



Atkins Lead Designer

EXCELLENCE IN FLOOD
AND WATER MANAGEMENT

Fairhaven and Church Scar Sea Defence Project





Masterplan

Overview



Many of the UK's coastal communities are on the front line of the battle against climate change and more recently, due to the Covid pandemic, their value is being increasingly recognised as the kind of places people want to live or visit, to enjoy the outdoor leisure pursuits and for wellbeing purposes.

This project is a 2.5km coastal protection scheme defending nearly 2,500 properties and businesses from erosion and storm born damage within an exceptional but vulnerable landscape setting.

We have responded with a stunningly simple and elegant design which perfectly complements the vast skies and vanishing horizons which characterise this place.

KEY PROJECT DETAILS:

PROJECT TEAM

VBA (VolkerStevin, Boskalis Westminster and Atkins Joint Venture)

CLIENT

Environment Agency – Fylde Council

PROJECT DESIGN TEAM

Atkins Landscape, Civil, Structural, M+E, PM, Ecology, Planning

LOCATION

Lytham St Annes, Lancashire

SIZE OF SITE (HA)

76,300M² (7.63 hectares)

PRACTICAL COMPLETION DATE

July 2020

BUDGET (£) OR CONTRACT VALUE

£21,800,000

RIBA WORKS STAGES

4-7 RIBA (1-3 by others)

CONTRACTOR

Volkers

Delivered as part of joint venture VBA (VolkerStevin, Boskalis Westminster and Atkins) our design covered RIBA work stages 4-7 with a delivered project value of £21.8m. The work was carried out between Jan 2017 with completion on site in July 2020. The scheme was funded by the Environment Agency as part of a Shoreline Management Plan to protect headlands in the North West and Wales.

This narrow site is sandwiched between two beautiful spaces, the Ribble and Alt estuaries and an historic Lakeside Park (Fairhaven Marine Lake) located close to the settlement of Fairhaven in Lancashire. We capitalised on the beautiful setting with a simple and elegant design response, to deliver a vital defence for a vulnerable community regarding its resilience to withstand the effects of coastal erosion and storm born flooding events.

Our design provides a robust defence but in the form of a spectacular linear public realm, which can host cycling, walking and healthy activities, perfectly complementing the unique sense of place. Built a full 6 months ahead of schedule and 375k under budget, this sinuous promenade and stepped revetment replaced a crumbling piece of infrastructure which dated back to the 1890`s and now provides a safe and stunning platform from which to access the beach and enjoy the spectacular views across the estuary to the west and east into the marine lake and designed parkland.

Despite the growing effects of climate change the community of Fairhaven can now look forward with confidence as 2,425 residential and commercial properties, schools and other infrastructure are protected from coastal erosion and flooding and residents and visitors of all mobilities can enjoy this unique place.

Through intelligent and innovative design and construction choices, a “one-team” approach, strong community engagement and dedication to safety, we successfully navigated challenging times to deliver a project which exceeded everybody’s expectations.

“What we see along the shoreline today is beyond my wildest dreams... Not only will this beauty spot be attractive for residents and visitors, but it has also significantly improved the safety of the surrounding area. We are excited to be able to provide a seaside resort fit for the next century.”

Councillor Thomas Threlfall,
Representative for the Fairhaven and Church Scar Sea Defence Project

Design

- **Is highly functional and useable**

The design provides robust protection from coastal erosion and flooding whilst delivering a sinuous ribbon of public realm for local residents and the many visitors to enjoy the **dramatic views**. The built defences are designed to protect 2,425 properties and infrastructure to withstand storm effects modelled on a 1 in 200-years event scenario.

- **Is thoughtful and sensitive to its context and character**

The design occupies a narrow space between two hugely contrasting landscapes. It is a large engineered structure but its form in plan and section, the sensitive choice of muted buff colour alongside the detailing of steps and the way it mirrors the profile of the coastline, ensure that it feels perfectly at home within the encompassing landscapes.

- **Is beautiful, appealing both visually and to the other senses**

The curved profiles, sensitive colour palette and elegant revetment design make this a perfect accompaniment to the expansive landscapes which surround it allowing the sights, sounds and colours of its surroundings to speak for themselves. The openness and simplicity of the design embrace the big skies and vanishing horizons.

- **Is inclusively designed and accessible for all users**

We conducted an audit to ensure our proposals met the Environment Agency's 'Access for All' Design Guide / Equality Act. This covered surfacing, ramp gradients, step tread and risers, handrails, site furniture, seating, lighting, bins, wayfinding and car park provision including provision of disabled spaces. There are 3 main access points into the park and 11 access steps with handrails along the revetment length.

- **Has overcome site challenges in an innovative or creative way**

The scheme replaces 0.9km of sloped revetment replacing it with a stepped one via pre cast interlocking concrete units, also increasing the 1km sea defence height by 0.3m to 1.5m. It opens up 2.5km of walkable public space with a dedicated 100 space car park with flush access onto the Promenade.



2



1



1. Revetment and slipway
2. Existing site conditions
3. Seating every 50m
4. Estuary and parkland space
5. Accessible outdoor space



03

Sustainability



ice
Institution of Civil Engineers

**award
winner**

Institution of Civil Engineers North West (ICE)
Sustainability project of the Year 2021

- **Has made demonstrable effort towards (net) carbon neutrality and mitigating climate change**

There was 100% reuse of materials from the original sea wall, saving over 4t of CO2e. We also processed 28,000t of sandstone blocks/concrete from the old wall into material used in the revetment; 24,000t of material was retained on site by installing temporary works for crane platforms and by incorporating the haul road into the permanent works with 97% of overall waste being recycled or reused.

Innovative sheet piling design optimised the revetment toe pile length, minimising the steel used. No steel reinforcement was used in precast units and the use of calcined laterite clay offered ultra-low carbon emissions and a reduced carbon footprint.

- **Has maximised adaptation and resilience to future climate changes, including increased temperatures and associated risks**

The project protects 2,425 properties and infrastructure to withstand storm effects modelled on a 1 in 200-years event scenario.

- **Has sought to make a positive contribution towards healthy, connected habitats for biodiverse species**

This project protects over 2.5km of sensitive landscape habitat from devastating coastal erosion and flooding events, including an SPA, SSSI, Ramsar designated estuary on the estuarine side and the Thomas Mawson designed Historic Parkland, one of the Fylde coastline`s most popular attractions on the other. We also worked with Fylde Rangers to build natural Dune Slacks in the local area a BHS and planted over 6,500 plants with over 30 species including sea grasses and herbaceous plants selected with our ecologists.

- **Makes a positive contribution towards the UN Sustainable Development Goals more broadly**

This has been achieved through the promotion of good health and wellbeing by creating and increasing an accessible healthy outdoor open space, for walking and cycling, an enhanced sense of place (placemaking) and through innovative and sensitive Infrastructure design.

This project has already won the ICE North West 2021 Sustainability Project of the Year.



1. Over 6,500 plants planted
2. Protecting 2,500 properties

Value

- **Meets or exceeds its original brief**

We delivered **6-months early** and **£2.3m under the original estimate** enabling the client to instruct £3.65m of additional work.

We delivered the project, including extra work, **375k below the extended budget** at £21.15m.

- **Makes best and most-efficient use of available resources and space**

The scheme cost of £9,000/m representing **real value for money**. All similar schemes up this coastline exceeded £20,000/m. Fairhaven was delivered early and below budget with a popular engineering solution that will protect properties for 100+-years. The Scheme Benefit to Cost Ratio is 10.66 to 1.

- **Has considered its impact on all users and evidences community involvement where appropriate. Maximises its impact on human health and wellbeing, and other social outcomes**

We engaged several user groups to inform the design, included a customer experience coordinator and established a Visitor Centre on site. We scored 44/50 on two Considerate Constructor Audits, with **80% local labour used**.

Zero escalated complaints were received. 2,000+ properties sent quarterly newsletters. 2,000+ people visited the visitor centre. **£3,000 was raised for RNLI and YMCA**. We held **3 'Beach Clean'** events during construction, and Sponsored Lytham in Bloom. The benefits to improved human health by providing 2.5km of seafront open space are immeasurable.

- **Maximises the opportunity of local regeneration and economic development**

This will be achieved by securing the long-term viability of the resort as a place to live and visit.

www.visitstannes.info

"I'm immensely proud of what has been achieved. Not only will this beauty spot be attractive for residents and visitors, but it has also significantly improved the safety of the surrounding area. We are excited to be able to provide a seaside resort fit for the next century."

Councillor Thomas Threlfall,
Representative for the Fairhaven and Church Scar Sea Defence Project



*“The work has created a
stunning piece of public realm
and regenerated the whole area.”*



05

Professionalism

- **Is consistent with current UK best practice and standards**

This project demonstrates a clear adherence to professionalism throughout its design and implementation. We continued to operate construction throughout the pandemic without compromising on the health and safety of our team or the community.

It meets all local planning policy, British standards and the Environment Agency's 'Access for All' Design Guide. 253,565 hours were worked without a RIDDOR. The project scored 9/9 in the Considerate Constructor Scheme and the health and safety record delivered a Considerate Constructor Scheme Silver Award.

- **Relies upon thorough and robust analysis of impacts, risks, and benefits**

This project has undergone exhaustive consultation with a number of groups. Site risks and benefit reviews on cost and design iterations also resulted in a very high Scheme Benefit to Cost Ratio of 10.66 to 1 and a cost per metre at below half the average rate for similar coastal protection projects along this coastline. Access audits were also conducted to ensure it complied with the Environment Agency and Equality directive guidance.

- **Is described in clear, authoritative terms with well-designed documentation**

All drawings specifications and project documentation have ensured clarity in design content and intent realised through excellence in construction, proven by feedback and a project built 6 months early and 375k under budget.

- **Has maximised the potential of collaboration and multi-stakeholder working**

The project is the result of long-term collaboration between funding, delivery and user groups, culminating in a solution that is cost effective, practical, beautiful and easy to maintain.

We integrated subcontractors into our team involving them in innovation workshops, collaborative planning sessions and training. We favoured local suppliers and selected them based on technical excellence, safety and environmentally-conscious operating ethos.

- **Commits to quality across all stages of the landscape lifecycle, from design and plan to maintenance.**

The project outcome and feedback from funders users and maintainers demonstrates that it has had a focus on quality through all stages of the commission.



Relevant Plans & other Information

There is a significant list of relevant plans and information which all pertain to this project, but the key ones which are of relevance to this entry include:

- Landscape NBS (landscape specification including section on maintenance in accordance with Environment Agency guidance)
- 62 construction drawings of which 11 specifically relate to hard and soft Landscape detailing, covering planting, surfacing, edging, street furniture and lighting provision.
- Landscape and ecological management plan



2

HERBACEOUS PLANTS AND ORNAMENTAL GRASSES

C: Container Grown

KEY	BOTANICAL NAME	ROOT COND/ POT SIZE	SPACING	TOTALS
AI	Anemathele lessoniana	C2L	5/m2	112
Am	Ameria maritima	C2L	8/m2	177
AISQ	Artemisia ludoviciana 'Silver Queen'	C2L	5/m2	326
Eb	Eryngium bourgatii	C2L	5/m2	445
Ecw	Euphorbia characias wulfenii	C2L	4/m2	198
Ls	Luzula sylvatica	C3L	5/m2	85
NSHG	Nepeta 'Six Hills Giant'	C2L	4/m2	117
Ov	Origanum vulgare	C2L	6/m2	383
RoP	Rosmarinus officinalis 'Prostratus'	C2L	5/m2	127
SnO	Salvia nemorosa 'Ostfriesland'	C2L	5/m2	413
SbSV	Stachys byzantina 'Silver Carpet'	C2L	5/m2	305

BULBS

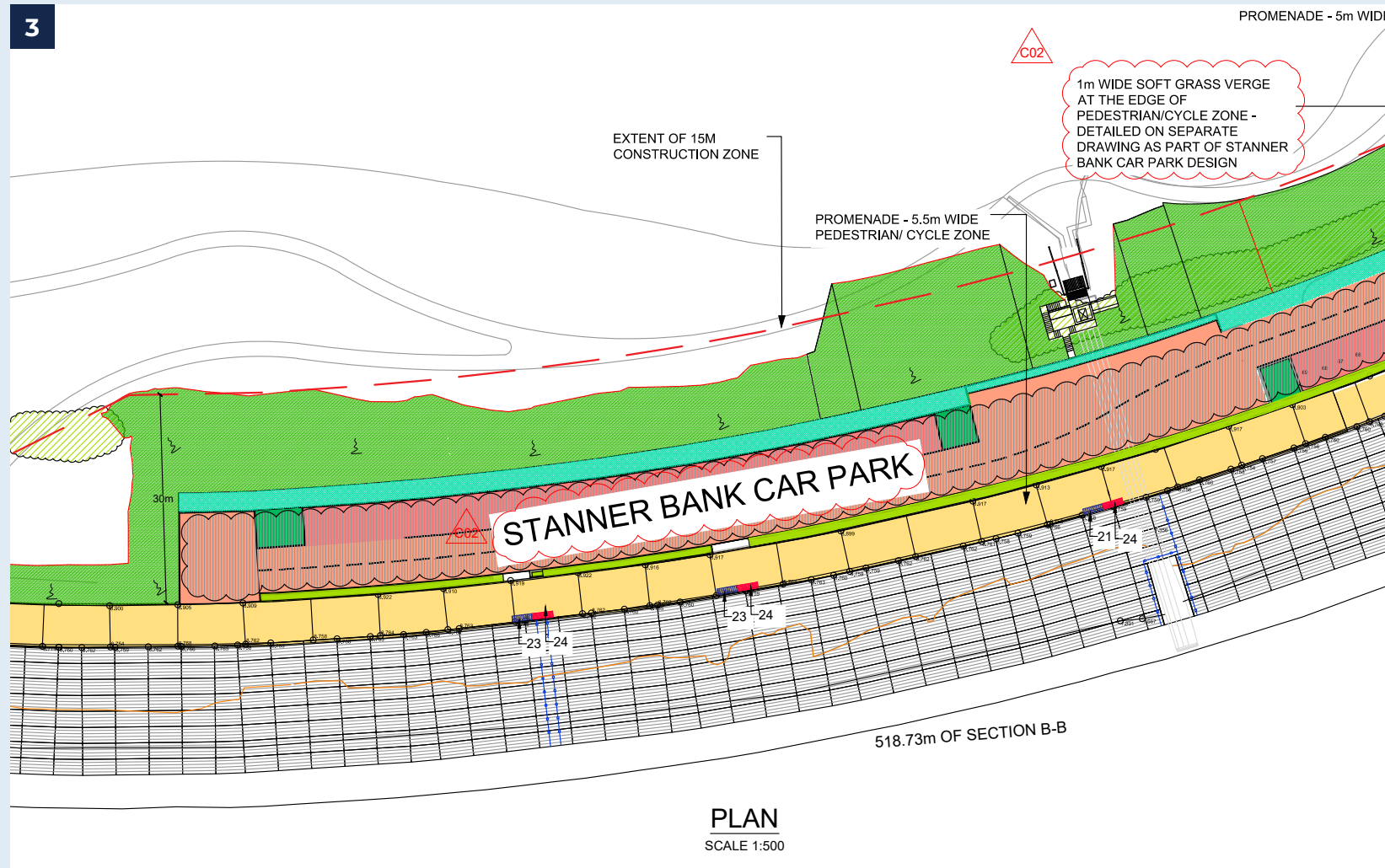
Bulbs to be distributed evenly within planting beds

PROMENADE ORNAMENTAL GRASS STRIP

KEY	BOTANICAL NAME	ROOT COND/ POT SIZE	SPACING	TOTALS
Aa	Ammophila arenaria	C2L	4/m2	192
AI	Anemathele lessoniana	C2L	5/m2	262
CKF	Calamagrostis 'Karl Foerster'	C2L	4/m2	189
CcB	Carex comans 'Bronze'	C2L	6/m2	317
Em	Elymus magellanicus	C2L	8/m2	400
Hs	Helictotrichon sempervirens	C2L	5/m2	260
Sg	Stipa gigantea	C2L	3/m2	156

1. Typical site cross section
2. Schedules of plants used
3. GA extract mid section
4. Management plan front cover

3



4

Fairhaven to Church Scar Coastal Protection Scheme

Landscape and Ecological Management Plan

Fylde Borough Council

December 2017



Look at the new sea front at Fairhaven Lake!





What an amazing public open space this work has created!

The new stepped revetment surrounds the lake, built over the top of the 1890's sea wall. It will protect the lake and surrounding area, reducing the risk of erosion and flooding for the next 100 years.

Of course the new sea wall serves a practical reason and it's a flood defence. But a very welcome spin-off is the amazing seafront walk – it's a tourist attraction in its own right! The work has created a stunning piece of public realm and regenerated the whole area.

<https://www.visitstannes.info/about/seafront/new-seafront-at-fairhaven-lake/>



CONTACT

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