



**Cell 1 Regional Coastal Monitoring Programme  
Walkover Inspection Surveys 2020**

**South Tyneside Council**



**South Tyneside C**

**August 2020**

# South Tyneside Council

## Walkover Inspection Surveys 2020

### Contents Amendment Record

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<sup>1</sup> Scarborough Borough Council is acting as client 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.

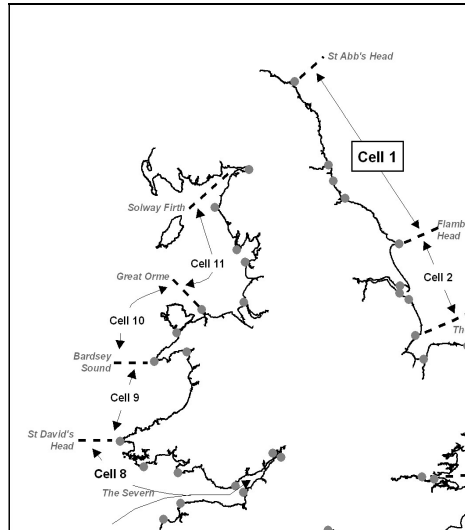


Figure 0-1 - Sediment Cells in England and Wales

The work commenced with a three-year monitoring programme in 2008 that was managed by Scarborough Borough Council on behalf of the North East Coastal Group. This initial phase was followed by a five-year programme which started in 2011 and the current five-year programme which started in 2016. The programme 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 2016 - 2021.

The present report is **Walkover Inspection Surveys 2020** and provides a summary of the main findings from the walkover inspections of South Tyneside 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

South Tyneside Council's coastal frontage is approximately 14km in length (including the South Pier) extending from the River Tyne in the north to Whitburn in the south, shown in **Figure 1-1**. This frontage includes approximately 27 assets (17 man-made assets and 10 natural assets). Detailed maps showing the location of each of these assets are presented in **Appendix A**.



**Figure 1-1: South Tyneside Council study area**

## 1.2 Methodology

This section presents the approach taken by the asset inspectors for the South Tyneside Council coastal frontage.

The walkover inspection surveys for the South Tyneside Council frontage were undertaken on 20<sup>th</sup> August 2020. The weather experienced during the inspections was 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.

## 2. Overview

The following significant findings were observed during the 2020 walkover inspection surveys:

- **General** – There are no major emerging concerns along South Tyneside’s frontage. The South Pier could not be inspected beyond the access gate because this was locked due to Covid-19 social distancing precautions. However the pier is the responsibility of the Port of Tyne and is subject to their own inspection and monitoring regime. There are four (previously three) sink holes in the cliff top along the South Tyneside frontage and several areas of cliff are subject to rock fall. The Redwell Steps/Lifeguard Station in Marsden Bay remain in poor condition but are due to be demolished later in 2020 and replaced with a new set of access steps.
- **Littlehaven** - The sea wall and promenade scheme which was completed in 2014 remains in ‘as built’ condition and is now heavily used by visitors for recreation and amenity purposes. However, some cleaning of marine growth and moss would be beneficial for aesthetic purposes.
- **Sandhaven** - There is a substantial volume of sand at Sandhaven, in places burying the access paths and fencing that was installed through the dunes a few years ago. The slipway and dune gabions at the southern end of the frontage, which were being replaced at the time of the 2016 inspections, remained buried by beach sand. The southern section of sea wall, promenade and backing car parks (near the lifeguard station and surf school) appears out of keeping with the rest of the frontage which has seen significant investment leading to rejuvenation.
- **Trow Quarry** – The rock revetment and coastal re-grading scheme introduced in 2008 to prevent the wash-out of waste material is remaining highly effective at the present time.
- **Lizard Point** – A ‘rewilding’ scheme has been introduced by The National Trust at the cliff top near Lizard Point. This has largely removed the access road and car park, enabling native clifftop grassland species to be sown and the area reverted to a natural state. Subtle changes to the fencing now divert pedestrians away from the cliff edge in this vulnerable location.
- **Marsden Bay** – The Redwell Steps/Lifeguard Station in Marsden Bay remain in poor condition (but are scheduled for replacement). Several cliffs and arches exist in the cliffs around Lot’s Wife (and elsewhere), and sections of the footpath and low-level pedestrian fencing on the cliff top have been moved landwards in line with the Marsden Bay Risk Management & Emergency Response Plan produced in 2019.
- **Whitburn Coastal Park** - The sinkhole and cave at Old Harbour Quarry are both large in size and there is now improved fencing around the sink hole, with an associated warning sign. A second (smaller) sink hole has opened in the cliff top in the vicinity of the footpath since the previous assessments, which has been diverted inland. Again, fencing and a warning sign has been erected.

### 3. Condition Assessment

#### 3.1 River Tyne to Rive Tyne South Pier (MA 1)

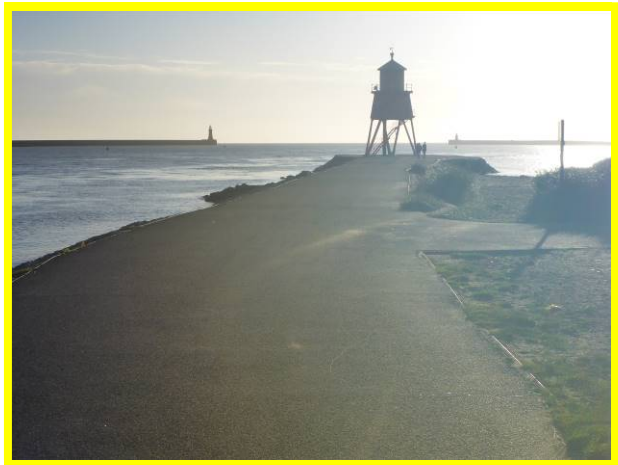
This management unit extends from the entrance to the River Tyne at the South Groyne to the South Pier. This frontage is approximately 4.9km in length (including the South Pier) and includes 7 man-made coastal defence assets, comprising revetments and seawall as well as the 2.8km long South Pier.

The grouted masonry revetment (/0101C01) starts at the boat slipway and extends along the eastern side of the wave basin to join the landward root of the South Groyne. Its management is the responsibility of the Port of Tyne. The revetment is in fair condition.

Along the northern (river-facing) side of the South Groyne (/0101C02) the resurfacing of the bitmac deck remains in generally good condition. The South Groyne itself is in generally fair condition, with only occasional missing stonework and the southern side is generally less exposed and therefore in slightly better condition than river-facing side.



*Grouted masonry revetment in fair condition (/0101C01)*



*South Groyne in fair overall condition (/0101C02)*

The dunes fronting Little Haven Hotel (/0101C03) were stable and in good condition. The wide upper beach pushed the wrack line seaward and held it well away from the dune toe. The localised storm damage seen to the dunes during the 2018 inspections had naturally become repaired. Small patches of embryo dune vegetation growth were noted.



*Stable dunes (/0102C03)*



*Stable dunes (/0102C03)*

The promenade and seawall at Littlehaven was completed in May 2014 and remains in very good condition along both the curved central realigned section (/0201C02), and the rebuilt sections at the southern end along the alignment of the original wall (/0102C03) and promontory (/0102C04). A project board which had been erected before the 2018 inspections is becoming faded due to exposure to sunlight.



*Littlehaven promenade and seawall in very good condition (/0102C02)*



*Littlehaven promenade and seawall in very good condition (/0102C02)*

As a maintenance activity, it would be beneficial to clean the backwall and stepped apron of the existing marine growth and moss for visual aesthetic reasons.



*Littlehaven promenade and seawall in very good condition (/0102C02)*



*Littlehaven promenade and seawall in very good condition (/0102C02)*

Beach levels were so high during the 2020 inspections that one area of minor damage to the access steps in the north of the frontage that was observed in 2018 could not be inspected. There are signs of very minor abrasion commencing at the interface between the stepped apron and the promenade surface, which should be watched.



*Damaged beach access step at northern end of promenade in need of repair when seen in 2018 (/0102C02)*

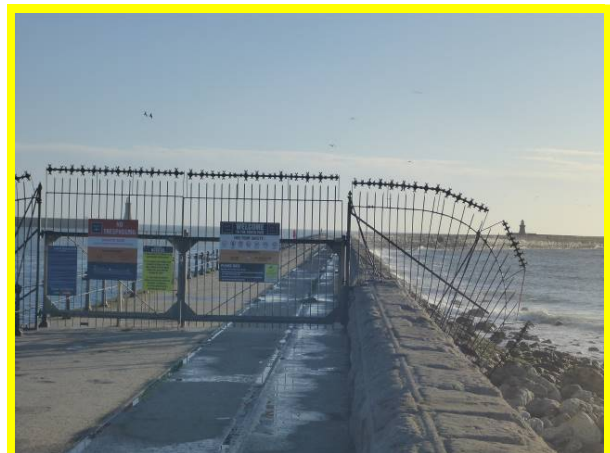


*Minor abrasion at interface between stepped apron and promenade (/0102C02)*

The South Pier was inspected only along the landward end because the access gate to the rest of the structure was closed, presumably to ensure social distancing arrangements during the Covid19 pandemic. The structure is privately owned and maintained by the Port of Tyne. At the root of the structure a series of natural boulder stones have been placed at the berm of the upper beach for additional protection to the root but during the 2020 inspections these were mostly covered by beach sand. The pier's deck is heavily abraded/spalled at some locations, with several previous repairs notable. Overall, however, the pier is in fair condition along its 2020 inspected length and on both faces. The pier is subject to the Port of Tyne's own inspection and monitoring regime and the sections that could not be inspected in 2020 are also likely to be in fair condition.



*South Pier in overall fair condition along northern face, landward end(/0103C01)*



*Seaward sections of South Pier closed to public access due to Covid-19 pandemic (/0103C01)*

### **3.2 Rive Tyne South Pier to Trow Point (MA 2)**

This management unit is approximately 1.7km in length and extends from the South Pier to Trow Point in the south. This frontage includes 7 assets, comprising a mix of seawalls, promenades and revetments as well as natural beaches backed by vegetated dunes.

The northern section of Sandhaven between South Pier and the children's play area has a cobble berm in front of the dunes at its northern end which narrows and thins with progression south (/0201C01). Dune condition is fair with plentiful sand but relatively spare vegetation. The dunes continue south of the children's play with a wide fronting sand beach (/0201C02), continuing in fair condition. The 'donkey track' extends from the South Pier, initially mid-way through these dunes before switching to seaward of the dune toe to meet the Lifeguard Station further south before

returning to the main promenade. As in 2018, the donkey track was in much better condition than on many previous inspections, suggesting some repairs prior to 2018 are generally holding well (except for in a few places where the seaward kerb edge is falling away or the surfacing is breaking up a little and should be inspected and maintained into the future). The 2016 promenade works to the rear of the dunes remain good in appearance.



*Plentiful sand but relatively sparse vegetation in dunes (/0201C01)*



*Promenade to rear of the dunes (/0201C01)*

In places along the frontage there is vast sand accumulation, causing burial of the recently constructed boardwalks and fencing. At the time of the inspections, beach combing was being undertaken.



*Plentiful sand swamping the access path through the dunes (/0201C01)*



*Beach combing operations underway (/0201C01)*

In one area the dune fencing had been blown over and in one other area there was a missing timber fence rail, but in general the dunes and beach are in healthy condition.



*Fencing blown over (/0201C01)*



*Missing timber fence rail at access point (/0201C01)*

At the amphitheatre, sand accumulation has resulted in high and healthy beach levels, with the backing promenade needing to be swept clean of sand (/0201C03). Note that in one place near the Sand Dancer public house, occasion timber boards in the promenade 'platforms' are broken. Further south, the lifeguard station platform (/0201C04) was disused and fenced off.



*Healthy beach levels at amphitheatre (/0201C03)*



*Disused lifeguard station platform next to reconstructed wall promontory (/0201C04)*

With the recent placemaking works along Littlehaven and Sandhaven now complete, the frontage in the vicinity of the lifeguard station and surf school building (/0201C05 and C06) now appears rather run-down in contrast. At the time of the present inspections beach levels were healthy and so the sloping revetment was largely buried. However, the wall to the rear of the promenade along this length, which appeared in 2018 to have been rebuilt or re-rendered along a substantial length in recent times, is now cracking in places on the face.



*Healthy beach levels in vicinity of lifeguard station and surf school (/0201C05)*



*Cracking to render on wall at rear of promenade (/0202C05)*

The narrow dunes at the southern end of Sandhaven (/0202C01) are currently in good condition, covering buried gabions, with no evidence of erosion or slumping. Access through these dunes has now been formalised to distinct paths. The slipway at the southern end of Herd Sands, which was rebuilt in 2016, remains buried by beach sand.



*Stable but narrow dunes at south end of Herd Sands (/0202C01)*



*Buried slipway at southern end of Herd Sands (/0202C01)*

### **3.3 Trow Point to Frenchman's Bay (MA 3)**

This management unit is approximately 1km in length and extends from Trow Point in the north to Frenchman's Bay in the south. This frontage includes 4 assets, comprising a mix of undefended cliff headlands and rock revetments.

The Trow Point headland (/0302C01) remains as a competent mass controlling evolution of the bay to its south, despite localised rockfalls in the harder material and slumps in the overlying softer material. Some areas of softer material remain in an over-steep condition and therefore further local slumps should be expected. This area should be monitored at regular intervals.

The rock revetment and re-graded slope at Graham's Sand (/0302C02) remain in a very good condition since completion of the scheme in 2008.



*Localised slumps in soft material at Trow Point (/0302C01)*



*Rock revetment and re-graded slope at Graham's Sand (/0302C02)*

The headland at Target Rock (/0302C03) has always been the most vulnerable of the three headlands at Trow Quarry due to its partly fragmented state, with undercutting at lower levels and caves forming at the base. The material between the rock masses continues to erode, with rock debris and brickwork evident on the foreshore. As in previous inspections, there is sufficient residual rock headland not to cause a concern relating to the potential outflanking of the defences in Graham's Sand and Southern Bay. A sink hole behind the headland does not appear to have significantly worsened in size since the previous inspections.

The rock revetment and re-graded slope at Southern Bay (/0302C04) remain in a very good condition since completion of the scheme in 2008.



*Localised fragmentation of Target Rock and sink hole to rear (/0302C03)*



*Rock revetment and re-graded slope at Southern Bay (/0302C04)*

### **3.4 Frenchman's Bay to Lizard Point (MA 4)**

This management unit is approximately 5km in length and extends from Frenchman's Point to Lizard Point in the south, encompassing Marsden Bay. This frontage includes 6 assets, comprising largely undefended high rock cliffs with two short sections of masonry walls at access points.

The rock headland at Frenchman's Point (/0401C04) was in a competent form but there are a number of arches on the southern side formed by undercutting at the toe. A major rock fall occurred within Frenchman's Bay in 2010 (/0401C04). This resulted in the cliff face moving closer to the coastal path and The National Trust realigning the path, fencing and installing new warning signs. The rock debris at the toe of the cliffs partly remains to the present day and will continue to



provide a degree of protection to the cliff toe until the material is moved away by marine action and the process will start again.



*Undercutting at base of cliffs at Frenchman's Point (/0401C04)*



*Residual debris from previous large rock fall in Frenchman's Bay (/0401C04)*

Further south of the collapsed cliff there are many very precarious locations within Frenchman's Bay and between here and Man Haven Bay (/0401C04). Arches and caves have formed at the cliff toe with overhanging rocks and recent slumps in the over lying softer material, including several locations where the footpath and fencing is close to the cliff edge. Further local falls and slumps are expected on a regular basis.

Within Man Haven Bay the cliffs have some caves at their base but appear largely unchanged since the previous inspections. Within the northern most of the three mini-bays between Man Haven Bay and Camel Island (/0401C04) there is a fenced-off sink hole which has previously been recorded.



*Cliffs and beach within Man Haven Bay (/0401C04)*



*Sink hole just south of Man Haven Bay (/0401C04)*

Just to the north of Camel Island, there is a concrete casing around an outfall which is breaking up whilst on the access ramp down into Marsden Bay adjacent to Camel Island there is a pill box that is undercut due to weathering erosion at its base.



*Outfall and manhole (/0401C04)*



*Pill box above access ramp (/0401C04)*

At the northern end of Marsden Bay the cliff and arch formation at the toe of the cliff continues (/0401C04). Adjacent to this section the near-vertical cliffs have local rock falls.



*Arches formed at northern end of Marsden Bay (/0401C04)*



*Rockfall at northern end of Marsden Bay (/0401C04)*

The debris associated with a previous rockfall in 2010 adjacent to the lifeguard station had entirely been washed-away by marine action before the 2018 inspections. Just to the north of the Redwell Steps, the cliffs have an area of overhang which could lead to future collapse.

Also within the northern end of Marsden Bay there are structures in very poor condition in the vicinity of the Redwell Steps, likely to lead to collapse and debris spillage onto the beach unless intervention is undertaken.

1. At the disused lifeguard station the stone-faced wall (/0401C01) is undermined leading to voiding beneath the building. There are also numerous notable gaps between the stonework and concrete coping.
2. The buttress landing to the Redwell Steps (/0401C01) is badly damaged along its length. The National Trust has guided access down the steps along specified routes, using hand railing in order to ensure the public avoids the worst affected areas. They have also bolted a temporary metal step at the base of the concrete steps to ease access to the beach although this was buried at the time of the inspections. In many places along the toe, the buttress is undermined and badly abraded. The buttress houses a storage building which has an entrance and bricked-up window at the southern end. This face of the structure is particularly badly undermined and the wall is cracking.



*Disused lifeguard station and the Redwell Steps access (/0401C01)*



*Undermining and voids at disused lifeguard station (/0401C01)*



*Undermining and voids at access steps (/0401C01)*



*Undermining and cracking at storage building on south face of buttress to access steps (/0401C01)*

In the vicinity of Lot's Wife, i.e. between the Redwell Steps and the Grotto Public House (/0401C03), the cliffs have numerous small arches and caves along their base in places. Overhands in this area suggest that future rock falls will occur, although the timing and locations cannot be predicted. At present there are only two small signs warning the public of the risk of rock falls, one of which is bent and the other of which is broken. It would be prudent to renew the signage in this area, perhaps at the same time as erecting new signage in the vicinity of the Redwell Steps and upon Marsden Rock (see below).



*Caves and arches along toe of cliffs in Marsden Bay (/0401C03)*



*Caves and arches along toe of cliffs in Marsden Bay (/0401C03)*



*One small warning sign – bent condition (/0401C03)*



*One small warning sign – broken condition (/0401C03)*



*Lot's Wife rock stack (/0401C03)*

Marsden Rock remains broadly stable with cave formations at its base. However, within one cave (that facing the shore and thus most accessible to the public) a thin column of rock remains. If this column was to fully weather it is likely that the bedding planes of the rock formation would provide sufficient robustness to resist collapse, but the possibility of local collapse cannot be ruled out from visual inspections alone. Therefore it may be prudent to place a warning sign or pole barrier at the entrance to the cave to restrict public access. During the 2020 inspections one member of the public was seen entering the cave.



*Marsden Rock – broadly stable but with overhands and caves at base (/0401C03)*



*Caves and rock columns along toe of Marsden Rock (/0401C03)*



*Thin rock column within cave along toe of Marsden Rock (/0401C03)*

At Marsden Grotto (/0401C02), the masonry wall is in fair condition because it is well protected by a cobble berm on the upper beach. The rock netting constructed on the cliff face adjacent to the access steps in 2007 remains in very good condition.

Between the Grotto and the former access road to Lizard Point Car Park (/0401C05) the cliffs generally (currently) appear more stable than those in the north of the bay and in places are fronted by small cobble berms. However, occasional rock falls and numerous caves and arches at the base of the cliffs are still evident. Along this section (and further south), the footpath and low-level railing has been moved inland, in accordance with the Marsden Bay Risk Management & Emergency Response Plan produced in 2019.



*Marsden Bay – relocated footpath and low-level fencing (/0401C05)*



*Marsden Bay – relocated footpath and low-level fencing (/0401C05)*

The section of cliff that extends along the access road to Lizard Point Car Park (/0402C01) currently appears generally stable along most of its length, but does have caves formed along its base. A rock fall along the cliffs immediately in front of the car park in 2010 (near Jack Rock) led to its closure on public safety grounds and a policy of 'adaptation to coastal change' was implemented by The National Trust through alternative use of this area. The car park has since been closed and the area mostly returned to a natural state by seeding with natural vegetation. A public information board explains the reasons for the adaptation project, although this is now so weathered as to be unreadable. Incidentally, the 'Trow Toddle' footpath sign in this vicinity is now obsolete in its present position since the changes in footpath and fencing location and should be re-positioned.



*Natural re-wilding of the car park access road (/0402C01)*

Further south of Jack Rock (/0402C01) the cliff remains active. There are areas where there have been cliff failures of a local nature. The whole section south of Lizard Point remains highly unstable and further failures are expected due to overhangs, caves and extensive fissures in the rock structure.

### 3.5 **Lizard Point to Souter Point (MA 5)**

This management unit is approximately 2.4km in length and extends from Lizard Point in the north to Souter Point in the south, encompassing the bays of Byer's Hole and Potter's Hole. This frontage includes 3 assets, comprising undefended high rock cliffs.

South of Lizard Point itself to the southern end of Potters Hole (/0501C01), the frontage is typically characterised by the formation of caves, arches and sea stacks caused by erosion of the cliffs. Whitburn Coastal Park covers the area of the former Old Harbour Quarry, which has subsequently been in-filled with waste material.

Since the 2018 inspections, a new sink hole has opened in the cliff top just seaward of the footpath along Whitburn Coastal Park. This has been fenced off by the National Trust.



*Fencing to divert the public around a new sink hole at Whitburn Coastal Park (/0501C01)*



*Signage warning of a new sink hole at Whitburn Coastal Park (/0501C01)*

This existing sink hole at Old Harbour Quarry first appeared around 2005 and has increased markedly in size since. The National Trust has now much improved the fencing off of this area and placed a warning sign and diverted the public coastal footpath.

In 2005 this sink hole measured 11m long by 6m wide at the cliff top, whilst in 2015 it measured 17m long by 13m wide. The cave formation at the base of the cliffs has also increased, with a distinct hole now clearly visible from the enlarged sink hole above at the rear of the cave. At some point, a large section of cliff at this headland is likely to collapse. However, the adjacent caves still have not breached through the limestone ridge.

The existing concrete defences, previously used to 'plug' two nearby caves at this headland, are continuing to be undermined, but this situation is not worse than in 2016.



*Enlarged sink hole at the former Old Harbour Quarry (/0501C01)*



*Enlarged cave at the former Old Harbour Quarry –view in 2016 (/0501C01)*



*Enlarged cave hole at the former Old Harbour Quarry –view in 2020 (/0501C01)*

There are two sections of rock revetment at this headland, around the beach access routes. Both are in fair condition, but the one to the south has the rock relatively loosely placed and sitting atop a major rock ledge in front of the backing slopes.

Along the Whitburn Nature Reserve (/0502C01), erosion has in a small number of locations caused the cliff top to come in close proximity to the public footpath. Low level fencing and warning signs have been erected by The National Trust in these areas. Elsewhere the cliffs remain stable.



The northern section of the Rifle Ranges frontage (extending southwards to Souter Point, /0502C02) exhibits a different character to adjacent sections of the coast because the frontage comprises a wide raised beach (possibly comprising colliery spoil, although this is unconfirmed). As a result of this, the coastal slopes behind the raised beach are not currently exposed to marine action and therefore are highly stable at present.



*Generally stable cliffs but some local slumps close to footpath at Whitburn Nature Reserve (/0502C01)*



*Backshore and slopes well protected by wide foreshore at northern section of Rifle Ranges (/0502C02)*

### **3.6 Souter Point to South Bents (MA 6)**

The South Tyneside portion of this Management Area (MA) is approximately 1.7km in length and extends from Souter Point in the north to the border with Sunderland at South Bents at the north of Whitburn Bay. This frontage includes 2 assets, comprising eroding sandstone cliffs.

The southern section of the Rifle Ranges (/0601C02) is actively experiencing small and localised slumps along its length, a few of which are becoming close to the public coastal footpath, but still nothing of major concern. In one area, close to the mound and military building, concrete blocks appear to have been dumped at the toe of the cliffs to slow recession. In another area, a drainage pipe which previously lost its headwall due to localised slumping has been improved, although ongoing slippage has lost some ground around the surrounding fencing.



*Regular small and localised slumps at southern section of Rifle Ranges (/0601C02)*



*Repaired outfall – note loss of cliff top around fence post (/0601C02)*

At the entrance/exist along the rifle ranges section, there is some temporary herras fencing and signage that has been blown over by the wind. The final section of cliffs (/0601C01) in front of houses and the school at Whitburn are generally stable with occasional local slumps.



*Fencing and signage blown over by the wind*



*Generally stable cliffs with occasional small and localised slumps (/0601C01)*

#### **4. Comparison with Previous Assessment**

The previous formal walkover inspections across the whole study frontage were undertaken in summer 2018. Most of the frontage remains unchanged in overall condition grading since that time, with few major problems.

The main concern arises at Marsden Bay where the Redwell Steps and former lifeguard station remain in very poor condition, although it is known that these assets will be demolished later in 2020 and the steps replaced. Elsewhere, recent major capital schemes at Littlehaven (2014), Sandhaven (also known as Herd Sands) (2015) and Trow Quarry (2008) have resolved issues previously faced at these locations.

The National Trust has long a policy of 'adaptation to coastal change' whereby footpaths, fencing and, when necessary, land uses will be adapted in response to erosion events. This philosophy is further embraced by South Tyneside Council in its Marsden Bay Risk Management & Emergency Response Plan, published in 2019, which has already led to the pro-active realignment of sections of footpath and fencing along Marsden Bay.

One notable change, has been the opening-up of a new sink hole along Whitburn Coastal Path. The existing sink hole at Old Harbour Quarry has significantly increased in size over time and the changes in this new sink hole should be carefully monitored. Both sink holes are fenced off with warning signs erected.

Whilst several areas of cliff, especially within Marsden Bay, were identified as having cracks, caves, arches or overhangs that could lead to rock falls, their condition does not seem to have worsened since the previous inspections. However, there is a general paucity of warning signs along the frontage from the base of the cliffs which could be addressed (signage at the cliff tops is frequent and in good condition).

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

All assets were inspected at suitable stages of the tide and therefore there were no major problems encountered.

The South Groyne and the South Pier of the River Tyne were both only observed from the deck (and in the case of the South Pier only up to the closed access gate) and the Port of Tyne may undertake its own vessel based inspections of these structures to inform its maintenance regime.

## 6. Conclusions and Recommended Actions

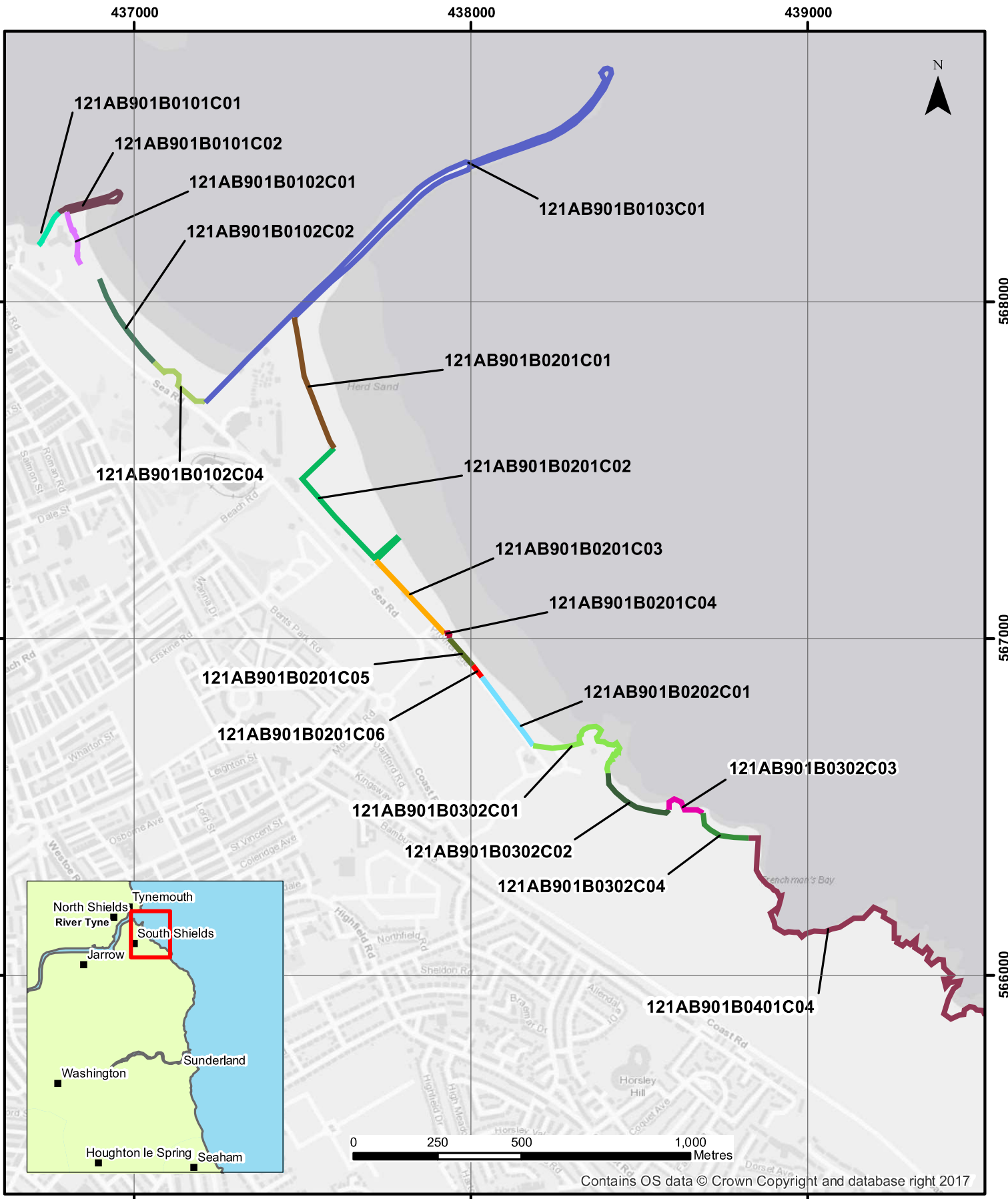
Further to the visual inspection of all assets, specific conclusions and recommendations for individual assets are given in **Appendix B**.

All condition assessment data and selected photographs have been uploaded to SANDS (Shoreline And Nearshore Database System). This includes all data and photographs from the previous inspections since 2002 that were originally held on an MS Access Databases that had become obsolete.

# **Appendices**

# **Appendix A**

## **Asset Location Maps**



**Legend**

 Asset location

 NFCDD Asset Number

**Figure 1 - Map 1**

**South Tyneside Council Frontage**

Asset Inspection Report

Drawing Scale 1:15,000 at A4

Client:  
North East Coastal Group

Project:  
Cell 1 Regional Coastal Monitoring Programme

**WATER**  
Royal HaskoningDHV  
Marlborough House  
Marlborough Crescent  
Newcastle upon Tyne  
NE1 4EE

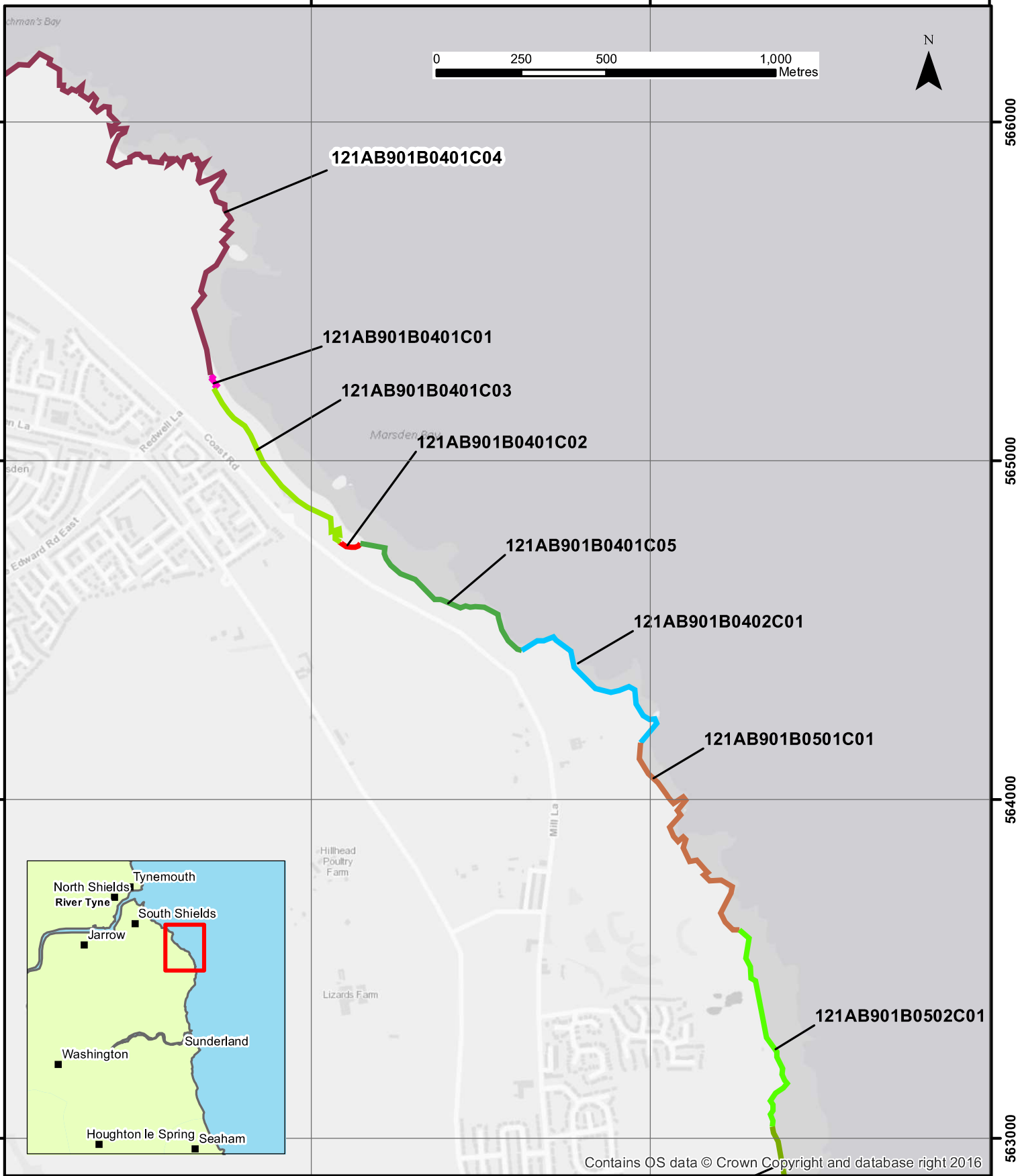
Tel: +44 (0)191 211 1300  
Fax: +44 (0)191 211 1313  
www.royalhaskoning.com



440000

441000

442000



**Legend**

-  Asset location
-  NFCDD Asset Number

**Figure 1 - Map 2**

**South Tyneside Council Frontage**

Asset Inspection Report

Drawing Scale 1:15,000 at A4

Client:  
North East Coastal Group

Project:  
Cell 1 Regional Coastal Monitoring Programme

**WATER**  
Royal HaskoningDHV  
Marlborough House  
Marlborough Crescent  
Newcastle upon Tyne  
NE1 4EE

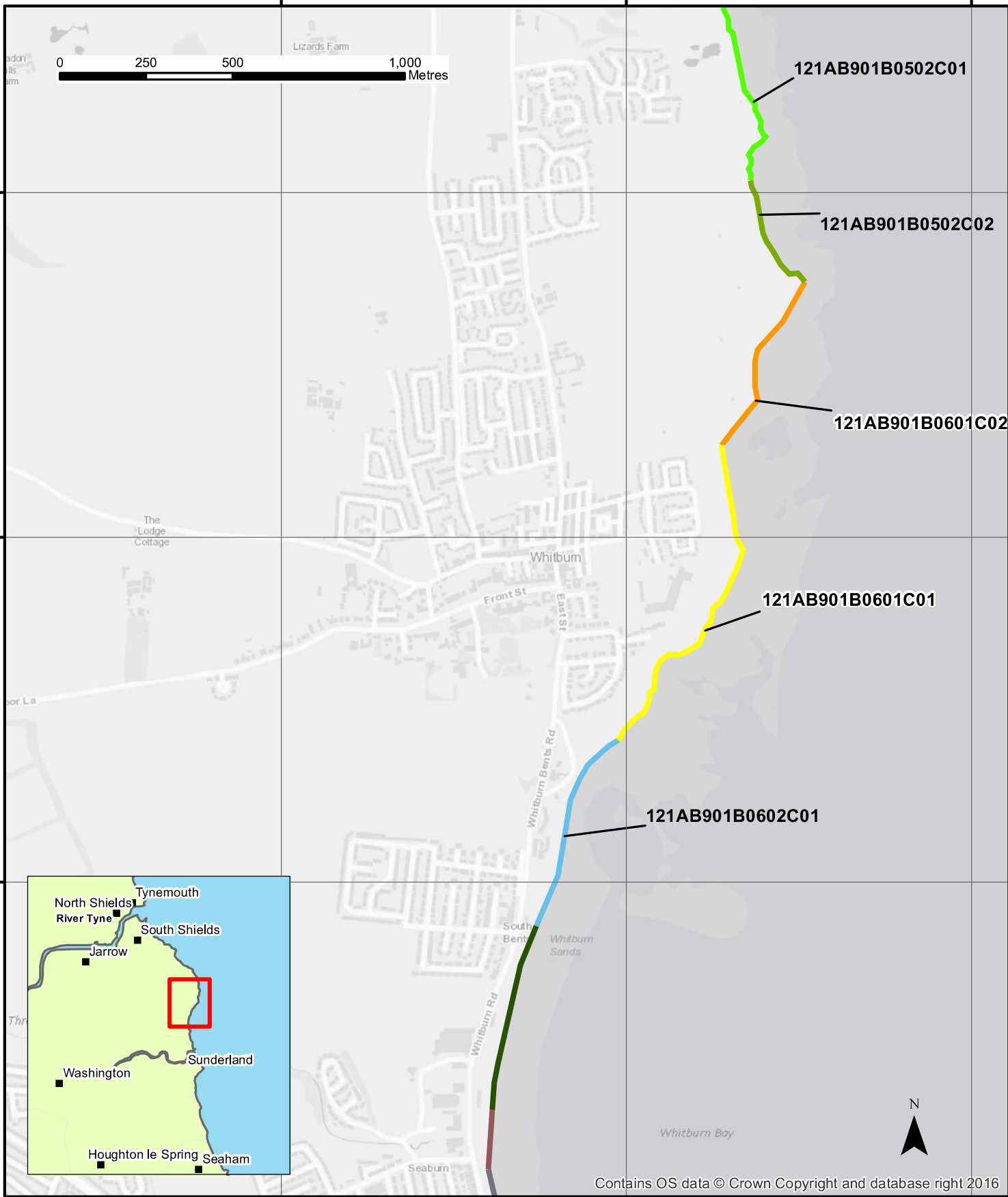
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440000

441000

442000



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**Legend**

-  Asset location
-  NFCDD Asset Number

**Figure 1 - Map 3**

**South Tyneside Council Frontage**

Asset Inspection Report

Drawing Scale 1:15,000 at A4

Client:  
North East Coastal Group

Project:  
Cell 1 Regional Coastal Monitoring Programme

**WATER**  
Royal HaskoningDHV  
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# **Appendix B Asset Condition & Recommendations**

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
121AB901B0101C01	Grouted masonry revetment. Crest wall behind (landward side of path) built to protect Little Haven Hotel against sea flooding.	Revetment - Wave Basin	115.3	20/08/2020	Royal HaskoningDHV	No significant deterioration. Generally fair to good condition, apart from occasional local voids.	3	11-20	Infill voids - prioritise work at toe	routine
121AB901B0101C02	Grouted stone jetty with concrete deck. Acts to retain beach to Littlehaven and prevent beach sand entering the navigation channel.	Breakwater - South Groyne	372.2	20/08/2020	Royal HaskoningDHV	Minor cracks in tarmac at seaward end of structure. No significant change since last inspection.	3	>20	Infill cracks in deck. Patch repairs to missing mortar and blocks.	routine
121AB901B0102C01	Sand dunes built to protect Little Haven Hotel.	Dunes	170.8	20/08/2020	Royal HaskoningDHV	Healthy and accreting / stable frontage subject to episodes of storm-erosion (followed by natural recovery).	2	>20	continue to monitor	no repairs
121AB901B0102C02	Concrete seawall to promenade and car park.	Littlehaven Seawall	279.2	20/08/2020	Royal HaskoningDHV	Original asset (landward) realigned and replaced with a new reinforced concrete seawall in 2014, sheet pile toe, stepped apron, promenade and splash wall. Remains in very good condition but with some minor abrasion at interface between upper step and promenade.	1	>20	Routine maintenance to clear marine growth and algae. (Damage to bottom access step previously report but covered by beach sand in 2020).	routine
121AB901B0102C04	Concrete seawall near root of South Pier and protecting promenade and amenity land.	Littlehaven Seawall	222	20/08/2020	Royal HaskoningDHV	Original asset replaced with a new reinforced concrete seawall in 2014, sheet pile toe, stepped apron, promenade and splash wall. Remains in very good condition but with some minor abrasion at interface between upper step and promenade.	1	>20	none	routine
121AB901B0103C01	South Pier important to general protection both North and South.	Breakwater	2840	20/08/2020	Royal HaskoningDHV	Masonry pier with local rock armour protection.	3	>20	Port owned & to continue to maintain structure	routine
121AB901B0201C01	Stone embankment in front of dunes and fairground.	Berm - Dunes	408.8	20/08/2020	Royal HaskoningDHV	Stone revetment largely covered with sand, burying stones. Well established beach with dunes provide protection. Dunes behind are well established with vegetation cover.	3	>20		no repairs
121AB901B0201C02	undefended Frontage	Dunes	632.9	20/08/2020	Royal HaskoningDHV	Dune repairs, fencing and recent planting. Significant sand accretion.	3	>20	Continue to monitor and maintain sand fencing and control public access. One area of dune fencing blown over and should be re-erected. One timber missing from access rails.	no repairs
121AB901B0201C03	Concrete toe wall and paved promenade to front of amenity building and car park.	Wall	299.2	20/08/2020	Royal HaskoningDHV	Beach levels flush with promenade. Lots of wind-blown sand recently clearer from promenade.	2	>20	One or two timber panels on 'boardwalk' areas need replacing	routine
121AB901B0201C04	Small concrete wall at promontory.	Wall	29.3	20/08/2020	Royal HaskoningDHV	New structure built as part of 2010 promenade works. High beach levels causing some wind-blown sand on promenade.	2	>20	Control of wind-blown sand required	no repairs
121AB901B0201C05	Concrete sloping revetment to promenade and various buildings.	Revetment	106.9	20/08/2020	Royal HaskoningDHV	Structure only partly visible due to high beach levels.	3	>20	Monitor beach levels, inspect lower elements of structure if exposed.	no repairs
121AB901B0201C06	Concrete revetment of varying level to road and buildings. Concrete toe.	Revetment	43.1	20/08/2020	Royal HaskoningDHV	Structure only partly visible due to high beach levels.	3	>20	Monitor beach levels and inspect revetment toe if beach levels fall.	routine
121AB901B0202C01	Dunes covering buried gabions.	Primary Defence = Dune	254.1	20/08/2020	Royal HaskoningDHV	Well vegetated but narrow dunes with numerous blown through sections, some of which have recent cobblestone armouring. Gabions not visible due to high beach levels. Slipway buried by sand. Paths through dunes now formalised.	2	6-10	None	routine
121AB901B0302C01	undefended Frontage	Cliff / Scarp - Trow Point	464.7	20/08/2020	Royal HaskoningDHV	Local rock falls and local slumping in soft material.	3	>20	Monitor for safety of public access	routine
121AB901B0302C02	Rock revetment	Rock revetment - Graham's Sands	241.1	20/08/2020	Royal HaskoningDHV	No change evident since previous survey. Rock armour toe revetment in front of regraded coastal slope. Granite rock armour ties into existing headlands. Scheme complete in Nov-08. Additional protection provided by rock outcrops on foreshore.	1	>20	None.	no repairs
121AB901B0302C03	undefended Frontage.	Cliff / Scarp - Target Rock	147.3	20/08/2020	Royal HaskoningDHV	Caves and overhangs at base of cliffs. Sink hole infilled.	3	>20	Regular monitoring of erosion areas for safety to pedestrians	routine

121AB901B0302C04	Rock Revetment	Rock Revetment - Southern Bay	175.3	20/08/2020	Royal HaskoningDHV	No change evident since last survey. Rock armour toe revetment in front of regraded landfill embankment. Granite rock armour ties into existing headlands. Scheme completed Nov-08. Additional protection provided by rock outcrops on foreshore.	1	>20	Routine cut-away loose geotextile.	no repairs
121AB901B0401C04	Undefined Frontage	Cliff / Scarp - Frenchman's Bay and Marsden Bay (north)	2613	20/08/2020	Royal HaskoningDHV	No significant change evident since last survey. Failure along 50m section in Mar-10 causing loss of footpath. Other areas of arches, caves, overhangs and slumps. One sink hole.	4	>20	Realign footpath landward. Public information/warning signs.	routine
121AB901B0401C01	Masonry faced concrete wall to Lifeguard Station. Concrete buttress to Redwell Steps.	Wall - Redwell Steps	54.5	20/08/2020	Royal HaskoningDHV	Masonry wall in very poor condition. Previous repairs have been undercut and eroded to reveal reinforcement. Cracking and opening of voids evident in masonry infill.	5	6-10	Works planned in 2020 to demolish steps landing, canoe store and disused lifeguard station and replace with a new access.	urgent
121AB901B0401C02	Old masonry wall to Public House at base of eroding cliff. Rock netting and new access steps constructed in 2007.	Wall - Grotto	67.2	20/08/2020	Royal HaskoningDHV	Masonry wall in good condition, protected by high cobble berm. Rock netting in very good condition.	3	>20		no repairs
121AB901B0401C03	Eroding Sandstone cliff. The National Trust realigns cliff top path landwards when rock falls occur.	Cliff / Scarp - Marsden Bay (Central)	655.7	20/08/2020	Royal HaskoningDHV	Sandstone cliff with numerous caves and arches at toe and stacks (Lot's Wife, Marsden Rock) on foreshore. One thin column in a cave within Marsden Rock accessible to public.	4	>20	Improve warning signage of 'risks from rock falls' and 'do not enter caves' between Redwell Steps and Marsden Grotto (including Marsden Rock).	routine
121AB901B0401C05	Undefined Frontage	Cliff / Scarp - Marsden Bay (South)	527.5	20/08/2020	Royal HaskoningDHV	Cliffs locally unstable with local cliff falls. Some locally unstable sections were close to cliff top path but path and fencing moved landwards in 2019/20.	3	6-10	Monitor as part of Marsden Bay Risk Management & Emergency Response Plan (2019) and move safety rails, footpath and warning signs landward when necessary.	routine
121AB901B0402C01	Undefined Frontage	Cliff / Scarp - Lizard Point	789.7	20/08/2020	Royal HaskoningDHV	Cliffs regularly failing, with recent rock falls between lighthouse and Lizard Point Car Park. Remaining sections are unstable, with overhangs, caves and extensive fissures. Further cliff failures to be expected. Car park and access have been closed to reduce risk. Area has been re-wilded by The National Trust.	4	1-5	Warn public. Realign fencing /warning as necessary.	urgent
121AB901B0501C01	Undefined Frontage	Cliff / Scarp - Whitburn Coastal Park	858.7	20/08/2020	Royal HaskoningDHV	Extensive cave, arch and stack features. Sink hole at Old Harbour Quarry has enlarged much since 2005 and cave at base has breached, but warning signs and hand rails have been improved. New sink hole opened on footpath between 2018 and 2020 inspections and area has been fenced off by the National Trust.	5	1-5	Monitor for sink holes / collapses & relocate warning signs and railing as necry	urgent
121AB901B0502C01	Undefined Frontage	Cliff / Scarp - Whitburn Nature Reserve	653.7	20/08/2020	Royal HaskoningDHV	Localised erosion and cave formation cutting back cliff top near to path.	3	>20	Longer term realignment of footpath, railing and warning signs if necessary.	routine
121AB901B0502C02	Coastal slope behind a wide raised beach	Cliff / Scarp - Rifle Ranges (North)	354	20/08/2020	Royal HaskoningDHV	Relict cliff behind healthy raised beach of coarse material.	2	>20	Continue active monitoring	routine
121AB901B0601C02	Eroding sandstone cliff.	Cliff / Scarp - Rifle Ranges (South)	555.5	20/08/2020	Royal HaskoningDHV	Many areas eroding with active local slumps, some very close to footpath, localised erosion by land drainage outfall impinging on footpath, and headwall has been lost to a local slump.	4	11-20	Warning signs and realign footpath when needed.	routine
121AB901B0601C01	Eroding sandstone cliff.	Cliff / Scarp - Whitburn	1018	20/08/2020	Royal HaskoningDHV	Locally active cliff. Erosion getting close to path in places.	3	>20	Warning signs required and where cliff edge close to path re-align footpath when needed.	routine