

BOROUGH COUNCIL OF KING'S LYNN & WEST NORFOLK

**THE WASH EAST COASTAL MANAGEMENT STRATEGY STAKEHOLDERS
FORUM**

**Minutes of the Meeting of the above held on Thursday, 1st August, 2024
at 10.00 am in the Room at Valentine Road, Hunstanton and on
Microsoft Teams**

PRESENT:

Councillor Squire – Borough Council (Chair)
Jade Kite – Borough Council
Dave Robson – Borough Council
Kevin Burgess – Jacobs Coastal
Phil Hulme – Environment Agency
George Fuhrmann – Environment Agency
Ian Devereux – RFCC
Mike McDonnell – McDonnell Caravans Ltd
Paul Bland – Heacham South Beach Owners Association
Councillor Parish – Borough Council
Andrew Murray – Hunstanton Society
Emma Culley – Heacham North Beach Owners Association
Councillor Croucher – Hunstanton Town Council

PRESENT VIA MICROSOFT TEAMS:

Dominic Buscall – Wash Landscape Partnership
Thomas Woodruff – Norfolk Coast Partnership
Matt Jones – Wash Landscape Partnership
Ed Tooth – RSPB
Charlotte Lewis – Marine Management
Vanessa Gouldsmith – Natural England
Rob Wise – NFU
Councillor Dickinson – Borough Council
Michael Burton – Borough Council

		<u>ACTION</u>
1	<p><u>WELCOME AND INTRODUCTIONS</u></p> <p>The Chair welcomed everyone to the meeting.</p> <p>Those present introduced themselves.</p>	
2	<p><u>APOLOGIES</u></p> <p>Apologies for absence were received from Lorraine Gore – Borough Council, Stuart Ashworth – Borough Council, Councillor Beal – Borough Council, Councillor Jamieson – Norfolk County Council, Katy Owen – Norfolk Coast Partnership, Will Fletcher – Historic</p>	

	England and James Albone – Historic England.	
3	<p><u>MINUTES FROM THE LAST MEETING</u></p> <p>The minutes from the previous meeting were agreed as a correct record.</p>	
4	<p><u>HUNSTANTON CLIFFS (UNIT A) UPDATE</u> (Pages 6 - 74)</p> <p>Officers delivered a presentation providing an update on Unit A, as attached. Information was provided on the Annual Cliff Monitoring, and it was explained that the survey had completed in April 2023 and a final report of the outcomes had been received which would be published on the Borough Council website that week. <u>Click here to view the 2023 Cliffs Report.</u></p> <p>It was noted that overall, the erosion which was ongoing was consistent with predictions and previous years in the Hunstanton Coastal Management Plans.</p> <p>It was explained the Environment Agency were also undertaking a national project called the National Coastal Erosion Risk Assessment 2, which updated national predictions of erosion across the country which included the Hunstanton cliffs, and it was confirmed this would be coming out in December 2024 and the Stakeholder Group would be updated as required.</p> <p>In response to a question raised in relation to whether there was any example of cliff erosion in Sandringham, the Officers explained they did not look at Sandringham as this would fall under the remit of the landowner.</p>	
5	<p><u>HUNSTANTON TOWN (UNIT B) UPDATE</u></p> <p>Officers delivered a presentation providing an update on Unit B, as attached, which included work carried out during the previous financial year 23/24 on the sea defences.</p> <p>An update was provided on work which had been undertaken in this financial year 24/25 and it was explained they were continuing to monitor the beach levels on the North Promenade. It was explained beach levels continued to be lower than they were in 2015.</p> <p>Officers summarised some of the repair works which had been done. The repair works commenced on the 1st July and completed on the 16th July.</p> <p>An update on upcoming work was provided and it was explained that officers were planning to undertake geotechnical investigations in the</p>	

	<p>Autumn which would comprise of trial pits enabling them to inspect the foundations which would be done roughly from the Sealife Centre down to where the defences met the cliffs.</p> <p>It was also explained Ground Penetrating Radar surveys of the promenade would be undertaken.</p> <p>Officers explained during the Winter, they undertook a tender exercise and confirmed they had a contractor for concept engineering on board and advised they had a budget of £140,000 for the work. It was explained they needed to obtain a licence from the Marine Management Organisation (MMO) which was required in order to do the trial pits.</p> <p>It was explained they had applied for the application in early June, and this was a minimum of a 13-week process. Officers were starting the 28-day consultation as part of that application process soon and details of this would be shared with the Stakeholder Group. It was hoped that works would take place between September and November 2024 once the licence was in place.</p> <p>In response to a question raised by Mike McDonnell, Officers explained they expected repairs to last around 5 years but this was dependent on what happened over the Winter months with any storms.</p> <p>In response to a question raised in relation to whether there were any voids forming under the promenade, Officers confirmed there were no voids identified since 2015.</p> <p>Ian Devereux raised concerns and asked whether the Ground Penetrating Radar survey would expose the extent of any undercutting of the concrete. Officers explained that would be the purpose of the trial pits.</p>	
6	<p><u>WECMS FUNDING GROUP UPDATE</u></p> <p>The Chair explained to the Stakeholder Group that they would change the order of items on the Agenda and have the update on the WECMS Funding Group first.</p> <p>Officers provided information on the Annual Beach recycling, as attached and it was explained that this was completed between February and March 2024. It was highlighted the funds for the Annual Beach recycling continued to be raised.</p> <p>The Officer added that when the Asset Performance Team were asked for any particular thoughts on this year's recycling, they mentioned that normally the recycling was partly a transport process</p>	

	<p>whereas this year, it was a re-profiling process.</p>	
<p>7</p>	<p><u>SOUTH HUNSTANTON TO WOLFERTON CREEK (UNIT C) UPDATE</u></p> <p>Officers delivered a presentation providing an update on Unit C, as attached. Detail of the policies in place were provided.</p> <p>Phil Hulme explained there were three main aspects of the current management approach for Unit C, and these were:</p> <ul style="list-style-type: none"> - Annual beach recycling - Intermittent beach recharge - Ongoing beach monitoring <p>The Stakeholder Group were reminded that last year, they were informed that officers had started to identify two key challenges with the current management approach. The first of those challenges was ridge mobility. It was explained through the annual monitoring, officers had started to pick up on a noticeable movement of the ridge. It was added that they had seen residents digging into the ridge and explained that this weakened the defence causing an increase in flood risk, therefore, this was something officers would need to address.</p> <p>The second challenge was the beach recharge. It was explained that trying to contract the works had been unsuccessful as once quotes had been received the cost significantly increased. It was concluded that the beach recharge was not viable to take forward at the current time.</p> <p>It was explained officers needed to get independent expert advice on whether certain triggers had been met which were set out in WECMS, which if hit, would need a review of the management approach.</p> <p>Kevin Burgess and George Fuhrmann provided the update on The Wash East Unit C Initial Assessment, as attached.</p> <p>Mike McDonnell was pleased to hear that the Environment Agency felt the recycling should continue and expressed this was a successful and essential part of the process and raised a point that there should be more forceful action on those members of the public that were digging out the ridge at Heacham South Beach. George Fuhrmann explained particularly over the past 2 years, they were fully aware if anything was occurring and taking the necessary steps to deal with it. He added there was an additional issue with current structures where if removed, it was almost increasing the flood risk, therefore, in future, they would ensure they had a clear route to patch</p>	

	<p>it up in a sustainable way.</p> <p>Ian Devereux commented that from reading the report, future work needed to look at a bigger area, have a better definition of the starting factors for any analysis within the WECMS area and understand what's happening around that area. He added the threats of climate change needed to be factored into account and felt the need for a macro study to be undertaken. In response, officers agreed with the comments Ian Devereux made and explained they had been behind the scenes looking at other pieces of work which would feed into it. They added there were other areas of work which they were looking at which could feed into a wider RFCC meeting.</p> <p>Andrew Murray raised an interest in the movement of the sand and material down to Snettisham Scalp and asked whether officers were aware of what was happening further South from Snettisham Scalp. In response, officers confirmed the study only looked down as far as Snettisham Scalp but explained material had been taken further South.</p> <p>Dominic Buscall asked how they could be involved more closely with the review taking place over the next 2-3 years. Officers from the Environment Agency confirmed they would forward their email and get in contact with them.</p>	
8	<p><u>ANY OTHER BUSINESS</u></p> <p>The Stakeholder Group held a discussion around how they wished to meet going forward.</p> <p>It was suggested by Officers that the Stakeholder Group next meet in late November and schedule a date in early Spring. The Stakeholder Group could then review whether they met on a monthly basis or 3 monthly basis.</p>	
9	<p><u>DATE OF THE NEXT MEETING</u></p> <p>To be scheduled for November 2024.</p>	

The meeting closed at 11.46 am

WECMS Stakeholder Forum

Minute Item 4

Thursday 1st August 2024 (10am to 12pm)



Borough Council of
King's Lynn &
West Norfolk



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1. Welcomes & Apologies

Borough Council of
King's Lynn &
West Norfolk



2. Minutes of Last Meeting



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3. Matters Arising

(none)

Borough Council of
King's Lynn &
West Norfolk



4. Hunstanton Cliffs (Unit A) Update



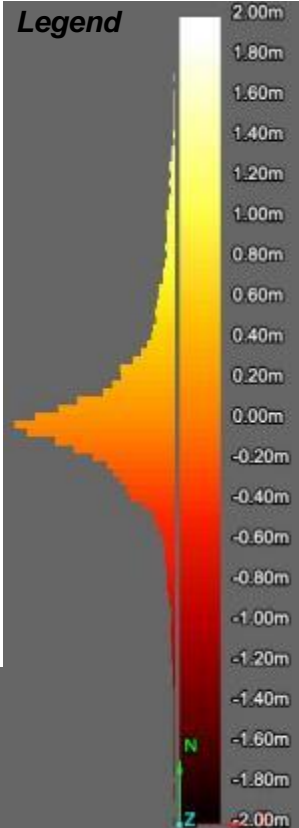
2023 Hunstanton Cliff Monitoring

- Survey completed April 2023.
- Final report received & will go onto website this week.
- Key findings are:
 - ⇒ – Mean rate of erosion is similar to previous years, at 12.5cm per year.
 - North section of cliffs, between the lighthouse and coastguard lookout, remains the most active in terms of erosion.
 - Beach levels have continued to lower across the length of the cliffs, dropping by 2.5m since 2010.

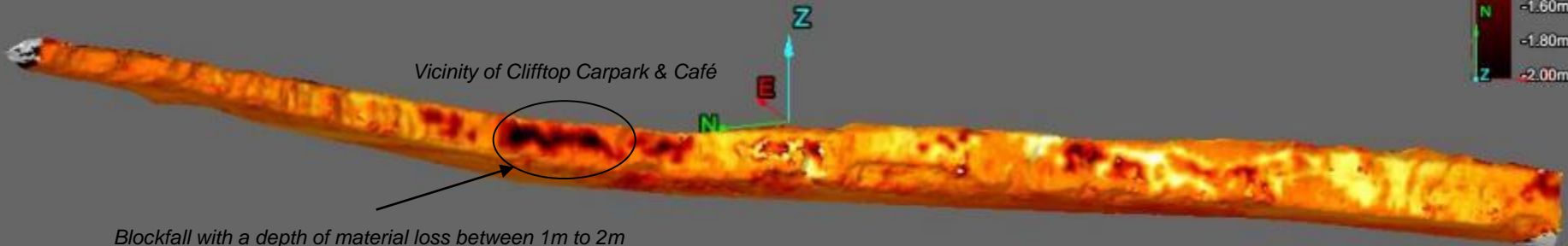


2022-2023 Cliff Falls

- No significant cliff falls occurred between 2022 and 2023.
- 3 minor cliff falls occurred between 2022-2023 (1 in each section of the cliffs), with a depth between 0.5m and 2m.
- Erosion observed is consistent with previous years and predictions of the Hunstanton Coastal Management Plan.



North section of Hunstanton Cliffs – change between 2022-2023 surveys



Next Steps...

- 2023 report to go on our website.
- This year's LiDAR survey was completed in April 2024.
- ^ω 2024 report of outcomes commenced with final report of outcomes to follow later in the year.
- Publication of 'National Coastal Erosion Risk Assessment 2' dataset in December 2024.



5. Hunstanton Town (Unit B) Update



2023-24 Financial Year Works

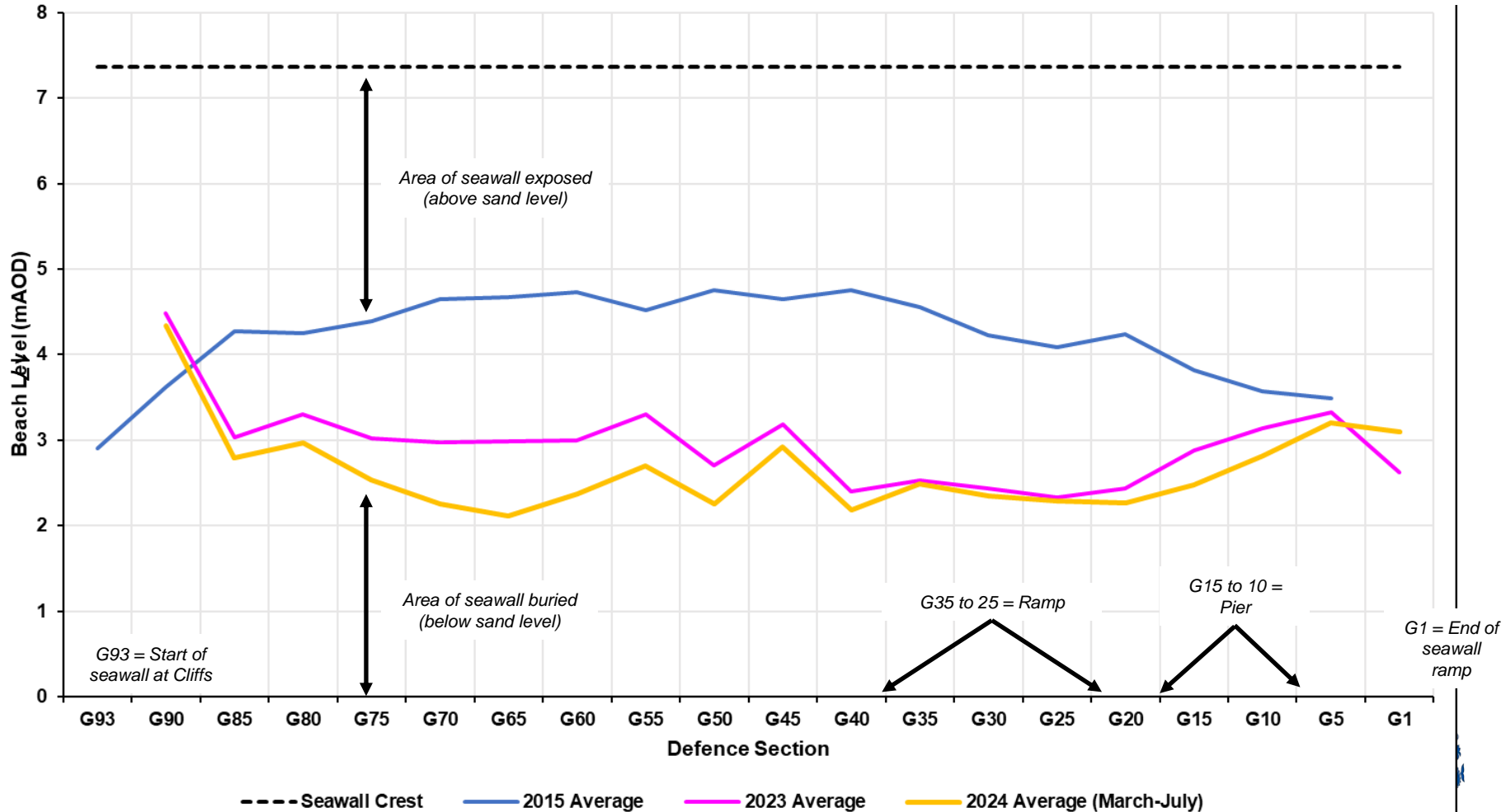
Defence Element	Repair Summary	Cost	Status
Asset Inspection <i>(from last financial year)</i>	Visual asset inspection survey of all coastal defences	£6,825	Complete
Outfalls <i>(from last financial year)</i>	Jetting of outfalls & replacement of seized drain covers.	£1,905	Complete
Navigation Markers <i>(from last financial year)</i>	Powder coating of all marker beacons.	£5,780	Complete
n/a	Coastal engineering technical advice retainer.	£1,666.33	Annual
n/a	LGA Coastal SIG subscription fee.	£500	Annual
Promenade, slipway, seawall & concrete groynes	Spring 2023 repairs (x37).	£53,935.98	Complete
Navigation Marker	Replacement of collapsed marker	£1,845	Complete
Navigation Marker	Replacement of numbered markers.	£380	Complete
Groynes	Health and safety works	£8,667.10	Complete
Promenade, slipway, seawall, rear-wave wall	Autumn 2023 repairs (x47)	£91,411.24	Complete
Navigation Marker & Handrail	Replacement of collapsed marker & handrail repair.	£2,910	Complete
Handrail	Repair to damaged beach access steps handrail.	£560	Complete
UXO Risk Assessment	Unexploded ordnance risk assessment	£950	Complete
Hunstanton Cliff Report	Report of cliff survey (50/50 funded with RFCC local levy)	£5,741.03	Complete
Total spend for 2023-24 financial year was £183,076.68			

2024-25 Financial Year Works

Defence Element	Repair Summary	Cost	Status
2023 Hunstanton Cliff Report	Analysis of south section of cliffs <i>(this work was carried forward from last financial year)</i>	£3,207.42	Complete
Handrail	Repair to handrail following storm damage <i>(this work was carried forward from last financial year)</i>	£230.00	Complete
Technical advice retainer	Coastal engineering retainer	£1,666.34	Complete
LGA Coastal SIG subscription	Subscription fee	£500.00	Complete
Seawall, promenade, wave-return wall, slipways, steps & timber groynes	Summer 2024 concrete repairs, sealant repairs & H&S repairs to groynes	£60,083.60	Complete
Handrail	Extension of handrail on slipway (H&S)	£3,465.00	Complete
Handrail	Replacement of handrail on promenade (H&S)	£17,836.00	Pending
Gaywood River	IDB study of the Gaywood Rivers flood management measures	£10,000	Pending
2024 Hunstanton Cliff Report	Annual cliff erosion survey <i>(50/50 funded with RFCC Local Levy)</i>	£10,087.24	Ongoing works
Total spend for 2024-25 financial year is currently £107,075.60			

Section G Average Beach Levels (2015, 2023 and 2024)

Coloured lines = Height of beach material against the base of the seawall



Repair Works 1/2

Pricing Schedule

Items	Description	Amount
1	Project management	£ 9,281.43
2	Prelims	£ 8,922.69
3	Mobilisation	£ 8,486.83
4	Section A	£ 3,671.48
5	Section B	£ 6,207.91
6	Section C	£ 4,031.84
7	Section E	£ 6,680.87
8	Section F	£ 1,854.09
9	Section G	£ 4,322.02
10	Timber Groynes	£ 6,624.64
	Total	£ 60,083.80

- 97 repairs to concrete sea defences.
- H&S works to timber groynes.
- Works commenced on 1st July 2024 and completed on 16th July – ahead of planned completion date.
- Total cost = £60k

- | | |
|--|--|
| • Replacement of sealant for 56 joints on the wave-return wall | • Replacement of sealant for 14 joints on the promenade and slipways |
| • Replacement of 6 mortar joints on the seawall | • 3 concrete patch repairs to the promenade |
| • 5 concrete patch repairs to the seawall | • 5 concrete patch repairs to slipways |
| • 5 concrete patch repairs to the wave-return wall | • 2 concrete repairs to beach access steps |



Seawall concrete patch repair

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Before repair



After repair



Promenade concrete patch repair

Before repair



After repair



20

Wave-return wall concrete patch repair

Before repair



After repair



21

Wave-return wall concrete patch repair



Wave return wall replacement of joint sealant

Before repair



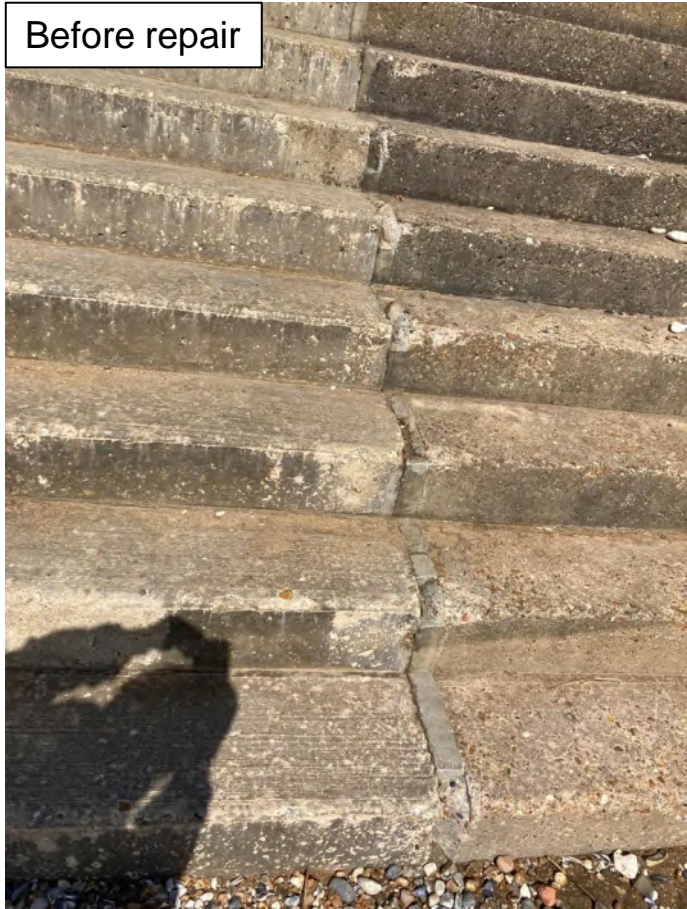
After repair



23

Steps mortar joint reinstatement

Before repair



After repair



Blockwork seawall concrete patch repair

Before repair



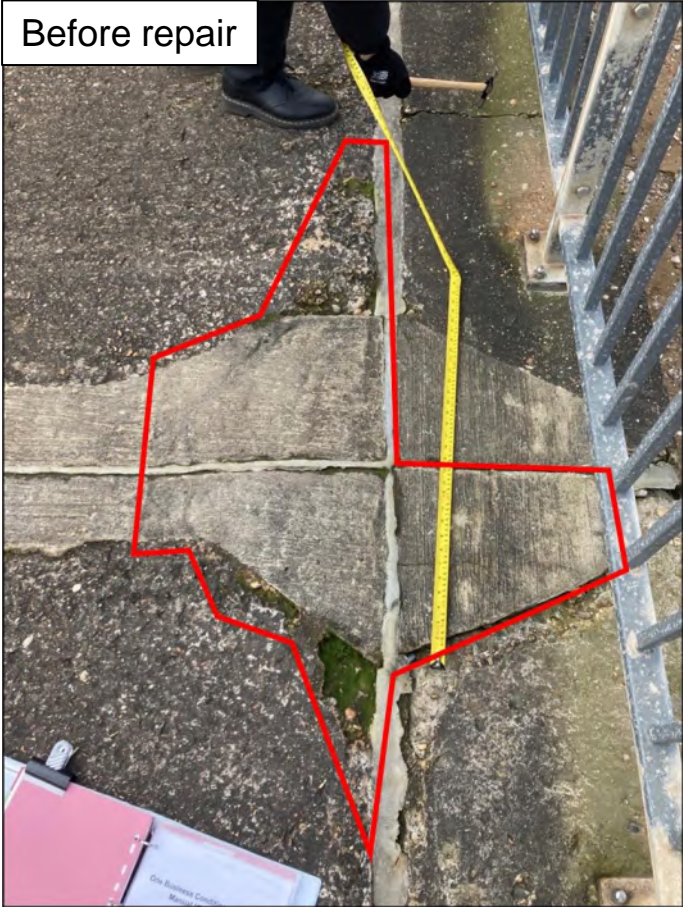
After repair



25

Slipway concrete patch repair

Before repair



After repair



26

Slipway concrete patch repair

Before repair



After repair



Repair Works 2/2

- Handrail extension to sailing club slipway completed in July 2024.
- Replacement of handrail on promenade by rock shop will be completed in September.
- Health and safety works
- Total cost = £21.3k



Geotechnical Investigations

What is being undertaken?

- 25 trial pits along the base of the seawall from the cliffs to sea life centre
- Ground penetrating radar & falling weight deflectometer survey of promenade from cliffs to power boat ramp
- Geotechnical assessment of data collected to inform structural stability of defences

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Why is this being undertaken?

- Recommended by 2022 asset inspection survey to confirm the condition of areas which cannot be visually inspected

Has this been undertaken before?

- Inspections such as these are required from time to time to confirm the structural integrity of the coastal defences
 - Trial pits undertaken in 1996 and 2012
 - Ground Penetrating Radar / Falling Weight Deflectometer surveys undertaken last in 2015


Geotechnical Investigations

- Contractor selected.
- £140k budget for works - current spend is approx. £110k (cost of works + MMO licence fee).
- MMO marine licence application submitted in June – minimum 13-week approval process.
- 28-day consultation as part of the MMO licence application will be commencing soon.
- Works likely take place between September to November 2024 (TBC on licence approval).
 - Trial pits will take 20 working days to complete.
 - GPR/FWD will take 6 working days to complete.
- FAQ's being produced and will be circulated before works commence.
- Final report of outcomes over winter 2024-25.



Falling weight deflectometer survey being undertaken in 2015



Trial pit undertaken in 2012 : Lynne & Norfolk 

7. WECMS Funding Group Update



WECMS Funding Group

- Annual beach recycling was completed between February and March 2024
- Cost of this year's beach recycling works was £100k
- Funds for annual beach recycling continue to be raised
- CIC now have £1.3 million surplus funds
- 2 local sea defence newsletters published last financial year

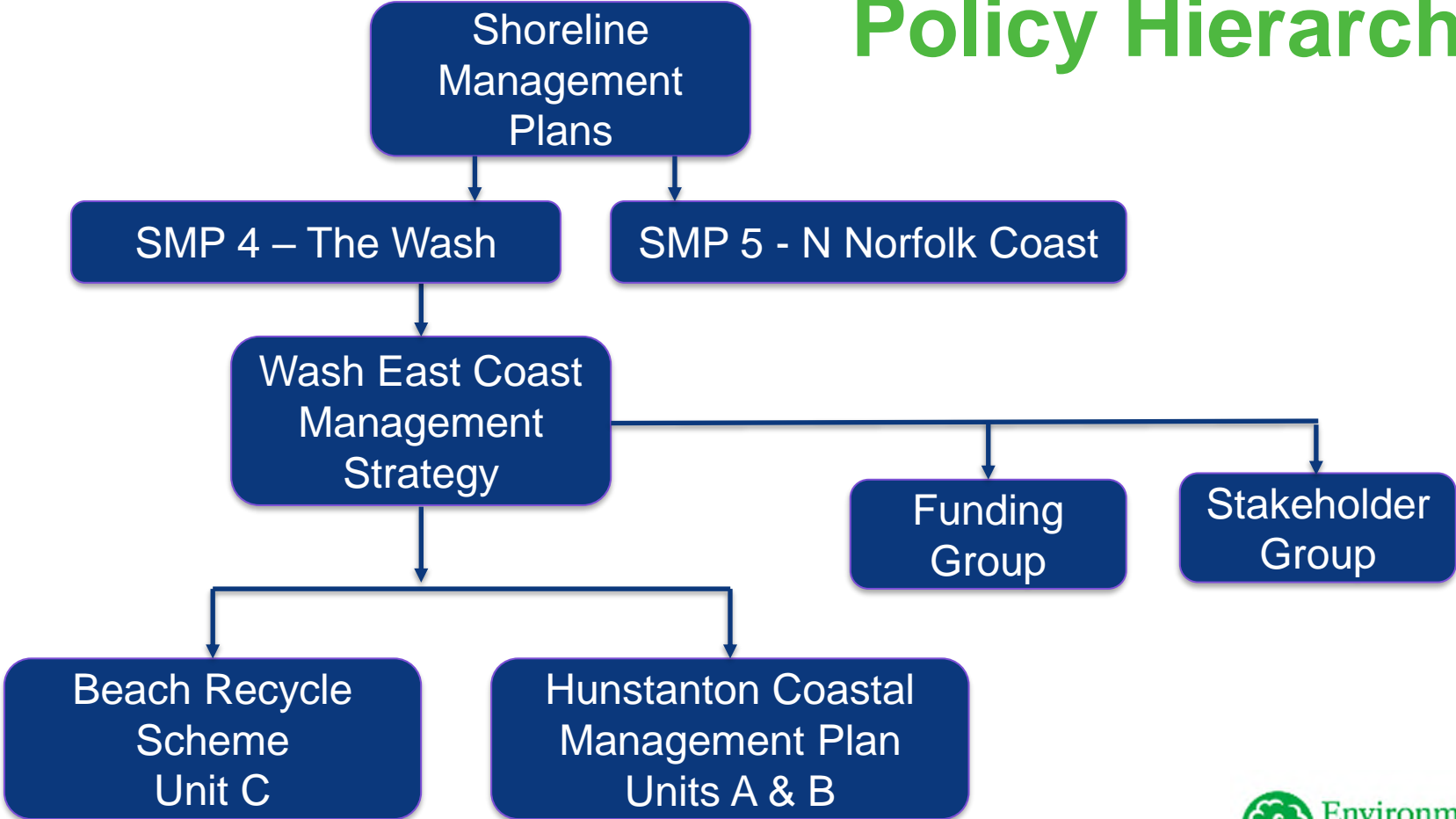


6. South Hunstanton to Wolferton Creek (Unit C) Update

Phil Hulme and George Fuhrmann



Policy Hierarchy





Unit A

Unit B


Unit C

Unit A = Hunstanton Cliffs

Unit B = Hunstanton Town

Unit C = South Hunstanton to Wolferton Creek

Defences (EA maintained)

 Embankment

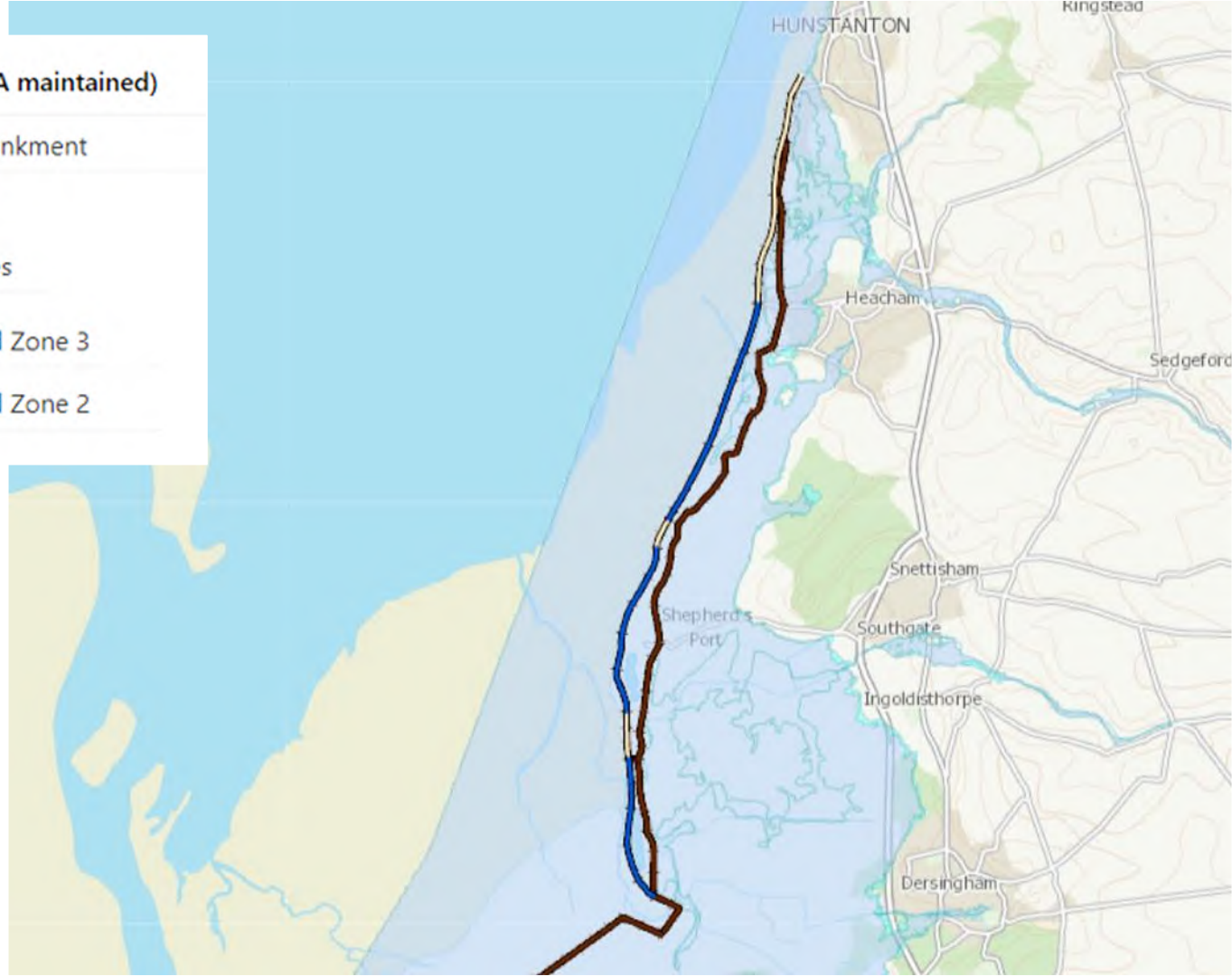
 Wall

 Dunes

 Flood Zone 3

 Flood Zone 2

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SMP 4 Polices & Timeline

Unit Area	Up to 2025	2025 to 2050	2050 to 2100
A – Cliffs	NAI	NAI	HTL
B – Hunstanton	HTL	HTL	HTL
C – South Hunstanton to Wolferton Creek	HTL	HTL/MR/NAI	HTL/MR/NAI

HLT = Hold the Line

NAI = No Active Intervention

MR = Managed Realignment

Current Management Approach

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Annual Beach Recycling

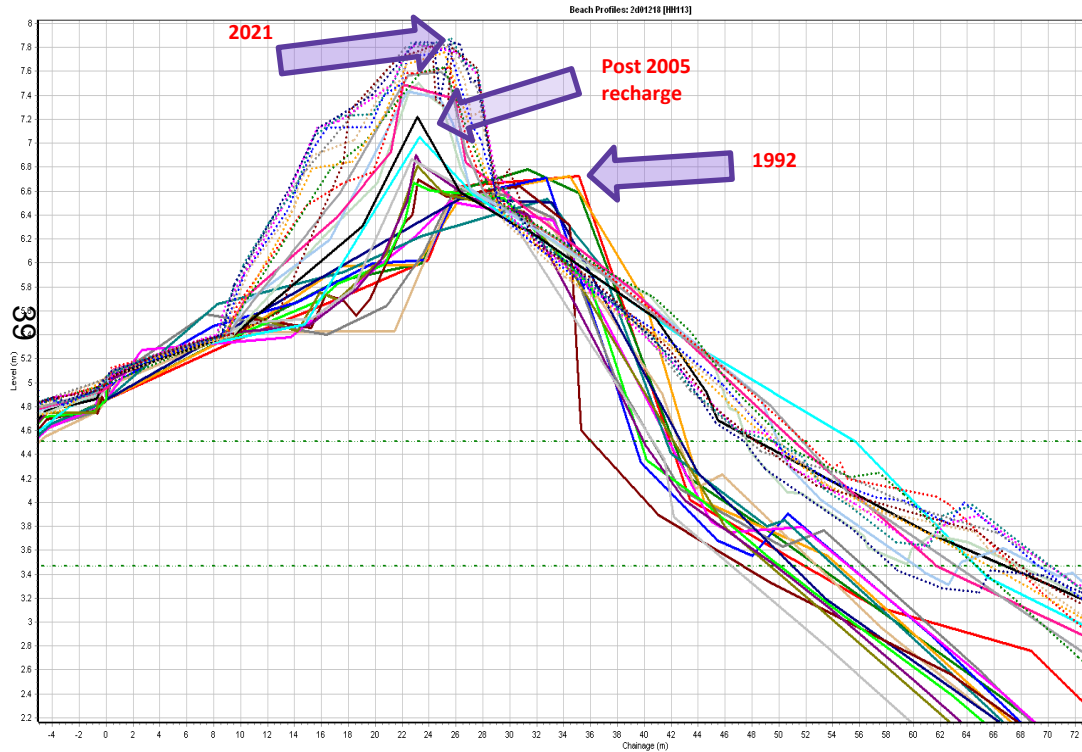


Intermittent Beach Recharge
(1992 & 2005)



Ongoing beach monitoring

Challenge 1: Ridge Mobility



1992-2021 close-up of dune crest

Challenge 2: Beach Recharge

- A small beach recharge was forecast for the near future.
- The initial planning has identified key challenges:
 - Cost
 - Technical feasibility
 - Environmental limitations
- At this time, beach levels are stable and therefore a recharge is not required.
- The recharge project has been stopped but recycling is continuing

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What this meant for us

We had likely reached a
trigger for change in our flood
41 risk management approach
on this stretch of coastline.



Unit C Initial Assessment



The Wash East Unit C Initial Assessment

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Stakeholder Engagement Meeting

1st August 2024

Kevin Burgess, Jacobs Coastal

Content

Presentation content includes the following:

- Basis for Initial Assessment
- Recent beach changes
- Management practices
- Assessment of need for recharge
- 43. ▪ Financial consideration
- Alternative approaches to risk management

Background

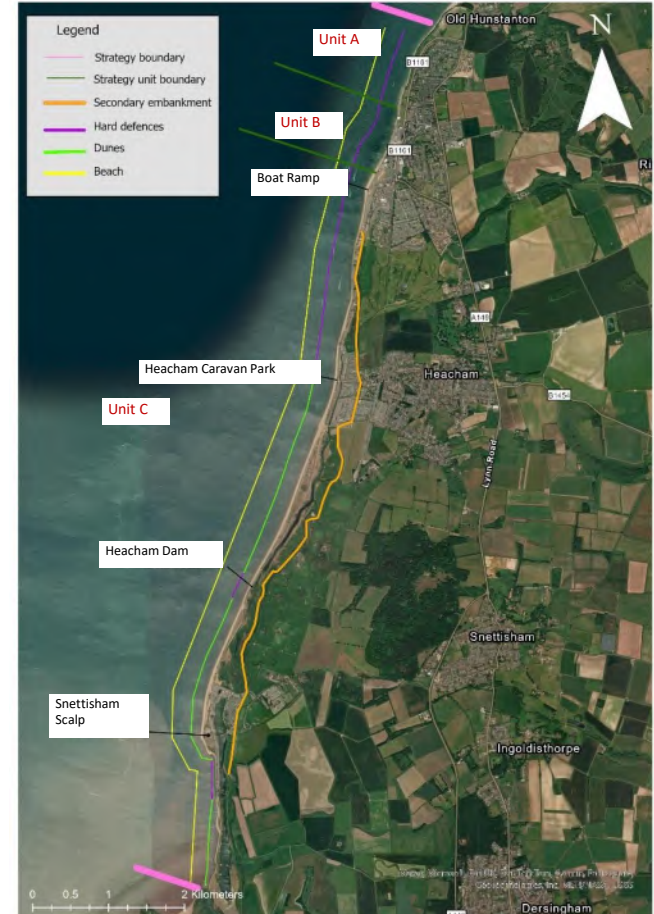
2015 – Wash East Coastal Management Strategy (WECMS).

2016 – Business Case approval for 15 years of works:

- Annual beach recycling.
- One-off beach recharge (est. 2023-2030).

Triggers for considering change if:

- Funding becomes insufficient,
- Environmental impacts become unacceptable,
- Frequency of flood evacuations becomes unacceptable.



Basis for this initial assessment

- Beach recharge works now quoted to cost three to four times that estimated in the Business Case and would now exceed the overall financial approval for the project of £5.4 million.
- Consequently, questions arise over how to proceed.
- Purpose of this initial assessment was to establish whether the funding trigger point is being approached.
- Although the decision point is a financial one, the basis for that are the technical requirements to provide flood risk management.



Scope of this initial assessment

Focussed upon the physical changes at the shoreline and technical activities that might be necessary to address those, thus determining what expenditure might be required.

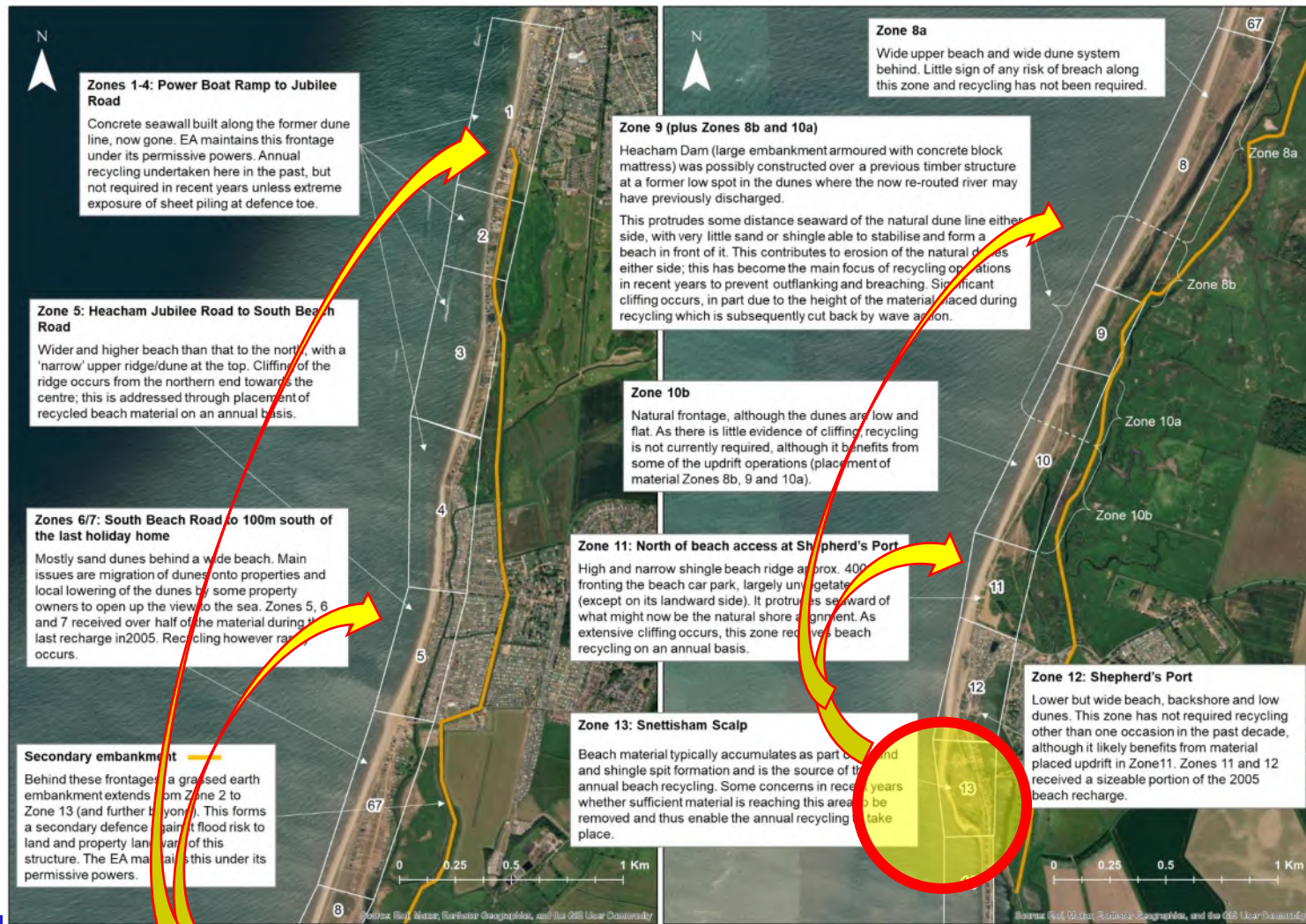
With reference to previous plans and studies, shoreline monitoring data and beach management activities, this has examined:

- recent coastal processes and shoreline change.
- application of the present management activities.
- the effectiveness and sustainability of those present activities.
- any need for the planned recharge at this time.

In doing so, the assessment has also provided additional technical information to assist and inform decisions on any next steps, including potential for changing the approach to risk management along these frontages.

Present risk management practice

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Assessing potential necessity to implement recharge now

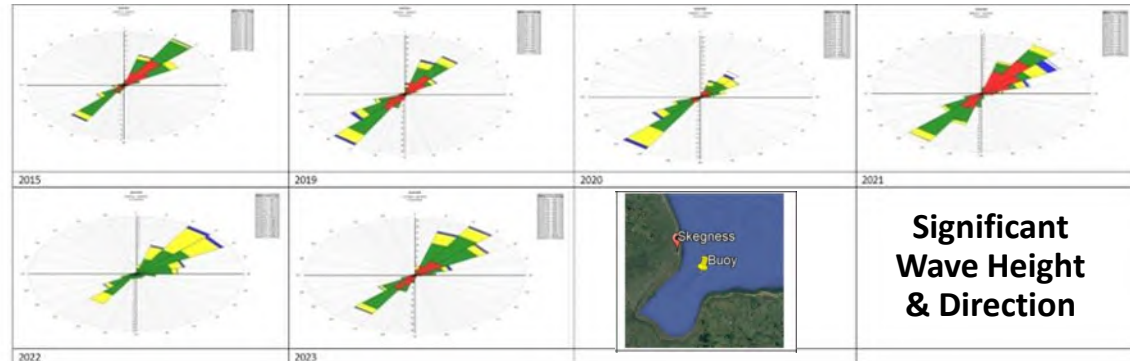
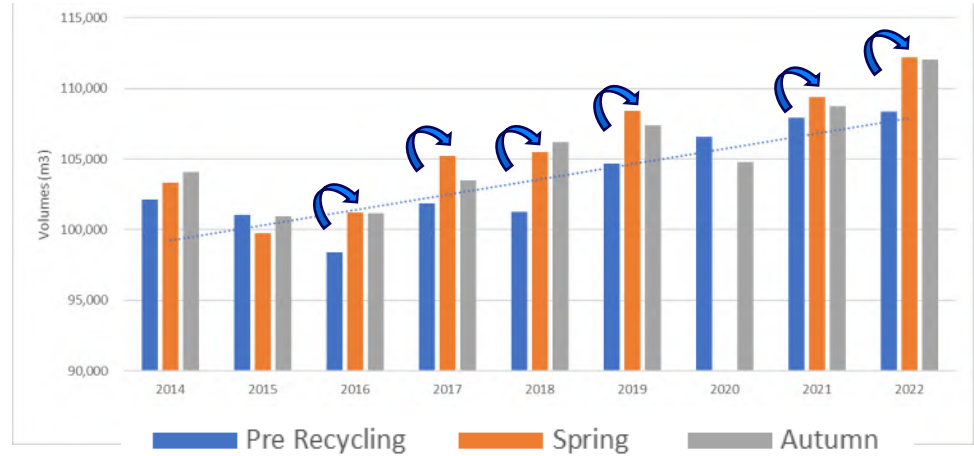
- Sand and shingle placed during the annual beach recycling campaigns in more recent years is observed to have been displaced within weeks of placement rather than providing the longer-term buffer envisaged.
- There have also been concerns whether volume of material arriving at Snettisham Scalp (the source of the recycling) is now insufficient for the annual campaigns.

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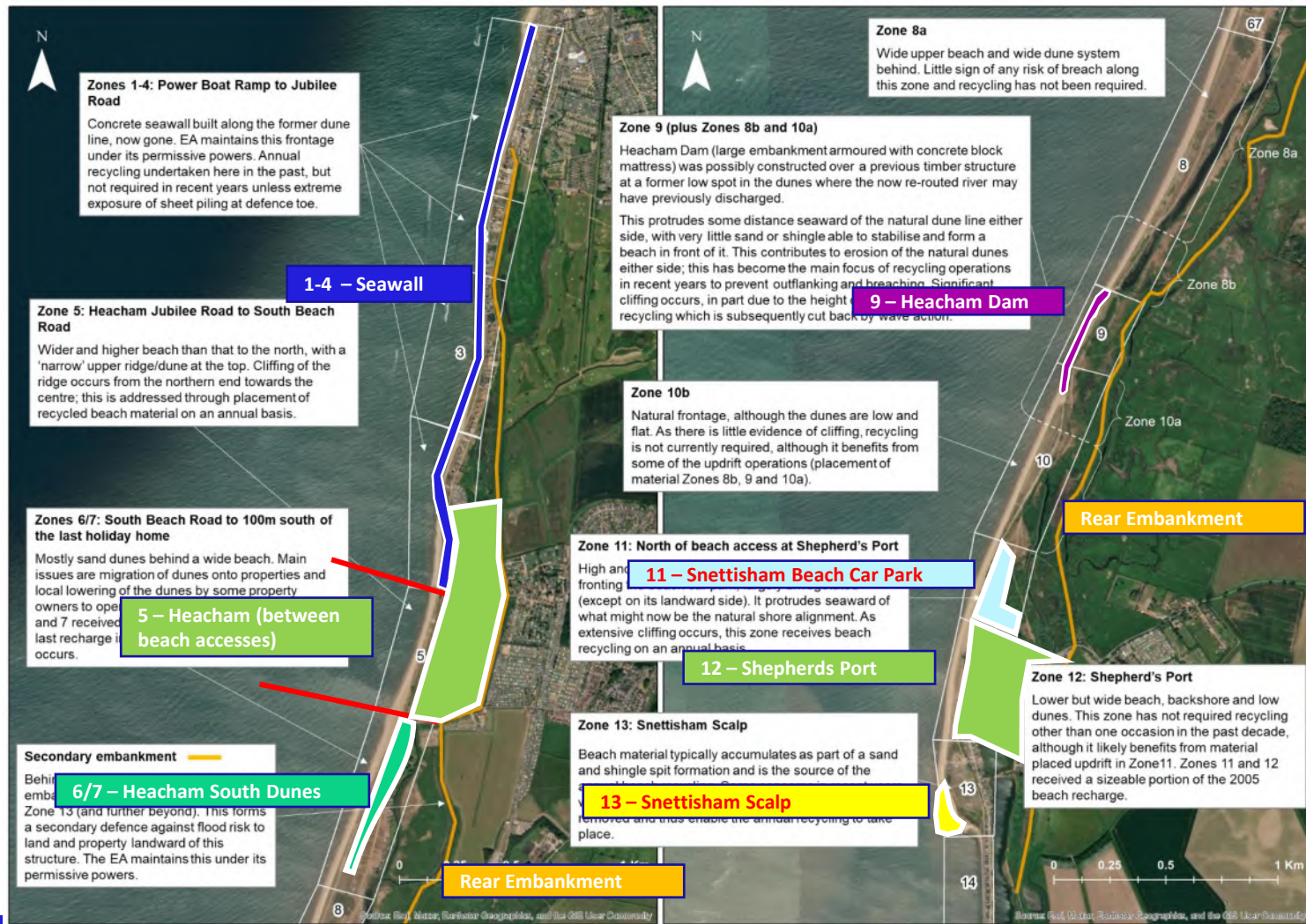
Assessing potential necessity to implement recharge now

- Looked at changes in the beach profile/volume (topography) and coastal processes (waves/surges) over recent years relative to preceding years, comparing:
 - 2015-2018** (implementation of present management following production of current plans), with
 - 2019 to present** (period of anecdotal evidence of more rapid beach changes following recycling).



Location of management zones and key points of reference

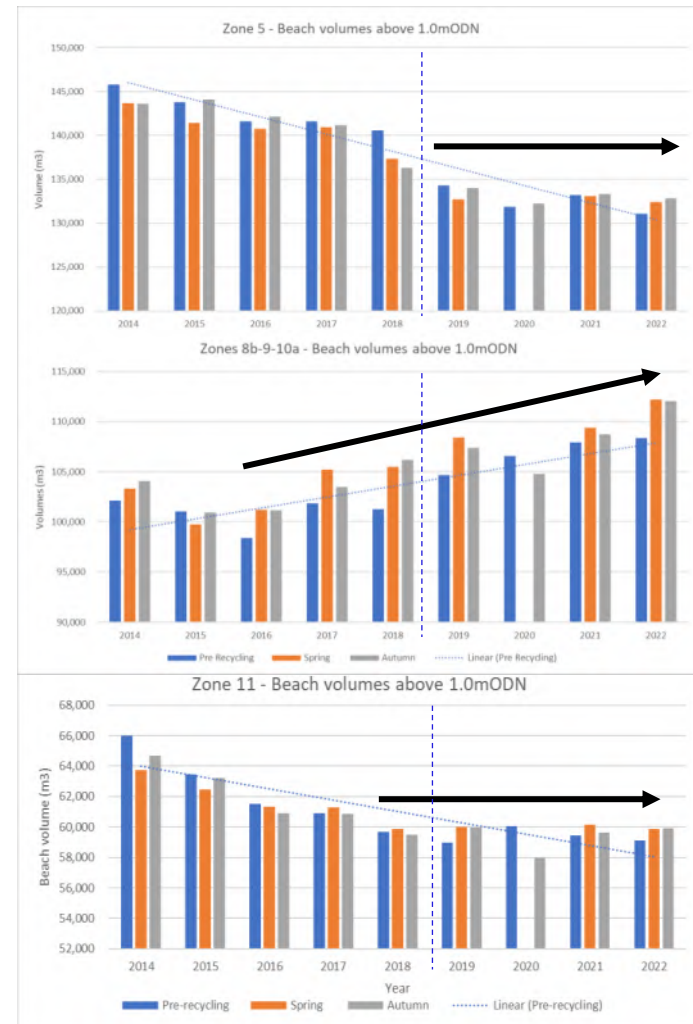
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Investigations into recent beach changes

- Beach volumes are not actually changing that much and seem to have remained reasonable constant (or even grown in places) since 2019.
 - There was in fact more change occurring between 2015 and 2018.
- The process of beach material movement remains similar, but recycled material is moving off the upper beach ridge (where it is placed) sooner in places.

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Investigations into recent beach changes

- This material is not being 'lost', but is being drawn down the beach slope.
- This shows that cross-shore sediment movement (up and down the beach) as well as longshore transport (along the shoreline) plays an important role in shaping the beaches along this frontage.
- This has always been the case, but more recently draw-down may have occurred sooner due to the coincidental incidence of larger storms events soon after beach recycling operations.
- This could also be occurring if the material being recycled is becoming finer in size.

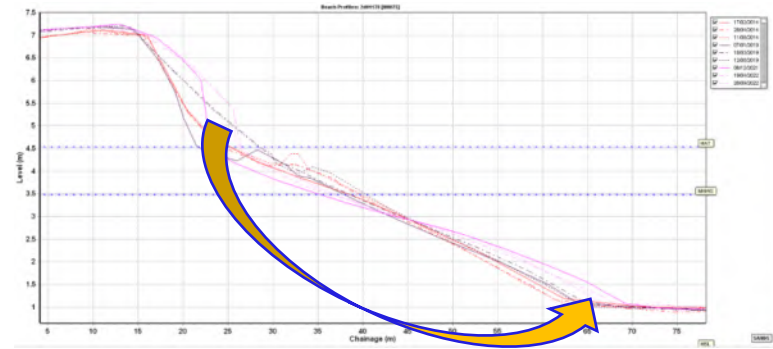


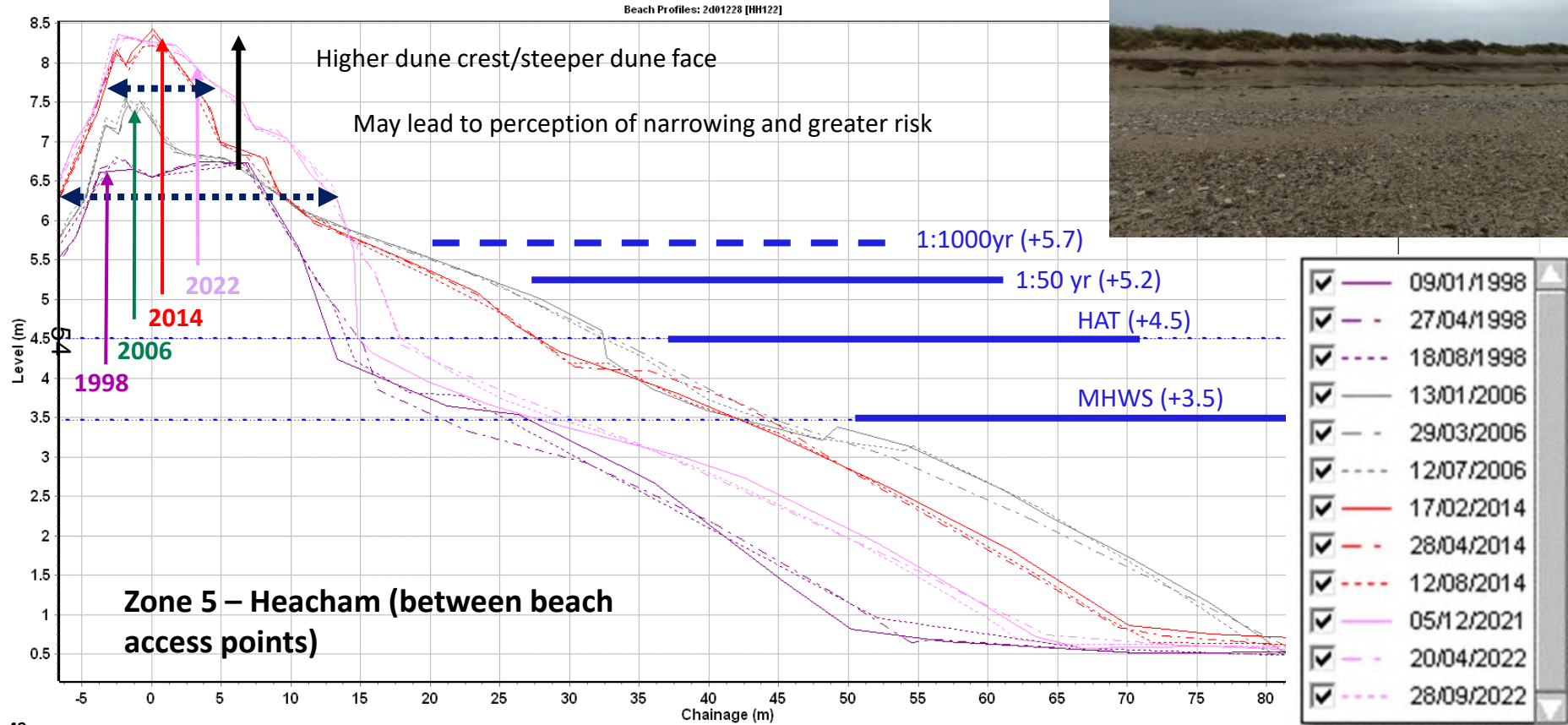
Table 4-1: High surges/water level events (above 0.80m) occurrence throughout the year from 2015 to 2023 (2018 excluded due to no data availability). The red box shows more high surge events in Spring from 2020.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2015										x	x	x
2016	x	x										x
2017	x	x								x	x	x
2019	x											x
2020	x			x				x	x		x	x
2021	x	x		x							x	
2022	x	x									x	
2023			x									

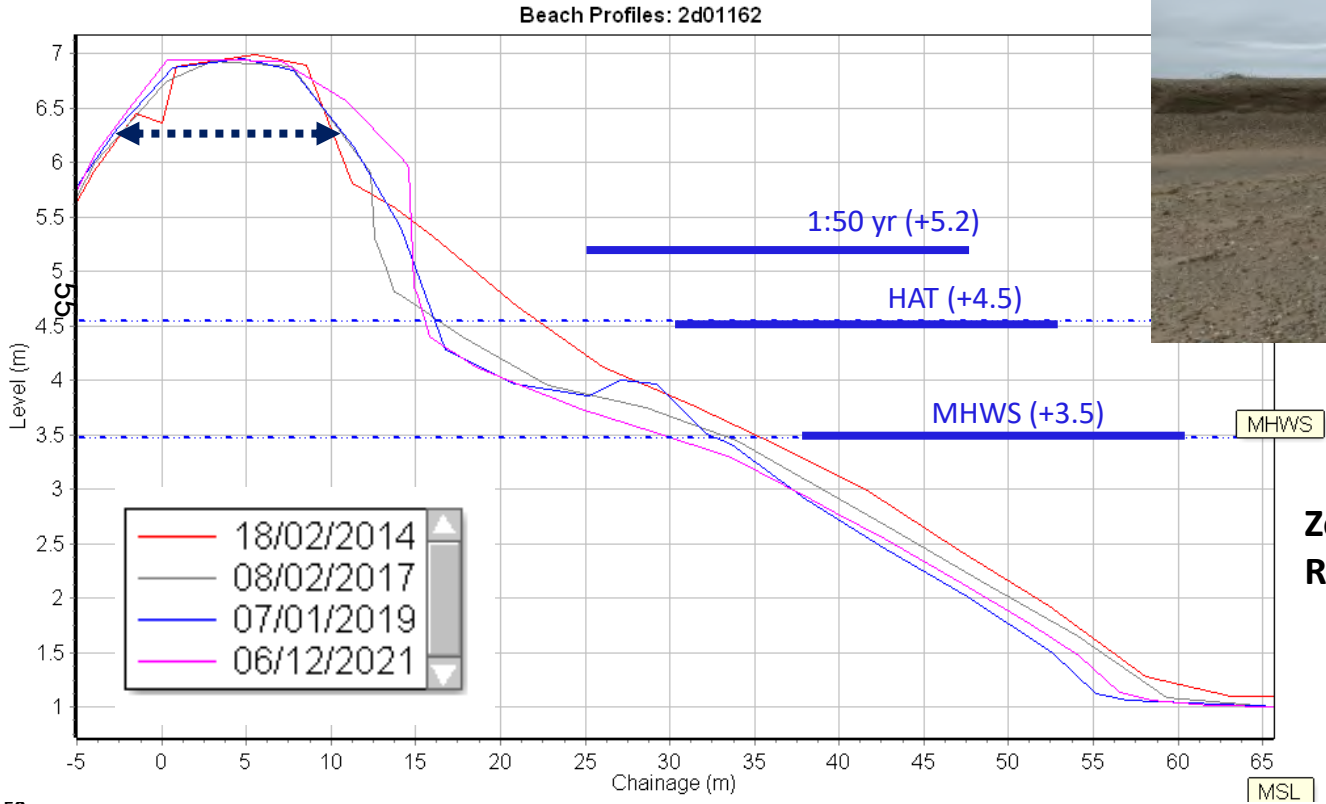
Investigations into risk

- Overall, the beach currently appears to be meeting the performance expectations of WECMS.
- The Beach Management Manual (BMM, 2014) identified minimum beach profile width, elevation and slope criteria.

Perception of risk



Perception of risk



**Zone 11 – Snettisham Beach
Road Car Park**

Investigations into risk

- Overall, the beach currently appears to be meeting the performance expectations of WECMS.
- The Beach Management Manual (BMM, 2014) identified minimum beach profile width, elevation and slope criteria.
 - Beach monitoring profiles indicate that achieving these criteria has not been a recent issue as beach profiles are already exceeding those requirements in most locations before recycling is carried out.
 - Recycling to address cliffing in Zones 5 and 11 will have helped maintain the ridge, although this has not necessarily been essential to achieve those minimum criteria, and monitoring shows little evidence of ^{of} potential breach should recycling not having occurred.
- Although WECMS did suggest that stopping recycling could result in the rapid failure of the shingle ridge within 3 to 5 years, it is not apparent that this remains an accurate reflection of present risk.

Investigations into recent changes at Snettisham Scalp

- There is nothing to suggest any significant change in coastal processes or sediment transport in recent years – in fact the volume of material reaching the Scalp remains constant or even increased a little.
- But that material has become spread over a much wider area, which also makes it more difficult to extract.
- This could also represent a finer grading of the material being deposited, and thus subsequently recycled.



Following extraction of beach material there is recovery of beach volumes by Autumn (dark blue arrows) followed by further accumulation of material pre-recycling (light blue arrows)



Beach recharge: is it now required?

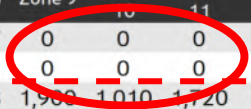
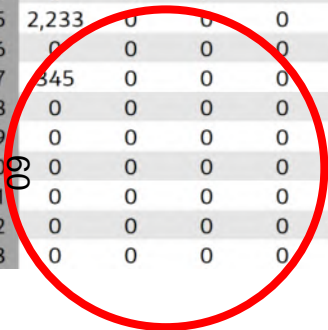
- Based upon the present size of the beaches and level of risks already discussed, there is nothing to suggest that the planned recharge is required at this time.
- The amount of beach recharge included for in the approved Business Case was only very small (50,000m³), so, its potential effectiveness is also debatable:
 - Previous campaigns in 1991 and 2005 indicate 25% losses might be expected to occur quite quickly.
 - In previous recharge campaigns, remaining material has not necessarily stabilised at the top of the ridge where it is required but has also been drawn down onto the lower part of the slope.
 - ⁵¹₀₀ There is little to indicate that the recharge material will remain where 'required' but move alongshore, so a much larger 'buffer' would be needed to maintain an accumulation at these locations.
- The only other driver for any recharge in the coming years might be if there were insufficient material at Snettisham Scalp to source for recycling.

Financial considerations

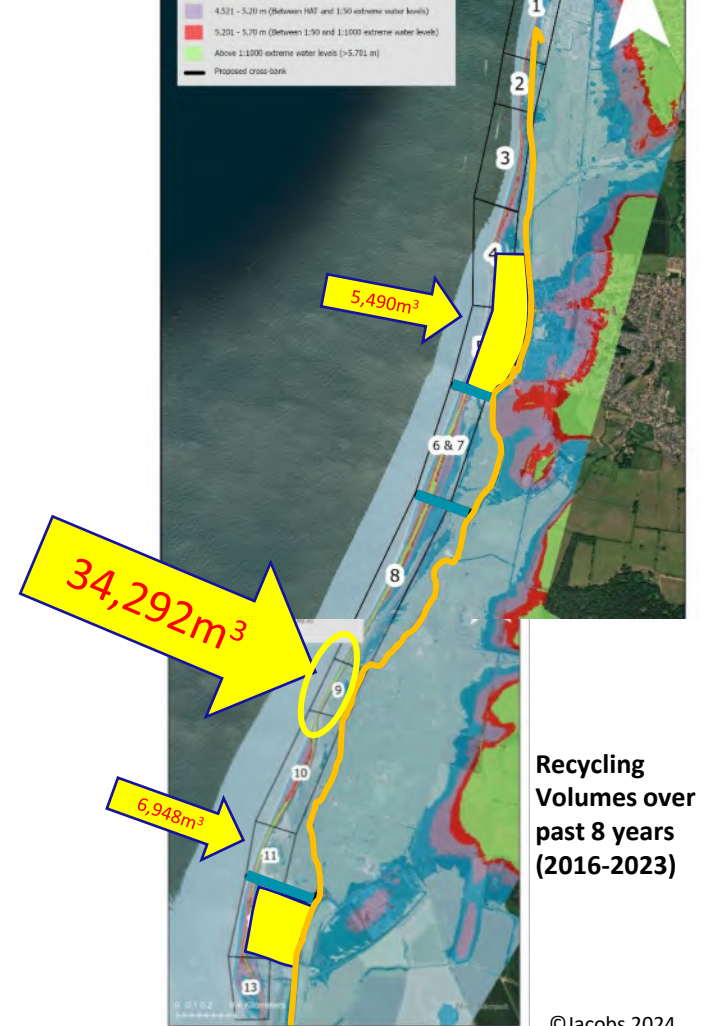
- If latest costs for recharge were known back in 2016, the Business Plan would have not met the approval criteria without securing a considerably more substantial external funding.
- Looking now at affordability of doing something to see the planned management of flood risk through to the end of 2031, the costs and benefits have all been updated to 2023/2024 prices:
 - ☞ The present annual beach recycling operations remain viable through to 2031, even potentially allowing for an increase in expenditure in any given year should circumstances require, and sufficient material could be sourced (which may be more problematic).
 - Although not required at present, if there is a change in circumstances that still required a beach recharge before 2031, this would now require an external contribution of over £5 million.
 - Whilst a beach recharge could be unaffordable (and potentially ineffective), alternative approaches to provide the present level of flood risk management may be viable. Any approach might attract up to £2.2 million FDGiA in addition to existing external contributions.

Changing approach to risk management?

Year	Heacham							Heacham Dam		Shepherds Port				
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	Zone 12	Zone 14	Zone 15
2012	2,090	0	0	143	1,551	0	0	3,597	0	0	0	0	0	0
2013	2,970	0	0	0	1,518	0	0	2,321	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	2,988	1,900	1,010	1,720	165	630	0
2015	2,233	0	0	0	0	0	0	0	176	44	0	0	0	0
2016	0	0	0	0	488	488	0	2,240	0	420	0	0	0	0
2017	345	0	0	0	480	0	0	3,915	0	855	480	0	0	0
2018	0	0	0	0	294	0	0	5,432	266	266	280	0	0	0
2019	0	0	0	0	1,134	0	0	4,004	105	105	2,240	0	42	0
2020	0	0	0	0	1,302	0	0	3,780	84	84	490	0	28	0
2021	0	0	0	0	588	0	0	3,556	210	210	1,456	0	28	0
2022	0	0	0	0	1,120	0	0	3,262	623	623	0	0	140	0
2023	0	0	0	0	84	0	0	3,486	273	273	2,002	0	252	0



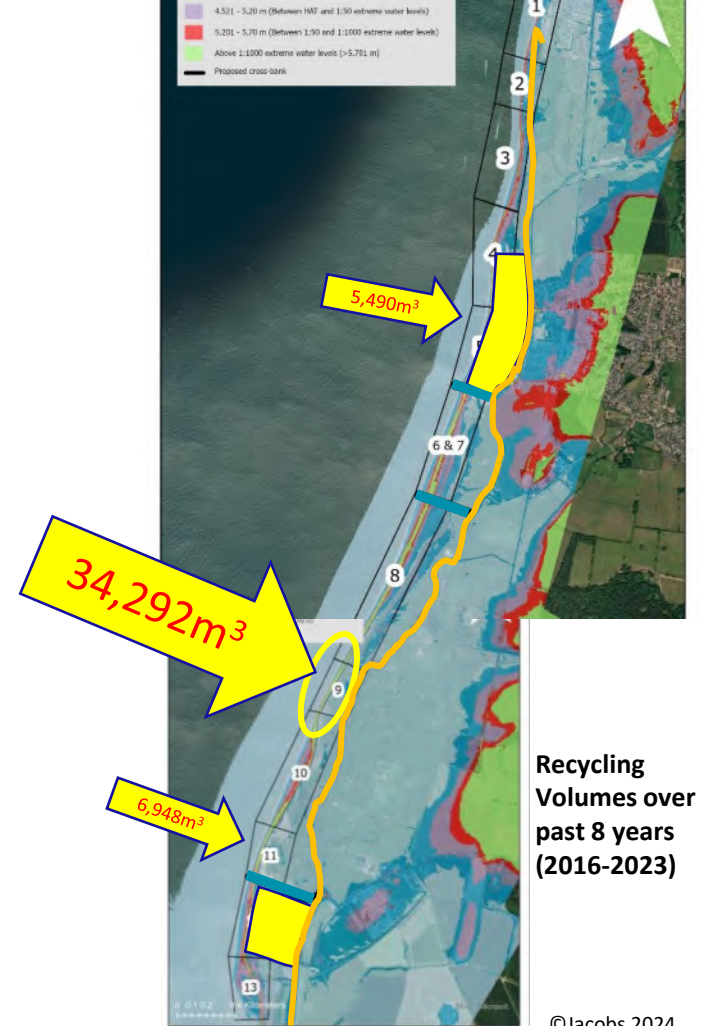
- 4.521 - 5.20 m (Between HAT and 1:50 extreme water levels)
- 5.201 - 5.70 m (Between 1:50 and 1:100 extreme water levels)
- Above 1:100 extreme water levels (>5.761 m)
- Proposed cross bank



Recycling Volumes over past 8 years (2016-2023)

Changing approach to risk management?

- Are the BMM principles still appropriate/effective?
 - Health of beaches/level of risk generally.
 - Locations where it would be indirect rather than direct risk.
- Is recycling needed each and every year?
 - Little if any locations where the minimum profile for risk is not currently being met.
 - Gradually impacting on Snettisham Scalp.
- Focus attention where it might be needed and when it might be needed.
- Look for more robust solutions.

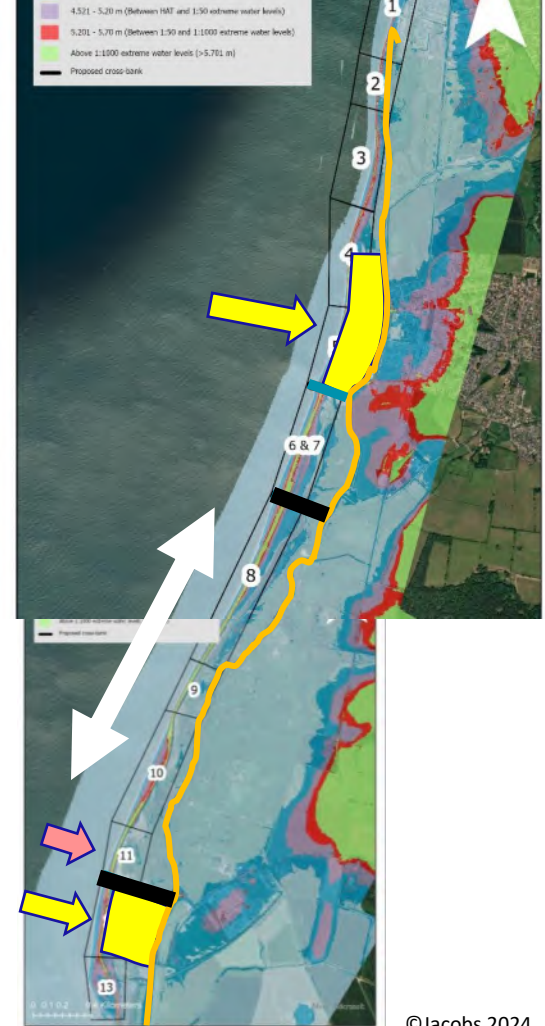
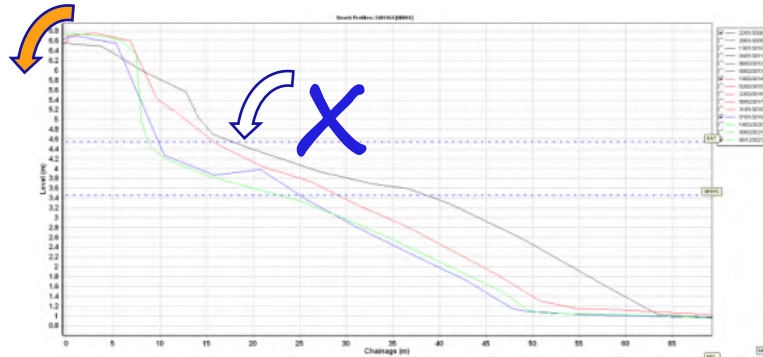


Changing approach to risk management?

Considerations

- Reduce commitment to recycling around Heacham Dam (Zone 9 etc).
- Only recycle where and when necessary at Heacham and Shepherds Port (Zones 5 and 12).
- Modify approach at Snettisham Beach car park (Zone 11)

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Changing approach to risk management?

Zone 13 (Snettisham Scalp)

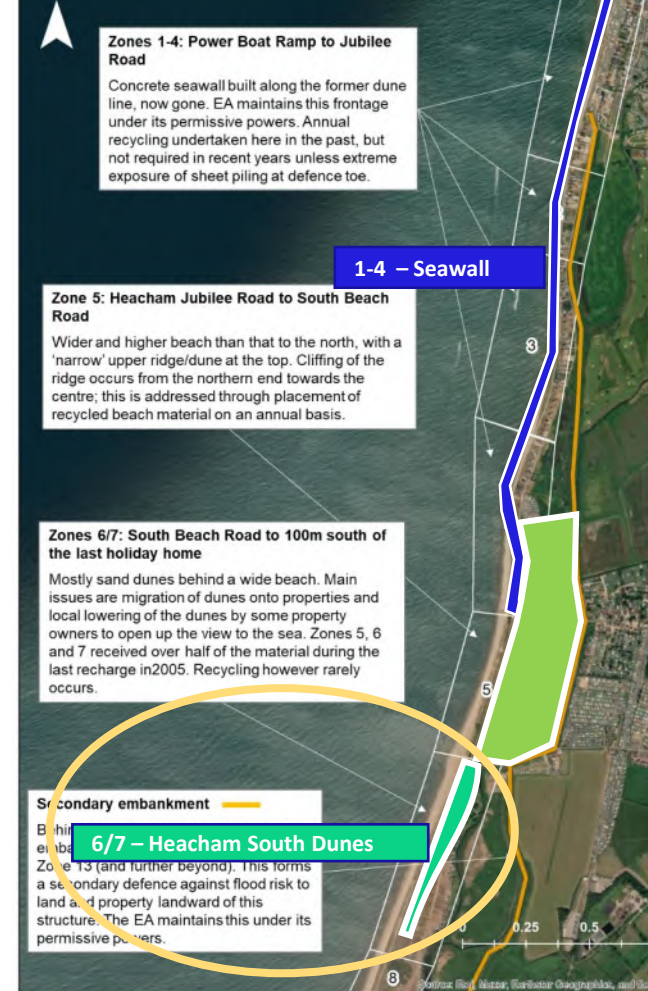
- Recycling not undertaken annually, and/or alternative management approaches adopted.
- More time for beach material to accumulate, and in particular more coarser material available on the head of the Scalp.
- Available volumes for if and when it is actually needed.



Other issues - Zones 6 and 7

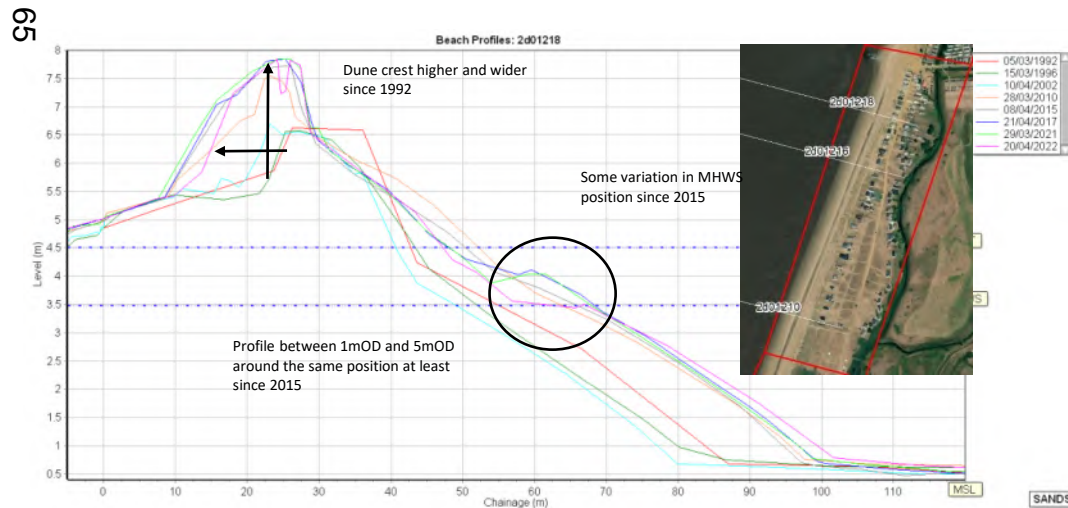
- Line of properties immediately south of Heacham.
- Different issue here – dune ‘roll back’ and sand encroaching upon the properties.
- Also past instances of locally cutting through dunes to gain better views and access!

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Other issues - Zones 6 and 7

- A key problem is the location of the properties, within the active dune system.
- Dunes are a natural flood defence and important they reprofile naturally.



Changing approach to risk management in Zones 6 and 7?

Zones 6 and 7 (Heacham South)

- Sand blowing into properties could be reduced by active dune restoration and management:
 - Prevent pedestrian trampling, which reduces vegetation and holding the sand in place.
 - Limit access through the dunes to just a few locations, create specific footpaths and use boardwalks.
 - Including dune fencing to restrict access.
- Evidence from site shows quick vegetation establishment:
 -  Where low spots, place additional sand from recycling seaward of the existing dune ridge.
 - Combine with dune 'thatching' to stimulate sand trapping and dune formation.
- Recognise however these are interim solutions to help manage the issue for a time - eventually natural processes will see the dunes migrate inland, which could increase flood risk over wider area if the transition here is not managed properly.

Summary (1 of 2)

- Overall, the beaches are not diminishing in volume.
 - They are however reprofiling more rapidly, in part due to some recent changes in storm activity but also possibly due to the grading of recycled material becoming finer.
- Much of the frontage already meets the minimum profile requirements of the BMM.
 - The requirement, effectiveness and sustainability of some of the present practices is now questioned, particularly around Heacham Dam.
 - Elsewhere, it is not evident that the recycling operation is required every year.
- Snettisham Scalp is not reducing in volume, although the material has become spread over a larger area.
 - If the recycling operation was not undertaken every year, it is possible that Snettisham Scalp better recovers and more material accumulation results.

Summary (2 of 2)

- Beach recharge is not required at this time.
 - But if this became necessary, then an economic trigger will have probably been reached.
 - However, the potential effectiveness of that planned recharge is also debateable.
- In terms of what is affordable, it is possible to continue with the present annual recycling.
 - ⊗ However, the technical effectiveness and environmental sustainability of simply continuing that in its current form, is uncertain and might be reconsidered.
- It may be beneficial to consider alternative measures going forward.
 - Further application for funding would require a full review of all damages and benefits and an updated assessment of the standards of protection then being afforded to the area.
 - Any re-consideration at this time would most likely now consider the period beyond 2031.

Unit C Initial Assessment

Key conclusions

- The WECMS economic trigger for change has been met.
- Annual beach recycling continues to be effective and sustainable.
- Human activity and damage on the ridge needs to be limited to allow it to perform its flood risk function.
- Sand continues to accumulate behind the crest of the ridge; this is likely to continue.
- The WECMS environmental and evacuation triggers have not been met.
- A full review of the strategy is required to determine the future management approach for Unit C.

WECMS Review

Undertaking a full review of the WECMS will be a complex and time-consuming process due to the wide range of factors which each need to be considered in detail. This includes:



The standard of protection provided by the defences



Stakeholder engagement



Coastal processes



Environmental impact assessments



Computational modelling



Funding calculations



Consideration of a wide range of options and their potential technical feasibility



Climate Change Allowances

WECMS Review Timeline



Now – April 2025

Prepare for WECMS review:

- Secure funding
- Continue writing the business case
- Update coastal modelling for the area

Protect the ridge:

- Repairing existing damage where possible
- Continue enforcement on the shingle ridge
- Continue engaging with stakeholders, including advice to minimise footfall on the ridge
- Continue to support KLWNBC with planning applications in the area

Ongoing maintenance:

- Continue beach recycling and annual monitoring

April 2025

Begin WECMS review

2027/2028 onwards

- Begin SMP policy update
- Implement the new WECMS strategy

Engagement

- Media interviews – 30th July
- Cabinet briefing – 31st July
- Wash East Coast Management Strategy – Stakeholders Forum – 1st August
- 72 • RFCC member briefing – 1st August
- Snettisham Shingle Ridge drop-in event – 8th August
- Heacham Shingle Ridge drop-in event – 9th August
- E&C panel update – 3rd September
- RFCC – 17th October
- Stakeholders Forum frequency?

Key takeaway messages

- The challenges are unique and complex.
- We are actively progressing a solution through the upcoming WECMS review, but nothing has been predetermined.
- 73 • We want to work with the community and other partners throughout the process.
- As the primary defence, damage to and human activity on the ridge needs to be limited to allow it to perform its flood risk function.
- In the meantime, beach recycling is continuing.

9. Any Other Business (AOB)

