North Tyneside Council

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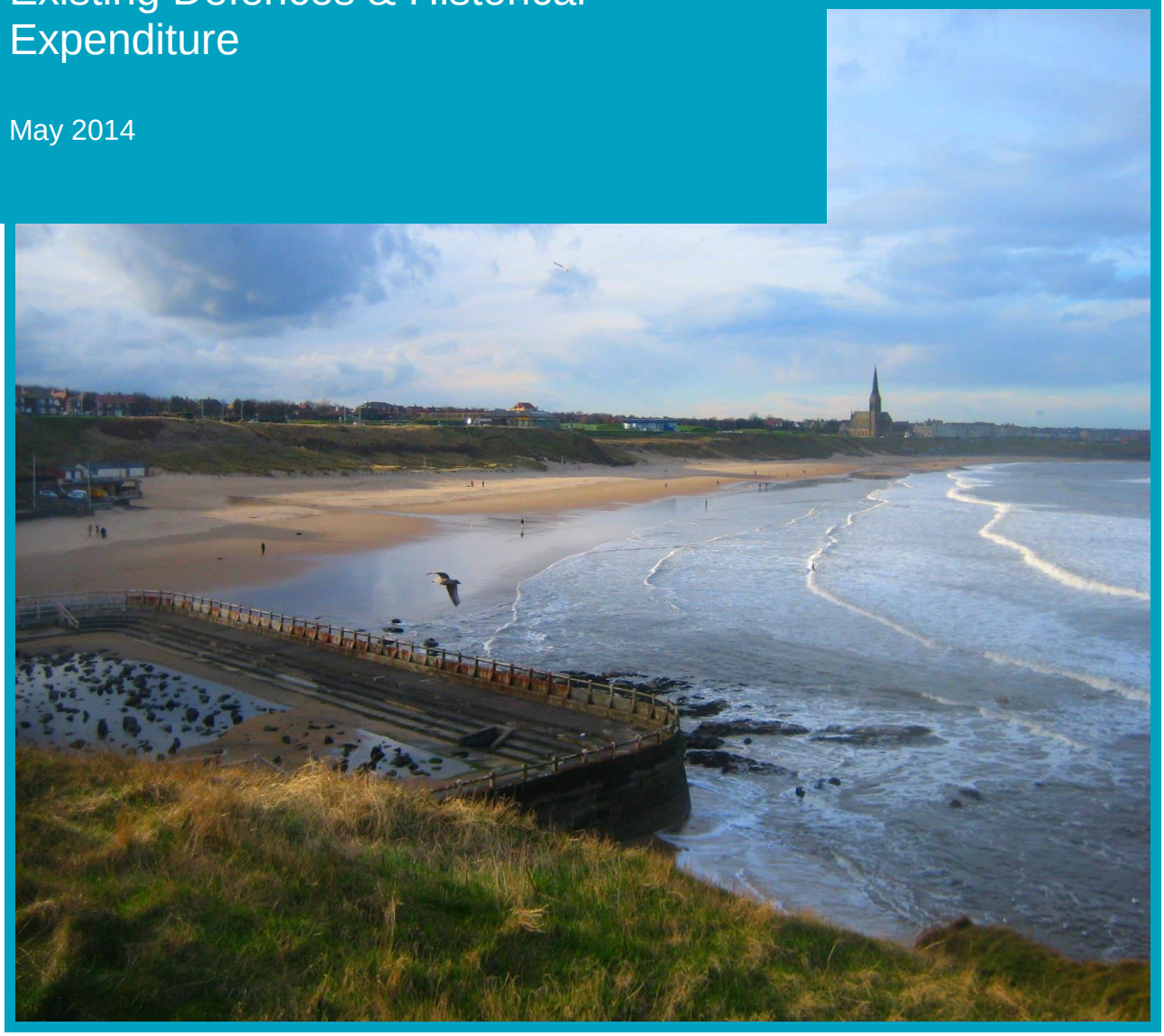
Hartley Cove to the River Tyne Coastal Strategy

Technical Report 4:

Existing Defences & Historical Expenditure

May 2014



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P01.1	July 2015	S0 - Preliminary Draft	M. Ellis & J. Tingay	P Woods	P Woods
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P01.3	August 2016	S3 – Consultation draft for PM approval	M. Ellis	P Woods	P Woods

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Abbreviations

EA	Environment Agency
EH	English Heritage
DCLG	Department of Communities and Local Government
HRA	Habitat Regulations Assessment
MMO	Marine Management Organisation
MU	Management Unit
MA	Management Area
NE	Natural England
NTC	North Tyneside Council
ODPM	Office of the Deputy Prime Minister
PRoW	Public Rights of Way
SAC	Special Area of Conservation
SAM	Scheduled Ancient Monument
SEA	Strategic Environmental Assessment
SMP	Shoreline Management Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

1. Structure of Technical Reports

1.1.1 The Coastal Strategy developed for the North Tyneside coastline, between Hartley Cove and the River Tyne, sets out the Council's defence management priorities for the coast.

1.1.2 The Strategy is presented as a series of reports, each dealing with a separate component of the plan along with a number of supporting Appendices

Technical Report No.	Title
1	Executive Summary
2	Background
3	Coastal Processes
4	Existing Defences and Historical Expenditure
5	Strategic Environmental Assessment - Environmental Report
6	Options and Economic Assessment
7	Monitoring
8	Risk Assessments
9	Public Consultation and Stakeholder Involvement
10	Glossary
Appendices	**Title**
Appendix A	Habitat Regulations Assessment
Appendix B	Water Framework Directive Assessment
Appendix C	Non-Technical Summary for the Strategic Environmental Assessment

Technical Report 4: Existing Defences and Historical Expenditure

1.1.3 This technical report provides information on:

- The condition and expected lifespan of existing defences
- A summary of a visual inspection of defences
- A summary of historical expenditure on maintenance of defences since the original Strategy was published

2. Existing Defences

2.1 Background and Approach

2.1.1 A visual inspection survey of the defences within the study area was undertaken. This survey was carried out following the Environment Agency (EA) T98 guidelines set out in the Condition Assessment Manual (CAM) and gathered information to allow an assessment of the current condition of the defences to be made. The current condition has been compared to that noted in the original Strategy report. This has then been used to make an assessment of the rate of deterioration of the defence structures and thus produce an expected residual lifespan for each structure.

2.1.2 As well as the survey undertaken for this Strategy update, an inspection of defences was made by Halcrow consultants on behalf of North Tyneside Council (NTC) in 2012 and the results have been used to inform the assessment process.

2.1.3 The NTC frontage covers approximately 11km from Hartley Cove in the north to the north bank of the River Tyne in the south. The frontage includes 59 manmade defences and 15 sections that are classed as natural defence assets, such as dunes or cliffs. Detailed maps showing the locations of defences are included in Annex B. Defences are identified by unique alphanumeric references that are drawn from the EA National Flood and Coastal Defence Database (NFCDD). All maritime local authorities that are Coast Protection Authorities have a duty to report to EA on findings from inspections of defences. At the time of writing NFCDD is being replaced by a new database, but as yet the new form has yet to be finalised. In that case all defences will be referred to in this report by their NFCDD identifier.

2.1.4 For structures the grading classification is made in accordance with the CAM guidance, with any need for repairs and their urgency noted. The grading classification from CAM is presented in Table 2-1 below.

Table 2-1 Condition assessment grading for manmade assets

Grade	Rating	Description
1	Very Good	Cosmetic defects that will have no effect on performance.
2	Good	Minor defects that will not reduce the overall performance of the asset.
3	Fair	Defects that could reduce the performance of the asset.
4	Poor	Defects that would significantly reduce the performance of the asset. Further investigation needed.
5	Very Poor	Severe defects resulting in complete performance failure.

In addition to the grading system for defences a similar system was developed by Halcrow for use in assessing natural assets, such as cliffs and slopes. This grading classification system is illustrated in Table 2-2 below.

Table 2-2 Condition assessment grading used for natural assets

Grade	Rating	Description
1	Dormant	Protected cliffline or landslide complex with no visible evidence of landslide activity.
2	Inactive	Relict cliffs or landslides with vegetated slopes and localised erosion of the toe or failure of the headscarp.
3	Locally	Retreating cliffline with localised small landslides or areas of erosion.
4	Partly	Retreating cliffline with very common smaller-scale landslides or areas of intense erosion.
5	Totally	Retreating cliffline almost entirely affected by large-scale landsliding or intense erosion.

2.2 Defence Inspection Summary and Discussion

2.2.1 Annex A summarises the results of the visual inspection survey of defences and natural assets within the study area, including residual life estimates for each structure. Identifiers for each defence are those from NFCDD. The previous Strategy pre-dated NFCDD and thus used a different system of identifiers. It also did not assess all of the natural assets, therefore, where possible, corresponding identifiers for defences have been used for ease of reference to the original Strategy.

2.2.2 The coastline is split into lengths known as Management Areas (MAs), which correspond to those used in the Shoreline Management Plan 2 (SMP2). The original strategy used management units that were defined in the first round of Shoreline Management Plans and these are different to those in SMP2. Table 2-3 shows the correspondence between the two different sets of management units/areas.

Table 2-3 Correspondence of original strategy management units with the MAs used in SMP2 and this strategy review

SMP	Original Strategy	SMP2
Seaton Sluice to St May's Lighthouse MU 44	Hartley Cove to St Mary's Lighthouse MU 44*	MA24 - Seaton Sluice to Curry's Point
St Mary's Lighthouse to Whitley Sands MU 45	St Mary's Lighthouse to Whitley Sands MU 45	MA25 - Curry's Point to Brown's Point
Whitley Sands to Whitley Bay MU 46	Whitley Sands to Whitley Bay MU 46 Hold the Line	
Whitley Bay to Tynemouth North Pier MU 47	Cullercoats to Tynemouth North Pier MU 47	MA26 - Brown's Point to Tynemouth North Pier
Tynemouth North pier to Tynemouth North Bank MU 48	Tynemouth North Pier to Fish Quay MU 48**	MA27 - Tynemouth North Pier to Fish Quay

* The northern boundary was moved from Seaton Sluice to North Tyneside Council's boundary at Hartley Cove and MU 44 was combined with MU 45 for purposes of policy selection.
** The boundary was extended upstream in the River Tyne to the Fish Quay.

2.2.3 This section discusses those assets where urgent maintenance work is required or that were graded as condition 4, Poor, or 5, Very Poor, or where specific issues have been identified. Where example photographs are included these are, where appropriate, bordered in the colour corresponding to their condition grading (Tables 2-1 and 2-2), following the convention used by Halcrow in their inspection reports.

2.2.4 ***Hartley Cove to Curry's Point (MA24)***

This Management Area covers the coastline from the northern boundary of the study area at Hartley Cove to Curry's Point in the south, a distance of approximately 1km. There are 4 coastal defence assets in this MA, mainly cliff frontage with a couple of manmade access points. All assets are in fair condition and there are no particular issues to be noted. There is some erosion and slumping of the cliffs, for example adjacent to the access steps at Hartley Cove (asset 121AA901A4401C23).

2.2.5 A further issue was identified during Public consultation regarding flooding and erosion to the private boathouse situated in front of the cliffs (121AA901A4501C05) south of Trinity Road seawall.

Figure 2-1 Slumping/erosion of cliff adjacent to Hartley Cove steps

2.2.6 ***Curry's Point to Brown's Point (MA25)***

This management area is around 4.5km long and extends from MA24 at Curry's Point to MA26 at Brown's Point and includes St. Mary's Island and causeway. There are 21 full or partial assets within the MA. These are generally made up of concrete sea walls of varying construction and profile, with occasional cliff sections and a rock revetment at Briardene Burn.

2.2.7 On St. Mary's Island there is a wall fronting properties on the western side of the Island (121AA901A4501C01) that is in Poor condition, grade 4, with undermining and vegetation growing through the wall in places. St. Mary's causeway (7105A) is condition grade 3, Fair, but has minor areas that need maintenance for cracking and there is an area of undermining at the westward end adjacent to Trinity Road sea wall (121AA901A4501C04). The lighthouse has been identified during consultation for SMP2 as an important heritage asset.

Figure 2-2 121AA901A4501C01

Figure 2-3 7105A St. Mary's Causeway

2.2.8 The soft cliff south of Trinity Road sea wall (121AA901A4501C05) is actively eroding and slumping. There is an area of erosion at its juncture with the sea wall that is starting to outflank the wall. At the time of writing North Tyneside Council have a scheme in place to provide erosion protection to a short length of the cliff using concrete blocks, known as T-blocks, to halt this outflanking.

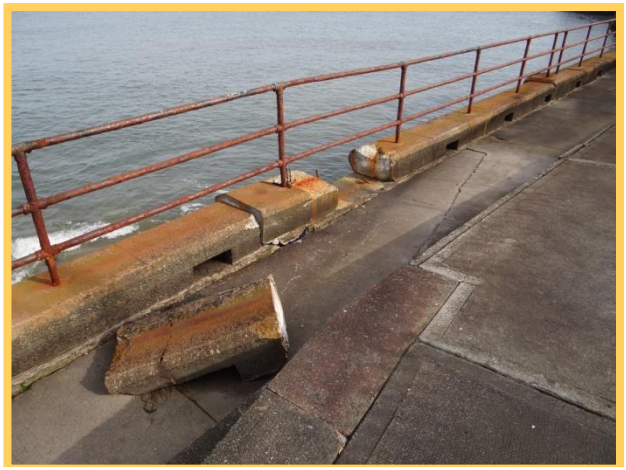
Figure 2-4 121AA9014501C05

Figure 2-5 Erosion outflanking Trinity Road seawall

2.2.9 There are two other assets that have been classified as condition 4, Poor, following the inspections and these are towards the southern end of MA25. These are the Northern Promenade (121AA901A4601C02) and Lower Central Promenade (121AA901A4601C03). Both suffer from abraded and spalling concrete surfaces. Northern Promenade has cracking in the access ramp and steps and Lower Central Promenade has displaced coping.

Figure 2-6 121AA901A4601C02

Figure 2-7 121AA901A4601C03



2.2.10 *Brown's Point to Tynemouth North Pier (MA26)*

The MA is around 3.8km long and covers the coastline from Brown's Point to Tynemouth North Pier. The MA includes Cullercoats Bay, Longsands and King Edward's Bay. There are 31 assets within the MA, made up from seawalls, piers, breakwaters, cliffs and one section of sand dunes.

2.2.11 There are no assets within MA26 that have been identified from the visual inspections as being in a condition worse than 3, Fair. However, there are four areas where issues were identified during Public consultation, or from the original strategy.

2.2.12 The first area is the area locally known as The Brae in Cullercoats Bay (121AA901A4701C08), which is a structure consisting of a stepped concrete revetment in front of the access ramp adjacent to the RNLI lifeboat station. The local fishermen use this area to store boats and there has been damage caused during storms as the North Pier (121AA901A4701C07) is overtopped and waves are able to run up the beach and onto The Brae due to the current high beach levels.

2.2.13 The second issue is flooding to the cafe at the southern end of Longsands, which was not identified during Public consultation, but was noted in SMP2.

2.2.14 The third issue is the future use of Tynemouth Outdoor Pool, for which a local group, known as Friends of Tynemouth Outdoor Pool, are trying to raise funds to be refurbished and re-opened. This is noted as the outer wall of the Pool provides erosion protection to the Pool and the cliff behind.

2.2.15 The final issue was noted from Public consultation and involves the loss of beach material within King Edward's Bay.

*2.2.16 **Tynemouth North Pier to Fish Quay***

MA27 is around 1.7km long and covers the area from the North Pier to Fish Quay; the southern boundary of the study area. There are 11 assets within the MA, including the North Pier itself, seawalls and revetments. It also includes the area of headland around Tynemouth Castle.

2.2.17 Within MA27 there is one asset that is graded as 4, Poor, at Freestone Point (121AA901A4801C06). This is a short length of masonry seawall with a concrete revetment and is extensively damaged.

Figure 2-8 121AA901A4801C06

2.2.18 There are also two issues identified for MA27. The first of these is erosion and flooding of the Sailing Club at Tynemouth Short Sands. The second is flooding at Fish Quay (7148D), which occurs on a frequent basis.

3. Historical Expenditure

3.1.1 The section of the report details the damage that has occurred along the North Tyneside coastline, and the maintenance and repair expenditure on defence structures.

3.2 Flood Damage

3.2.1 In the context of the overall frontage, and scale of assets potentially at risk, these are relatively minor incidents. The records indicate that although flooding does occur, and needs to be addressed in the Strategy, it is not a dominant feature of the area. A further detail of historical tidal flood risk is provided in TR03 Coastal Processes.

3.2.2 Damage to defences tends to occur progressively rather than episodically, so information on specific damage events is limited. The most recent flood event which caused a lot of damage was in December 2013. At the beginning of December 2013 (5th and 6th), the East coast of Britain experienced the largest tidal surge in 65 years. The surge, which saw around 1,400 properties flooded in Britain, resulted in record sea levels, which in places were higher than those seen during the devastating floods of January 1953. Environment Agency warnings had suggested that the North Tyneside area would be affected by tides up to a height of 3.61m and at North Shields the tide peaked at 4.03m.

3.2.3 The following damage occurred:

- Fish Quay, North Shields – Flooding of the roads around the businesses occurred on the afternoon of the 5th December. Some damage to roads was reported and gullies blocked with debris.
- Percy Gardens, Tynemouth – Significant damage to footpaths and the road down to the shoreline.
- King Edward's Bay, Tynemouth – Significant damage to the sea wall and footpaths next to the wall.
- Boardwalk Cafe - Significant damage to footpaths and the road down to the shoreline.
- Watt's Slope - Significant damage to footpaths and the road down to the shoreline.
- Rockcliffe Promenade (opp. High Point Hotel) - Significant damage to footpaths and approximately 30 metres of safety barrier missing.
- Cullercoats Bay – The lifeguard hut was uprooted and displaced onto the beach. A significant rock fall was also observed resulting in a substantial amount of sandstone being displaced although this is not posing a risk to the public.
- St. Mary's Lighthouse - Significant damage to footpaths and the road down to the shoreline.
- Whitley Bay Promenade – Damage to the footpath and retaining wall.

3.2.4 Following the tidal surge event North Tyneside Council compiled a table of indicative estimated cost for repairs along the coastal frontage, which is provided in Table 3-1. Please note that these are not the final costs for repairing the damage.

Table 3-1 North Tyneside Estimated Coast and Timescales

Location	Type of Damage	Repairs Required	Costs	Timescale
Fish Quay, North Shields	a) Road damaged b) Blocked gullies	a)Repair to modular paving b) Cleaning of gullies	a)£1.7K b)£0.3K	a)Complete b)Complete
Percy Gardens, Tynemouth	Damage to modular footpath and flexible carriageway	Lift and relay modular paving, filling of voids and patching of carriageway	Estimated -£10K	1 week
King Edward's Bay, Tynemouth	a) Damage to sea wall b) Damage to adjacent footpaths	a) Repair concrete sea wall b)Concrete patching repair to footpaths	a) Estimated -£50K b) Estimated -£11K	a) 3 weeks b) 3 weeks
Tynemouth Longsands	a) Damage to modular footpath and flexible carriageway b) Dune damage c) Sand removed	a)Repair footpaths and undertake deep patching works carriageway b)Repairs to fencing c) Will replace naturally	a) Estimated -£5.5K b) Estimated -£6K c) N/A	a)1 week b)2 weeks c)N/A
Boardwalk Cafe	Damage to modular footpath and flexible carriageway	Repair footpaths and undertake deep patching works carriageway	Estimated -£15K	1 week
Watt's Slope	Damage to modular footpath and flexible carriageway	Repair footpaths and undertake patching works to carriageway	Estimated -£13K	1 week
Rockcliffe Promenade (opp High Point Hotel)	a) Damage to footpaths b) Damage to seawall c) Missing safety fence	a) Patch concrete footways b) Reinstate pre-cast concrete wall blocks c) Install new fence	a) Estimated -£5K b) Estimated -£120K c) Estimated -£12K	a) 1 week b) 4 weeks c) 4 weeks
Cullercoats Bay	Sandstone rock fall and displacement of RNLI hut	No action required		
St. Mary's Lighthouse	Damage to footpath and flexible carriageway	Lift and relay paving, filling of voids and patching of carriageway	Estimated -£18K	2 weeks
Whitley Bay Promenade	Damage to footpath and retaining wall	Lift and relay paving and filling of voids plus repair retaining wall	Estimated - £7.5K	2 weeks
		TOTAL	**£275K**	

3.2.5 During May 2014 North Tyneside undertook a Local Authority assessment on their asset to determine the condition. A number of assets were flagged on the North Tyneside coast frontage which will require repair. This repair is required due to the damage that has occurred during the December 2013 flood event.

Asset Name, Location	Description of damage	Urgency of repair	Estimated Total Cost (£k)	Description of Repair
Southern Promenade, Whitley Bay	Repairs to sea wall, parapet rail and promenade deck	After April 14	£360k	Pre cast concrete block repair to wall
Central Promenade, Whitley Bay	Repairs to sea wall, promenade and ramp to beach	Immediate	£20k	Concrete repairs to walls and ramps
Northern Promenade, Whitley Bay	Repairs to sea wall and promenade	Immediate	£5k	Concrete repair to walls and copings
Bears Back Sea Wall, Tynemouth	Repairs to sea wall copings and edgings	Immediate	£10k	Concrete repair to walls and copings
South Longsands Promenade, Tynemouth	Repairs to sea wall coping and access ramp	Immediate	£10k	Concrete repairs to walls and ramps

3.3 Maintenance and Repair Defences

3.3.1 The maintenance and repair expenditure on the North Tyneside coast frontage has been reported at £5.56 million over the 1995/6 to 2013/14 period. This is an annual average expenditure of £180,000.

3.3.2 Table 3-2 provides an estimate of expenditure based on information provided by North Tyneside Council. Table 3-3 provides a more detailed breakdown of the reported costs.

Table 3-2 Total Reported Expenditure for Frontage

Works		Reported Expenditure (1995/6 – 2013/14)
Maintenance and construction of specific defence structures		£4,102,545
Strategic Studies	Shoreline Management Plan	£20,000
	Monitoring	£78,143
	Coastal Strategy Plan	£140,481
General Maintenance and emergency response		£1,221,341
Total		£5,562,510

Table 3-3 Historical Coastal Defence Expenditure

Scheme	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Capital Expenditure Schemes										
Tynemouth Outdoor Pool	£188,319									
Cullercoats Pier Phase 1 and 2				£17,159	£63,211	£672	£2,710			
Browns Bay Cliff Stabilisation						£37,597	£168,407	£51,584		
Tynemouth Pool Embankment Slip							£26,615			
Browns Bay Sea Wall Concrete Apron							£12,267			
Norma crescent Embankment Slip							£4,645			
South Pier Cullercoats							£370			
Hartley Cove Steps							£79,972	£27,348	£27,348	
Hartley Cove Steps Access							£7,698			
Tynemouth Dune Reclamation						£118,350	£21,000			
Central Promenade Emergency Repairs										
Rockliffe Promenade Monitoring										
Cullercoats Piers PAR										
Cullercoats Piers										
Rockliffe Promenade										
Trinity Road PAR										
Tynemouth Longsands										
Central Promenade PAR										
Revenue Expenditure										
Coastal Revenue	£63,096	£55,702	£51,649	£77,751	£70,572	£81,755	£75,860	£44,382	£59,366	£60,850
Coastal Monitoring							£7,221	£38,767	£1,000	£2,310
Shoreline Management Plan			£20,000							
Coastal Strategy							£8,400	£24,784	£24,784	£24,784
Coastal Strategy Review										
TOTALS	**£251,415**	**£55,702**	**£71,649**	**£94,910**	**£133,783**	**£238,374**	**£415,165**	**£186,865**	**£112,498**	**£87,944**

Scheme	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	TOTALS
Capital Expenditure Schemes										
Tynemouth Outdoor Pool										£188,319
Cullercoats Pier Phase 1 and 2										£83,752
Browns Bay Cliff Stabilisation										£257,588
Tynemouth Pool Embankment Slip										£26,615
Browns Bay Sea Wall Concrete Apron										£12,267
Norma crescent Embankment Slip										£4,645
South Pier Cullercoats										£370
Hartley Cove Steps										£134,668
Hartley Cove Steps Access										£7,698
Tynemouth Dune Reclamation										£139,350
Central Promenade Emergency Repairs	£183,982	£259,464	£218,871	£8,091						£670,408
Rockliffe Promenade Monitoring				£3,873	£5,209	£3,750				£12,832
Cullercoats Piers PAR				£16,580	£13,420					£30,000
Cullercoats Piers						£138,485	£1,074,177			£1,212,662
Rockliffe Promenade							£152,046	£920,706	£68,969	£1,141,721
Trinity Road PAR								£29,776		£29,776
Tynemouth Longsands								£4,008	£48,866	£52,874
Central Promenade PAR							£25,000	£63,244	£8,756	£97,000
Revenue Expenditure										
Coastal Revenue	£62,371	£62,000	£62,371	£65,654	£65,500	£65,500	£65,654	£65,654	£65,654	£1,221,341
Coastal Monitoring	£12,994	£15,851								£78,143
Shoreline Management Plan										£20,000
Coastal Strategy	£10,966	£168	£2,238	£8,875						£104,999
Coastal Strategy Review									£35,482	£35,482
TOTALS	**£270,313**	**£337,483**	**£283,480**	**£103,073**	**£84,129**	**£207,735**	**£1,316,877**	**£1,083,388**	**£227,727**	**£5,562,510**

4. References

Environment Agency (2006), *Condition Assessment Manual (CAM)*

Halcrow (2012), *Cell 1 Regional Coastal Monitoring Programme: Walkover Visual Inspection of Assets North Tyneside Council Final Report*

Annex A: Defence Inspection Summary Table

Identifier	Previous identifier	Type	Description	Length (m)	Inspection date	Observations	Condition grading	Residual life	Recommendations	Urgency
121AA901A4401C22	None	Cliff	Rock cliff, fronted by scree slope and rocky foreshore	129	13/03/2014	Not inspected in the original strategy. Little change from the Halcrow 2012 inspection. Localised rock falls and minor slippage in cliff face	3	>20	Minor erosion – monitor	No repairs
121AA901A4401C23	7101	Sea wall	Hartley Cove Stairs – sea wall with access steps to the beach	20	13/03/2014	Steps in good condition with only minor defects to lower steps. Some slumping of cliff material to the north of the steps.	3	>20	None	Routine
121AA901A4401C24	7102A	Cliff	Headland cliff fronted by scree slope and sand beach	816	13/03/2014	Eroding cliff with evidence of rock falls and slippage of upper cliff adjacent to path, which has been moved where necessary	3	>20	Monitor erosion	Routine
121AA901A4401C25	7102	Embankment	Concrete ramp to St. Mary's causeway	105.4	13/03/2014	Rock revetment added to northern side of ramp since original strategy date. Erosion of soft cliffs at northern end which may lead to outflanking. Ramp in fair condition with minor undermining but no settlement	2	>20	Monitor erosion at northern end	Routine
121AA901A4501C01	None	Sea wall	Masonry wall fronting properties on the north side of St. Mary's Island	45.6	22/05/2014	Not inspected in original strategy. Wall in poor condition with vegetation growing through it and sections of wall detached. Undermining of one section	4	1-5	Repair/replace wall	Urgent
121AA901A4501C02	7103	Sea wall	Masonry wall fronting lighthouse on southern side of the island. Concrete stabilisation works to isolated sections	83.7	22/05/2014	Wall in good condition	2	11-20	None	Routine
121AA901A4501C03	7104	Sea wall	Block masonry wall to east of lighthouse fronted by a concrete apron	115.5	22/05/2014	Wall in good condition with only minor loss of mortar and small area of cracking at crest	3	>20	Repoint where necessary, fill cracks	Routine
	7105A	Causeway	Mass concrete causeway to St. Mary's Island	180	22/05/2014	Causeway has a patchwork of repairs and cracks and displacement of edge beams and minor undermining but appears to be regularly maintained	3	6-10	Repair cracking and undermining	Routine
121AA901A4501C04	7105	Sea wall	Trinity Road Sea Wall – concrete sea wall fronted by rocky/sandy beach	645.6	13/03/2014	Sea wall in good condition. Minor loss of sealant in some joints and minor cracking. Erosion at southern end adjoining cliff.	3	>20	Replace sealant and fill cracks	Routine

Identifier	Previous identifier	Type	Description	Length (m)	Inspection date	Observations	Condition grading	Residual life	Recommendations	Urgency
121AA901A4501C05	7106	Cliff	Clay cliff with some vegetation, eroding	740.7	13/03/2014	Soft cliffs actively eroding and slumping. Erosion at northern end outflanking sea wall. Beach levels low. Erosion protection is planned to be constructed at northern end	4	11-20	Construct erosion protection at northern end to stop outflanking of sea wall	Routine
121AA901A4501C06	7107A	Revetment	Rock revetment to the south bank of Briardene Burn. Rock gabions on north bank	123.7	13/03/2014	In good condition with only minor movement of stones	3	>20	Monitor erosion of river bank adjacent to revetment	Routine
121AA901A4501C07	7107	Sea wall	Northern Promenade – concrete block wall with access to sandy beach	779.7	13/03/2014	Fair condition with gaps between blocks and cracking. Spalling and cracking to crest blocks. One area of subsidence in paved promenade	3	>20	Fill gaps and cracks, repair crest blocks and make good subsidence	Routine
121AA901A4501C08	7108	Sea wall	Northern Promenade – concrete sea wall in front of grass bank fronted by sandy beach	305.4	13/03/2014	Fair condition with cracking to crest blocks and minor spalling and cracking	3	11-20	Fill cracks and repair crest blocks	Routine
121AA901A4501C09	7108	Sea wall	Short section at southern end of northern Promenade	43.4	13/03/2014	Good condition with minor abrasion and cracking	3	11-20	Monitor	Routine
121AA901A4601C01	7108	Sea wall	Concrete sea wall fronting steep vegetated slope fronted by sandy beach	146.2	13/03/2014	Good condition with minor cracking and abrasion	3	11-20	Monitor	Routine
121AA901A4601C02	7109 & 7110	Sea wall	Concrete/blockwork near vertical wall fronted by sandy beach	91.7	13/03/2014	Poor/Fair condition with concrete toe heavily abraded and spalling. Cracks to access ramp and steps. Infill panels in good condition	4	11-20	Repair concrete wall and cracks to steps and ramp	Routine
121AA901A4601C03	7111	Sea wall	Lower Central Promenade – concrete sea wall with gunite render fronted by sandy beach	165.4	13/03/2014	Poor/fair condition with spalling on facing. Displaced coping.	4	11-20	Repair render and coping	Routine
121AA901A4601C04	7112	Sea wall	Central Promenade – curved block wall with masonry crest fronted by sandy beach	108.2	13/03/2014	Good condition	3	>20	None	Routine
121AA901A4601C05	7113	Sea wall	Central Promenade – straight concrete block wall fronted by sandy beach	54.1	13/03/2014	Generally good condition with heavy staining. No cracking or movement evident	3	>20	None	Routine
121AA901A4601C06	7114	Sea wall	Central Promenade – curved block wall with masonry upper wall	50.4	13/03/2014	Good condition. Concrete toe exposed possibility of undermining. Leaching/staining	3	>20	None	Routine

Identifier	Previous identifier	Type	Description	Length (m)	Inspection date	Observations	Condition grading	Residual life	Recommendations	Urgency
121AA901A4601C07	7115	Sea wall	Central Promenade – concrete wall with a concrete apron. Retaining wall supporting road to rear	65.2	13/03/2014	Fair condition with minor cracking and abrasion	3	>20	None	Routine
121AA901A4601C08	7116	Sea wall	South Promenade – vertical block wall with stepped toe	475.5	13/03/2014	Generally in fair condition but with some gaps between blocks and between coping and surfacing. Section at southern end badly damaged during December 2013 and January 2014 storms	3	>20	Repair cracking and monitor coping. Urgently repair damage to southern end	Urgent
	7117A	Sea wall	Windsor Crescent viewpoint – masonry wall on top of rock outcrop	60	13/03/2014	Some undermining of wall due to erosion of underlying rock	3	11-20	Monitor erosion	Routine
121AA901A4601C09	None	Cliff	Rock cliff with vegetated slope at crest. Low masonry wall on top of cliff	159.7	13/03/2014	Cliff stable and wall in good condition	2	>20	None	Routine
121AA901A4601C10	7117	Sea wall	Brown's Bay – concrete blockwork wall	156.2	13/03/2014	Generally good condition with minor gaps and localised spalling	2	>20	Fill gaps and patch spalling areas	Routine
121AA901A4701C01	7118	Sea wall	Brown's Bay – concrete recurved wall, near vertical masonry wall fronted by concrete apron	132	13/03/2014	Fair condition. Halcrow note some undermining at the toe in one location though this had not worsened between 2010 and 2012. Not seen during this inspection due to tide level	3	>20	Infill undermining at toe assuming this has not already been done	Routine
121AA901A4701C02	7119	Cliff	Rock cliff with former BT radio centre and mast on cliff top	94.5	Not inspected	No access as private property. Halcrow note rock falls and slippages	3	>20	Monitor rock falls/slippages	Routine
121AA901A4701C03	7119	Cliff	Rock cliff with former BT radio centre and mast on cliff top	157.6	Not inspected	No access as private property. Halcrow note rock falls and slippages	3	>20	Monitor rock falls/slippages	Routine
121AA901A4701C04	7120	Sea wall	Norma Crescent – concrete block recurve wall	93.7	13/03/2014	Good condition	1	>20	Monitor	Routine
121AA901A4701C05	7121	Sea wall	Norma Crescent – concrete blockwork wall fronted by concrete apron	63.9	13/03/2014	Generally good condition. Halcrow note apron as being undermined and damaged	2	>20	Maintain apron	Routine
121AA901A4701C06	7122	Sea wall	Cliff Top House – stepped concrete block wall with masonry wall above and apron below	733.8	13/03/2014	Fair condition. Halcrow note some damage to apron	2	11-20	Maintain apron	Routine

Identifier	Previous identifier	Type	Description	Length (m)	Inspection date	Observations	Condition grading	Residual life	Recommendations	Urgency
121AA901A4701C07	7123	Breakwater	Cullercoats North Pier – masonry breakwater with sloped outer face and vertical inner face	185	22/05/2014	Good condition. Minor areas of pointing needed on masonry section	2	>20	Monitor	Routine
121AA901A4701C08	7123	Sea wall	Concrete steps and low masonry wall retaining access road	52	22/05/2014	Good condition	3	11-20	Monitor	Routine
121AA901A4701C09	7124	Sea wall	Dove Marine Lab and RNLI – concrete walls protected by breakwater	43.1	22/05/2014	Good condition. Beach levels are high covering toe.	3	>20	Monitor beach levels	Routine
121AA901A4701C10	7125A	Cliff	Cullercoats Bay – Steep rock cliff with masonry wall above	44.7	22/05/2014	Fair condition.	3	>20	None	Routine
121AA901A4701C11	7125A	Cliff	Cullercoats Bay – soft rock cliffs in centre of bay	76.6	22/05/2014	Fair condition	3	>20	None	Routine
121AA901A4701C12	7125	Sea wall	Cullercoats Bay – concrete wall	30	22/05/2014	Fair condition	3	>20	None	Routine
121AA901A4701C13	7126	Sea wall	Cullercoats Bay – masonry wall with lower section to northern end and transition to southern end	51.9	22/05/2014	Fair condition. Slight undermining of apron to south. Minor damage to steps	3	>20	Repair steps	Routine
121AA901A4701C14	None	Revetment	Concrete revetment to vegetated cliff fronted by concrete apron adjacent to stairs	72.9	22/05/2014	Fair condition. Minor abrasion to seaward side	3	>20	None	Routine
121AA901A4701C15	7128	Breakwater	Cullercoats South Pier – masonry pier acting as breakwater with sloping outer face and vertical inner face. Concrete render to outer and inner faces and concrete crest slab	210.7	22/05/2014	Good condition. Minor abrasion to masonry section and minor damage to apron on seaward side	2	11-20	Repair abrasion and apron	Routine
121AA901A4701C16	7129A	Cliff	Smugglers Cave – rock cliffs with earth slope above	130.4	13/03/2014	Minor rock falls and slumping	3	>20	Monitor slumping near footpath	Routine
121AA901A4701C17	7129	Sea wall	Longsands – masonry wall protecting access road, with masonry concrete revetment above the wall	39.9	14/03/2014	Generally good condition. Some minor damage to concrete toe apron. Slumping of cliff at northern end	2	11-20	Repair toe. Monitor cliff	Routine

Identifier	Previous identifier	Type	Description	Length (m)	Inspection date	Observations	Condition grading	Residual life	Recommendations	Urgency
121AA901A4701C18	7130	Sea wall	Bear's Back Sea Wall – concrete wall with concrete apron	60.1	14/03/2014	Fair condition. Abrasion of concrete apron to noted by Halcrow	2	11-20	Consider toe works to avoid undermining	Routine
121AA901A4701C19	7131	Revetment	Longsands – concrete block revetment to promenade and grass slope. Masonry splash wall to rear	135.5	14/03/2014	Generally good condition. Minor loss of sealant in some joints in concrete wall. Damage to crest along sloping revetment	2	11-20	Repair crest, replace sealant and localised pointing	Routine
121AA901A4701C20	7132	Sea wall	Longsands – concrete block wall	66.8	14/03/2014	Good condition	2	11-20	None	Routine
121AA901A4701C21	7133A	Dunes	Longsands Beach – partially vegetated dunes with wide sandy beach	737	14/03/2014	Generally well vegetated but some areas of slumping have exposed sand. Fenced off to aid recovery	3	>20	Monitor slumping	Routine
121AA901A4701C22	7133	Revetment	Masonry revetment to access ramp. Retaining wall to slope behind	25	14/03/2014	Cracking to concrete wall below steps	2	>20	Repair steps	Routine
121AA901A4701C23	7134	Sea wall	South Longsands Promenade – masonry wall with curved concrete wave deflector	140.2	14/03/2014	Generally good condition. Some mortar missing in joints	2	>20	Repoint joints	Routine
121AA901A4701C24	7135	Sea wall	Tynemouth Outdoor Pool – concrete wall to disused pool	143.9	14/03/2014	Minor spalling, cracking and abrasion.	3	11-20	Repair exterior wall	Routine
121AA901A4701C25	7136	Sea wall	Brick wall with concrete crest and masonry wall behind fronting vegetated slope. Steel sheet piled structure in front of brick wall	64.6	14/03/2014	Abrasion to lower wall	3	>20	Repair lower wall	Routine
121AA901A4701C26	None	Cliff	Rock cliff headland with earth slope above	57.9	14/03/2014	Fractured rock structure with rock falls and slumps	3	>20	Monitor rock falls and slumping	Routine
121AA901A4701C27	7137	Revetment	Sea Banks Sea Wall – concrete block revetment with concrete recurve coping	349.3	14/03/2014	Abrasion and spalling to concrete. Damage to revetment and crest coping.	3	6-10	Repair spalling and abraded areas	Routine
121AA901A4701C28	7138	Sea wall	King Edwards Bay/Short Sands – curved masonry wall	42.4	14/03/2014	Minor abraded areas and gaps in joints	2	>20	Repoint and fill cracks	Routine
121AA901A4701C29	7138	Sea wall	King Edwards bay/Short Sands – concrete wall	195.1	14/03/2014	Generally good condition with recent repairs	2	>20	None	Routine

Identifier	Previous identifier	Type	Description	Length (m)	Inspection date	Observations	Condition grading	Residual life	Recommendations	Urgency
121AA901A4701C30	7139A	Cliff	Tynemouth Castle – steep rock slope fronted by sandy beach	256.3	14/03/2014	Slumping and rock falls evident	3	>20	Monitor rock falls and slumping	Routine
121AA901A4701C31	7139	Cliff	Tynemouth Castle – high-arched retaining wall to upper cliff. Concrete toe protection	60.3	22/05/2014	Fair condition	2	>20	Monitor	Routine
121AA901A4701C32	7140A	Cliff	Tynemouth Castle – concrete cliff stability works	47.5	22/05/2014	Fair condition	3	11-20	Monitor	Routine
121AA901A4701C33	7140	Sea wall	Small section of wall to cliff at end of pier fronted by concrete apron	32.8	22/05/2014	Fair condition	2	11-20	Monitor	Routine
121AA901A4801C01	7141	Breakwater	Tynemouth North Pier – masonry breakwater	1689.9	22/05/2014	Generally good condition. Minor damage to coping on outer wall	2	>20	Repair coping	Routine
121AA901A4801C02	7142	Revetment	Prior's Haven – masonry revetment	120.5	22/05/2014	Generally good condition	2	>20	Monitor	Routine
121AA901A4801C03	7143A	Coastal slope	Spanish Battery – vegetated slope fronted by sandy beach	177.2	22/05/2014	Good condition	2	>20	Monitor	Routine
121AA901A4801C04	7143	Sea wall	Spanish Battery – short section of masonry and concrete arched wall	66.4	14/03/2014	Fair condition	3	>20	Monitor	Routine
121AA901A4801C05	7144	Sea wall	Freestone Point – masonry wall fronting vegetated slope to coastguard station	46.4	14/03/2014	Cracking and missing mortar, blocks missing at toe	3	11-20	Replace missing blocks and point	Routine
121AA901A4801C06	7144	Sea wall	Freestone Point – masonry wall with concrete revetment	60.1	14/03/2014	Extensive damage to revetment needs to be repaired	4	1-5	Wall needs to be repaired/replaced	Urgent
121AA901A4801C07	7145	Revetment	Collingwood Monument Sea Wall – masonry recurved wall. Precast concrete panel revetment fronted by concrete toe	478.2	14/03/2014	Localised cracking and abrasion	2	>20	Repairs to cracks and abraded sections	Routine
121AA901A4801C08	7146	Revetment	The Flats Sea Wall – concrete wall with paved promenade. Concrete revetment fronted by concrete apron	290.5	14/03/2014	Minor abrasion and cracking at joints	2	11-20	Repair cracks and abraded areas	Routine
121AA901A4801C09	7147	Revetment	Low Lights Revetment – pattern-placed rock revetment	325.8	14/03/2014	Generally good condition	2	11-20	Monitor	Routine

Identifier	Previous identifier	Type	Description	Length (m)	Inspection date	Observations	Condition grading	Residual life	Recommendations	Urgency
121AA901A4801C10	7148	Revetment	Lloyd's Hailing Revetment – grouted stone revetment	87.6	14/03/2014	Generally good condition	2	>20	None	Routine
	7148A	Quay wall	Port of Tyne – timber/concrete quay wall	150	22/05/2014	Generally good condition	2	>20	None	Routine
	7148B	Quay wall	Western Quay – timber/concrete quay wall	100	22/05/2014	Generally good condition	2	>20	None	Routine
	7148C	Quay wall	Union Quay – timber/concrete quay wall	100	22/05/2014	Generally good condition	2	>20	None	Routine
	7148D	Quay wall	Fish Quay – timber/steel quay wall	100	22/05/2014	Generally good condition	2	>20	None	Routine
	7148E	Quay wall	Fish Quay – timber quay wall	200	22/05/2014	Generally good condition	2	>20	None	Routine
	7148F	Sea wall	Northern Wave Trap – concrete slab on top of grouted sloping rock/masonry wall	100	22/05/2014	Generally good condition	2	>20	None	Routine

This table is derived from the Halcrow report *Cell 1 Regional Coastal Monitoring Programme: Walk-over Visual Inspections of Assets, North Tyneside Final Report December 2012,* with updates made from the inspections made in 2014

Annex B: Location Maps of Coastal Assets


121AA901A4401C23
Hartley
Blyth Road
121AA901A4501C03
121AA901A4501C02
121AA901A4401C24
Not allocated
121AA901A4401C25
121AA901A4501C04
121AA901A4501C05
Whitley Bay
olf Course
ene
A193
121AA901A4501C06
Claremont Road
121AA901A4501C07
Coastal Defences
Breakwater
Causeway
Cliff
Coastal Slope
Dunes
Embankment
Quay Wall
Revetment
Sea Wall
HARTLEY COVE TO THE RIVER TYNE COASTAL STRATEGY REVIEW SEA SCOPING REPORT
COASTAL DEFENCES (TYPE)
PRELIMINARY
DRAFT
1:0
KJ
JG
PW
CS/62000
30/03/2015
CS062000-CAP-00-EGN-DR-V-0004
P01
CAPITA


121AA901A4501C05
A193
121AA901A4501C06
121AA901A4501C07
The Links
Whitley Sands
121AA901A4501C08
121AA901A4501C09
121AA901A4601C01
121AA901A4601C02
121AA901A4601C03
121AA901A4601C04
121AA901A4601C06
121AA901A4601C07
WHITLEY BAY
Not allocated
121AA901A4601C08
Marine Avenue
Park View
Monkseaton
Vorham Road
Whitley Bay
121AA901A4701C01
Coastal Defences
Breakwater
Causeway
Cliff
Coastal Slope
Dunes
Embankment
Quay Wall
Revetment
Sea Wall
HARTLEY COVE TO THE RIVER TYNE COASTAL STRATEGY REVIEW SEA SCOPING REPORT
COASTAL DEFENCES (TYPE)
PRELIMINARY
DRAFT
1:0
KJ
JG
PW
CS/62000
30/03/2015
CS062000-CAP-00-EGN-DR-V-0005
P01
CAPITA


Not allocated
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121AA901A4601C09
121AA901A4601C10
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121AA901A4701C03
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121AA901A4701C21
121AA901A4701C22
121AA901A4701C23
121AA901A4701C24
121AA901A4701C26
Whitley Bay
Whitley Road
Cullercoats
The Broadway
A193
A1058
Beach Road
Grand Parade
Long Sands
Coastal Defences
Breakwater
Causeway
Cliff
Coastal Slope
Dunes
Embankment
Quay Wall
Revetment
Sea Wall
HARTLEY COVE TO THE RIVER TYNE COASTAL STRATEGY REVIEW SEA SCOPING REPORT
COASTAL DEFENCES (TYPE)
PRELIMINARY
DRAFT
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KJ
JG
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CS/62000
30/03/2015
CS062000-CAP-00-EGN-DR-V-0006
P01
CAPITA


Broadway
A1058
Beach Road
Broadway
Percy Park
Percy Park Road
Sea Banks
TYNEMOUTH
Tynemouth
Spital Dene
Tynemouth Castle
Tynemouth Road
The Flats
MA27
Not allocated
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121AA901A4701C22
121AA901A4701C23
121AA901A4701C24
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121AA901A4801C08
121AA901A4801C09
121AA901A4801C10
Key
Coastal Defences
Breakwater
Causeway
Cliff
Coastal Slope
Dunes
Embankment
Quay Wall
Revetment
Sea Wall
Project
HARTLEY COVE TO THE RIVER TYNE COASTAL STRATEGY REVIEW SEA SCOPING REPORT
Drawing
COASTAL DEFENCES (TYPE)
Purpose of Issue
PRELIMINARY
Status
DRAFT
Scale @ A3
1:0
Drawn
KJ
Checked
JG
Approved
PW
Project No
CS/62000
Date
30/03/2015
Drawing Identifier
CS062000-CAP-00-EGN-DR-V-0007
Revision
P01
Working in partnership with CAPITA

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