe. No risk to flood defence level.	3	>20	Monitor erosion.	routine
121AA901A3501C04	Low soft cliff/dunes with mainly sandy foreshore, forming central section of shallow bay. Large rock randomly dumped at the toe of the dunes.	Cliff - Whitehole Skears	705	04/07/2022	Royal HaskoningDHV	No major changes since last inspection. Sand dunes stable with substantial vegetation growth in the central part of the section. South end soft cliffs also experiencing possibly seasonal sand accumulation. No breaches throught the wave defence level.	3	>20	Monitor erosion.	routine
121AA901A3501C05	Low soft cliff with sandy/stony foreshore	Cliff - Way Foot, Newbiggin Moor	149.8	04/07/2022	Royal HaskoningDHV	No cobbles visible, possible seasonal sand accumulation at the toe of the cliff. No changes from previous inspection otherwise. Plenty of vegetation on the cliff face. Static caravans at risk.	4	1 - 5	Consider erosion protection to caravan park or relocation of caravan park.	routine
121AA901A3501C06	Ad-Hoc Revetment comprising large concrete cubes buried at base of a soft cliff, with some boulders behind. The foreshore is a combination of rock and sandy beach.	Revetment - Dolls Carrs	163.1	04/07/2022	Royal HaskoningDHV	No major changes since last inspection. Rock ledges and sandy foreshore with concrete blocks and well vegetated earth back behind. Concrete blocks experiencing some weathering No signs of recent erosion. Some dumped construction waste. Boundary fence very close to cliff edge. Caravans very close to cliff edge at risk.	3	6 - 10	Monitor erosion. Liaise with caravan park.	no repairs
121AA901A3501C07	Soft low cliff perched on outcropping hard rock, with rock strewn sandy beach at toe. Concrete rubble has been dumped on the upper slopes of the soft cliff.	Cliff - Dolls Carrs	65.8	04/07/2022	Royal HaskoningDHV	No changes since last inspection. Stable rock foreshore with low earth slope behind. Cliffs well vegetated, some localised erosion/ slumping. Undermining of concrete pill boxes, risk of collapse. Ad-hoc dumping of boulders along cliff largely ineffective. Caravans very close to edge	3	11 - 20	Monitor erosion. Liaise with caravan park.	no repairs
121AA901A3501C08	Near vertical concrete seawall, founded on rock foreshore.	Sea Wall - Newbiggin Point	29	04/07/2022	Royal HaskoningDHV	No significant changes since last inspection. North wingwall or cope extension undermined showing some cracks. Upper soft embankment moderate erosion with refusal materials unburied.	3	6 - 10	Repair and erosion protection for the upper soft slope.	routine
121AA901A3501C09	Low earth/clay cliff on top of rock platform.	Cliff - Newbiggin Point	25.6	04/07/2022	Royal HaskoningDHV	No significant changes since last inspection. Lower rocky foreshore stable with some loose rocks and upper soft embankment showing signs of erosion. Caravans at 15m from edge (no change)	3	11 - 20	Erosion protection to upper slope.	routine
121AA901A3501C10	Near vertical concrete seawall, founded on rock foreshore, with low and gentle sloping concrete revetment at crest, protecting earth behind defences	Sea Wall - Newbiggin Point	57.8	04/07/2022	Royal HaskoningDHV	Main section of the concrete wall in fair condition with some signs of localised undermining and cracks. West wing in very poor condition, missing a section. Upper mass concrete slab in very poor condition with missing sections and erosion of gravel backfill.	5	1 - 5	Remove or repair wall, erosion protection to upper cliff.	urgent
121AA901A3601C01	Low irregular rock cliff and rocky foreshore, with soft eroding layer on top of cliff. Localised concrete/masonry repairs where the rock cliff has eroded.	Cliff - Newbiggin Point	171	04/07/2022	Royal HaskoningDHV	Severe undermining of the masonry walls concrete toes. Cliff cutbacks possibly affected by backfill migration, threatening nearby static caravans. Possible cliff slumps.	5	06-Oct	Erosion protection to masonry walls toe to avoid backfill migration.	routine



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121AA901A3601C12	Vertical concrete seawall with re-curved crest and narrow promenade behind. Short lengths of concrete toe proection works at interface with rock foreshore. Low exposed earth cliff at rear of promenade.	Sea Wall - Little Bay	72.6	04/07/2022	Royal HaskoningDHV	No significant changes since last inspection. Abrasion along most of seawall toe with localised undermining. Abrasion and cracks opening at construction joints. No movement apparent. Loss of joint sealant. Minor erosion along most of upper earth bank. Hand rail rusty (vertical upstand).	3	>20	Repair undermining. Repair cracks. Replace joint sealant.	routine
121AA901A3601C13	Recurved concrete seawall and integrated promenade backed by low earth cliff. Founded on rock foreshore	Sea Wall - Church Point	48.6	04/07/2022	Royal HaskoningDHV	No significant changes since last inspection. Wall well founded on rock foreshore. No settlement or cracks. Localised minor undermining/ breakup of additional toe apron. Replaced sealant in good condition. Some minor rusting to hand railing. No erosion to upper grass crest. Handrailing corroded.	3	>20	Repair cracks/undermining. Protect / repair handrailing	routine
121AA901A3601C14	Linear rock armour breakwater. Alee sewage outfall crossing underneath the breakwater.	Breakwater - Hully Rocks	189.9	04/07/2022	Royal HaskoningDHV	Angular rocks well interlocked and stable. No damage to either trunk or roundhead.	2	>20	Monitor settlement of crest and loss of filter/core.	no repairs
121AA901A3601C15	Recurved concrete seawall with a short rock revetment at the toe.	Revetment - Newbiggin	21	04/07/2022	Royal HaskoningDHV	No significant changes since last inspection. Some concrete spalling and cracks not affecting performance of asset. Rubble mound not visible	2	>20	None.	routine
121AA901A3601C16	Detached rubble mound breakwater at the center of Newbiggin bay, with the iconic "The Couple" sculpture, creating a sand tombolo from the beach. The breakwater core lies on a geotextile layer and the armour layer is comprised of 3.9m3 Core-Loc units. Beach replenishment and offshore breakwater completed 2007.	Detached Breakwater - Newbiggin	210	04/07/2022	Royal HaskoningDHV	No apparent damage to the Core loc armour layer. Few rocks of the armour toe possibly displaced at the south roundhead, but not affecting performance or survival of the breakwater. Sand tombolo growing.	2	>20	Undertake a boat inspection to check the seaward face of the breakwater	routine
121AA901A3601C06	Recurved concrete seawall and integral promenade with all but the top of the recurved buried by the wide sandy beach. Beach replenishment and offshore breakwater completed 2007.	Sea Wall - Newbiggin Bay	352.4	04/07/2022	Royal HaskoningDHV	No changes since last inspection. Seawall and promenade in fair/good condition. Beach levels very healthy, over-spilling onto promenade at south end. Sligh corrosion at lower hand railing posts.	2	>20	None.	no repairs
121AA901A3601C07	Recurved concrete sea wall with concrete steps at toe, at the back of a wide sandy beach. Promenade fronted by the recurved sea wall and backed by a masonry sloped revetment protecting the residential properties behind.	Sea Wall - Newbiggin Bay	554.8	04/07/2022	Royal HaskoningDHV	No changes since last inspection. Seawall and promenade in good condition, no evidence of settlement. Sealant joints new, minor spalling at south end. Hand railing good. High beach levels, sand over-spilling onto prom. Some vegetation growing at the walls toe.	2	>20	None	no repairs

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121AA901A3601C08	Shallow sloping rock armour revetment backed by capping beam and seafront promenade backed by masonry sloped revetment. Beach replenishment and offshore breakwaters completed 2007.	Revetment - Newbiggin Bay	346.3	04/07/2022	Royal HaskoningDHV	No significant changes since last inspection. High beach levels over-spilling onto prom. Rock mostly buried, some vegetation growth at south end. Hand railing with localised corrosion in fair to very poor condition	3	>20	Repair handrailing	routine
121AA901A3601C09	Low rock outcrop forming southern end of sandy beach and coastal slope, backed by gently rising vegetated slope	Cliff - Spital Carrs	310.2	04/07/2022	Royal HaskoningDHV	No changes since last inspection. Wide sandy beach backed by well vegetated coastal slope. Strand line 50m+ from toe of slopes. Large areas of new vegetated growth on foreshore.	3	>20	None.	no repairs
121AA901A3601C10	Outcrop forming low rock cliff and foreshore with vegetated slope behind	Cliff - Spital Point	223.1	04/07/2022	Royal HaskoningDHV	no significant changes since last inspection. Some localised breakup of rocks and boulders along toe of cliff. Moderated erosion, cliffing and slips along most of upper cliff. Access along narrow ridge prevented by fencing.	2	>20	Monitor erosion.	no repairs
121AA901A3601C11	Rock armour revetment at the back of small inlet/ strongly indented bay with concrete outfall at centre. (NWL storm outfall).	Revetment	207.5	04/07/2022	Royal HaskoningDHV	No changes since last inspection. Rock armour angular and well interlocked. Concrete outfall, associated masonry and concrete structures appear to be in good condition. Evidence of outflanking of tie-in of the older concrete outfall in softer cliff material.	2	>20	None.	no repairs
121AA901A3701C01	Low soft cliffs with some debris at toe sitting on raised rock platforms/ beaches	Cliff - Links Quarry	193	04/07/2022	Royal HaskoningDHV	no significant changes since last inspection. Partial erosion, cliffing and slumps in upper cliffs along most of frontage. Significant tipping of construction waste to slow erosion with some limited effect. Access ramp to the foreshore built for construction plant access, possibly to protect the soft cliff toe.	4	11 - 20	Consider formal erosion protection.	urgent
121AA901A3701C02	Rock cliff with scree at toe forming small bay between two areas of outcropping rock. Part of the cliff has a dipping seam of coal measures.	Cliff - North Seaton Links	593.7	04/07/2022	Royal HaskoningDHV	No significant changes since last inspection. Boulder foreshore backed by high cliffs. Ongoing erosion and collapse of cliffs, localised slumps, occasional rock falls in hard rock. Whole length is active. No properties immediately at risk.	4	1 - 5	Monitor ongoing erosion. Realign footpath.	no repairs
121AA901A3701C03	Exposed earth cliff with rubble foreshore and regular discontinuous low rock armour breakwater.	Breakwater - North Seaton Links	561.6	04/07/2022	Royal HaskoningDHV	Continued significant erosion, cliffing and slumping of soft upper cliff along unprotected frontage. Boulders/ rubble along toe. Ongoing collapse of boundary walls onto foreshore. Slipway/ rock armour protection ok. Caravans close to edge	5	6 - 10	Consider formal erosion protection or landward relocation of caravans. Liaison with caravan park.	no repairs
121AA901A3801C01	Low earth embankment/ cliff forming north bank of estuary mouth with sandy foreshore	Embankment - North Bank River Wansbeck	396.8	04/07/2022	Royal HaskoningDHV	Sandy foreshore with low boulder embankment topped by well vegetated dunes. Generally stable. Wide spit on northern side of the estuary mouth constraining channel towards the south shore.	2	>20	None.	no repairs
121AA901A3801C02	Low cliff forming south bank of estuary mouth with sandy foreshore	Embankment	231.6	13/07/2022	Royal HaskoningDHV	No changes. Good sand strand. The retaining wall is in poor condition however, not failed.	2	>20	None.	no repairs

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121AA901A3901C01	Partially vegetated clay cliff with wide sandy beach	Cliff - Cambois Links	321.9	13/07/2022	Royal HaskoningDHV	Signs of erosion on the toe but this is not recent. Plenty of sand protection at the base of most of the cliff.	3	1 - 5	Monitor.	routine
121AA901A3901C05	Rock armour revetment giving toe protection to vegetated coastal slope	Revetment - Cambois Links	600.7	13/07/2022	Royal HaskoningDHV	No changes since last inspection. Slope remains stable and rock armour has no signs of erosion on it.	2	>20	Monitor.	routine
121AA901A3901C03	Low, vegetated clay cliff with cobbles at toe and a wide sandy beach	Cliff - Cambois Links	1373.1	13/07/2022	Royal HaskoningDHV	Dune is stable, no signs of recent erosion. Rests from two old outfalls.	3	>20	Monitor. Remove outfalls when feasible	routine
121AA901A3901C04	Low vegetated clay cliff/dunes with beach build up in lee of the Rockers outcrop	Cliff - The Rockers	592.3	13/07/2022	Royal HaskoningDHV	Moderate erosion, strand has been reduced since last inspection. Not visible at some sections. Top of cliff is well vegetated. Feature of poles with signs signalling under water obstructions.	3	6 - 10	Monitor.	routine
121AA901A4001C01	Rock armour revetment and rock gabions protecting low soft cliff, with wide sandy beach in front.	Revetment - North Beach	727.3	13/07/2022	Royal HaskoningDHV	Rock armour slope seems is too steep. Rock armour has stopped supporting the gabions at some locations. Two gabion baskets have fallen and some others are breaking due to corrosion. Ramp to car park has some undermining issues.	3	>20	Repair gabions. Review slope stability.	routine
121AA901A4001C02	Rock revetment with large units on lower slope, and smaller units on upper slope separated by steel breast work. Scree on beach fronted by rock intertidal platform.	Revetment - Shiny Gripe Lug	167.9	13/07/2022	Royal HaskoningDHV	Steel breast has failed in some sections. Upper and lower rocks form a new continued slope, no movements since last inspection. Top of revetment is stable and well vegetated. Some sand accumulation on the toe. Access ramp concrete slab presenting localised undermining.	3	11 - 20	Monitor armour movement at toe. Monitor erosion at crest. Repair localised ramp undermining.	routine
121AA901A4001C03	Composite seawall comprising timber breastwork and concrete and rock armour apron with narrow foreshore	Sea Wall - Alcan Reclaim	114.3	13/07/2022	Royal HaskoningDHV	Concrete wall and rock apron in fair condition. Timber screen in poor condition with some missing sections. All steal nails and bolts etc are corroded. Industrial waste is not stable behind the structure, at risk of falling down on top of timber. Rock armour looks new and is in good condition.	4	1 - 5	Repair timber breastwork and stop material migration.	urgent
121AA901A4001C04	Vertical concrete seawall and crestwall with concrete groynes on scree strewn rock foreshore forming part of the Blyth East Pier	Sea Wall - Crab Law	322	13/07/2022	Royal HaskoningDHV	Toe presents moderate erosion, not affecting the structure. Concrete wall is in poor condition. The walls ladders are broken and failed; this area was in fair to poor condition. Groyne in poor condition with extensive erosion, still performing however. Parapet in very poor condition with failed sections and large cracks, walkway slabs have missing or broken sections. No evident damage to the area behind.	4	6 - 10	Repairs to cracks. Assessment of crest wall failure.	urgent
121AA901A4001C05	Concrete breakwater with raised timber walkway on crest, founded on bedrock, forming the tip of Blyth East Pier	Breakwater - Blyth East Pier	1448	13/07/2022	Royal HaskoningDHV	Concrete inclined wall with raised timber walkway. Timber supported by concrete and timber frames that are in very poor condition. Toe is in good condition and flood defence crest level is unaltered. Timber walkway is missing sections and handrailing.	4	>20	Trestle is ruined, beyond repair, and would require complete refurbishment. Inspect closely the seaward face of the wall to confirm that the timber leg grooves do not pose a structural issue to the wall	no repairs

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121AA901A4201C10	Vertical brick wall with capping beam and concrete footing, at the back of a wide sandy beach with a partially vegetated low dune immediately in front of the sea wall.	Sea Wall - West Pier, Blyth	485	17/05/2022	Royal HaskoningDHV	Wide sandy healthy beach, strandline 20m from toe. Dunes narrow but well vegetated. Brick wall generally in good condition, some vertical cracks, seaward rotation evident to south end.	3	11 - 20	Repair cracks, strongbacks and footings to brickwall.	routine
121AA901A4201C11	Vertical seawall comprising precast concrete planks spanning between concrete posts with a wide sandy beach and partially vegetated dune/slope in front. Level of dune/slope varies, almost burying walls in places.	Sea Wall - South Beach	230.5	17/05/2022	Royal HaskoningDHV	Wide healthy beach, strandline 10m from toe. Well vegetated but narrow dunes. Localised seaward rotation of wall at north end, occasional vertical cracking.	3	11 - 20	Replace missing planks. Monitor movement in wall.	routine
121AA901A4201C03	Sandy beach with vegetated sand dune behind and gabion revetment at base of dune.	Dunes - South Beach	55.6	17/05/2022	Royal HaskoningDHV	Dunes very narrow, cliffing and partial loss of vegetation, complete loss of dune at one location exposing wall foundation. Some gabions burst with loss of stone. No movement in wall, post and planks in fair condition, some minor cracking	4	1 - 5	Repair gabions. Extend gabions northwards. Dune management.	routine
121AA901A4201C04	Composite seawall comprising near vertical solid concrete wall with vertical concrete plank and post wall sitting on crest. Wide sandy beach at toe. Returns inland at south end to allow beach access for road.	Sea Wall - South Beach	119.1	17/05/2022	Royal HaskoningDHV	Wall in fair condition, no evidence of movement or undermining, some minor cracking and loss of joint sealant. Higher beach levels burying toe. Ad-hoc tipping of precast concrete and poured concrete along south flank, now undermined. Works to extend wall north and improve adjacent gabions required as part of planning condition for property. Works progressing slowly and engineering robustness is of concern as well as works being aesthetically poor.	4	>20	Monitor undermining at toe.	no repairs
121AA901A4201C05	Concrete seawall with protruding crest lip and promenade behind. Wide sandy beach in front.	Sea Wall - Beach Gardens	143.8	17/05/2022	Royal HaskoningDHV	Sandy beach, cobble berm. Wall in fair condition, no movement, some cracking and spalling at joints. Loss of joint sealant. Some cracks in surfacing, setback wall ok. Wall well protected by high beach and dune.	3	>20	Monitor cracks in surfacing.	no repairs
121AA901A4201C06	Near vertical concrete seawall with lip at crest in advance of adjoining defences. Wide sandy beach in front.	Sea Wall - Promenade	169.6	17/05/2022	Royal HaskoningDHV	Wall in fair condition, no signs of movement but abrasion and staining especially at northern end. Some undermining and abrasion at north access steps. Some vertical cracks and loss of mortar beneath cope. Healthy sandy beach. Promenade surfacing and setback wall in good condition.	3	>20	Repair to cracks.	routine
121AA901A4201C07	Near vertical concrete seawall with lip at crest, almost buried by wide sandy beach in front. An outfall consisting of steel sheet piles and concrete is partially buried.	Sea Wall - Blyth Links	237.8	17/05/2022	Royal HaskoningDHV	Wide sandy beach, strand line 15m from wall. Minor cracks in wall, localised spalling/abrasion exposing rebar. Further gaps/cracks in capping blocks at south end. Surfacing good. Outfall in good condition	3	>20	Repair abrasion and cracks.	routine
121AA901A4201C08	Steel sheet piling with concrete capping beam forming the southern end of the South beach promenade.	Sea Wall - Fort House	94.3	17/05/2022	Royal HaskoningDHV	Sheet piles highly corroded and three voids now created, exposing backing beach/dune sand. Repairs needed to prevent wash-out.	4	6 - 10	Repair voids in piles at three locations.	urgent

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121AA901A4301C01	Vegetated dunes with timber groyne fields in the wide sandy beach in front.	Dunes - Blyth Cemetery	334.3	17/05/2022	Royal HaskoningDHV	Wide sandy beach, wide well vegetated dunes. All 3 groynes in poor/very poor condition, noticeable level difference, some gaps and missing boards, arson damage to one section, scour and gaps beneath boards not visible due to high beach levels. Channel of Meggie's Burn undercut southerly groyne (causing collapse) in 2019 but now re-engineered to new alignment and groyne and beach reinstated.	4	11 - 20	Replace missing/damaged planks on groynes.	routine
121AA901A4301C02	High sand dunes with exposed seaward face but vegetated at crest, with narrow sandy beach in front.	Dunes - Hartley Links	2146.8	17/05/2022	Royal HaskoningDHV	Wide well vegetated gently sloping dunes, stable. No erosion at toe. General pedestrian erosion at access points. Beach levels healthy, strand line 30m from toe. Annual reinforcement with Christmas tress effective	2	>20	Dune fencing to control pedestrian access.	routine
121AA901A4401C01	Low near vertical masonry wall providing toe protection to high vegetated slope. Sandy beach in front is partially vegetated.	Sea Wall - Sandy Island	318.3	17/05/2022	Royal HaskoningDHV	Wide healthy beach backed by high well vegetated dunes. Masonry wall in good condition. Strand line 30m from toe.	2	>20	None.	no repairs
121AA901A4401C02	Composite defence structure reinforcing the western entrance to Seaton Burn. Comprises: timber groyne extending from near the root of the original masonry harbour arm and converging with it; short concrete wall connecting the end of the arm to the groyne	Sea Wall - Sandy Island	92.8	17/05/2022	Royal HaskoningDHV	Wide healthy beach, masonry section of groyne mostly buried. Timber section of groyne in poor condition, boards missing at centre, arson damage at landward end. Groyne ineffective as no retained material. Ad-hoc tipping of rocks at seaward end.	4	6 - 10	Replace missing/damaged planks.	routine
121AA901A4401C03	Masonry harbour arm west of the western entrance to Eastern Sluice	Sea Wall - Sandy Island	24.3	17/05/2022	Royal HaskoningDHV	Masonry seawall in fair condition. No movement evident, a vertical crack at seaward end with missing block. Undermining of deck edge, localised concrete repairs appear good.	3	>20	Repair vertical crack and replace missing block. Repair undermining of deck edge	routine
121AA901A4401C04	Vertical masonry wall forming west bank of Eastern Sluice west channel. No foreshore at high water, but mud/ shingle exposed at low tide.	Sea Wall - Seaton Burn	131.4	17/05/2022	Royal HaskoningDHV	Some gaps between blocks. No signs of movement, possibly hole at base at north end. Mortar repairs at crest still good. Accumulation of sand along crest making the path difficult and dangerous to walk along.	3	>20	Repair gaps between blocks. Clear sand from crest.	routine
121AA901A4401C05	Vertical masonry wall forming north bank of burn immediately upstream of split in channel. Foreshore only exposed at low water.	Sea Wall - Seaton Burn	142.5	17/05/2022	Royal HaskoningDHV	Some voids, loss of mortar and slight bulging in some areas. No undermining apparent but some localised but deep voids in fill behind cope. Large crack at top of ramp, settlement of bottom section, some movement in side wall. Voids in steps. Sink hole off river bank.	3	>20	Fill gaps between blocks. Rebuild ramp side wall. Monitor voids behind crest.	routine
121AA901A4401C06	Vertical masonry wall forming south bank of burn immediately upstream of split in channel. Crest level varies to tie in rising land behind.	Sea Wall - Seaton Burn	229.3	17/05/2022	Royal HaskoningDHV	Some displaced blocks, notably along base at east end. Localised cracks, and gaps between blocks along entire length. Localised cracking and significant spalling to concrete capping beam at east section. Ladders in fair condition.	4	11 - 20	Replace missing blocks. Repair cracks. Repair coping.	urgent

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121AA901A4401C07	Channel carved out of high rock outcrop providing second outlet for Seaton Burn out to sea. Both sides comprise vertical rock faces with steep earth slopes on top.	Sea Wall - Seaton Burn	141.9	17/05/2022	Royal HaskoningDHV	Large gaps and some missing blocks throughout. South east section extremely dilapidated, exposing the earth cliff behind. Erosion is also occurring at the eastern end of the section. Rock cliff sections appears stable.	3	6 - 10	Replace missing blocks, repoint, rebuild where necessary.	routine
121AA901A4401C08	Vertical masonry wall forming east bank of Seaton Sluice west channel.	Sea Wall - Seaton Burn	166.9	17/05/2022	Royal HaskoningDHV	Some area of minor settlement evident. Some cracks, displaced blocks and loss of mortar along inner section. Reports of significant void at toe not observed due to heavy weed growth.	3	>20	Repair cracks. Vessel based survey of void at toe.	routine
121AA901A4401C09	Rock armour revetment with remains of masonry wall acting as toe protection and backed by concrete pier (Defence Code 44/12/1).	Revetment - Rocky Island	46.3	17/05/2022	Royal HaskoningDHV	No loose rocks or gaps apparent. No signs of settlement or undermining at toe of. Some displaced blocks at toe but no recent change.	2	>20	None.	no repairs
121AA901A4401C10	Concrete pier with concrete crest wall on seaward side founded on a rocky outcrop and with rock armour (Defence Code 44/11/1) at toe.	Sea Wall - Rocky Island	55.5	17/05/2022	Royal HaskoningDHV	Boulder foreshore. Seawall well founded on rock. No signs of movement or settlement. Minor abrasion to blocks/ apron. Localised undermining of toe at seaward end. Joint sealant missing. Hand railing and ladder in good condition. [Note: access ramp on landward side (entirely on land) breaking up.]	2	>20	Replace sealant. Monitor undermining at toe.	no repairs
121AA901A4401C11	Vertical masonry seawall founded on rocky foreshore with sloping toe protection comprising boulders.	Sea Wall - Rocky Island	119.3	17/05/2022	Royal HaskoningDHV	Boulder foreshore. Wall well founded on rock, no undermining. Some large gaps and cracks between blocks. Missing blocks along toe, localised area of inward movement. Some erosion behind crest. Handrail in poor condition, surfacing and steps in fair condition.	3	6 - 10	Repair area of movement. Fill gaps/ cracks. Stabilise eroding land behind crest.	urgent
121AA901A4401C12	Rock cliff with earth slope above.	Cliff - Rocky Island	181.5	17/05/2022	Royal HaskoningDHV	Erosion of cliff line previously reported but no significant activity since. Fence laying flat in one location.	3	11 - 20	Stabilise soft upper cliffs adjacent to Watch House.	routine
121AA901A4401C13	Cliff.	Cliff - Collywell Bay	130.5	17/05/2022	Royal HaskoningDHV	Rock foreshore with rock cliffs and earth slopes above. No significant change since last survey. Occasional localised rock fall but mostly stable. No erosion at crest.	2	>20	None.	no repairs
121AA901A4401C14	Near vertical seawall with profiled crest and toe details, founded on rocky foreshore and with soft cliff above.	Sea Wall - Collywell Bay	73.4	17/05/2022	Royal HaskoningDHV	Wall generally in good condition, well founded on rock foreshore, no signs of movement, slight undermining. Some minor cracks, spalling in the upper section of the wall. Ladder in good condition. Localised historic slips in upper slope but none recent.	2	>20	Repair spalling.	routine
121AA901A4401C15	Near vertical seawall with integral toe detail and steep brick work revetment protecting soft cliffs above. Founded on rocky foreshore.	Sea Wall - Collywell Bay	65.4	17/05/2022	Royal HaskoningDHV	Wall well founded on rock foreshore. No signs of movement, some minor undermining of toe apron. Significant abrasion of lower blocks, missing flap valves. Full height vertical crack in upper masonry wall. Loss of mortar beneath coping block.	3	>20	Repoint masonry and monitor further cracking. Replace flap valves.	routine
121AA901A4401C16	Near vertical sea wall with profiled crest and steeped toe detail founded on rocky foreshore.	Sea Wall - Collywell Bay	41.6	17/05/2022	Royal HaskoningDHV	Wall well founded on rock foreshore. No signs of movement, minor undermining of toe apron. Minor loss of mortar below coping. Flap valves missing, one drainage hole blocked. Some abrasion of concrete at the toe.	3	>20	Clear drainage holes. Replace flap valves.	no repairs

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121AA901A4401C17	High near vertical concrete seawall with small vegetated slope above it and concrete apron along some of the toe. Foreshore mainly rocky with some sandy/shingle beach.	Sea Wall - Collywell Bay	134	17/05/2022	Royal HaskoningDHV	No noticeable change in 3 full height vertical cracks, no movement apparent. Significant abrasion and spalling along toe and at access steps. Handrail heavily corroded. Movement of wooden fencing on upper slope.	4	11 - 20	Repair cracks, monitor for movement.	routine
121AA901A4401C18	Concrete seawall with stepped toe detail and wave deflecting curve offering toe protection to high soft cliff with sandy and rocky foreshore.	Sea Wall - Collywell Sands	174.6	17/05/2022	Royal HaskoningDHV	No signs of movement, minor undermining at toe. Some abrasion and minor gaps between blocks. High beach levels south end. Ongoing active slips along majority of soft upper cliff. Escape ladder missing.	2	>20	Monitor slips in upper cliff. Replace ladder.	routine
121AA901A4401C19	Low gabion basket wall at toe of vegetated earth slope with concrete access ramp and retaining wall. Wide rock platform foreshore fronts this section.	Gabions - Collywell Bay	55.4	17/05/2022	Royal HaskoningDHV	Gabions replaced in past but again splitting. No erosion of vegetated slope. Ramp well founded on rock, undermining at lower end but appears stable. Some abrasion to ramp. Upper vegetated slope stable.	4	11 - 20	Repair gabions. Monitor undermining of ramp.	routine
121AA901A4401C20	Medium height earth slope above rock platform/cliff.	Cliff - Collywell Bay	226.6	17/05/2022	Royal HaskoningDHV	Rock foreshore appears stable. Some localised erosion along toe of upper earth slope and small scale slumps.	2	>20	None.	no repairs
121AA901A4401C21	Steep rock cliffs fronted by scree slope and rocky foreshore.	Cliff - Crag Point	656.6	17/05/2022	Royal HaskoningDHV	Boulder foreshore and hard rock cliffs. Cliffs fractured, several rock falls, overhangs and caves. Slips in upper earth cliff. Significant crack line along cliff top near boundary fence. Static caravans and footpath close to cliff edge.	3	11 - 20	Monitor erosion. Liaison with caravan park. Consider diversion of footpath.	no repairs