



Barrow Coastal Inspections 2020

Barrow Borough Council

May 2021

TECHNICAL SUPPORT UNIT.

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1 Document Control

1.1 Document Location

Technical Support

1.2 Document Approval

Approved By	Organisation	Role	Date
Mark Ellis	Capita	Project Manager	01/06/2021

1.3 Document History

Author	Version No	Status	Reason for Change	Issue Date
Craig Bell/Mark Ellis	0	Draft	Internal Review	01/06/2021

1.4 Distribution

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2 Metadata

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3 Introduction

In 1999 the Government set a series of High Level Targets for Flood and Coastal Defence. Targets 6a and 6b refer to coast protection and require operating authorities to carry out regular inspections of all coastal defence assets, including those in private ownership and to identify the risk of flooding and coastal erosion.

This report presents the results of the a survey of the coast protection assets along the coastline of Barrow Borough Council, which runs from opposite Peasholmes Lane on the A5087 Coast Road to Mere Beck just north of Askam-in-Furness in the Duddon Estuary and includes the coastlines of Walney Island and Piel Island.

This report provides details of the coast defence structures along the coastline and their condition grading in line with the Environment Agency's (EA) Condition Assessment Manual (EA document 166_03_SD01).

Illustrative photographs of each structure are included along with recommendations for future maintenance/monitoring. Each structure is also given a risk rating based on an assessment of its integrity in accordance with an agreed methodology adopted by the Cell 11 Coastal Groups, as detailed in Section 7 of this report.

Individual inspection records for each defence structure are set out primarily to provide the data necessary for completion of the EA National Flood and Coastal Defence Database with secondary data grouped below each record.

4 Inspection Details

Inspections of all sites, with the exception of those within BAE and AB Ports, were carried out in May 2021. These inspections were scheduled to take place in 2020, but were re-scheduled due to the Coronavirus pandemic. Illustrative photographs were taken of each defence structure and these are included in the report alongside individual inspection records. Additional photographs were taken to illustrate specific sections of structures where maintenance work is recommended; these have been supplied to Barrow BC and passed on to asset owners separately.

Inspection records are grouped according to Coastal Process Unit lengths as identified in the Shoreline Management Plan 2 (SMP2) for sub-cell 11c: Rossall Point to Haverigg and as shown on Figures 1 to 3. Following recommendations made previously; assets 010/0372 (Rape Haw) and 010/0373 (South Haws – Shelley Bars) have been removed from the inspection programme.

Structures are referenced by their EA unique asset reference number. Alternative references from the MAFF Coast Protection Survey of England (CPSE) or National Rivers Authority (NRA) survey are also shown for ease of identification. In some cases, due to changes in construction/configuration, structures which may be recorded as a single reference in the CPSE/NRA survey have been split into a number of sections to more accurately record the data necessary for NFCDD. Where this has been done the CPSE references have been suffixed alphabetically from south to north, i.e. 210/8023a followed by 210/8023b. In 2018, Foulney Embankment was added due to its important function in providing protection to Roa Island Causeway and the saltmarsh between the embankment and Rampside. This does not have an EA reference number but has been given the next consecutive number in the alternative reference, i.e. 210/8046.

Design standards for most structures are unknown and so have been set to 99 years, as recommended by EA. In some locations crest levels are also unknown and have therefore, been left blank and the data quality flag set as missing.

Ordnance Survey (OS) grid references are recorded for each end of the structures using a GPS accurate to 5m. An indicative sketch plan accompanies each structure report to illustrate its cross-

sectional layout and identify individual elements. A glossary explaining the terms used on the inspection record forms is in Appendix C, formatted as a foldout for ease of use.

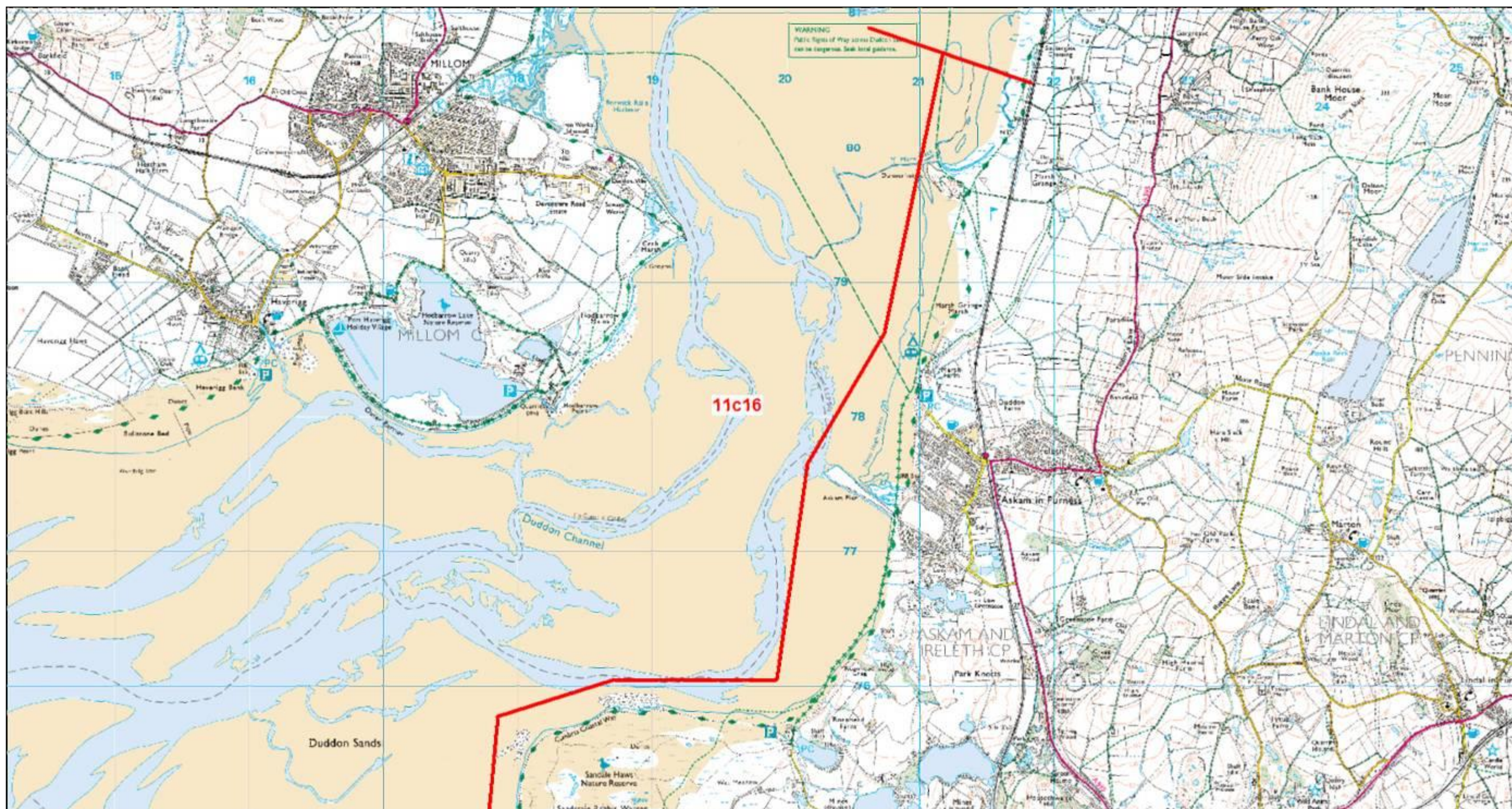


Figure 1: Coastal Process Unit 11c16

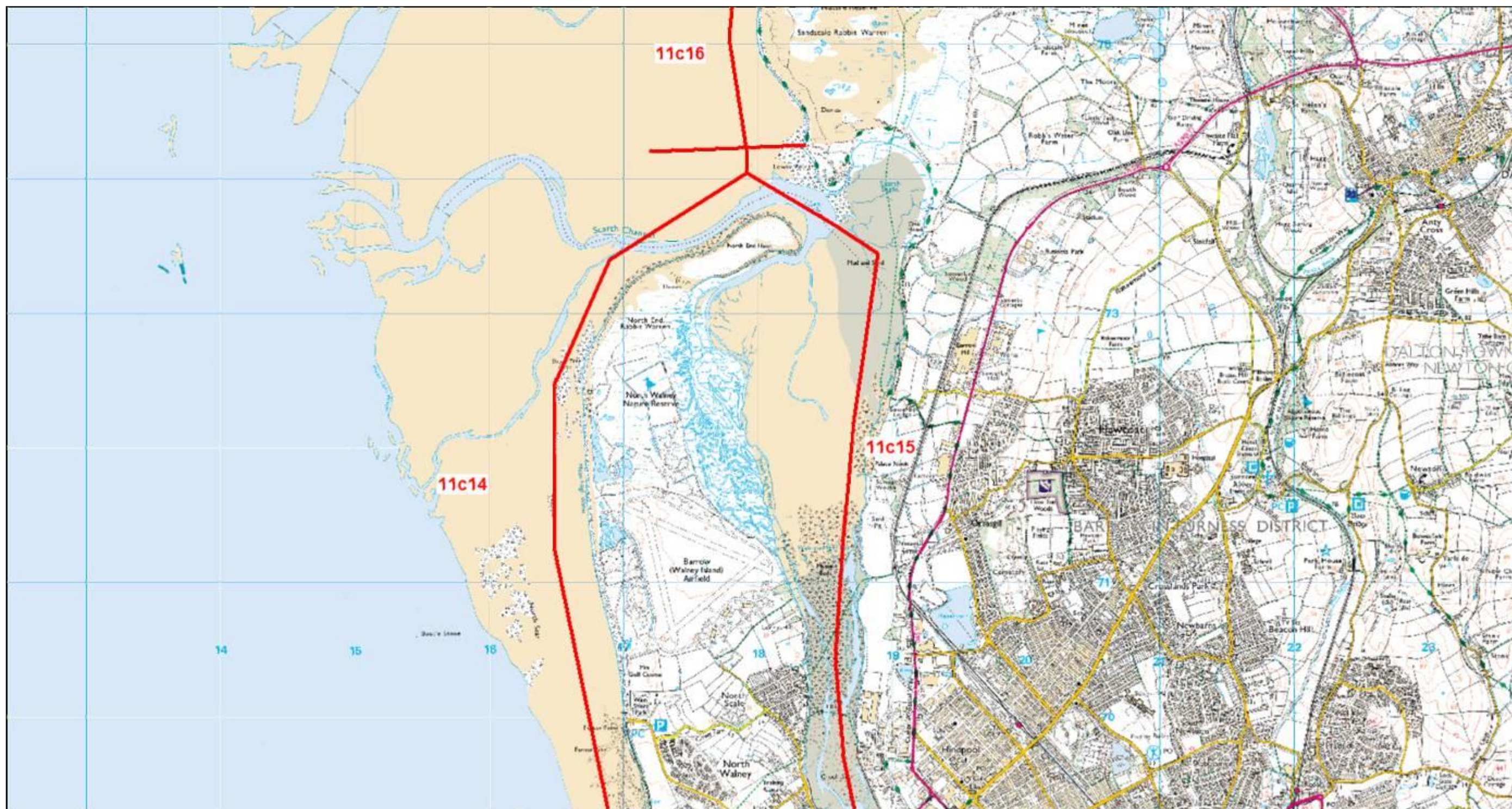


Figure 2: Coastal Process Units 11c14, 11c15 and 11c16

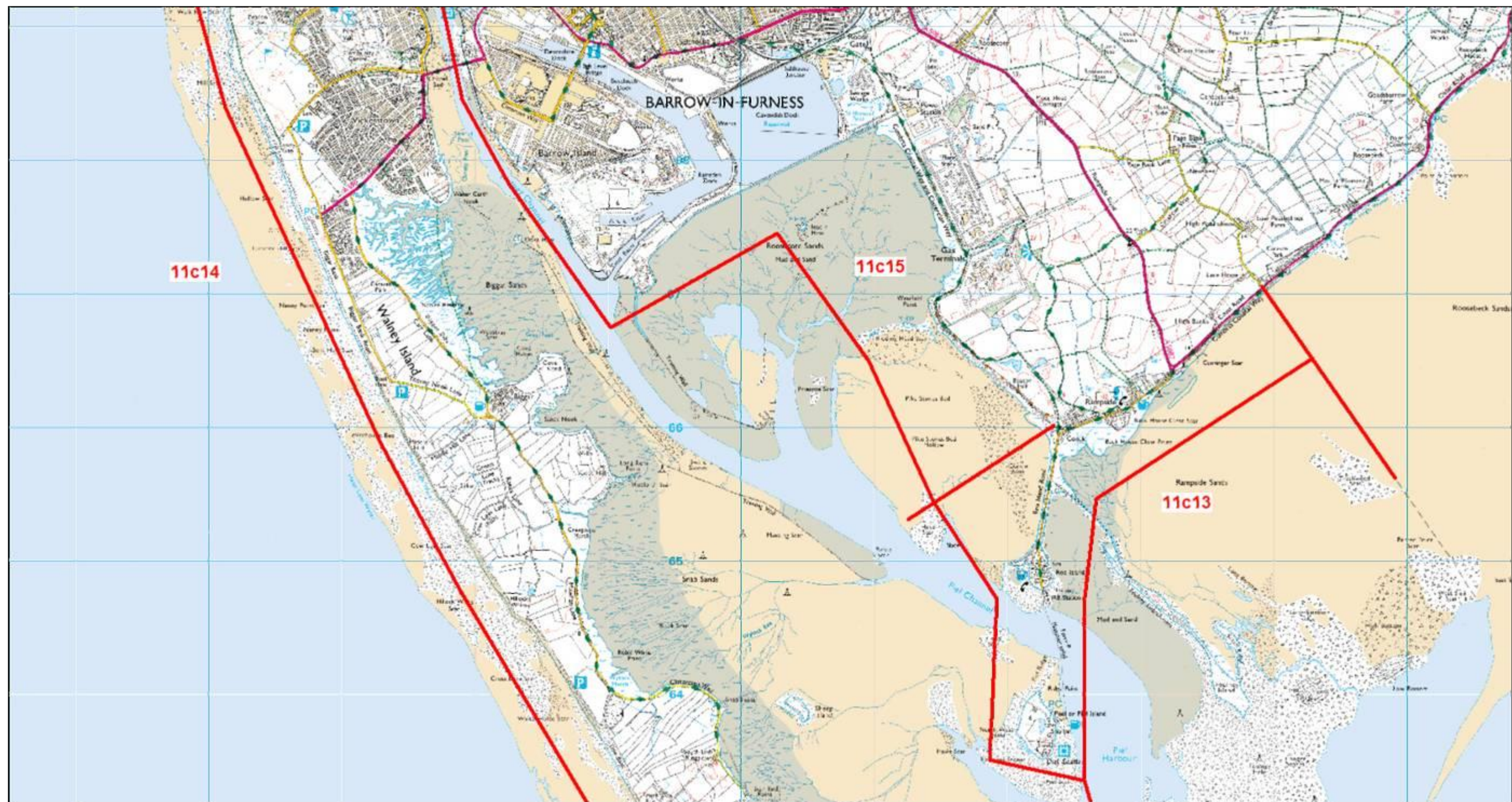


Figure 3: Coastal Process Units 11c13, 11c14 and 11c15

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5 Structure Inspections

5.1 Coastal Process Unit 11c13

EA reference	CPSE reference	Location
011KC90220601C01	210/8001a	Peasholmes Lane a
011KC90220601C01	210/8001b	Peasholmes Lane b
011KC90220701C01	210/8002	Rampside
011KC90220701C03	210/8003	Concle
011KC90220701C06	210/8004a	Roa Island Causeway West
011KC90220701C06	210/8004b	Roa Island Causeway East
011KC90220701C07	210/8005a	Roa Island Watch Tower
011KC90220701C07	210/8005b	Roa Island Bosun's Locker
011KC90230501C01	210/8006	Piel Island
011KC90220701C08	210/8042	Roa Island Marine Terrace
011KC90220701C06	210/8043	Roa Island Boat Club
N/A	N/A	Foulney Causeway A
N/A	N/A	Foulney Causeway B

NFCDD Defence Data			Peasholmes Lane A
EA Asset Ref.	011KC90220601C01		
Alternate Ref.	210/8001a		
Start NGR	E324314 N466412	End NGR	E324934 N467034
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Cumbria CC	Year Built	2011
Crest Level	7.2m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	16	Assessment	Low
Change from previous assessment		Drainage outlet at southwest end of asset blocked	

Photo





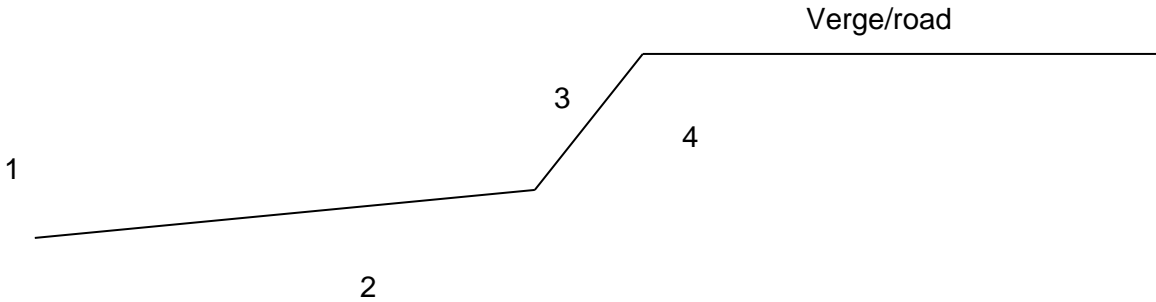
Drainage outlet at southwest end of asset

NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	-	-	-	-	-	-
2	CS	Foreshore	Sand	-	-	-	3	1
3	FI	Revetment	Rock Armour	-		-	2	8
4	C	Revetment	Rock Armour	-	0	-	2	8
Residual Life		5-10	Urgency	Normal		Overall Condition		2
						Data Quality		1
<p>Comments and Recommendations</p> <p>The asset has been split into two sections to indicate the condition of the two separate materials used in this defence. Over recent years sections of the defence have been replaced in phases commencing from the Peasholmes Lane end hence the need to split the survey. The foreshore has reduced vegetation.</p> <p>Still a relatively new construction, overall the rock armour remains densely packed and in good condition, with only minor displacement occurring to isolated small areas of rock. A minor weakness exists at the joint to the joining concrete revetment, and the drainage outlet at the southwest end of the asset is blocked.</p>								
<p>Indicative sketch of cross-section</p> <p>The sketch shows a cross-section profile. It starts at point 1, which is the beginning of a low, gradual slope labeled '2'. This slope rises to point 3. From point 3, the profile becomes a steeper slope labeled '4', which then levels out into a horizontal line representing the 'Verge/road'.</p>								

NFCDD Defence Data			Peasholmes Lane B
EA Asset Ref.	011KC90220601C01		
Alternate Ref.	210/8001b		
Start NGR	E324314 N466412	End NGR	E324934 N467034
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Cumbria CC	Year Built	1930
Crest Level	7.2m	CL Data Quality	
Spatial Data Quality	Adequate		
Risk Assessment			
Risk Score	48	Assessment	High
Change from previous assessment		None	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	-	-	-	-	-	-
2	CS	Foreshore	Sand	-	-	-	3	1
3	FI	Revetment	Concrete	-		-	4	8
4	C	Revetment	Concrete	-	0	-	4	8
Residual Life		0-5	Urgency	Medium		Overall Condition		4
						Data Quality		1
Comments and Recommendations The remaining old concrete section of the revetment is in a poor condition with areas showing defects that would lead to accelerated wash out if not repaired.								
Indicative sketch of cross-section  <p>The sketch shows a cross-section profile. Point 1 is at the start of a horizontal line. Point 2 is below this line. Point 3 is at the top of a vertical line. Point 4 is at the top of a horizontal line. A horizontal line labeled 'Verge/road' is at the top right.</p>								

NFCDD Defence Data			Rampside
EA Asset Ref.	011KC90220701C01		
Alternate Ref.	210/8002		
Start NGR	E324119 N466267	End NGR	E324247 N466366
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Private	Year Built	1900
Crest Level	8.50m	CL Data Quality	
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	2	2
2	CS	Foreshore	Salt marsh	-		20m	2	2
3	FS	Foreshore	Sand	-	5 -10 deg	10m	2	2
4	FI	Revetment	Poured concrete	Concrete	35 deg	3m	3	5
5	B	Berm	Turf	-		5m	3	5
Residual Life		5-10	Urgency	No repairs		Overall Condition		3
						Data Quality		1
Comments and Recommendations <p>The foreshore is heavily vegetated due to being sheltered by Foulney Island and its causeway. A wide and shallow salt marsh protects the revetment, with heavy vegetation protecting both the toe and the upper part of the revetment. No urgent repairs are necessary, however there are areas of spalled and cracked concrete evident in areas not protected by vegetation.</p>								
Indicative sketch of cross-section <p>The sketch shows a cross-section of the coastal profile. Point 1 is the mud flat at the water's edge. Point 2 is the salt marsh area. Point 3 is the sand area. Point 4 is the concrete revetment structure, shown as a slope. Point 5 is the berm, shown as a horizontal line at the top of the revetment.</p>								

NFCDD Defence Data			Concle
EA Asset Ref.	011KC90220701C03		
Alternate Ref.	210/8003		
Start NGR	E323500 N465979	End NGR	E323703 N466047
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Private	Year Built	1900
Crest Level	8.10m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Photo



Outfall from floodgate

NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	3	2
2	CS	Foreshore	Salt marsh	-		100m	2	2
3	FG	Flood gate	Timber				4	4
4	FI	Revetment	Poured concrete	Concrete	35 deg	3m	3	5
5	B	Berm	Turf	-		3m	3	5
Residual Life		5-10	Urgency	No repairs		Overall Condition		3
						Data Quality		1

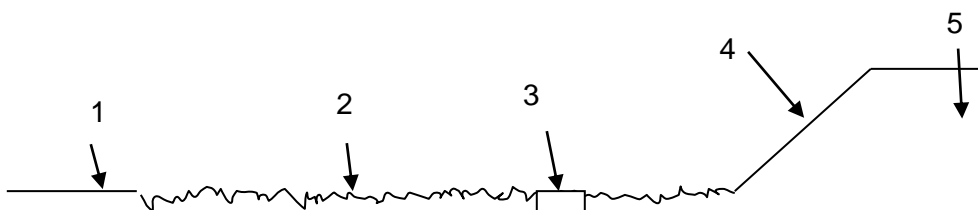
Comments and Recommendations

The revetment remains protected by a very mature saltmarsh.

Outfall from the flood gate appears to remain restricted as this area is heavily vegetated, resulting in the gate likely having very limited effect at high tide.

The revetment remains heavily vegetated, up to 90% in parts. Spalling and cracking of the concrete is evident in areas not protected by vegetation, however no urgent repairs are required.

Indicative sketch of cross-section

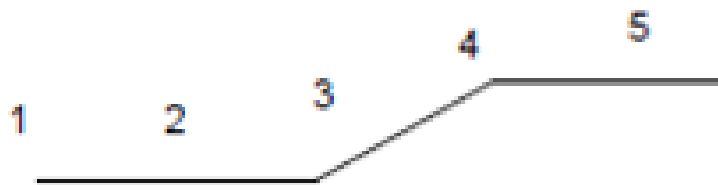


NFCDD Defence Data			Roa Island Causeway West	
EA Asset Ref.	011KC90220701C06			
Alternate Ref.	210/8004a			
Start NGR	E323227 N465090	End NGR	E323382 N465868	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Revetment	Design Standard	99	
Maintainer	Railtrack / Network Rail		Year Built	1890
Crest Level	6.8m		CL Data Quality	1
Spatial Data Quality		Adequate		

Risk Assessment			
Risk Score	8	Assessment	Low
Change from previous assessment	None		

Photo



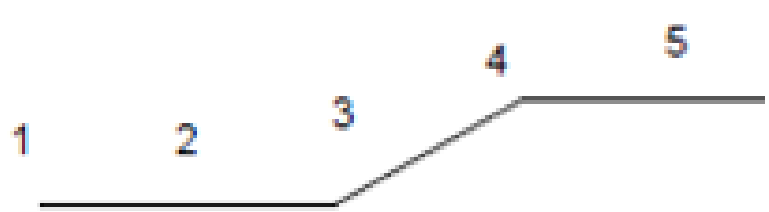
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	-	-
2	CS	Foreshore	Salt marsh	-	-	-	2	1
3	FI	Revetment	Grouted stone	-	-	-	2	8
4	C	Revetment	Grouted stone	-	-	-	2	8
5	B	Road	-	-	-	-	-	-
Residual Life		5-10	Urgency	No repairs		Overall Condition		2
						Data Quality		1
Comments and Recommendations The revetment is made of mixed sections; bituminised aggregate, cobbles and asphalt. The overall condition of the revetment remains fair with some small areas of cobbles lost in isolated locations leading to slight washout. Vegetation is becoming established at the top of the revetment. There are enough areas of deterioration for some remedial work to be worthwhile as notified following previous assessments. However no remedial work appears to have been carried out in recent years since notification.								
Looking away from Roa Island. 								

NFCDD Defence Data			Roa Island Causeway East	
EA Asset Ref.	011KC90220701C06			
Alternate Ref.	210/8004b			
Start NGR	E323227 N465090	End NGR	E323382 N465868	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Revetment	Design Standard	99	
Maintainer	Railtrack/ Network Rail	Year Built	1890	
Crest Level	6.8m	CL Data Quality	1	
Spatial Data Quality	Adequate			

Risk Assessment			
Risk Score	12	Assessment	Low
Change from previous assessment	None		

Photo



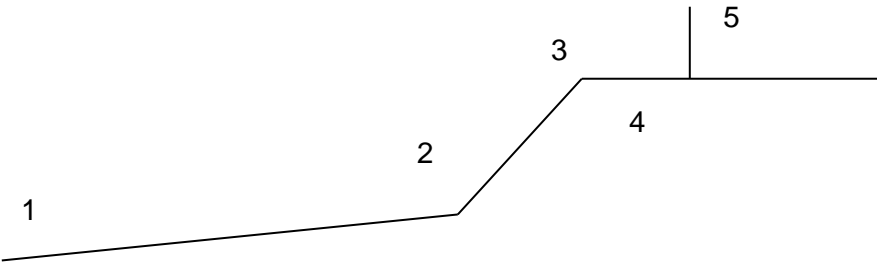
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	-	-
2	CS	Foreshore	Salt marsh	-	-	-	2	1
3	FI	Revetment	Grouted stone	-	-	-	3	8
4	C	Revetment	Grouted stone	-	-	-	3	8
5	B	Road	-	-	-	-	-	-
Residual Life		5-10	Urgency	No repairs		Overall Condition		3
						Data Quality		1
Comments and Recommendations								
Various poured concrete repairs have been carried out in recent years to areas where cobbles had been lost and washed out. Areas of stone loss still remain in some areas of the revetment, however these areas do not appear to have deteriorated significantly over the last few years, and no urgent repairs are required at this stage. There continues to be increased vegetation growth towards the top of the revetment.								
Looking towards Roa Island.								
								

NFCDD Defence Data			Roa Island Watchtower	
EA Asset Ref.	011KC90220701C07			
Alternate Ref.	210/8005a			
Start NGR	E323171 N464965		End NGR	E323309 N464926
Defence Type	Man made		Protection Type	Defence
Asset Type	Revetment		Design Standard	99
Maintainer	Barrow BC		Year Built	1950
Crest Level	7.5m		CL Data Quality	
Spatial Data Quality		Adequate		

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Photo



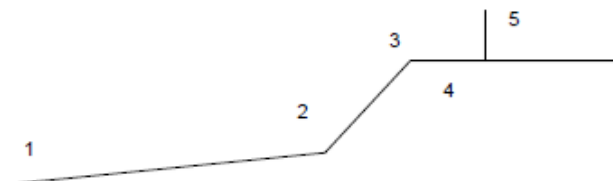
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	Mud Flat	1	-	-	-	-	-
2	CS	Shingle Foreshore	2	-	-	-	2	2
3	FI	Cobble and Masonry Revetment	3	-	-	-	2	8
4	B	Berm	4	-	-	-	3	8
5	FI	Domestic Wall	5	-	-	-	-	-
Residual Life		10	Urgency	No repairs		Overall Condition		2
						Data Quality	1	
Comments and Recommendations <p>The revetment is made of cobbles and masonry. Reinstatement of pointing between the cobbles was carried out in 2012 to reinforce the structure of the revetment. There are still small areas with minor pointing loss at other sections of the defence but there does not appear to have been any major deterioration since the previous inspection. Some washout has occurred at the toe of the revetment in recent years, this should continue to be monitored over the coming years, as remedial works may be required.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Roa Island, Bosun’s Locker	
EA Asset Ref.	011KC90220701C07			
Alternate Ref.	210/8005b			
Start NGR	E323171 N464965	End NGR	E323309 N464926	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Revetment	Design Standard	99	
Maintainer	Barrow BC	Year Built	1950	
Crest Level	7.5m	CL Data Quality		
Spatial Data Quality		Adequate		

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment	None		

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	Mudflat	1	-	-	-	-	-
2	FI	Revetment	2	-	-	-	2	1
3	C	Revetment	3	-	-	-	3	8
4	B	Berm	4	-	-	-	3	8
5	FI	Brick and masonry wall	5	-	-	-	-	-
Residual Life		0-5	Urgency	No repairs		Overall Condition		3
						Data Quality		1
Comments and Recommendations Access steps and a small section of the revetment adjoining the steps have been reconstructed in recent years. The previous void at the toe of the revetment adjacent to the steps has been backfilled with mass concrete, and the handrail has also been repaired again in recent years. Numerous patch repairs have also been carried out in recent years, although there is still some undercutting at the toe of the revetment, however no urgent repairs are required at this stage and no major deterioration appears to have occurred since the last inspection.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Piel Island
EA Asset Ref.	011KC90230501C01		
Alternate Ref.	210/8006a-e		
Start NGR	E323241 N463529	End NGR	E323369 N463830
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment/Gabions	Design Standard	99
Maintainer	English Heritage	Year Built	1988 (gabions)
Crest Level		CL Data Quality	1
Spatial Data Quality			

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		First assessment 08/03/2012. 04/07/2013: Gabion baskets in section 2 showing further deterioration.	

Section 1



Section 2



Section 3

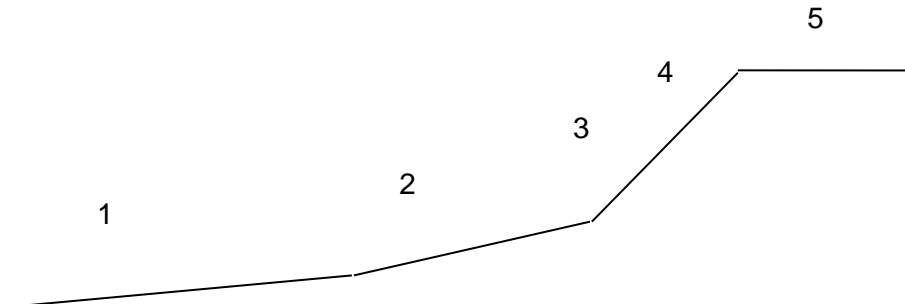


Section 4



Section 5



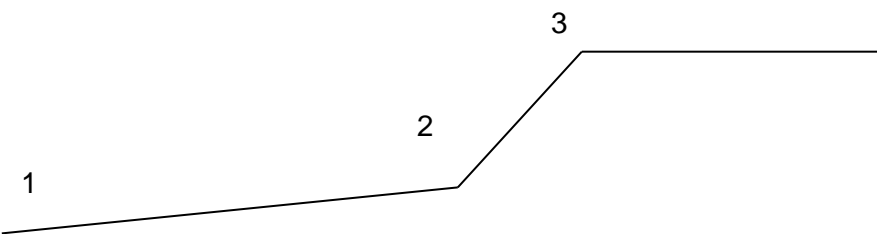
NFCDD Element and Survey Data								
Inspector	A. Buck						Date	04/07/2013
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	-	-
2	CS	Foreshore	Shingle	-	-	-	2	1
3	FI	Revetment	Grouted stone				4	8
4	FI	Revetment	Turf	-	-	-	4	8
5	C		Turf	-	-	-		
Residual Life		0-5	Urgency	Repairs		Overall Condition		4
						Data Quality		1
Comments and Recommendations Asset is originally grouted stone with poured concrete repairs. Some sections (partially) replaced by gabions. Original castle walls have collapsed over defences in 2 sections. Asset divided for convenience into 5 sections (see photos above) to reflect this. Section 1: significant loss of stone to 2 areas (1 & 5 metres wide). Undercutting at toe and loss of stone to both sides adjacent to jetty. Repairs necessary. Section 2: 2 gabion baskets showing stone loss (1 significant, 1 small loss). Several basket wire breaks. Repairs necessary to prevent deterioration/unwinding of gabion baskets. Section 3: gabion baskets well packed and aligned. Several basket wire breaks – but generally free from corrosion. Cracks and occasional missing stone to grouted stone area. Repairs necessary to prevent deterioration/unwinding of gabion baskets. Section 4: collapsed castle wall masonry with small area of gabion baskets behind. Evidence of burrowing to rear of gabion baskets. Section 5: minor undercutting at toe of grouted stone revetment. Collapsed castle wall masonry at limit of asset. 04/07/13 Gabion baskets in section 2 showing further deterioration. 4 gabion baskets all showing significant stone loss								
Indicative sketch of cross-section 								

NFCDD Defence Data			Roa Island, Marine Terrace	
EA Asset Ref.	011KC90220701C08			
Alternate Ref.	210/8042			
Start NGR	E323200 N464809		End NGR	E323261 N464789
Defence Type	Man made		Protection Type	Defence
Asset Type	Revetment		Design Standard	99
Maintainer	Marine Terrace Residents		Year Built	1950
Crest Level	7.7m		CL Data Quality	1
Spatial Data Quality		Adequate		

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment	None		

Photo



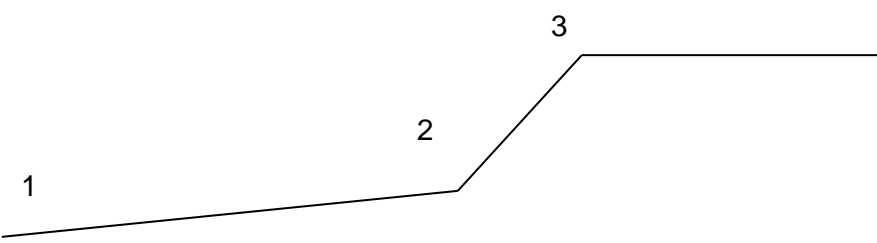
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	-	-
2	CS	Foreshore	Shingle	-	-	-	2	2
3	FS	Revetment	Concrete/cobble	-	-	-	3	8
4	C	Revetment	Concrete/cobble				3	8
Residual Life		5-10	Urgency	No repairs		Overall Condition		3
						Data Quality	1	
Comments and Recommendations There is some cracking and minor undercutting at the toe, however as with previous inspections, there appears to be no substantive deterioration over recent years, with no urgent repairs currently required.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Roa Island Boat Club	
EA Asset Ref.	011KC90220701C06			
Alternate Ref.	210/8043			
Start NGR	E323209 N465114	End NGR	E323237 N465091	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Revetment	Design Standard	99	
Maintainer	Roa Island Boat Club	Year Built	1950	
Crest Level	6.5m	CL Data Quality	1	
Spatial Data Quality	Adequate			

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment	None		

Photo



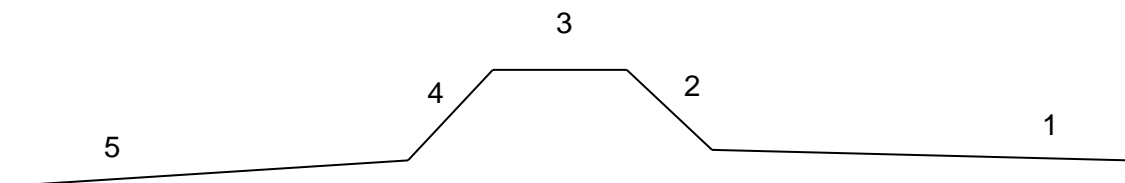
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	-	-
2	CS	Foreshore	Shingle	-	-	-	2	2
3	FS	Revetment	Concrete	-	-	-	3	8
4	C	Revetment	Concrete				3	8
Residual Life		5-10	Urgency	No repairs		Overall Condition		3
						Data Quality	1	
Comments and Recommendations <p>The concrete revetment remains in a good condition overall, with only minor cracking and some minor damage to the toe in places, however now substantial deterioration appears to have occurred over recent years. There are also small areas of minor stone loss and loss of pointing. The club have experienced some damage to their own slipway in previous years; however the revetment remains in good condition.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Foulney Causeway A
EA Asset Ref.	N/A – asset added in 2018		
Alternate Ref.	210/8046a		
Start NGR	E323324 N465589	End NGR	E323976 N464836
Defence Type	Man made	Protection Type	Defence
Asset Type	Embankment	Design Standard	99
Maintainer	Cumbria Wildlife Trust	Year Built	1800s
Crest Level	Unknown	CL Data Quality	
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	48	Assessment	High
Change from previous assessment		Build up of shingle in places	

Photo



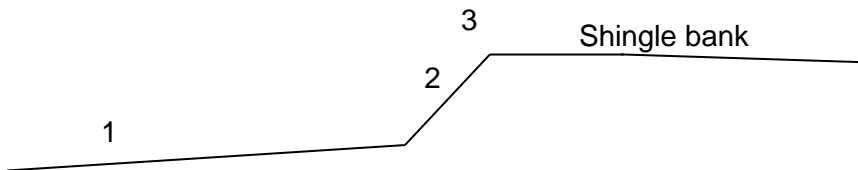
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CS	Foreshore	Shingle	-	-	-	2	1
2	FI	Embankment	Stone	-	-	-	4	8
3	B	Berm	Stone	-	-	-	4	8
4	FO	Embankment	Stone				4	8
5	CS	Saltmarsh	Saltmarsh				2	2
Residual Life		1-5	Urgency	Medium		Overall Condition		4
						Data Quality		1
Comments and Recommendations Sections of the revetment remain in a reasonable condition, however there are areas where the revetment has collapsed, providing little to no protection. There is evidence of some minor areas of concrete repair carried out to the berm previously. There is a section at the south-eastern end of approximately 190m that is buried in the shingle ridge. Despite no signs of any major deterioration since the previous inspection, there appears to have been a continued build up of shingle in places. It is recommended that annual inspections of this asset continue to monitor deterioration, including any erosion of the saltmarsh.								
Indicative sketch of cross-section (looking towards Foulney Island) 								

NFCDD Defence Data			Foulney Causeway B
EA Asset Ref.	N/A added 2018		
Alternate Ref.	210/8047		
Start NGR	E323976 N464836	End NGR	E324535 N464296
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Cumbria Wildlife Trust	Year Built	1800s
Crest Level	Unknown	CL Data Quality	
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	48	Assessment	High
Change from previous assessment		None	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CS	Foreshore	Shingle	-	-	-	2	1
2	FI	Revetment	Concrete/Stone	-	-	-	4	8
3	C	Revetment	Concrete/Stone	-	-	-	4	8
Residual Life		1-5	Urgency	Medium		Overall Condition		4
						Data Quality		1
<p>Comments and Recommendations</p> <p>This section of the defence is a concrete and stone revetment against the shingle bank that forms the north-eastern side of Foulney Island. The defence is in poor condition with washed out sections of concrete.</p> <p>The defence should be inspected annually to monitor its condition as it helps to maintain the integrity of Foulney Island and the protection it gives to the saltmarsh.</p>								
<p>Indicative sketch of cross-section (looking towards Foulney Island)</p> 								

5.2 Coastal Process Unit 11c14

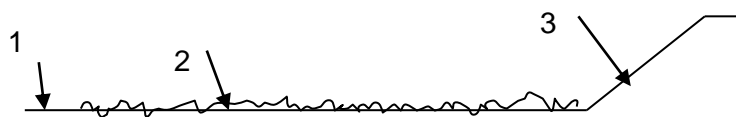
EA reference	CPSE reference	Location
011KC90230301C04	010/0368	Tummer Hill
011KC90230301C04	010/0368a	Tummer Hill Outfall 1 Carr Lane
011KC90230301C04	010/0368b	Tummer Hill Outfall 2 Ocean Road
011KC90230301C04	010/0368c	Tummer Hill Out fall 3 Westminster Ave
011KC90230301C08	010/0369	Biggar Dyke
011KC90230401C01	010/0370a	Creepshaw Marsh
011KC90230401C01	010/0370b	Creepshaw Marsh floodgate
011KC90230401C04	010/0371	Wylock Marsh
011KC90230401C06	010/0372	Rape Haw
011KC90230401C07	010/0373	South Haws – Shelley Bars
011KC90230701C02	210/8039	Low Bank
011KC90230701C03	210/8030	White Horse Scar
011KC90230801C02	210/8031	Cow Leys Lane
011KC90230801C04	210/8032	Middle Hill Lane
011KC90230801C06	210/8041	Bent Haw Tip
011KC90230801C07	210/8033	Bent Haw
011KD90240101C02	210/8034a	Walk Haw Scar cobble
011KD90240101C02	210/8034b	Walk Haw Scar concrete
011KD90250101C08	210/8035	Walk Haw Scar North
011KD90240101C04	210/8036/1	Earnse Bay Fishtail Groyne
011KD90240201C01	210/8036/2	Earnse Bay
011KD90240201C02	210/8045	West Shore Park
011KD90250101C04	210/8044	Chapelfield
011KD90250101C06	210/8028	Promenade North

NFCDD Defence Data.			Tummer Hill
EA Asset Ref.	011KC90230301C04		
Alternate Ref.	010/0368		
Start NGR	E318074 N467496	End NGR	E308226 N467844
Defence Type	Man made	Protection Type	Defence
Asset Type	Embankment	Design Standard	99
Maintainer	Barrow BC	Year Built	
Crest Level	6.0m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	9	Assessment	Low
Change from previous assessment		None	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	2	2
2	FS	Salt Marsh		-		100m+	2	2
3	FI	Revetment	Blockwork		35 deg	4m	3	6
Residual Life		10-20	Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations This asset includes Outfalls and gates that are listed separately below. The embankment is now almost entirely covered in heavy vegetation and protected by a well-developed saltmarsh.								
Indicative sketch of cross-section  <p>FG1 nearest Carr Lane FG2 nearest Ocean Road FG3 nearest Westminster Ave</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="border: 1px solid black; padding: 5px; margin: 10px;">Carr Lane</div> <div style="border: 1px solid black; padding: 5px; margin: 10px;">Ocean Road</div> <div style="border: 1px solid black; padding: 5px; margin: 10px;">Westminster Ave</div> </div>								

NFCDD Defence Data.			Tummer Hill, Outfall, Carr Lane	
EA Asset Ref.	011KC90230301C04			
Alternate Ref.	010/0368a			
Start NGR	E318074 N467496	End NGR	E308226 N467844	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Outfall	Design Standard	99	
Maintainer	Barrow BC	Year Built		
Crest Level	6.0m	CL Data Quality	3	
Spatial Data Quality		Adequate		
Risk Assessment				
Risk Score		18	Assessment	Low
Change from previous assessment		Flap valve in more closed position than previous		

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	FG1	Flood gate	Flap Valve				3	8
2	FI	Head Wall	Concrete			1.5m	2	8
3	WW1	Wing Wall	Block work				3	6
4	WW2	Wing Wall	Block work				3	6
5		Outfall	Silt				3	7
6		Culvert	unseen				3	7
Residual Life		10-20	Urgency				Overall Condition	3
							Data Quality	3

Comments and Recommendations

This flood gate is a 300mm dia pipe which is restricted by mud and silt. The condition of the culvert has not been seen but there is evidence of satisfactory water flow. Dye testing of a ditch on Shearwater Crescent a number of years ago proved water from Sandy Gap Lane and the ditch discharges here. The flood gate remains unable to open fully due to the presence of sediment but does appear to be able to seal. During the time of the inspection the gate was almost closed, and due to the volume of sediment in the channel it is unclear how effective the gate is at this time.

A camera survey of the pipe in November 2013 showed the pipes to be in good condition but there was an issue with cross contamination that was reported to UU. It remains unknown whether any action has been taken regarding this.

Indicative sketch of cross-section

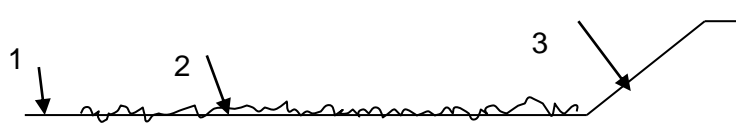
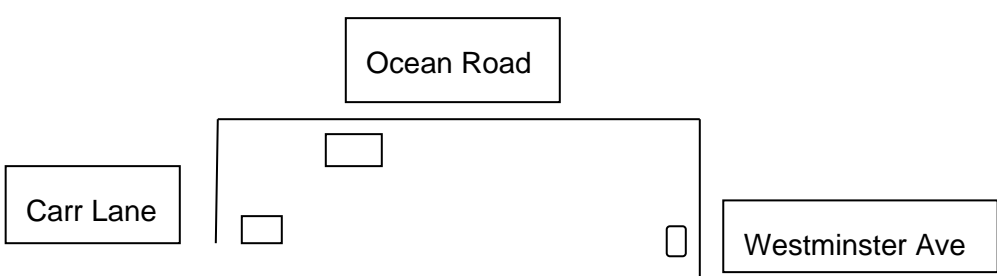
FG1 nearest Carr Lane

NFCDD Defence Data			Tummer Hill, Outfall, Ocean Road	
EA Asset Ref.	011KC90230301C04			
Alternate Ref.	010/0368b			
Start NGR	E318074 N467496	End NGR	E308226 N467844	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Embankment	Design Standard	99	
Maintainer	Barrow BC	Year Built		
Crest Level	6.0m	CL Data Quality	3	
Spatial Data Quality	Adequate			

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		Dislodged manhole reset	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	FG1	Flood gate	Flap Valve with debris screen				2	8
2	FI	Head Wall	Brick			1.5m	2	8
3	WW1	Wing Wall	Brick				3	6
4	WW2	Wing Wall	Brick				3	6
5		Outfall	Mud				3	7
6		Culvert	unseen				3	7
Residual Life		10-20	Urgency				Overall Condition	3
							Data Quality	3
Comments and Recommendations <p>The flood gate is generally in fair condition and although it was cleared of silt a number of years ago there is further build up. There seems to be very low flow coming from the pipe, however UU arranged a camera survey in November 2013, the results of which showed the pipework to be free, running and in good condition. It is unknown whether any further surveys have taken place since 2013. The previously dislodged manhole cover that sits on top of the head wall has been reset since the last inspection.</p>								
Indicative sketch of cross-section  <p>FG2 nearest Ocean Road</p> 								

NFCDD Defence Data			Tummer Hill, Outfall, Westminster Ave.	
EA Asset Ref.	011KC90230301C04			
Alternate Ref.	010/0368c			
Start NGR	E318074 N467496	End NGR	E308226 N467844	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Culvert	Design Standard	99	
Maintainer	Barrow BC	Year Built		
Crest Level	6.0m	CL Data Quality	3	
Spatial Data Quality	Adequate			

Risk Assessment			
Risk Score	6	Assessment	Low
Change from previous assessment		Outfall cleared of vegetation	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	Culvert	Head Wall	Concrete			1m	2	8
2		Outfall	Concrete				2	7
3		Culvert	unseen				2	7
Residual Life		10-20	Urgency				Overall Condition	2
						Data Quality	3	

Comments and Recommendations

This is a culvert draining an area of low ground on the other side of the road. The culvert is unseen but there is evidence that it is flowing satisfactorily. The surrounding area remains heavily vegetated, however since the previous inspection, the outfall has been cleared of vegetation and was visible. A previous camera survey concluded that this outlet pipe comes from a drainage containment tank or interceptor installed under Ocean Road.

Indicative sketch of cross-section

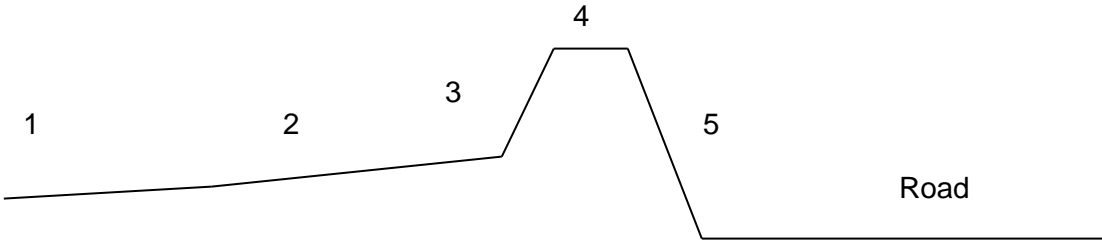
The sketch shows a cross-section of the area. A culvert (1) and its outfall (2) are shown under Ocean Road. A slope (3) leads from the outfall area down to Carr Lane, Westminster Ave, and FG3 nearest Westminster Ave.

NFCDD Defence Data			Biggar Dyke
EA Asset Ref.	011KC90230301C08		
Alternate Ref.	10/0369		
Start NGR	E318468 N466253	End NGR	E319090 N467011
Defence Type	Man made	Protection Type	Defence
Asset Type	Tidal Embankment	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	
Crest Level	7.0m	CL Data Quality	
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Photo



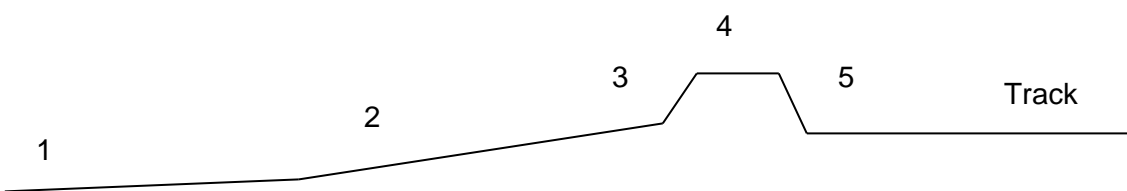
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	-	-
2	CS	Foreshore	Saltmarsh	-	-	-	2	1
3	FI	Embankment	Clay/cobbles	Grass	75	-	3	8
4	C	Embankment	Clay/cobbles	Grass	0	2	3	8
5	FO	Embankment	Clay/cobbles	Grass	75		3	8
Residual Life		10-20	Urgency	Routine		Overall Condition		3
						Data Quality		1
Comments and Recommendations <p>The embankment remains heavily vegetated, with small trees growing, and is protected by a very mature salt marsh. The embankment has been flood protection for the road at high tide and is not really necessary as an erosion defence due to being on the sheltered side of the island. There appears to have been no significant deterioration since the previous inspection.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Creepshaw Marsh
EA Asset Ref.	011KC90230401C01		
Alternate Ref.	10/0370a		
Start NGR	E319626 N46262	End NGR	E319815 N465462
Defence Type	Man made	Protection Type	Defence
Asset Type	Tidal Embankment	Design Standard	99
Maintainer	Barrow BC	Year Built	
Crest Level		CL Data Quality	Missing
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	3	Assessment	Low
Change from previous assessment	None		

Photo

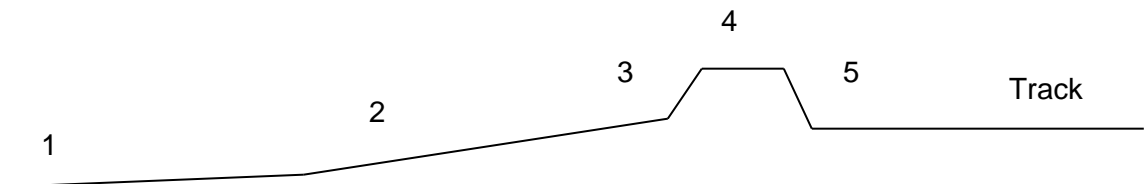


NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	-	-	-	-	-	-
2	CS	Foreshore	Saltmarsh	-	-	-	2	1
3	FI	Embankment	Masonry	-	-	-	3	8
4	C	Embankment	Masonry	-	-	-	3	8
5	FO	Embankment	Masonry	-	-	-	3	8
Residual Life		10-20	Urgency	Routine		Overall Condition		3
						Data Quality		1
Comments and Recommendations <p>The area being protected by this asset is low grade farmland, and there is heavy vegetation on the foreshore protecting the defence. The embankment is heavily covered in vegetation due to its protected location, as a result it is almost impossible to see any exposed masonry.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Creepshaw Marsh Floodgate	
EA Asset Ref.	011KC90230401C01			
Alternate Ref.	10/0370b			
Start NGR	E319626 N46262		End NGR	E319815 N465462
Defence Type	Man made		Protection Type	Defence
Asset Type	Tidal Outfall		Design Standard	99
Maintainer	Barrow BC		Year Built	
Crest Level			CL Data Quality	Missing
Spatial Data Quality		Adequate		
Risk Assessment				
Risk Score		6	Assessment	Low
Change from previous assessment			None	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CS	Foreshore	Saltmarsh	-	-	-	2	1
2	FG1	Flood gate	Wooden Flap Valve				3	8
3	FI	Head Wall	Block work			1m	3	8
4	WW1	Wing Wall	Cobbles				4	6
5	WW2	Wing Wall	Cobbles				4	6
6		Outfall	shingle				3	6
7		Culvert	stonework				2	6
Residual Life		10-20	Urgency	Routine		Overall Condition		3
						Data Quality		1
Comments and Recommendations								
<p>The wing walls are collapsing but the culvert and outfall appears to still be flowing. There has been further washout of cobbles on the southern side of the defence in recent years, although no significant deterioration appears to have occurred since the last inspection. The gate is of very lightweight material but due to the protection from a mature salt marsh there is little pressure on this asset. There is little evidence of flooding behind the embankment from high tide.</p> <p>As recommended following previous inspections; the need to register this asset is still to be reviewed due to the low priority of the land protected, being low grade farmland and heavy vegetation on the foreshore, meaning that there is little risk.</p>								
Indicative sketch of cross-section								
								

NFCDD Defence Data			Wylock Marsh
EA Asset Ref.	011KC90230401C04		
Alternate Ref.	010/0371		
Start NGR	E319932 N4639970	End NGR	E320389 N464134
Defence Type	Man made	Protection Type	Defence
Asset Type	Outfall Flap valve.	Design Standard	99
Maintainer	Barrow BC	Year Built	
Crest Level	5.80m	CL Data Quality	1
Spatial Data Quality			
Risk Assessment			
Risk Score	12	Assessment	Low
Change from previous assessment	None		

Photo



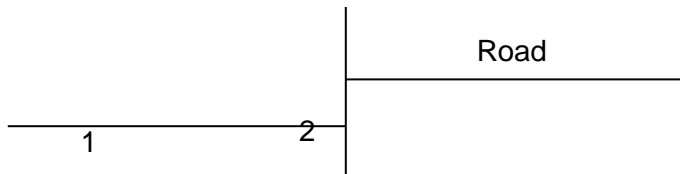
A new flood valve was fitted in January 2013 that is concealed in the culvert.



The effectiveness is demonstrated by the water remaining in the upstream channel, even at high tide. There is some increase in water level due to the embankment being permeable. Highways and the farmer have previously been asked to confirm any ownership.



The farmer's field was damaged by the original floodgate failing and the brown area over the originally green field marks the pasture destroyed by the tide. This is now recovering but a soil survey showed that it was not suitable for grazing. It is unknown if this is still the case. The road has also been overtopped by tidal surges leaving the field waterlogged.

NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CS	Foreshore	Saltmarsh	-	-	-	3	1
2	FG1	Flood gate	Aluminium and plastic				2	8
3	FI	Head Wall	Brick work			2m	3	8
4	WW1	Wing Wall	Loose block work				4	6
5	WW2	Wing Wall	Brickwork				3	6
6		Outfall	Mud and shingle				3	6
7		Culvert	Concrete and aluminium cladding				2	6
Residual Life		5-10	Urgency				Overall Condition	3
						Data Quality	3	
Comments and Recommendations A new floodgate valve was installed in recent years but, as noted in previous inspections, superficial repairs to the loose block work on the wing wall are required, however there does not appear to have been any significant deterioration since the last inspection. On the farmer’s field side there is also some water ingress around the floodgate. The Farmer and Highways were previously asked to confirm any ownership of the embankment with a view to further repair, however it remains unknown if any progress has been made on this.								
Indicative sketch of cross-section <div></div>								

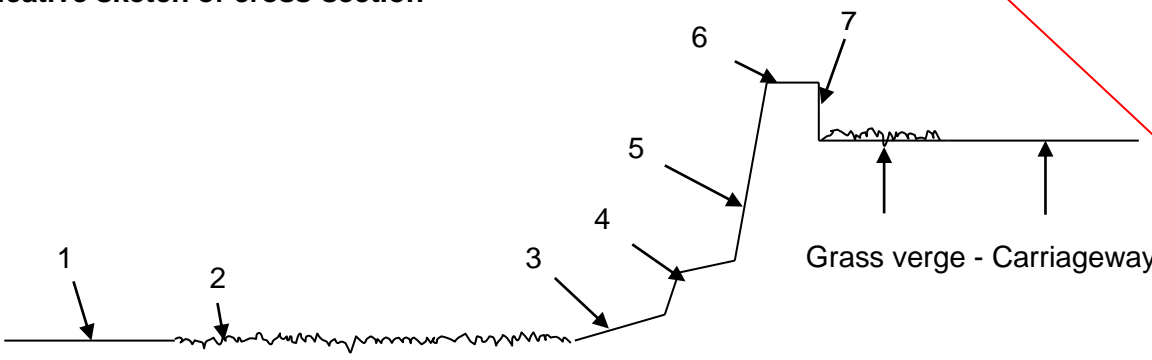
NFCDD Defence Data			Rape Haw
EA Asset Ref.	011KC90230401C06		
Alternate Ref.	010/0372		
Start NGR	E320996 N462330	End NGR	E321298 N462721
Defence Type	Man made	Protection Type	Defence
Asset Type	Tidal Embankment	Design Standard	99
Maintainer	Not known	Year Built	
Crest Level	6.0m	CL Data Quality	
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	8	Assessment	Low
Change from previous assessment		Cracked and deteriorated due to high tides.	

Photo





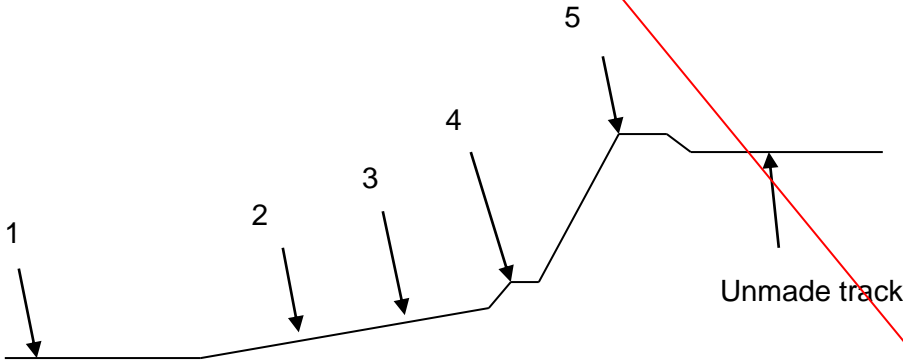
NFCDD Element and Survey Data								
Inspector	R. Hennah						Date	11/02/2014
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat					
2	CS	Foreshore	Salt marsh			50m	2	2
3	FS	Foreshore	Cobble / shingle		10 deg	5m	3	2
4	FI	Toe	Concrete				3	5
5	FI	Wall	Cobble and mortar				4	6
6	C	Wall head	Concrete mortar				4	5
7	FO	Wall	Cobble and mortar				4	6
Residual Life		5-10	Urgency	Routine		Overall Condition		4
						Data Quality		1
Comments and Recommendations								
Following the recommendations made in 2014 this structure will no longer be inspected and is only included here for information.								
Indicative sketch of cross-section								
								

NFCDD Defence Data			South Haws – Shelley Bars	
EA Asset Ref.	011KC90230401C07			
Alternate Ref.	010/0373			
Start NGR	E322115 N462086		End NGR	E3222974 N462631
Defence Type	Man made		Protection Type	Defence
Asset Type	Tidal Embankment		Design Standard	99
Maintainer	Not known		Year Built	
Crest Level	6.7m		CL Data Quality	1
Spatial Data Quality		Adequate		

Risk Assessment			
Risk Score	16	Assessment	Low
Change from previous assessment	None		

Photo



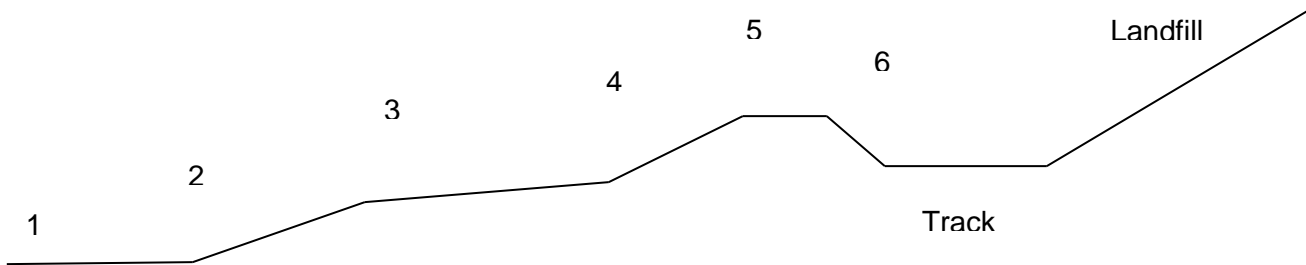
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	06/08/2015
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				2	2
2	FS	Foreshore	Shingle			30m	2	2
3	FI	Toe	Cobbles				4	3
4	FI	Revetment	Cobble wall				4	6
5	C	Revetment	Wall head				4	6
Residual Life		5-10	Urgency	Routine		Overall Condition		4
							Data Quality	1
Comments and Recommendations <p>The embankment has been undercut at the toe of some parts and does not appear to form any structured defence. The face of the embankment is rutted and part of the length has been eroded by movement of HGVs.</p> <p>It is recommended that this structure is no longer inspected.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Low Bank
EA Asset Ref.	011KC90230701C02		
Alternate Ref.	210/8039		
Start NGR	E319960 N463298	End NGR	E320188 N463711
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Cumbria County Council	Year Built	1998
Crest Level	8.4m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	6	Assessment	Low
Change from previous assessment		None	

Photo

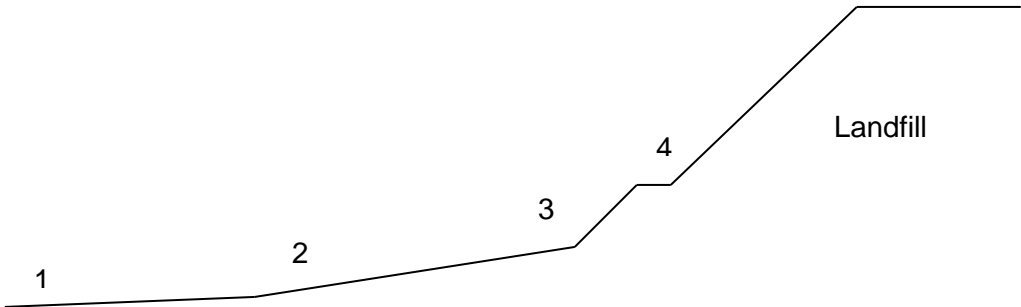


NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Sand	-	-	-	-	-
2	CS	Foreshore	Shingle	-	-	-	3	1
3	FI	Foreshore	Grass	-	-	-	3	5
4	FI	Revetment	Rock	-	-	-	2	8
5	C	Revetment	Rock	-	-	-	2	8
6	FO	Revetment	Rock	-	-	-	2	8
Residual Life		50+	Urgency	Routine		Overall Condition		2
						Data Quality		
Comments and Recommendations								
Vegetation has now become established on the foreshore at the toe of the revetment. The rock armour remains in good condition, with no visible sign of deterioration in recent years. It is recommended that annual inspections continue, to monitor for any signs of deterioration.								
Indicative sketch of cross-section								
								

NFCDD Defence Data			White Horse Scar
EA Asset Ref.	011KC90230701C03		
Alternate Ref.	210/8030		
Start NGR	E319482 N463746	End NGR	E319951 N464463
Defence Type	Man Made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	
Crest Level	6.5m	CL Data Quality	1
Spatial Data Quality	Adequate		
Risk Assessment			
Risk Score	48	Assessment	High
Change from previous assessment		None	

Photo



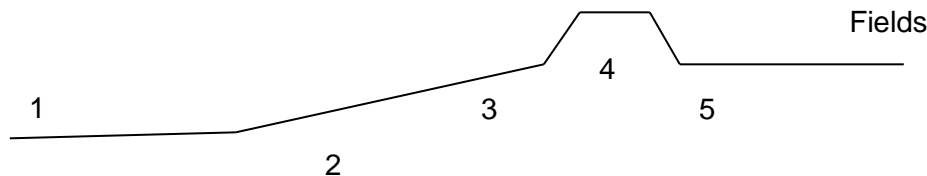
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Sand	-	-	-	-	-
2	CS	Foreshore	Shingle	-	-	-	3	1
3	FI	Revetment	Rock Armour	-	-	-	4	8
4	C	Revetment	Embankment	-	-	-	5	8
Residual Life		0-5	Urgency	Routine		Overall Condition		4
						Data Quality		1
Comments and Recommendations								
<p>There has been extensive loss of rocks and major movement. The Crest has settled below an effective height and there are large gaps between rocks remaining in the revetment. There has been acceleration in erosion of the embankment exposing household waste that is stored in the historic landfill site located behind the embankment. Studies have shown that the waste is not contaminated to a significant level, but unsightly. Monthly high tides have previously been overtopping the revetment along its length.</p> <p>Significant remedial work to reconstruct the defences are required if this asset is to be effective and an application for the £3 million required has previously been submitted to the Council’s management team with a minor option of carrying out patch repairs over the next 3 years for frequent smaller sums. However to date no works have been carried out.</p> <p>The land is owned by Mr Mulgrew who purchased the site in 2002, but it was previously used as a landfill tip by Cumbria County Council from 1974 until 2000. They have previously been contacted as the polluters for a response on their plans to prevent the material from escaping into open waters. It remains unknown if any action has been taken regarding this.</p>								
Indicative sketch of cross-section								
								

NFCDD Defence Data			Cow Leys Lane
EA Asset Ref.	011KC90230801C02		
Alternate Ref.	210/8031		
Start NGR	E318923 N464754	End NGR	E319216 N465229
Defence Type	Man Made	Protection Type	Defence
Asset Type	Armour	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	1988
Crest Level	7.6m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	12	Assessment	Low
Change from previous assessment		None	

Photo

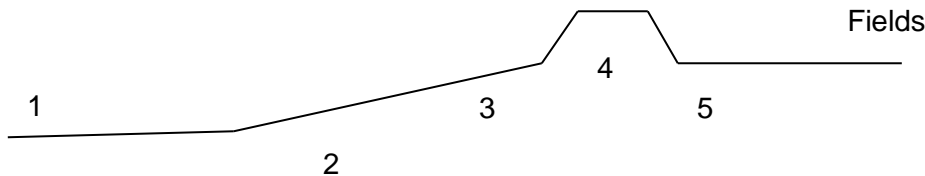


NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	-	-	-	-	-	-
2	CS	Foreshore	Shingle	-	-	-	3	1
3	FI	Revetment	Rock	-	-	-	3	8
4	C	Revetment	Rock	-	-	-	3	8
5	FO	Revetment	Rock	-	-	-	2	8
Residual Life		5-10	Urgency	Routine		Overall Condition		3
						Data Quality		1
Comments and Recommendations								
<p>Over a number of years this defence has been outflanked by erosion and now provides little protection.</p> <p>A large amount of shingle has built up at the defence, adding to its density. The well vegetated grass track behind the revetment indicates it is effective at preventing erosion at this location. However, flooding still occurs during storms as the defence is bypassed. In some areas vegetation has become established on the foreshore at the toe of the revetment.</p>								
Indicative sketch of cross-section								
								

NFCDD Defence Data			Middle Hill Lane
EA Asset Ref.	011KC90230801C04		
Alternate Ref.	210/8032		
Start NGR	E318555 N465660	End NGR	E318642 N465814
Defence Type	Man Made	Protection Type	Defence
Asset Type	Armour	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	1988
Crest Level	7.6m	CL Data Quality	1
Spatial Data Quality	Adequate		
Risk Assessment			
Risk Score	16	Assessment	Low
Change from previous assessment		None	

Photo



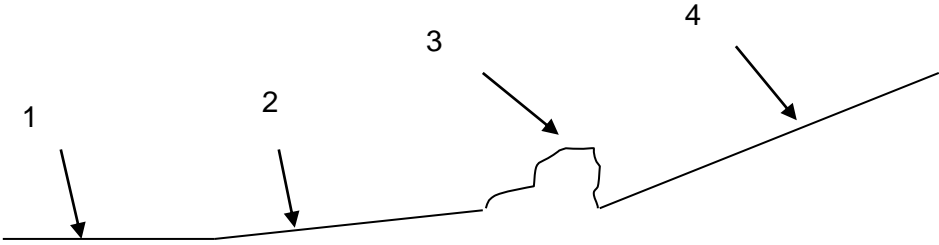
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	-	-	-	-	-	-
2	CS	Foreshore	Pebble	-	-	-	3	1
3	FI	Revetment	Rock	-	-	-	4	8
4	C	Revetment	Rock	-	-	-	4	8
5	FO	Revetment	Rock	-	-	-	4	8
Residual Life		5-10	Urgency	Routine		Overall Condition		4
						Data Quality		1
Comments and Recommendations								
<p>This defence is located at the lowest point of the natural shoreline to prevent further erosion of the lowest lying land. The defence has not been damaged by the high tides but the build-up of shingle behind the defence illustrates how easily this defence is being over-topped. In the past, on occasions of tides over 10m, water has crossed Walney Island at this point and flooded the junction of Thorney Nook Lane, Carr Lane and Biggar village to a depth of over a metre.</p> <p>Over the years there has been some settlement of the revetment leaving sections with gaps and some stones on the foreshore but this does not appear to have deteriorated significantly over recent years. There does not appear to have been any further significant erosion to the land protected by this defence in recent years.</p>								
Indicative sketch of cross-section								
								

NFCDD Defence Data			Bent Haw Tip
EA Asset Ref.	011KC90230801C06		
Alternate Ref.	210/8041		
Start NGR	E318340 N466214	End NGR	E318464 N465991
Defence Type	Man Made	Protection Type	Defence
Asset Type	Rock armour	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	2000
Crest Level	6.0m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	16	Assessment	Low
Change from previous assessment		None	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Shingle / sand		10 deg	20m	3	2
3	FI	Bund	Rock armour			2m	4	5
4	FS	Upper foreshore	Shingle		20	10m	3	5
Residual Life		5-10	Urgency	Routine		Overall Condition		4
						Data Quality		1
Comments and Recommendations <p>This embankment retains an old tip previously run by the County Borough of Barrow. Shingle in front of the embankment has now built up and is providing protection to the previously exposed material along almost the entire length of the defence. No significant changes appear to have occurred to the defence over recent years.</p> <p>Following storms it is occasionally necessary to reprofile the shingle to maintain protection to the face of the tip.</p>								
Indicative sketch of cross-section 								

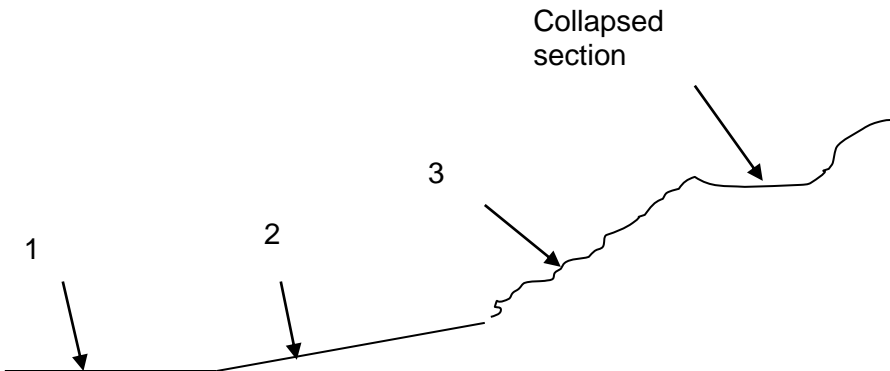
NFCDD Defence Data			Bent Haw
EA Asset Ref.	011KC90230801C07		
Alternate Ref.	210/8033		
Start NGR	E318190 N466216	End NGR	E318339 N466535
Defence Type	Man Made	Protection Type	Defence
Asset Type	Rock armour	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	1988
Crest Level	9.1m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	8	Assessment	Low
Change from previous assessment		Significant improvement works taken place	

Photo



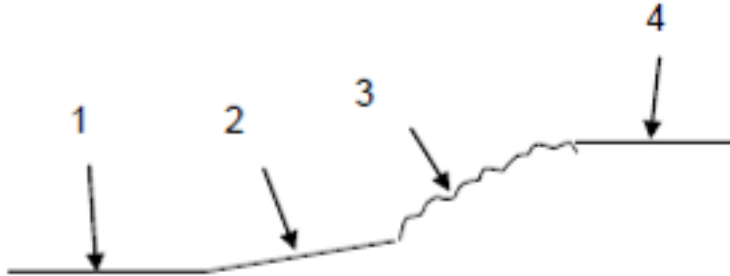


NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	Sand	Mud flat				3	2
2	CS	Foreshore	Shingle / sand		15 deg	20m	3	2
3	FL	Revetment	Rock armour			6m	2	5
4	C	Collapsed	Embankment				2	5
Residual Life		10-20	Urgency	Routine		Overall Condition		2
						Data Quality		1
Comments and Recommendations Significant improvement works have taken place since the previous inspection. The previously eroded/collapsed embankment behind the rock armour has been backfilled and compacted with suitable fill material. Displaced/unsuitable sections of the rock armour appear to have been replaced with more suitable material. The rock armour is now providing protection to the embankment behind.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Walk Haw Scar Cobble	
EA Asset Ref.	011KD90240101C02			
Alternate Ref.	210/8034 a			
Start NGR	E317156 N468841		End NGR	E317214 N469234
Defence Type	Man Made		Protection Type	Defence
Asset Type	Revetment		Design Standard	99
Maintainer	Barrow Borough Council		Year Built	1950
Crest Level	7.2m		CL Data Quality	1
Spatial Data Quality		Adequate		
Risk Assessment				
Risk Score		12	Assessment	Low
Change from previous assessment			None	

Photo

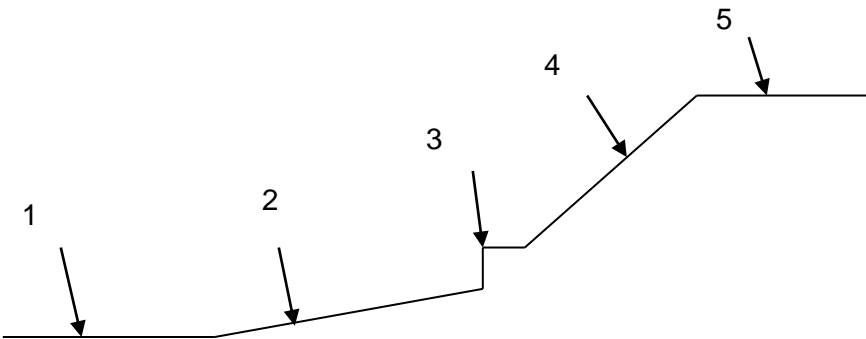


NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				2	2
2	CS	Foreshore	Shingle		15 deg	15m	2	2
3	FI	Revetment	Cobble and concrete	Cobble	35 deg	3m	3	6
4	C	Crest	Unmade track			2.5m	3	5
Residual Life		5-10	Urgency	No repairs required		Overall Condition		3
						Data Quality		1
Comments and Recommendations <p>There is well-established vegetation with occasionally missing blocks. Small sections have some undercutting to the revetment toe, however there are no visible signs of any major deterioration occurring over recent years, and no urgent repairs are deemed necessary at this stage. Vegetation has become further established on the foreshore in places at the toe of the revetment.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Walk Haw Scar Concrete	
EA Asset Ref.	011KD90240101C02			
Alternate Ref.	210/8034 b			
Start NGR	E317156 N468841		End NGR	E317214 N469234
Defence Type	Man Made		Protection Type	Defence
Asset Type	Revetment		Design Standard	99
Maintainer	Barrow Borough Council		Year Built	1950
Crest Level	7.2m		CL Data Quality	1
Spatial Data Quality		Adequate		
Risk Assessment				
Risk Score		12	Assessment	Low
Change from previous assessment			None	

Photo



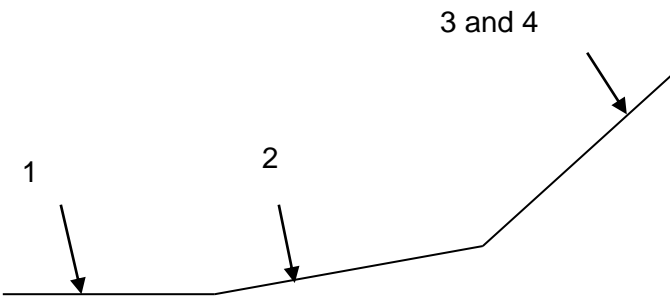
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Shingle		15 deg	15m	3	2
3	CS	Toe	Steel piles and concrete			1m	3	5
4	FI	Revetment	Poured concrete	Concrete	35 deg	3m	3	6
5	C	Crest	Unmade track			2.5m	3	5
Residual Life		5-10	Urgency	No repairs required		Overall Condition		3
							Data Quality	1
Comments and Recommendations <p>The toe of revetment has become more exposed by lowering of foreshore levels at the toe in recent years, and there is minor spalling to the poured concrete revetment. However, there are no visible signs of any deterioration since the previous inspection.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Walk Haw Scar North
EA Asset Ref.	011KD90250101C08		
Alternate Ref.	210/8035		
Start NGR	E317163 N469236	End NGR	E317210 N469492
Defence Type	Man Made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	1950
Crest Level	8.7m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	12	Assessment	Low
Change from previous assessment		None	

Photo



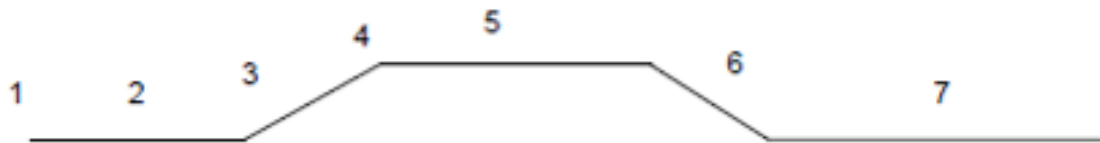
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Shingle		15 deg	15m	2	2
3	FI	Revetment	Rocks set into poured concrete	Concrete	35 deg	4m	3	5
4	FI	Revetment	Embankment	Grass covered	35 deg	4m	3	6
Residual Life		5-10	Urgency	No repairs required		Overall Condition		3
						Data Quality		1
Comments and Recommendations <p>There continues to be vegetation growth within the revetment and on the foreshore at the toe of the revetment. Small rocks are missing from the revetment in places, however there does not appear to be any significant deterioration since the previous inspection, and no repairs are necessary at this stage.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Earnse Bay, Fishtail Groyne	
EA Asset Ref.	011KD90240101C04			
Alternate Ref.	210/8036/1			
Start NGR	E317011 N469492	End NGR	E317164 N470003	
Defence Type	Man Made	Protection Type	Defence	
Asset Type	Fish Tail Groyne	Design Standard	99	
Maintainer	Barrow Borough Council	Year Built	1993	
Crest Level	9.0m	CL Data Quality	1	
Spatial Data Quality	Adequate			

Risk Assessment			
Risk Score	8	Assessment	Low
Change from previous assessment		Continued increase in amount of shingle protecting the asset	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	sand	1				2	2
2	CS	Foreshore	2				2	2
3	FI	Revetment	3				2	6
4	C	Revetment	4		15 deg	20	2	6
5	B	Berm	5		30 deg	3m	2	6
6	FO	Revetment	6				2	5
7	CS	Foreshore	7				2	2
Residual Life		5-10	Urgency	No repairs required		Overall Condition		2
						Data Quality		1
Comments and Recommendations <p>The fishtail groyne is in good condition with some minor displacement of rocks. As with previous years, there continues to be build up in shingle on the southern side further reinforcing the groyne, and vegetation continues to establish itself on the foreshore.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Earnse Bay
EA Asset Ref.	011KD90240201C01		
Alternate Ref.	210/8036/2		
Start NGR	E317011 N469492	End NGR	E317164 N470003
Defence Type	Man Made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	1993
Crest Level	9.0m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	8	Assessment	Low
Change from previous assessment		Continued displacement/settlement of rock armour in places	

Photo

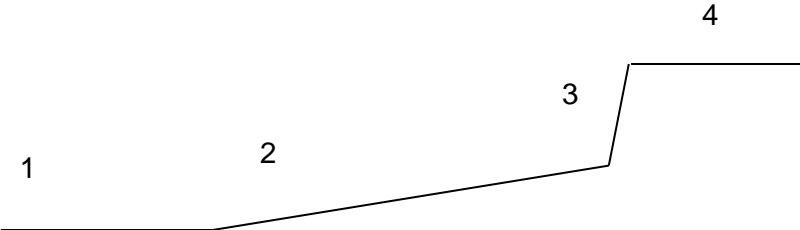


NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Shingle		10 deg	15	3	2
3	FI	Rock armour	Rock		30 deg	5m	3	5
4	C	Crest	Track				2	6
Residual Life		10-20	Urgency	Routine repairs		Overall Condition		3
						Data Quality		1
<p>Comments and Recommendations</p> <p>The revetment is made up of rock armour and is in good condition overall. However there has been some displacement/settlement of rock in places to the south of the fishtail groyne. Albeit in isolated locations, this appears to have worsened slightly since the previous inspection. There is a small area where the toe of the wall at the crest of the revetment has become exposed.</p> <p>It is recommended that annual inspections continue, with the area to the south of the fishtail groyne in particular being monitored closely.</p>								
<p>Indicative sketch of cross-section</p>								

NFCDD Defence Data			West Shore Park
EA Asset Ref.	011KD90240201C02		
Alternate Ref.	210/8045		
Start NGR	E317040 N470035	End NGR	E317045 N470097
Defence Type	Man Made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Embra Investments	Year Built	2007
Crest Level		CL Data Quality	
Spatial Data Quality		Adequate	
Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Photo



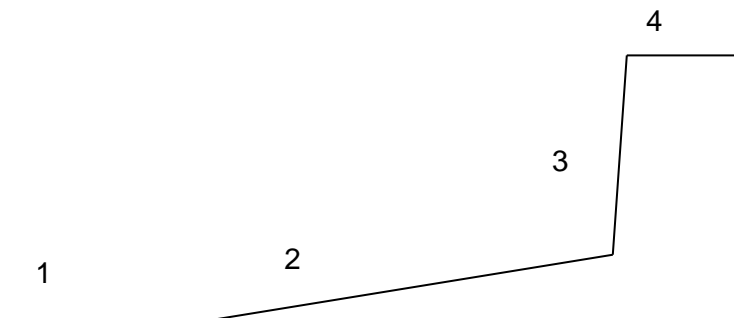
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	28/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				2	2
2	CS	Foreshore	Shingle		10 deg		2	2
3	FI	Rock armour	Rock		30 deg	5m	2	5
4	C	Crest	Rock				2	6
Residual Life		20	Urgency	No repairs required		Overall Condition		2
						Data Quality		1
Comments and Recommendations The previous defence was not maintained by the owner and during tidal surges on 5 th December 2013 and 3 rd January 2014 the defence and the road it protected were washed away. With further tidal surges predicted in February and March 2014 a temporary defence was reinstated with emergency powers. In 2015 a new rock armour defence was constructed and remains in very good condition. The defences are temporary as they are due to be removed after 20 years to allow for the Park owners and residents to develop and implement an adaptation strategy in conjunction with the Council.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Chapelfield
EA Asset Ref.	011KD90250101C04		
Alternate Ref.	210/8044		
Start NGR	E318369 N469963	End NGR	E318385 N470118
Defence Type	Man Made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Developer	Year Built	2004
Crest Level		CL Data Quality	3
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Photo



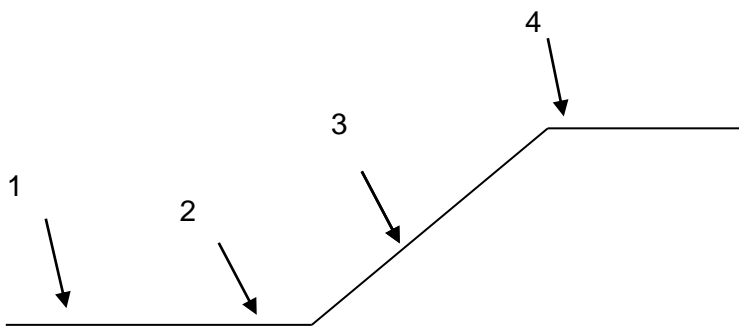
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat	-	-	-	-	-
2	CS	Foreshore	Shingle	-	-	-	3	1
3	FI	Gabions	Rock	-	-	-	3	8
4	C	Gabions	Rock	-	-	-	3	8
5	F	Flap Valve	Metal				3	6
6	OF	Culvert	Unseen				3	6
Residual Life		20-50	Urgency	Routine		Overall Condition		3
						Data Quality		3
Comments and Recommendations There remains some small distortions in the baskets but they are generally well packed and free from corrosion. Previous repairs to failed baskets are holding well. There does appear to be some bulging of the structure but this does not appear to have deteriorated any further since the previous inspection.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Promenade North
EA Asset Ref.	011KD90250101C06		
Alternate Ref.	210/8028		
Start NGR	E318319 N468650	End NGR	E318319 N469669
Defence Type	Man Made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Maintained by Cumbria County Council	Year Built	1930
Crest Level	5.8m	CL Data Quality	1
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	27	Assessment	Medium
Change from previous assessment		None	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Shingle				2	2
3	FI	Revetment	Masonry and poured concrete		35 deg	5m	4	6
4	C	Crest	Bitmac footway			4m	3	6
Residual Life		5-10	Urgency	Repairs required		Overall Condition		3
						Data Quality		1
<div>Comments and Recommendations</div> <div>In recent years, CCC have undertaken repairs to the worst sections of the revetment. There are still locations with severe cracking, loss of joint material and loss of stone from the revetment, however these areas do not appear to have deteriorated significantly over the last few years. Natural ground is exposed in a number of locations with signs of erosion. There is also vegetation causing root damage in the revetment and these should be removed. Increased undercutting at the toe is also evident in areas. Despite no major deterioration occurring since the last inspection, repairs are still required.</div>								
<div>Indicative sketch of cross-section</div> <div></div>								

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5.3 Coastal Process Unit 11c15

EA reference	CPSE reference	Location
011KC90250101C04	210/8011	Westfield Point
011KC90250101C05	210/8012	Cavendish and Ramsden Docks
011KC90250101C05	210/8012a	Sluice gate - set in asset 210/8012: Cavendish & Ramsden Docks
011KC90250101C05	210/8013	Dock Basin; Cavendish & Ramsden docks
011KC90250101C05	210/8014a	Gate 1 Cavendish & Ramsden docks
011KC90250101C05	210/8014b	Gate 1 Cavendish & Ramsden docks
011KC90250101C05	210/8014c	Gate 1 Cavendish & Ramsden docks
011KC90250101C05	210/8014d	Gate 1 Cavendish & Ramsden docks
011KC90250101C05	210/8014e	Belfast Berth Cavendish & Ramsden docks
011KC90250101C05	210/8015a	Deep Water Berth
011KC90250101C05	210/8015a-1	Flood gate - set in asset 210/8015a:
011KC90250101C05	210/8015b	Deep Water Berth; Barrow docks
011KC90250101C05	210/8015c	Cavendish & Ramsden docks
011KC90250101C05	210/8015d	Cavendish & Ramsden docks
011KC90250101C05	210/8015e	Cavendish & Ramsden docks
011KC90250101C05	210/8016	Cavendish & Ramsden docks
011KC90250101C05	210/8017	BAE Cavendish & Ramsden docks
011KC90250101C05	210/8018	BAE Cavendish & Ramsden docks
011KC90250101C05	210/8019	BAE Cavendish & Ramsden docks
011KC90250101C05	210/8020a	BAE Cavendish & Ramsden docks
011KC90250101C05	210/8020b	BAE Cavendish & Ramsden docks
011KC90250101C15	210/8021	Former BAe Systems West Shop
011KD90250101C07	210/8022	North of Jubilee Bridge
011KD90250101C07	210/8022a	Boat Club
011KD90250101C07	210/8022b	Fishing trawler site
011KD90250101C07	210/8022c	Warping pier
011KD90250101C08	210/8023	Jubilee Bridge to Crook Scar
011KD90250101C09	210/8024	Crook Scar

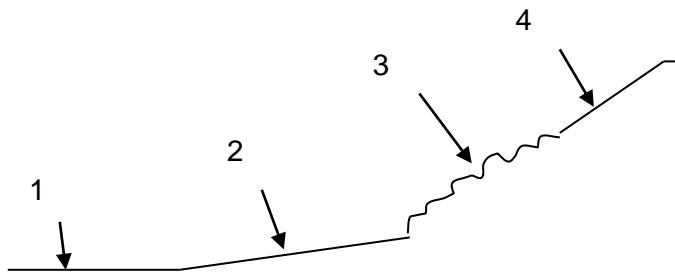
011KD90250101C10	210/8025	Hindpool
011KD90250101C11	210/8026	Hindpool North
011KD90250101C11	210/8027	Ormsgill
011KD90260101C02	210/8038	Lowsy Point

NFCDD Defence Data			Westfield Point
EA Asset Ref.	011KC90230201C04		
Alternate Ref.	210/8011		
Start NGR	E322218 N466830	End NGR	E322694 468230
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	United Utilities	Year Built	
Crest Level		CL Data Quality	Missing
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Photos



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	3	2
2	CS	Foreshore	Shingle and sand	-	10 deg	20m	4	2
3	FI	Revetment	Rock armour		35 deg	4m	2	5
4	FI	Sea cliff	Sandstone		35 deg	6	3	5
Residual Life		10-20	Urgency	No repairs		Overall Condition		3
						Data Quality		1
Comments and Recommendations The sand and shingle foreshore are becoming heavily vegetated. There is a mixture of granite and slate rock armour layer in good condition protecting the toe of the sea cliff, with the upper section of sea cliff heavily vegetated and in good condition. Some sections show subsidence of cliff at crest. There is an outfall comprising of concrete head and wing walls and a metal flood gate. Hinges are in a good state of repair allowing flow from outfall (flowing at time of inspection).								
Indicative sketch of cross-section 								

NFCDD Defence Data			Cavendish & Ramsden Docks	
EA Asset Ref.	011KC90230201C05			
Alternate Ref.	210/8012			
Start NGR	E321718 N468124	End NGR	E321113 N467824	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Revetment	Design Standard	99	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built		
Crest Level	7.1m	CL Data Quality		
Spatial Data Quality		Adequate		

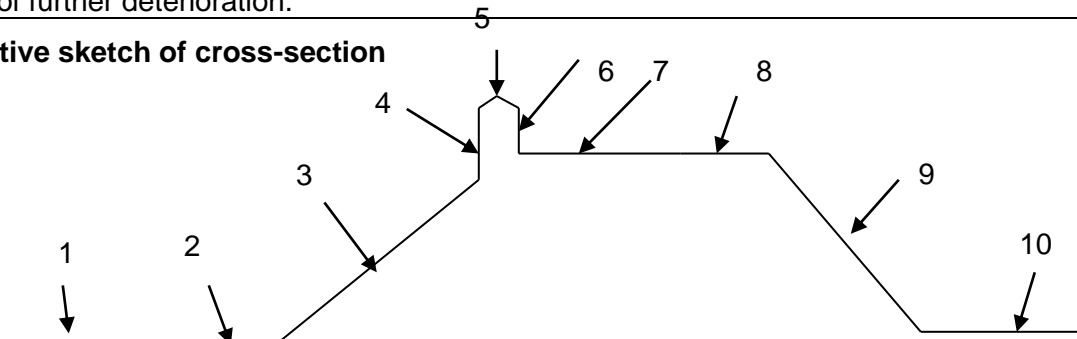
Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment	None		

Location map



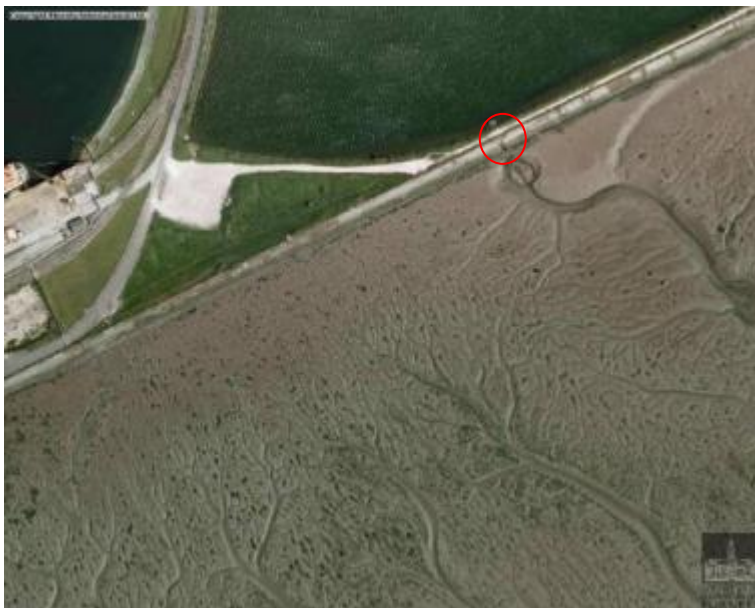
Photos



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	3	2
2	CS	Foreshore	Salt marsh	-		8m	3	2
3	FI	Revetment	Sandstone block		40 deg	5m	3	6
4	FI	Wall	Sandstone				3	5
5	C	Wall	Sandstone coping				4	5
6	FO	Wall	Sandstone				3	5
7	B	Footway	Asphalt			3m	2	5
8	B	Berm	Grass verge			2m	3	5
9	FO	Revetment	Sandstone block		45 deg	4m	3	6
10	CB	-	Sand/silt				3	2
Residual Life		10-20	Urgency			Overall Condition		3
						Data Quality		1
Comments and Recommendations								
There is concrete render over the inward face of sandstone block – with up to 50% coverage. Some sandstone areas have no concrete cover. Sandstone blocks and mortar wearing are exposed, with blocks displaced in small areas, however no repairs are currently required. In some areas there are shrubs and vegetation becoming established towards the top of revetment.								
Some coping stones that were missing have been replaced in recent years, however there are some small areas of further deterioration.								
Indicative sketch of cross-section								
								

NFCDD Defence Data		Sluice gate (set in asset 210/8012: Cavendish & Ramsden Docks)	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8012a		
Start NGR	E321133 N467831	End NGR	n/a
Defence Type	Man made	Protection Type	Defence
Asset Type	Sluice gate	Design Standard	99
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	1
Spatial Data Quality			
Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Location map



Photos



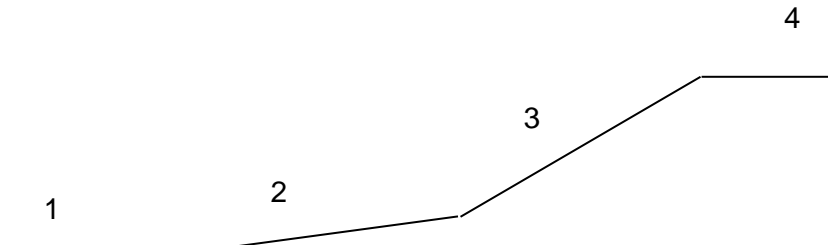
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	3	2
2	CS	Foreshore	Salt marsh	-		8m	3	2
3	FG1	Flood gate	Timber				3	8
4	FI	Head Wall	Masonry				3	6
5	WW1	Wing Wall	Masonry				3	6
6	WW2	Wing Wall	Masonry				3	6
7		Outfall	Cast concrete				3	5
8		Culvert	Cast concrete				3	7
Residual Life		10-20	Urgency	Routine		Overall Condition		3
						Data Quality		1
Comments and Recommendations								
Head and wing walls are constructed of rendered masonry with cast concrete capping. There is some missing render from the wing walls, and spalling of concrete.								
Seaweed build up on outfall but not affecting operation of sluice gate. Water was flowing freely through the gate at the time of the inspection. A handrail has been installed on the access steps in recent years.								

NFCDD Defence Data		Dock Basin; Cavendish and Ramsden Docks	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8013		
Start NGR	E320186 N467103	End NGR	E320076 N467126
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Location map

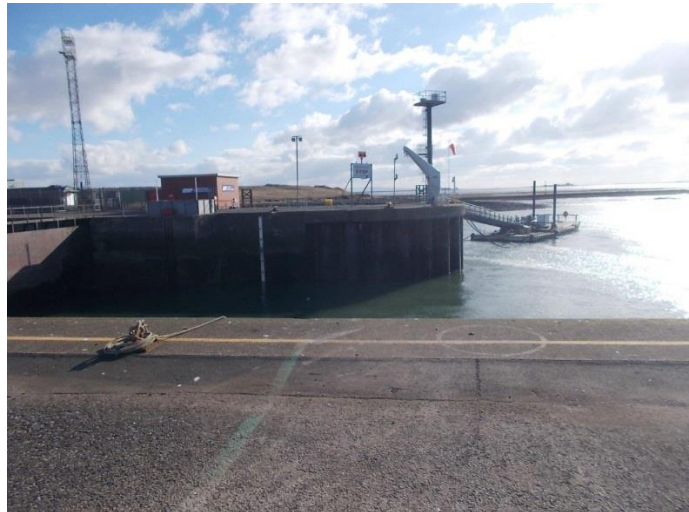


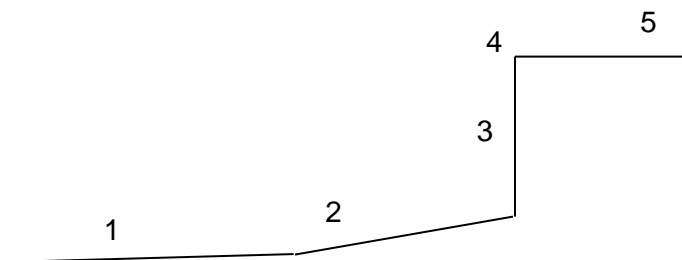
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	05/08/2015
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Sand				3	2
3	FI	Revetment	Rock	Rock			3	6
4	B	Berm	Turf				3	5
Residual Life		10-20 yrs	Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations No visible deterioration since previous inspection. Carry out Annual Review to get an idea of deterioration rate. Not inspected since 2015 as access to this area of the Port is restricted.								
Indicative sketch of cross-section 								

NFCDD Defence Data		Dock Basin, Gate 1 Cavendish & Ramsden Docks	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8014a		
Start NGR	E320023 N467145	End NGR	E319987 N467113
Defence Type	Man made	Protection Type	Defence
Asset Type	Steel piling	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 ccclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment	None		

Location map



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	23/02/2018
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Sand				3	2
3	FI	Piling	Steel				3	7
4	FI	Capping	Concrete				3	5
5	B	Berm	Concrete				2	5
Residual Life		10-20 yrs	Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations No visible deterioration since previous inspection. Continue to inspect annually to monitor for deterioration.								
Indicative sketch of cross-section 								

NFCDD Defence Data		Dock Basin, Gate 1 Cavendish & Ramsden Docks	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8014b		
Start NGR	E319986 N467120	End NGR	E319992 N467157
Defence Type	Man made	Protection Type	Defence
Asset Type	Masonry wall	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Location Map



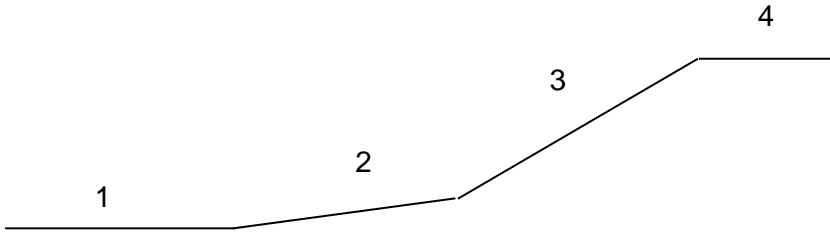
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	23/02/2018
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Sand				3	2
3	FI	Wall	Masonry				3	7
4	B	Berm	Masonry				2	5
Residual Life		10-20 yrs	Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations Spalling, cracking and open jointed sections of masonry blocks. Continue to carry out annual review to get an idea of deterioration rate.								
Indicative sketch of cross-section <p>The sketch shows a cross-section profile. It starts with a horizontal line labeled '1'. This line slopes upwards to a point labeled '3'. From point '3', the profile goes vertically up to a point labeled '4'. From point '4', the profile continues horizontally to the right. A point labeled '2' is located on the upward-sloping section between points '1' and '3'.</p>								

NFCDD Defence Data		Dock Basin, Gate 1 Cavendish & Ramsden Docks	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8014c		
Start NGR	E319992 N467157	End NGR	E319973 N467183
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Location map



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	23/02/2018
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Sand				3	2
3	FI	Revetment	Rock	Rock			3	6
4	B	Berm	Turf				3	5
Residual Life		10-20 yrs	Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations No substantive deterioration since previous inspection. Continue to carry out annual review to get an idea of deterioration rate.								
Indicative sketch of cross-section 								

NFCDD Defence Data		Dock Basin, Gate 1 Cavendish & Ramsden Docks	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8014d		
Start NGR	E319973 N467183	End NGR	E319855 N467181
Defence Type	Man made	Protection Type	Defence
Asset Type	Masonry wall	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

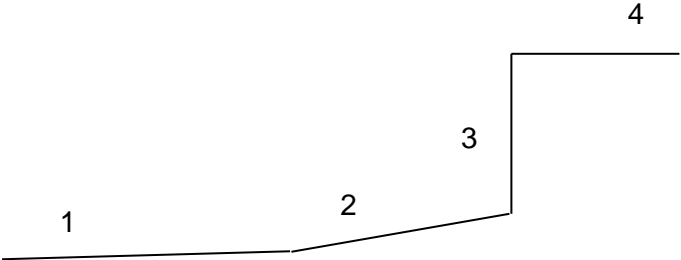
Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Location Map



Photo



NFCDD Element and Survey Data									
Inspector	C. Bell						Date	21/11/2016	
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting	
1	CB		Mud flat				3	2	
2	CS	Foreshore	Sand				3	2	
3	FI	Wall	Masonry				3	7	
4	B	Berm	Turf				3	5	
Residual Life		10-20 yrs	Urgency				Overall Condition		3
						Data Quality		1	
<p>Comments and Recommendations</p> <p>Approximately 15-20% sandstone masonry block spalling and open jointed, with minor cracking in masonry visible. Continue to carry out annual review to get an idea of deterioration rate.</p> <p>Unable to inspect since 2016 due to restricted access</p>									
<p>Indicative sketch of cross-section</p> 									

NFCDD Defence Data.		Belfast Berth, Cavendish & Ramsden Docks	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8014e		
Start NGR	E319855 N467181	End NGR	E319722 N467361
Defence Type	Man made	Protection Type	Defence
Asset Type	Masonry wall	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment			

Location Map



Photo



Detail of fractured wall



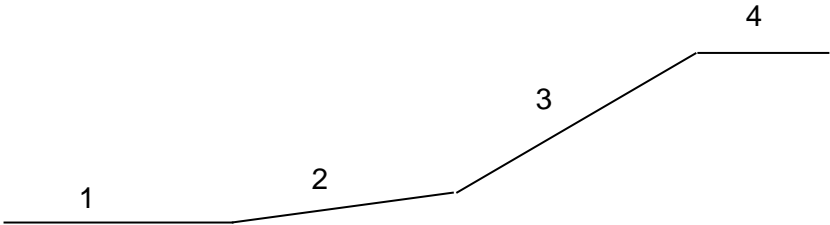
NFCDD Element and Survey Data								
Inspector	A Buck						Date	16/05/2012
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Sand				3	2
3	FI	Wall	Brick				4	7
4	B	Berm	Concrete				2	5
Residual Life		10-20 yrs	Urgency				Overall Condition	3
						Data Quality	1	
<p>Comments and Recommendations</p> <p>Severe fracturing of wall through full width at northernmost point of asset. Failure will not affect sea defence but should be referred to maintainer regarding stability issues and consequent safety of persons in the vicinity.</p> <p>Remainder of wall shows fractured and perished brickwork but not yet affecting stability of asset.</p> <p>08/05/12: Fracturing at northernmost point of asset/FO has noticeably worsened. Email sent 13/05/13 to Chris Clouter & Bob Phillips of Associated British Ports (land owner).</p> <p>Not inspected since 2012 as access is restricted.</p>								
<p>Indicative sketch of cross-section</p>								

NFCDD Defence Data		Deep Water Berth, Cavendish & Ramsden Docks	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8015a		
Start NGR	E319722 N467361	End NGR	E319586 N467657
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Location map



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	23/02/2018
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Sand				3	2
3	FI	Revetment	Rock	Rock			3	6
4	B	Berm	Turf/stone				3	5
Residual Life		10 yrs	Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations Rock revetment covered in places by poured concrete and has been added to by tipped masonry/rubble. No visible signs of deterioration from previous inspection.								
Indicative sketch of cross-section 								

NFCDD Defence Data		Flood gate - set in asset 210/8015a: Barrow docks	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8015a-1		
Start NGR	E319668 N467524	End NGR	n/a
Defence Type	Man made	Protection Type	Defence
Asset Type	Flood gate - flap valve	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Location map



[illegible]

NFCDD Defence Data		Deep Water Berth, Cavendish & Ramsden Docks	
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8015b		
Start NGR	E319586 N467657	End NGR	E319501 N467721
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Location map



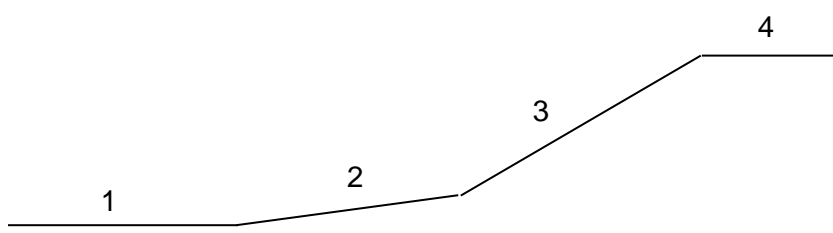
NFCDD Element and Survey Data									
Inspector	C. Bell						Date	23/02/2018	
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting	
1	CB		Mud flat				3	2	
2	CS	Foreshore	Sand				3	2	
3	FI	Revetment	Slag				4	6	
4	B	Berm	Turf/slag				3	5	
Residual Life		10 yrs	Urgency				Overall Condition		3
						Data Quality		1	
Comments and Recommendations Revetment breaking up in places. Has been added to by tipped masonry/blocks. No visible signs of deterioration since last inspection.									
Indicative sketch of cross-section 									

NFCDD Defence Data			Ramsden Dock
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8015c		
Start NGR	E319501 N467721	End NGR	E319500 N467739
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Location map



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	23/02/2018
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Sand				3	2
3	FI	Revetment	Sandstone masonry				4	6
4	B	Berm	Turf/poured concrete				3	5
Residual Life			Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations Sandstone masonry is open jointed with some blocks perished or missing. Repointing still required to prevent further loss.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Ramsden Dock Boat Club	
EA Asset Ref.	011KC90230201C05			
Alternate Ref.	210/8015d			
Start NGR	E319500 N467739	End NGR	E319546 N467760	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Revetment	Design Standard		
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built		
Crest Level		CL Data Quality		
Spatial Data Quality				

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Location map



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	23/02/2018
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Shingle				3	2
3	FI	Wall	Concrete blocks over timber beams				4	7
4	B	Berm	Turf				3	5
Residual Life		5yrs	Urgency				Overall Condition	4
						Data Quality	1	
Comments and Recommendations <p>Block work held in place by vertical lengths of angle iron set in concrete bed. Some angle irons are displaced/leaning and supported by scaffold bars set into foreshore.</p> <p>Informed previously by boat club member that some sections of the wall have had to be rebuilt in recent years as a result of storm damage.</p> <p>Report to maintainer and continue at least annual inspections.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			Ramsden Dock Boat Club	
EA Asset Ref.	011KC90230201C05			
Alternate Ref.	210/8015e			
Start NGR	E319546 N467760	End NGR	E319534 N467817	
Defence Type	Man made	Protection Type	Defence	
Asset Type	Revetment	Design Standard		
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built		
Crest Level		CL Data Quality		
Spatial Data Quality				

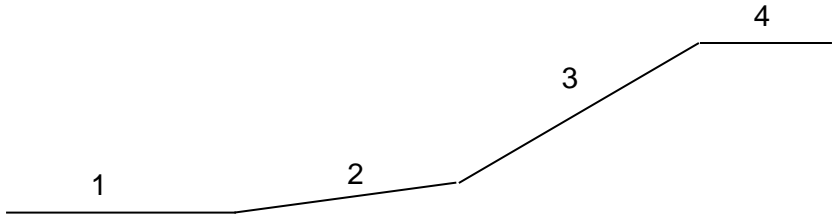
Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		None	

Location map



Temporary Remedial Work:



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	23/02/2018
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Shingle				3	2
3	FI	Revetment	Stone with poured concrete				4	6
4	B	Berm	Turf				3	5
Residual Life		10 yrs	Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations Revetment heavily vegetated with area of stone work missing. At the southern end of the revetment (adjacent to access ramp), a temporary defence erected in front of the revetment to prevent further damage from erosion remains in place.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Ramsden Dock
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8016		
Start NGR	E319534 N467817	End NGR	E319434 N467955
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	
Maintainer	ABP Site contact: Chris Clouter 822911 or 07798848919 cclouter@abports.co.uk	Year Built	
Crest Level		CL Data Quality	
Spatial Data Quality			

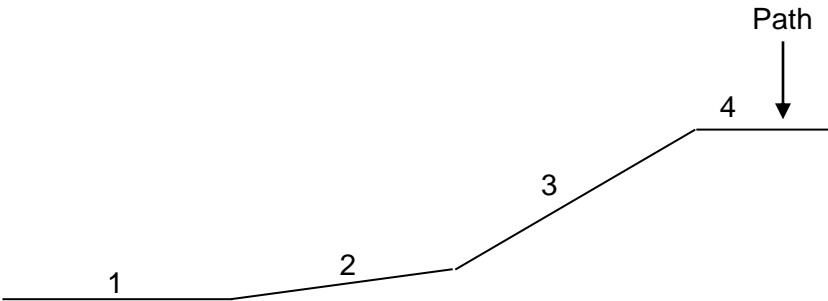
Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		First assessment None	

Location map



Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	23/02/2018
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Sand/ shingle				3	2
3	FI	Revetment	Sandstone masonry with poured concrete				3	6
4	B	Berm	Turf				2	5
Residual Life			Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations Areas of open jointed masonry where there is no concrete covering and minor areas of stone loss. Vegetation growth towards the top of the revetment, on berm, and to rear of footpath. No visible signs of deterioration since previous inspection.								
Indicative sketch of cross-section 								

NFCDD Defence Data			BAE Docks
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8017		
Start NGR	E319434 N467955	End NGR	E319171 N468153
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	
Maintainer	BAE Site contact: Ian Littlehales 01229 874316 ian.littlehales@baesystems.com	Year Built	1980
Crest Level		CL Data Quality	
Spatial Data Quality			

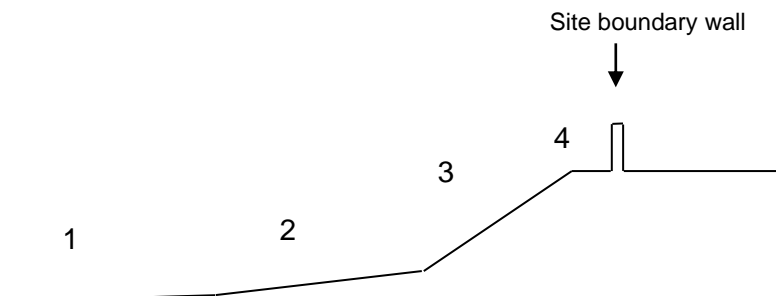
Risk Assessment			
Risk Score	30	Assessment	Medium
Change from previous assessment	None		

Location map



Photos



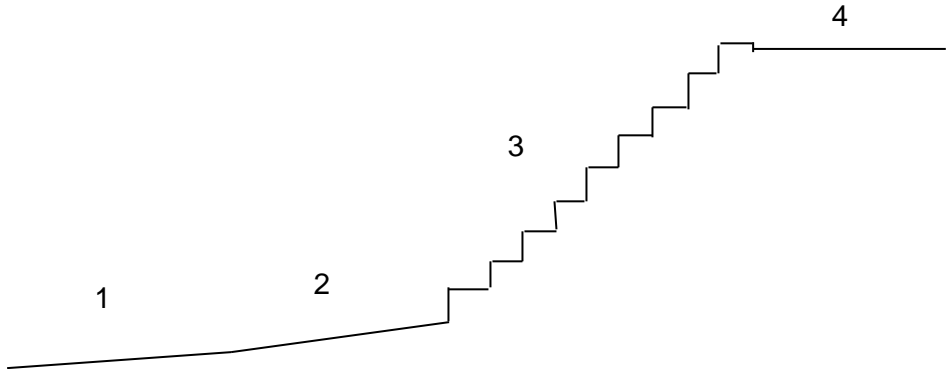
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	17/11/2016
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS		Shingle				3	2
3	FI			Rock armour			3	6
4	B		Concrete (path)				2	5
Residual Life			Urgency				Overall Condition	3
						Data Quality		1
Comments and Recommendations Approx central 70% of length of asset is not a defence asset – shipyard slipway and associated sloping areas of open high ground to water’s edge. Rock armour makes up approx 15% of asset length at south end. Raised land makes up approx 15% of asset length at north end. There appears to have been no visible deterioration to the asset since the previous inspection. Not inspected since 2016 as access to BAE is restricted.								
Indicative sketch of cross-section 								

NFCDD Defence Data			BAE
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8018		
Start NGR	E319169 N468158	End NGR	E319132 N468182
Defence Type	Man made	Protection Type	Defence
Asset Type	Gabion baskets	Design Standard	
Maintainer	BAE Site contact: Ian Littlehales 01229 874316 ian.littlehales@baesystems.com	Year Built	1986
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	30	Assessment	Medium
Change from previous assessment	None		

Location map



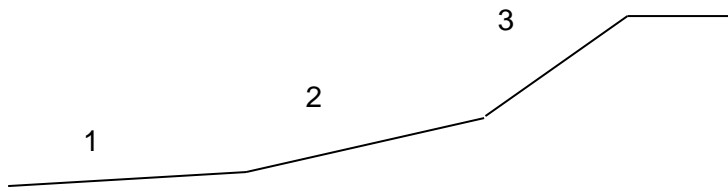
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	17/11/2016
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS		Shingle				3	2
3	FI		Stone	Gabion baskets			3	7
4	B		Turf				2	5
Residual Life			Urgency				Overall Condition	3
						Data Quality	1	
<p>Comments and Recommendations</p> <p>Approx 50% of length of asset is not a defence asset – shipyard slipway and associated sloping areas of open high ground to water's edge.</p> <p>Some stone loss from gabion baskets, and vegetation build up within some baskets. However there are no visible signs of further deterioration since the previous inspection.</p> <p>Spalling and cracking to concrete wall in front of gabion baskets. Water flowing freely out of drainage pipe at time of inspection.</p> <p>Not inspected since 2016 as access to BAE is restricted.</p>								
<p>Indicative sketch of cross-section</p> 								

NFCDD Defence Data				BAE
EA Asset Ref.	011KC90230201C05			
Alternate Ref.	210/8019			
Start NGR	E319132 N468182	End NGR	E319037 N468360	
Defence Type	Man made	Protection Type		
Asset Type	Revetment	Design Standard		
Maintainer	BAE Site contact: Ian Littlehales 01229 874316 ian.littlehales@baesystems.com	Year Built	1920	
Crest Level		CL Data Quality		
Spatial Data Quality				

Risk Assessment			
Risk Score	30	Assessment	Medium
Change from previous assessment	None		

Location Map



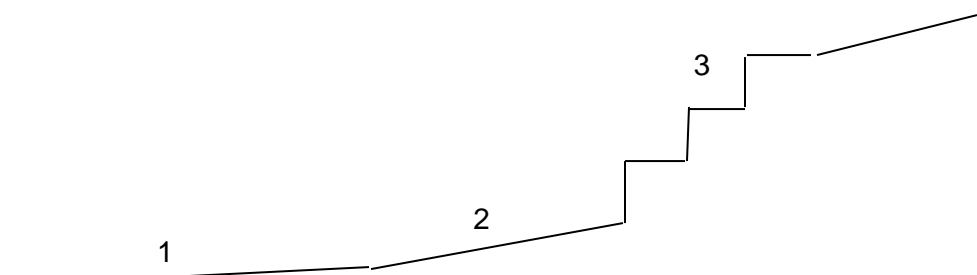
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	17/11/2016
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	FS		Shingle				3	2
3	FI		Turf				3	6
Residual Life			Urgency				Overall Condition	3
						Data Quality	1	
Comments and Recommendations <p>Approx 50% of length of asset is not a defence asset – shipyard slipway and associated sloping areas of open high ground to water's edge.</p> <p>Remaining asset is turf raised ground strewn with concrete rubble. No visible sign of deterioration since previous inspection.</p> <p>Not inspected since 2016 as access to BAE is restricted.</p>								
Indicative sketch of cross-section 								

NFCDD Defence Data			BAE
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8020a		
Start NGR	E319019 N468361	End NGR	E3190346 N468405
Defence Type	Man made	Protection Type	Defence
Asset Type	Gabion baskets	Design Standard	
Maintainer	BAE Site contact: Ian Littlehales 01229 874316 ian.littlehales@baesystems.com	Year Built	1986
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	30	Assessment	Medium
Change from previous assessment	None		

Location map



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	17/11/2016
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS		Shingle				3	2
3	FI	Gabion baskets	Stone				3	6
Residual Life			Urgency			Overall Condition		3
						Data Quality		1
Comments and Recommendations Plastic mesh gabion baskets showing some broken mesh and minor stone loss. No visible signs of deterioration since previous inspection. Not inspected since 2016 as access to BAE is restricted.								
Indicative sketch of cross-section 								

NFCDD Defence Data			BAE
EA Asset Ref.	011KC90230201C05		
Alternate Ref.	210/8020b		
Start NGR	E3190346 N468405	End NGR	E318989 N468515
Defence Type	Man made	Protection Type	Defence
Asset Type	Revetment	Design Standard	
Maintainer	BAE Site contact: Ian Littlehales 01229 874316 ian.littlehales@baesystems.com	Year Built	1986
Crest Level		CL Data Quality	
Spatial Data Quality			

Risk Assessment			
Risk Score	30	Assessment	Medium
Change from previous assessment		No substantive change	

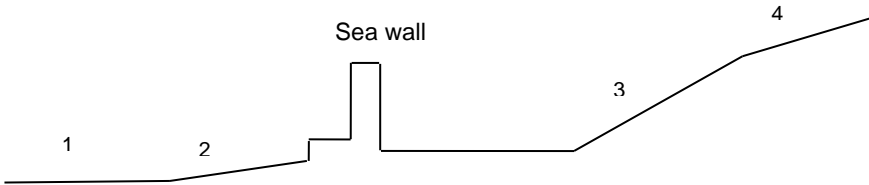
Location map



Photos





NFCDD Element and Survey Data								
Inspector	C. Bell						Date	17/11/2016
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS		Shingle				3	2
3	FI	Revetment	Grouted stone				3	6
4	FI		Turf				3	5
Residual Life			Urgency				Overall Condition	3
						Data Quality		1
Comments and Recommendations Grouted stone revetment is generally condition 3 but an area approx 5-6m long is missing together with substantial erosion of earth behind. Aerial photographs from 2000 – 2009 show this to be circular in plan and no change in the size of this area. It remains unknown whether this area has been excavated or a previous structure removed. The southern end of the revetment is showing signs of minor undercutting at the toe. Approx 30% of asset length is bounded by a concrete sea wall forming a pond - grouted stone revetment continues around the back of the pond. Spalling and cracking is evident within the Sea wall. Not inspected since 2016 as access to BAE is restricted.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Former BAE West Shop	
EA Asset Ref.	011KC90230201C15			
Alternate Ref.	210/8021			
Start NGR	E318989 N468515		End NGR	E318932 N468715
Defence Type	Man made		Protection Type	Defence
Asset Type	Revetment		Design Standard	99
Maintainer	Barrow Borough Council		Year Built	1950
Crest Level			CL Data Quality	1
Spatial Data Quality		Adequate		
Risk Assessment				
Risk Score		36	Assessment	Medium
Change from previous assessment			Flap valve blocked with debris	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	26/11/2019
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB	-	Mud flat	-	-	-	2	2
2	FI	Toe	Various	-		8m	3	4
3	FI	Revetment	Limestone pitching		45 deg	2m	4	5
4	B		Various			2m	4	5
5	FI	Cliff			60 deg		4	6
Residual Life		5-10	Urgency	Routine		Overall Condition		4
						Data Quality		1

Comments and Recommendations

Toe constructed of rubble rock and consolidated slag.

Some pitching is missing to the limestone revetment mainly towards top of slope. As with recent inspections, the flap valve continues to be unable to operate effectively as it is being prevented from opening by a build-up of debris.

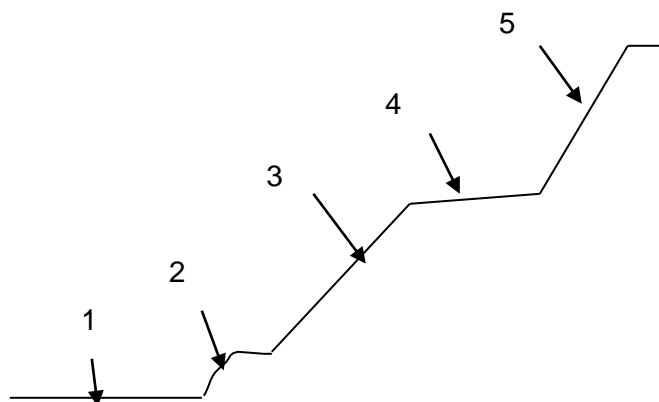
The top of the revetment has lost significant stone which is now laying on the foreshore in front of the revetment toe.

There are increased areas of subsidence of the embankment due to lack of stability at the top of the cliff, however there does not appear to have been any significant deterioration in recent years.

A land stability survey is recommended to ascertain the appropriate measures required to stabilise the cliff. It remains unknown whether any action has been taken on this to date.

Unable to inspect this asset in detail due to scaffolding works beneath Jubilee Bridge.

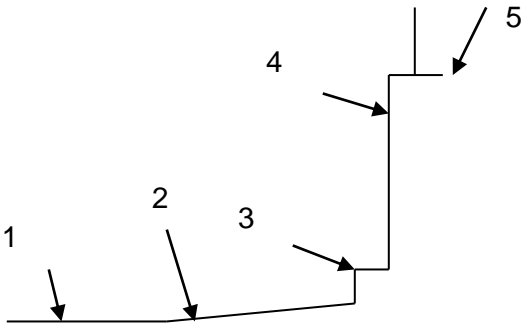
Indicative sketch of cross-section



NFCDD Defence Data			North of Jubilee Bridge	
EA Asset Ref.	011KD90250101C07			
Alternate Ref.	210/8022			
Start NGR	E318892 N468732		End NGR	E318933 N468919
Defence Type	Man Made		Protection Type	Sea wall
Asset Type	Wall		Design Standard	99
Maintainer	Barrow Borough Council		Year Built	1986
Crest Level			CL Data Quality	Missing
Spatial Data Quality		Adequate		
Risk Assessment				
Risk Score		24	Assessment	Medium
Change from previous assessment			None	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Rubble and shingle		10 deg	5m	3	2
3	Toe		Concrete			600mm	3	5
4	FI	Sea wall	Concrete		90 deg		3	6
5	C	Crest	Concrete			2m	3	5
Residual Life		10-20	Urgency	No repairs required		Overall Condition		3
						Data Quality		1
<p>Comments and Recommendations</p> <p>There is some undercutting of a connecting ramp / revetment and also what appears to be a significant land tip of bricks. The primary structure of concrete wall remains in generally good condition apart from some spalling at the toe. However there are areas of transverse and longitudinal cracking within the concrete wall.</p> <p>As in previous years, there are no visible signs of significant deterioration since the last inspection, however it is recommended that annual inspections continue.</p>								
<p>Indicative sketch of cross-section</p> 								

NFCDD Defence Data			Boat Club
EA Asset Ref.	011KD90250101C07		
Alternate Ref.	210/8022a Boat Club		
Start NGR	E318892 N468732	End NGR	E318933 N468919
Defence Type	Man Made	Protection Type	Revetment
Asset Type	Patchwork revetment and wall	Design Standard	99
Maintainer	Boat Club	Year Built	1986
Crest Level		CL Data Quality	Missing
Spatial Data Quality		Adequate	
Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		New fence installed	

Photo.

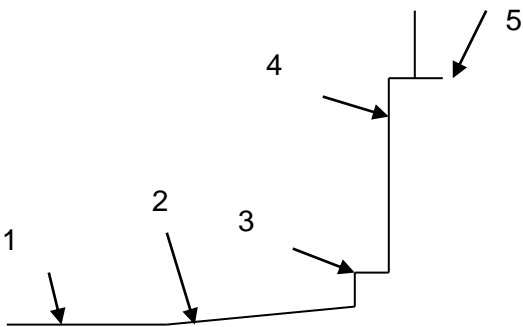


NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Rubble		10 deg	5m	3	2
3	Toe	Revetment	Rubble and stone			600mm	4	5
4	FI	Sea wall	Concrete		90 deg		3	6
5	C	Crest	Concrete			2m	3	5
Residual Life		10-20	Urgency	No repairs required		Overall Condition		3
						Data Quality		1
<p>Comments and Recommendations</p> <p>This is a low erosion area but slow deterioration of small sections of the patchwork construction is evident, however there appears to have been no increase in deterioration in the past few years. The site is owned by the boat club and a contact is to be established to notify of recommendations of repairs. It remains unknown whether or not any action has been taken regarding this.</p> <p>A new fence has been installed at the top of the revetment in the last couple of years to prevent unauthorised access.</p>								
<p>Indicative sketch of cross-section</p>								

NFCDD Defence Data			Fishing Trawler Site
EA Asset Ref.	011KD90250101C07		
Alternate Ref.	210/8022b Fishing Trawler site		
Start NGR	E318892 N468732	End NGR	E318933 N468919
Defence Type	Man Made	Protection Type	Sea wall
Asset Type	Wall	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	1986
Crest Level		CL Data Quality	2
Spatial Data Quality	Adequate		
Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Photo.

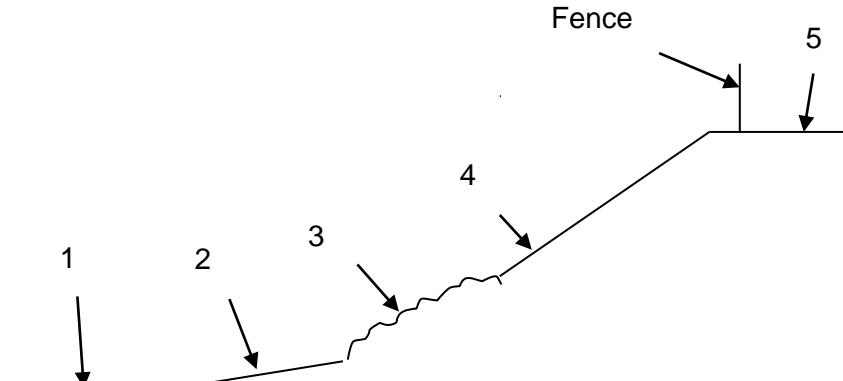


NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Rubble and shingle		10 deg	5m	3	2
3	Toe		Sandstone	Heavily vegetated		600mm	4	5
4	FI	Sea wall	Sandstone		90 deg		3	6
5	C	Crest	Sandstone			2m	3	5
Residual Life		10-20	Urgency	No repairs required		Overall Condition		3
						Data Quality		2
<p>Comments and Recommendations</p> <p>This is a low erosion area, although it is recommended that annual reviews continue to be undertaken to monitor any deterioration. However there are no visible signs of deterioration in recent years.</p> <p>The toe is heavily vegetated making thorough investigation difficult and there is some spalling of the sandstone. All joints appear in good order with only a few minor cracks at corners. There is some minor spalling to the copings on the top of the sea wall.</p> <p>A new fence has been installed at the top of the revetment in recent years to prevent unauthorised access.</p>								
<p>Indicative sketch of cross-section</p> 								

NFCDD Defence Data			Warping Pier
EA Asset Ref.	011KD90250101C07		
Alternate Ref.	210/8022c Warping Pier		
Start NGR	E318892 N468732	End NGR	E318933 N468919
Defence Type	Man Made	Protection Type	Reno Mattress
Asset Type	Revetment	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	1986
Crest Level		CL Data Quality	Missing
Spatial Data Quality	Adequate		
Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment	None		

Photo.



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Mud Rubble		10 deg	5m	3	2
3	FI	Revetment	Rock reno Mattress		30 deg	4m	3	5
4	FI	Sea cliff	Cage and grass		30 deg	2m	3	6
5	C	Crest	Cobble and gravel			4m	3	5
Residual Life		10-20	Urgency	No work required		Overall Condition		3
						Data Quality	1	
Comments and Recommendations This section is a stone revetment with wire covering. Deterioration since this asset was first inspected appears to be minimal. There is some undercutting to the side of the mattress but as with previous inspections, it does not appear to have deteriorated significantly over recent years. The toe is heavily corroded and the cages appear deflated leading to the conclusion that there has been significant settling and loss of material even though the wire is in good condition. The top of the revetment is continuing to become well vegetated. It is recommended to continue annual monitoring of the asset.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Jubilee Bridge to Crook Scar	
EA Asset Ref.	011KD90250101C08			
Alternate Ref.	210/8023			
Start NGR	E318830 N468921		End NGR	E318935 N468921
Defence Type	Man Made		Protection Type	Sea wall
Asset Type	Wall		Design Standard	99
Maintainer	Cumbria CC		Year Built	1920
Crest Level			CL Data Quality	Missing
Spatial Data Quality		Adequate		

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Photos.





NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Cobbles and mud		15 deg	5m	3	2
3	FI	Sea wall	Masonry		90 deg		3	6
4	C	Crest	Concrete			2m	3	5
5	Berm	Promenade	Brick setts			5m	3	5
Residual Life		10-20	Urgency	No repairs required		Overall Condition		3
						Data Quality		1
<p>Comments and Recommendations</p> <p>This area includes a couple of flap valves that both had significant pitting of the flaps, hinges were either rusted or covered in vegetation but free water flow was achieved.</p> <p>The wall is in generally good condition overall, however there is spalling of the masonry facing and missing pointing in places. At the northern corner of the wall there is section where the masonry facing has broken away, this area has increased slightly since the last inspection. As with previous inspections, increased seaweed growth at the toe made it difficult to assess the condition in certain areas.</p> <p>The brick setts along the promenade are showing signs of settlement in isolated locations. This should be monitored closely over coming years as remedial works may be required in the future.</p> <p>Continue annual inspections.</p>								
<p>Indicative sketch of cross-section</p>								

NFCDD Defence Data			Crook Scar
EA Asset Ref.	011KD90250101C09		
Alternate Ref.	210/8024		
Start NGR	E318725 N468478	End NGR	E318829 N469721
Defence Type	Man Made	Protection Type	Sea wall
Asset Type	Wall	Design Standard	99
Maintainer	Cumbria County Council	Year Built	
Crest Level		CL Data Quality	3
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	18	Assessment	Low
Change from previous assessment		Washout beneath concrete spillway	

Photo



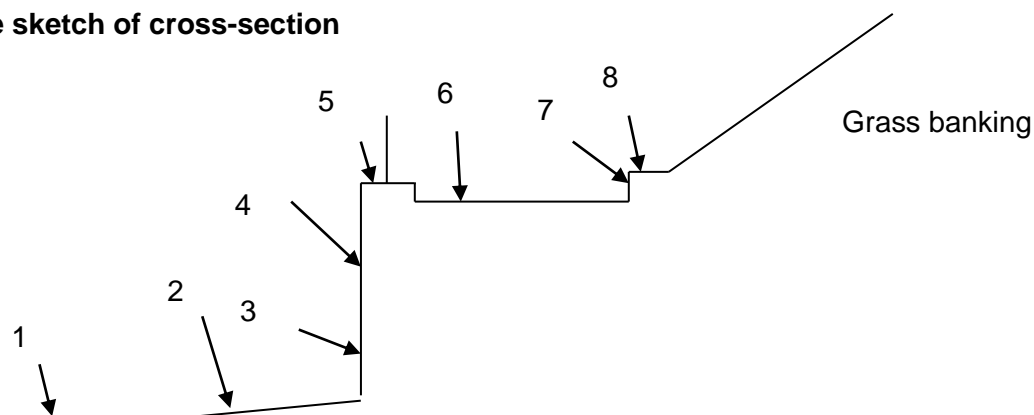
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Rubble shingle and mud		15 deg	5m	3	2
3	FI	Sea wall	Masonry		90 deg		3	6
4	FV	Flap valve	Steel				3	4
5	C	Crest	Concrete			2m	3	5
6	Berm	Promenade	Brick setts			5m	3	5
7	FI	Wall	Masonry				3	6
8	B	Wall	Concrete coping				3	5
Residual Life		10-20	Urgency	No repairs required		Overall Condition		3
						Data Quality		3

Comments and Recommendations,

The wall is largely clear of vegetation and only small sections of mortar lost. The flap valve is heavily pitted but the hinges are new and free moving, and water was flowing freely from the valve during the time of the inspection, although there appears to have been further washout from beneath the concrete spillway. There is some evidence that water is penetrating behind the masonry facing at high tide and the water then flows out through cracks in the mortar as the tide goes out, however there does not appear to have been any further deterioration since the previous inspection.

It is recommended annual inspections continue.

Indicative sketch of cross-section

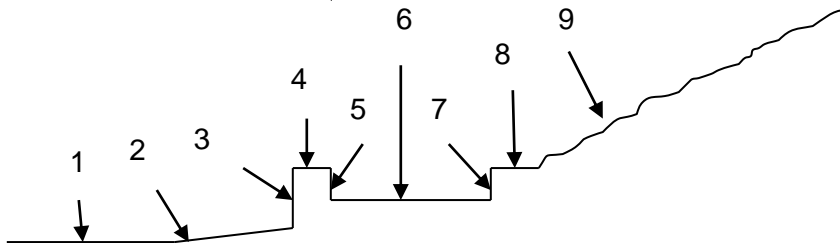


NFCDD Defence Data			Hindpool
EA Asset Ref.	011KD90250101C10		
Alternate Ref.	210/8025		
Start NGR	E318760 N470600	End NGR	E318902 N470720
Defence Type	Man Made	Protection Type	Sea wall
Asset Type	Wall	Design Standard	99
Maintainer	Cumbria County Council	Year Built	
Crest Level		CL Data Quality	3
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	12	Assessment	Low
Change from previous assessment		None	

Photo

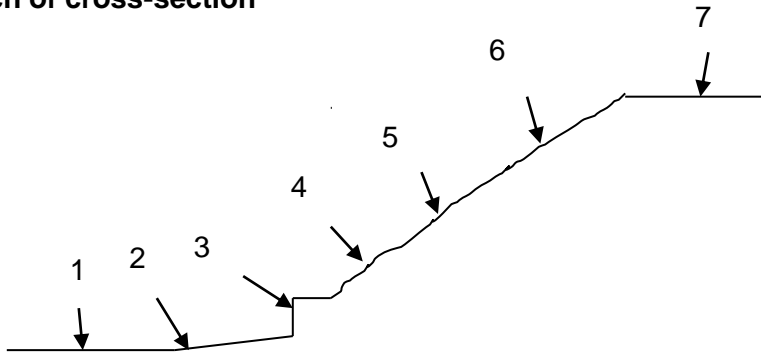


NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Rubble shingle and mud		15 deg	5m	3	2
3	FI	Sea wall	Masonry		90 deg		3	6
4	C	Crest	Concrete coping				3	5
5	FO	Wall	Concrete			4m	3	5
6	B	Track	Concrete					
7	FI	Wall	Masonry				3	6
8	C	Berm	Concrete coping				3	5
9	FI	Revetment	Gabion baskets	Rock			3	5
Residual Life		10-20	Urgency	Routine		Overall Condition		3
						Data Quality		1
Comments and Recommendations Some of the gabion baskets are collapsed, with vegetation established within the baskets in areas, however it appears no significant deterioration has occurred to the asset in recent years. The tide line shows that these baskets do submerge at high tides and work to refill them is recommended. It appears no remedial work has been carried out to date.								
Indicative sketch of cross-section 								

NFCDD Defence Data			Hindpool North
EA Asset Ref.	011KD90250101C11		
Alternate Ref.	210/8026		
Start NGR	E318741 N470158	End NGR	E318782 N470720
Defence Type	Man Made	Protection Type	Sea wall
Asset Type	Wall	Design Standard	99
Maintainer	Cumbria County Council	Year Built	Not known
Crest Level		CL Data Quality	Missing
Spatial Data Quality	Adequate		
Risk Assessment			
Risk Score	12	Assessment	Low
Change from previous assessment		Increase in vegetation growth in areas	

Photo



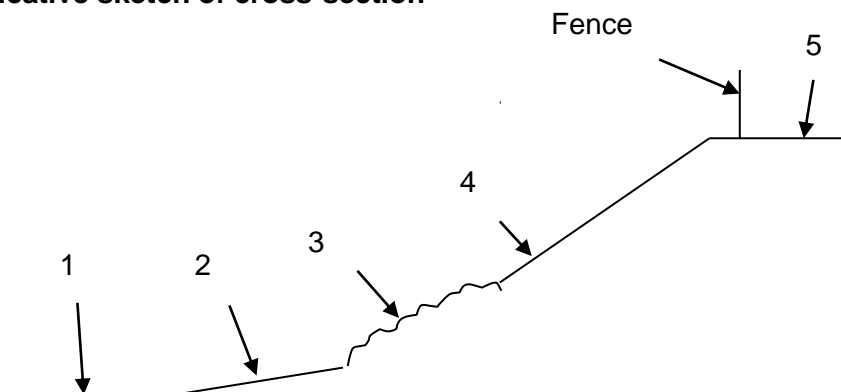
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Mud cobbles		10 deg	5m	3	2
3	FI	Toe	Gabion baskets		90 deg		3	6
4	FI	Revetment	Gabion baskets		25 deg	8m	3	5
5	FV	Flap valve	Concrete and steel				3	5
6	FI	Embankment	Grass			6m	3	6
7	C	Crest	Bitmac footway				3	5
Residual Life		10-20	Urgency	No work required		Overall Condition		3
						Data Quality		3
Comments and Recommendations								
<p>The gabion baskets remain heavily covered in vegetation as during previous inspections, making it difficult to accurately assess their condition, however no significant deterioration appears to have occurred in recent years. The cage shape and condition of visible wire is generally good. Data quality score is reduced because of lack of visibility. Vegetation growth has increased in areas.</p> <p>As in previous inspections, the flap valve is pitted but the hinge remains clean and moves freely. There is a sapling above the flap valve that continues to grow. This should be removed to avoid damage from root growth, however no action has yet been taken on this.</p>								
Indicative sketch of cross-section								
								

NFCDD Defence Data			Ormsgill
EA Asset Ref.	011KD90250101C11		
Alternate Ref.	210/8027		
Start NGR	E318760 N470600	End NGR	E318902 N470720
Defence Type	Man Made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Cumbria County Council	Year Built	Not known
Crest Level		CL Data Quality	Missing
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	12	Assessment	Low
Change from previous assessment		None	

Photo



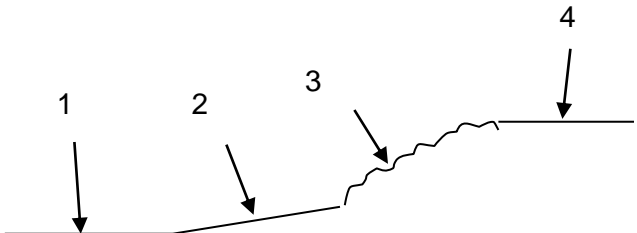
NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Mud cobbles		10 deg	5m	3	2
3	FI	Revetment	Rock armour		30 deg		3	5
4	FI	Sea cliff	Clay and slag		30 deg	12m	3	6
5	C	Crest	Bitmac footway and grass verge			4m	3	5
Residual Life		10-20	Urgency	No work required		Overall Condition		3
						Data Quality		1
Comments and Recommendations								
There is some subsidence on the cliffs above the revetment but the revetment structure itself remains sound, with no signs of deterioration in recent years.								
Increasing amounts of seaweed collecting at tide line making it harder to assess the revetment in certain locations, particularly the toe.								
Indicative sketch of cross-section								
								

NFCDD Defence Data			Lowsey Point
EA Asset Ref.	011KD90250401C02		
Alternate Ref.	210/8038		
Start NGR	E318466 N473920	End NGR	E318564 N474024
Defence Type	Man Made	Protection Type	Defence
Asset Type	Revetment	Design Standard	99
Maintainer	Barrow Borough Council	Year Built	1990
Crest Level		CL Data Quality	Missing
Spatial Data Quality	Adequate		

Risk Assessment			
Risk Score	24	Assessment	Medium
Change from previous assessment		None	

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				3	2
2	CS	Foreshore	Pebbles and sand		10 deg	20m	3	2
3	FI	Revetment	Rock armour		35 deg	4m	4	6
4	C	Crest	Grass				4	6
Residual Life		10-20	Urgency	No work required		Overall Condition		4
						Data Quality		1
Comments and Recommendations <p>The condition of the revetment has not deteriorated since the previous inspection. A scheme to reinstate the land and Marram grass has been drafted by the National Trust, the landowners, following the significant erosion close to the properties as a result of the overtopping of the revetment prior to the 2014 survey. Following the precedent of financial contributions the residents have been asked to contribute to the bid before the work is to be ordered. To date no works have been undertaken, and it is unknown if any progress has been made on this.</p>								
Indicative sketch of cross-section 								

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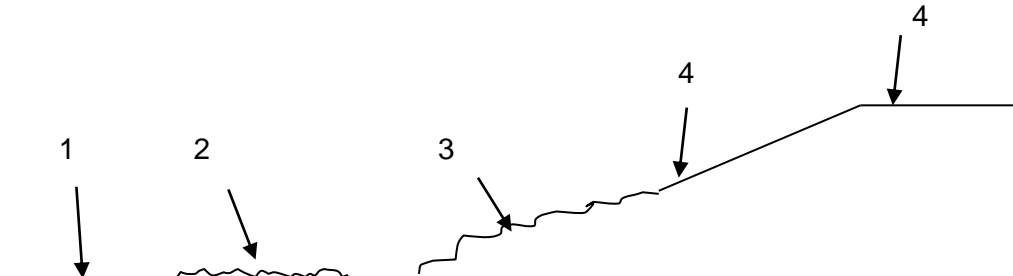
5.4 Coastal Process Unit 11c16

EA reference	CPSE reference	Location
011KD90260401C02	210/8040	Marsh Street Askam

NFCDD Defence Data			Marsh Street Askam	
EA Asset Ref.	011KD90260401C02			
Alternate Ref.	210/8040			
Start NGR	E320963 N477821	End NGR	E320979 N477984	
Defence Type	Man Made	Protection Type	Defence	
Asset Type	Revetment	Design Standard	99	
Maintainer	Barrow Borough Council	Year Built	1999	
Crest Level	7.0m	CL Data Quality	1	
Spatial Data Quality	Adequate			
Risk Assessment				
Risk Score	18	Assessment	Low	
Change from previous assessment		None		

Photo



NFCDD Element and Survey Data								
Inspector	C. Bell						Date	14/05/2021
Element	Type	Sub-type	Material	Revetment	Slope	Width	Condition	Weighting
1	CB		Mud flat				2	2
2	CS	Foreshore	Mud and salt marsh		10 deg	20m	2	2
3	FI	Revetment	Rock armour		25 deg	5m	3	6
4	FI	Embankment	Clay	Vegetation	25 deg	10m	3	6
5	C	Embankment	Clay	Vegetation	0		3	6
Residual Life		10-20	Urgency	Routine		Overall Condition		3
						Data Quality		1
Comments and Recommendations As noted in previous inspections, the rock armour revetment has a couple of spaces where rocks have slipped on to the foreshore and need moving back to their original position but stones are otherwise densely packed. The mud flat foreshore level has dropped exposing the foundational Geotextile fabric, and in areas this material is damaged, exposing the bedstone beneath. To date, no remedial works have taken place. The erosion at either end of the revetment: 3m at either end, shows no major sign of deterioration since the previous inspection. There is still over 50m of scrub land to go until the nearest residences are affected.								
Indicative sketch of cross-section 								

6 Conclusions and Recommendations

Recommendations have been made for future inspection of structures and maintenance work has been identified where necessary on individual inspection records. Additional photographs have been taken of specific locations where new areas of damage were identified.

To aid decisions in prioritising maintenance and replacement works an analysis of the maintainers, types, condition, residual life and risk rating for each structure is detailed in Appendix A.

Correlation between defence condition and risk ratings has been carried out to identify those defences which have a Medium or High risk rating and which are also condition 4:

There are 2 structures that are Condition 4 and High Risk:

- 011KC90230701C03, CPSE210/8030 White Horse Scar (South Walney Landfill), maintained by Barrow BC, and
- 011KC90220601C01, CPSE210/8001b Peasholmes Lane b, maintained by Cumbria County Council.

There are 5 structures that are condition 4 and Medium risk:

- 011KC90230501C01, CPSE210/8006a Piel Island, maintained by English Heritage
- 011KC90230201C15, CPSE 210/8021 Former BAE West Shop, maintained by Barrow BC.
- 011KD90260401C02, CPSE210/8038 Lowsy Point maintained by National Trust.
- 210/8046a & 210/8046b – Foulney Embankment maintained by Cumbria Wildlife Trust

All other medium risk defences are condition 3.

7 Risk Assessment of Erosion and Flooding – Methodology

The methodology for risk assessment was developed by the North West and Liverpool Bay Coastal Groups and is repeated below as set out in the Sefton Metropolitan Borough Council Annual Coast Defence Inspection Report 2005.

Introduction and Methodology

The rationale behind the assessment is based upon the three criteria given by DEFRA relating to Target 6. The guidelines are that the assessment of defences with regard to the risk of coastal erosion should take into account **nature, status and significance**.

Status

The status of the defence is an indication of the condition of the asset, asset being defined as a defence length and coded using DEFRA's system. This will ensure compatibility with "database identified assets" as required by the target. The assessment of condition is to be based upon those identified in the Environment Agency publication "National Sea & River Defence Surveys - Condition Assessment Manual".

Defence Lengths can score as follows:

- 1 Very Good
- 2 Good
- 3 Fair
- 4 Poor
- 5 Very Poor/Failed

The status of the asset should also reflect the deterioration rate of the structure as follows:

- 1 None/Improving
- 2 Low
- 3 Medium
- 4 High

Nature

The nature of the defence can be used to reflect the type of defence either Hard or Soft. Identification of soft defences gives credence to the improving status identified above as a deterioration rate.

Significance

The significance of the defence length reflects the infrastructure the defence length protects. The description of land use band defined within DEFRA's "Flood and Coastal Defence Project Appraisal Guidance: Economic Appraisal" is summarised below and is the method used for defining significance for the purpose of this risk assessment.

Land Use Band	Score	Indicative range of housing units / km of coastline
A	5	≥ 50
B	4	≥ 25 to < 50
C	3	≥ 5 to < 25
D	2	≥ 1.25 to < 5
E	1	< 1.25

Assessment of Risk of Coastal Erosion

The level of risk can be identified for an individual defence length by scoring the product of the above parameters such that:

Low Risk	0 to 10
Medium Risk	> 10 to ≤ 40
High Risk	> 40

Proposed Variations to risk scoring methodology

Risk is defined as the combination of the likelihood of an event occurring (probability) and the consequences associated with that event, if it occurs.

Within the above risk assessment the probability of the event is defined by the status of the defence length i.e. its present condition and its rate of deterioration, and its nature

Given that the nature of the defence is not scored it is important that there is a differentiation between an improving asset and one that is essentially stable as hard defences cannot by their nature improve but soft defences e.g. beaches, saltmarsh, dunes etc. can. Separate categories for improving defences and no rate of deterioration have therefore been adopted, as follows.

- 1 Improving**
- 2 None/Minimal**
- 3 Low**
- 4 Medium**
- 5 High**

The significance indicator relates to the consequences if the coastal defences were breached or removed. As well as the equivalent housing units indicator, the following additional descriptive indicators are provided ex FCDPAG3, Table 6.2.

<u>Land Use Band</u>	<u>Score</u>	<u>Assets at Risk</u>
A	5	Erosion or flooding of intensively developed urban areas and/or loss of major infrastructure
B	4	Erosion or flooding of less developed urban areas with/without some high grade agricultural land and associated properties and/or internationally designated sites of environmental importance
C	3	Erosion or flooding of local developments including caravan sites or temporary structures or high grade agricultural land and/or nationally designated sites of environmental importance
D	2	Erosion or flooding of mixed grade agricultural land and associated properties and/or locally designated sites of environmental importance
E	1	Erosion or flooding of low grade agricultural land and associated or occasional properties or sites of no designated environmental importance

Assessment of Risk of Coastal Erosion

Under the above system the maximum score for a defence length will be 125 compared to 100 under the original system. The following rationale for determining whether a defence length should be considered as high, medium or low risk is proposed.

- If a defence length scores ≤ 2 in both status scores it should be considered as low risk
- For a defence length to be high risk both status scores should be > 3 and significance score should be ≥ 3

Low Risk	≤ 20
Medium Risk	> 20 to ≤ 45
High Risk	> 45

8 Risk Assessments

The table below summarises the risk assessments for all structures using the modified risk assessment methodology described above.

EA ref.	CPSE ref.	Location.	Condition	Status	Land Use Band	Score
011KC90220601C01	210/8001a	Peasholmes Lane a	2	2	4	16
011KC90220601C01	210/8001b	Peasholmes Lane b	4	3	4	48
011KC90220701C01	210/8002	Rampside	3	2	3	18
011KC90220701C03	210/8003	Concle	3	2	3	18
011KC90220701C06	210/8004a	Roa Isl Causeway West	2	2	2	8
011KC90220701C06	210/8004b	Roa Isl Causeway East	3	2	2	12
011KC90220701C07	210/8005a	Roa Isl Watchtower	2	3	3	18
011KC90220701C07	210/8005b	Roa Island, Bosuns Locker	3	2	3	18
011KC90230501C01	210/8006a	Piel Island	4	2	3	24
011KC90230501C01	210/8006b	Piel Island	4	2	2	16
011KC90230501C01	210/8006c	Piel Island	4	2	2	16
011KC90230501C01	210/8006d	Piel Island	4	2	2	16
011KC90230501C01	210/8006e	Piel Island	4	2	2	16
011KC90220701C08	210/8042	Roa Island, Marine Terrace	3	2	3	18
011KC90220701C06	210/8043	Roa Island Boat Club.	3	2	3	18
N/A	210/8046a	Foulney Causeway A	4	3	4	48
N/A	210/8046b	Foulney Causeway B	4	3	4	48
011KC90230301C04	010/0368	Tummer Hill	3	1	3	9
011KC90230301C08	010/0368a	Tummer Hill, Outfall Carr Lane	3	2	3	18
011KC90230301C08	010/0368b	Tummer Hill Outfall, Ocean Road	3	2	3	18
011KC90230301C08	010/0368c	Tummer Hill Outfall Westminster Ave.	2	1	3	6
011KC90230301C08	010/0369	Bigger Dyke	3	2	3	18
011KC90230401C01	010/0370a	Creepshaw Marsh	3	1	1	3
011KC90230401C01	010/0370b	Creepshaw Marsh floodgate	3	2	1	6

EA ref.	CPSE ref.	Location.	Condition	Status	Land Use Band	Score
011KC90230401C04	010/0371	Wylock Marsh	3	4	1	12
011KC90230701C02	210/8039	Low Bank	2	1	3	6
011KC90230701C03	210/8030	White Horse Scar	4	3	3	48
011KC90230801C02	210/8031	Cow Leys Lane	3	4	1	12
011KC90230801C04	210/8032	Middle Hill Lane	4	4	1	16
011KC90230801C06	210/8041	Bent Haw Tip	4	2	2	16
011KC90230801C07	210/8033	Bent Haw	2	2	2	8
011KD90240101C02	210/8034a	Walk Haw Scar Cobble	3	2	2	12
011KD90240101C02	210/8034b	Walk Haw Scar Concrete	3	2	2	12
011KD90250101C08	210/8035	Walk Haw Scar North	3	2	2	12
011KD90240101C04	210/8036/1	Earnse Bay Fishtail Groyne	2	2	2	8
011KD90240201C01	210/8036/2	Earnse Bay	3	2	2	12
011KD90240201C02	210/8045	West Shore Park	2	3	3	18
011KD90250101C04	210/8044	Chapelfield	3	2	3	18
011KD90250101C06	210/8028	Promenade North	3	3	3	27
011KC90230201C04	210/8011	Westfield Point	3	2	4	24
011KC90230201C05	210/8012	Cavendish and Ramsden Docks	3	2	4	24
011KC90230201C05	210/8012a	Sluice Gate; Cavendish and Ramsden Docks	3	2	4	24
011KC90230201C05	210/8013	Dock Basin; Cavendish and Ramsden Docks	3	2	4	24
011KC90230201C05	210/8014a	Dock Basin Gate 1 Cavendish and Ramsden Docks	3	2	4	24
011KC90230201C05	210/8014b	Dock Basin Gate 1 Cavendish and Ramsden Docks	3	2	4	24
011KC90230201C05	210/8014c	Dock Basin Gate 1 Cavendish and Ramsden Docks	3	2	4	24
011KC90230201C05	210/8014d	Dock Basin Gate 1 Cavendish and Ramsden Docks	3	2	4	24
011KC90230201C05	210/8014e	Belfast Berth Cavendish and Ramsden Docks	3	2	4	24

EA ref.	CPSE ref.	Location.	Condition	Status	Land Use Band	Score
011KC90230201C05	210/8015a	Deep Water Berth Cavendish and Ramsden Docks	3	2	4	24
011KC90230201C05	210/8015a	Flood Gate Deep Water Berth	3	2	4	24
011KC90230201C05	210/8015b	Deep Water Berth Cavendish and Ramsden Docks	3	2	3	18
011KC90230201C05	210/8015c	Ramsden Docks	3	2	3	18
011KC90230201C05	210/8015d	Ramsden Docks Boat Club	3	2	3	18
011KC90230201C05	210/8015e	Ramsden Docks Boat Club	3	2	3	18
011KC90230201C05	210/8016	Ramsden Docks	3	2	3	18
011KC90230201C05	210/8017	BAE; Docks	3	2	5	30
011KC90230201C05	210/8018	BAE; Docks	3	2	5	30
011KC90230201C05	210/8019	BAE; Docks	3	2	5	30
011KC90230201C05	210/8020a	BAE; Docks	3	2	5	30
011KC90230201C05	210/8020b	BAE; Docks	3	2	5	30
011KC90230201C15	210/8021	Former BAE West Shop	4	3	3	36
011KD90250101C07	210/8022	North of Jubilee Bridge	3	2	4	24
011KD90250101C07	210/8022a	Boat Club	3	2	4	24
011KD90250101C07	210/8022b	Fishing Trawler Site	3	2	4	24
011KD90250101C07	210/8022c	Warping Pier	3	2	4	24
011KD90250101C08	210/8023	Jubilee Bridge to Crook Scar	3	2	4	24
011KD90250101C09	210/8024	Crook Scar	3	2	3	18
011KD90250101C10	210/8025	Hindpool	3	2	2	12
011KD90250101C11	210/8026	Hindpool North	3	2	2	12
011KD90250101C11	210/8027	Ormsgill	3	2	2	12
011KD90250401C02	210/8038	Lowsy Point	4	2	3	24
011KD90260401C02	210/8040	Marsh Street Askam	3	2	3	18

Appendix A: Analysis of Defence Conditions, Maintainers, Types, Residual Life and Risk Ratings

NFCDD Ref.	Length (km)	Condition	Maintainer	Asset Type	Residual Life (years)	Risk Rating
210/8001a	0.89	2	Cumbria CC	Revetment	10-20	Low
210/8001b	0.89	4	Cumbria CC	Revetment	0-5	High
210/8002	0.16	3	Private	Revetment	5-10	Low
210/8003	0.21	3	Private	Revetment	5-10	Low
210/8004a	1.5	2	Railtrack	Revetment	5-10	Low
210/8004b	1.5	3	Railtrack	Revetment	5-10	Low
210/8005a	0.43	2	Barrow BC	Revetment	5-10	Low
210/8005b	0.43	3	Barrow BC	Revetment	5-10	Low
210/8006a	0.39	4	Barrow BC	Revetment	5-10	Medium
210/8006b	0.39	4	Barrow BC	Gabions	5-10	Low
210/8006c	0.39	4	Barrow BC	Revetment	5-10	Low
210/8006d	0.39	4	Barrow BC	Revetment	5-10	Low
210/8006e	0.39	4	Barrow BC	Revetment	5-10	Low
210/8042	0.09	3	Private	Revetment	5-10	Low
210/8043	0.54	3	Private	Revetment	5-10	Low
210/8046a	0.97	4	Cumbria Wildlife Trust	Embankment	1-5	High
210/8046b	0.50	4	Cumbria Wildlife Trust	Embankment	1-5	High
010/0368	0.43	3	Barrow BC	Embankment	10-20	Low
010/0368a	-	3	Barrow BC	Floodgate	10-20	Low
010/0368b	-	3	Barrow BC	Floodgate	10-20	Low
010/0368c	-	2	Barrow BC	Outfall	10-20	Low
010/0369	0.98	3	Barrow BC	Embankment	10-20	Low
010/0370a	0.34	3	Barrow BC	Embankment	10-20	Low
010/0370b	-	3	Barrow BC	Culvert	5-10	Low
010/0371	0.52	3	Barrow BC	Embankment	10-20	Low
210/8039	0.47	2	Cumbria CC	Revetment	50+	Low
210/8030	0.86	4	Barrow BC	Revetment	0-5	High
210/8031	0.56	3	Barrow BC	Rock Armour	5-10	Low
210/8032	0.18	4	Barrow BC	Rock Armour	5-10	Low
210/8041	0.25	4	Barrow BC	Rock Armour	5-10	Low
210/8033	0.35	4	Barrow BC	Rock Armour	10-20	Low
210/8034a	0.41	3	Barrow BC	Revetment	5-10	Low
210/8034b	0.41	3	Barrow BC	Revetment	5-10	Low
210/8035	0.26	3	Barrow BC	Revetment	5-10	Low
210/8036/1	0.55	2	Barrow BC	Revetment	5-10	Low
210/8036/2	0.21	2	Barrow BC	Revetment	10-20	Low

210/8045	0.25	2	Private	Revetment	20	Medium
210/8044	0.16	3	Private	Revetment	20-50	Low
210/8028	1.13	3	Cumbria CC	Revetment	5-10	Medium
210/8011	1.62	3	Private	Revetment	10-20	Medium
210/8012	2.17	3	Private	Revetment	10-20	Medium
210/8012a	-	3	Private	Sluice Gate	10-20	Medium
210/8013	2.17	3	Private	Revetment	10-20	Medium
210/8014a	2.17	3	Private	Steel Pilling	10-20	Medium
210/8014b	2.17	3	Private	Sea Wall	10-20	Medium
210/8014c	2.17	3	Private	Revetment	10-20	Medium
210/8014d	2.17	3	Private	Sea Wall	10-20	Medium
210/8014e	2.17	3	Private	Sea Wall	10-20	Medium
210/8015a	2.17	3	Private	Revetment	10-20	Medium
210/8015a1	-	1	Private	Flood Gate	10-20	Medium
210/8015b	2.17	3	Private	Revetment	10-20	Low
210/8015c	2.17	3	Private	Revetment	10-20	Low
210/8015d	2.17	4	Private	Revetment	10-20	Low
210/8015e	2.17	3	Private	Revetment	10-20	Low
210/8016	2.17	3	Private	Revetment	10-20	Low
210/8017	2.17	3	Private	Revetment	10-20	Medium
210/8018	2.17	3	Private	Gabions	10-20	Medium
210/8019	2.17	3	Private	Revetment	10-20	Medium
210/8020a	2.17	3	Private	Gabions	10-20	Medium
210/8020b	2.17	3	Private	Revetment	10-20	Medium
210/8021	0.32	4	Barrow BC	Revetment	5-10	Medium
210/8022	0.19	3	Barrow BC	Sea Wall	10-20	Medium
210/8022a	0.19	3	Boat Club	Revetment	5-10	Medium
210/8022b	0.19	3	Barrow BC	Sea Wall	10-20	Medium
210/8022c	0.19	3	Barrow BC	Reno Mattress	5-10	Medium
210/8023	0.67	3	Cumbria CC	Sea Wall	10-20	Medium
210/8024	0.26	3	Cumbria CC	Sea Wall	10-20	Low
210/8025	0.44	3	Cumbria CC	Sea Wall	10-20	Low
210/8026	0.57	3	Cumbria CC	Gabions	10-20	Low
210/8027	0.19	3	Cumbria CC	Revetment	10-20	Low
210/8038	0.15	4	Barrow BC	Revetment	10-20	Medium
210/8040	0.16	3	Barrow BC	Revetment	10-20	Low

Appendix B: Visual Inspection Condition Grades

The condition grading and descriptions used for this report are as set out by the Environment Agency. The five condition grades range from 'very good' to 'very poor', the general descriptions are as follows:

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

Table as EA Condition Assessment Manual pg. 1

Appendix C: Glossary of Terms used on Inspection Record Forms

Asset Type

All structures are split into asset types as set out by EA and the acronyms used on the forms have the following meanings:

- CB Channel Bed – approximately below mean low water. No other information is recorded for channel beds
- CS Channel Side – low water to highest tide level
- FI Face Inner – a roughly vertical element of the structure that is oriented to face towards the sea
- Berm A roughly horizontal element of the structure
- FO Face Outer – a roughly vertical element of the structure that is oriented to face away from the sea
- FC Flood Crest – the highest element of the structure

Sub-type

Sub-types are descriptions of the category of the structure, e.g. foreshore, wall, revetment

Material

Material refers to the construction of the element, e.g. concrete, rock etc.

Revetment

NFCDD uses the term revetment to refer to a facing of material that is attached to the element

Slope

Slopes recorded for elements are approximate and estimated by eye during the visual assessment

Width

Widths are approximate and estimated by eye during the inspection

Condition

Condition grades are as described in Appendix B

Weighting

Weightings are as set out by EA as follows:

Title	Weighting Number	Description
Very minor	1	Elements that relate to non-flood or non-erosion risk reduction. However such elements may be important for other aspects of asset performance.
	2	An element that is not part of the engineered structure but does have a function connected with flood or erosion risk reduction.
Important (Low)	3	An element that is integral to the asset but has limited function in reducing flood or erosion risk.
	4	An element that is part of the asset that works together with other major elements to reduce flood or erosion risk.
Important (Medium)	5	Part of the asset, which by its failure will not cause the asset to fail. However, may lead to failure over a long period of time.
Important (High)	6	An element which when it fails will cause the structure to fail over a long period of time (up to a year)
	7	An element which when it fails will cause the structure to fail, not immediately, but prior to the next inspection date.
Near-critical	8	An element which when it fails will cause the structure to fail, not immediately but within 3 months
Critical	9	An element which when it fails will cause the structure as a whole to fail immediately.

