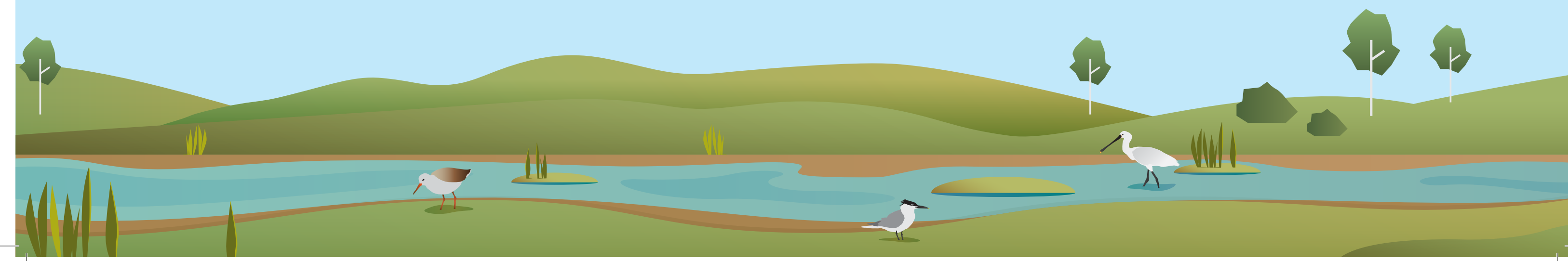


The Moors at Arne

A diverse wetland that will be a mosaic of intertidal habitat,
freshwater habitat and shallow saline lagoons.





The Moors at Arne

The Environment Agency, RSPB and Natural England are working together to adapt approximately **150 hectares of the Moors at Arne** into a diverse wetland that will be a mosaic of intertidal habitat, freshwater habitat and shallow saline lagoons.

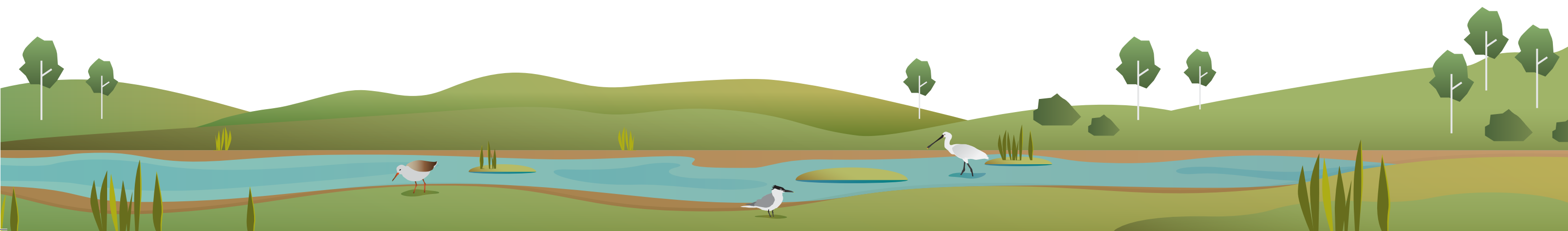


This is a very special place, with much of the area being currently designated as wetland of international importance that is home to many rare species of plants and animals. It is also part of the nationally designated Dorset Area of Outstanding Natural Beauty and has, buried beneath its surface, nationally significant historical landscapes, reflecting the changing sea levels right back to the last ice age.

Eighty hectares of intertidal saltmarsh and mudflats will be created to compensate for the climate change impacts that are caused by flood defences around Poole Harbour.

Salt marshes provide essential habitats for many species of plants and animals and protect shorelines from erosion. They are created by tidal waters flooding an area and then draining away.

Since our last public exhibition in November 2018, we've continued to develop the design and have carried out a wide variety of technical work to support the planning application.



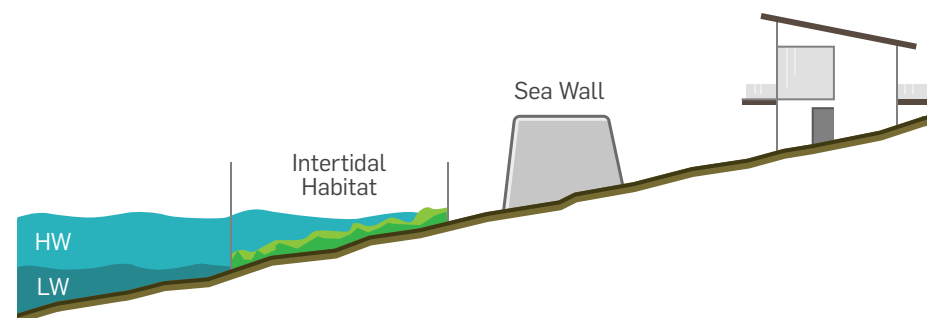
Why is the project needed?

To protect people and property from flood and erosion, the 2014 Poole Harbour and Wareham Flood and Coastal Erosion Risk Management Strategy recommends maintaining the current defence alignment along several sections of coastline within Poole Harbour.

Much of the intertidal habitat in front of these areas of coastline is legally protected under the Habitats Regulations and implementing the strategy would result in the loss of this habitat through 'coastal squeeze'.

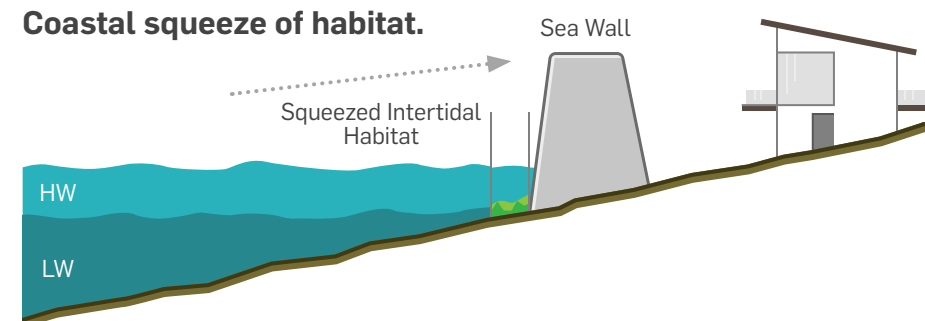
Compensation of this lost habitat is legally required under the Habitats Regulations. This project will create the required compensatory habitat, which will enable the future coastal defence works recommended in the strategy to be carried out to provide protection for 3,000 properties in Poole Harbour from flood risk associated with climate change.

Coastal squeeze before sea level rise.



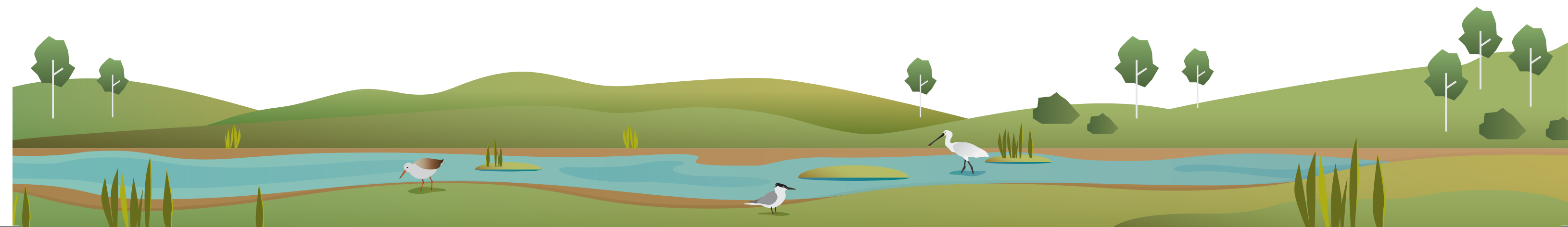
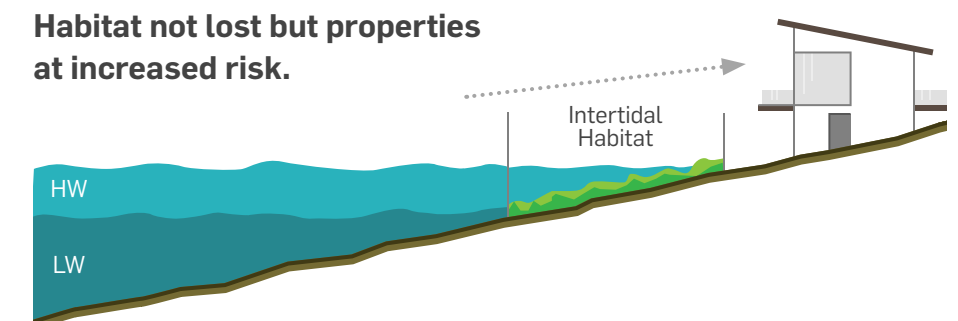
Situation 1

Sea level rise & sea wall raised.
Coastal squeeze of habitat.















Situation 2

Sea level rise if NO sea wall.
Habitat not lost but properties at increased risk.



What are the new features?


- A**  Shallow saline lagoons for bird roosting when high tide in harbour
- B**  Three open breaches to allow tides to flow freely in and out
- C**  **Eastern Embankment** to protect Special Area of Conservation (SAC) habitat from extreme tides
- D**  New Furzebrook outfall structure
- E**  **Western Embankment** to protect property and freshwater area from extreme tides
- F**  Walking routes link to RSPB Arne Nature Reserve

- G**  Two disabled parking spaces
- H**  Permissive path with viewing points
- I**  Freshwater area to preserve important plants and species
- J**  New Causeway outfall structure
- K**  New Intertidal area
- L**  Viewing Points




Parking & access routes

A

 Two disabled parking spaces

B

 Permissive path with viewing points

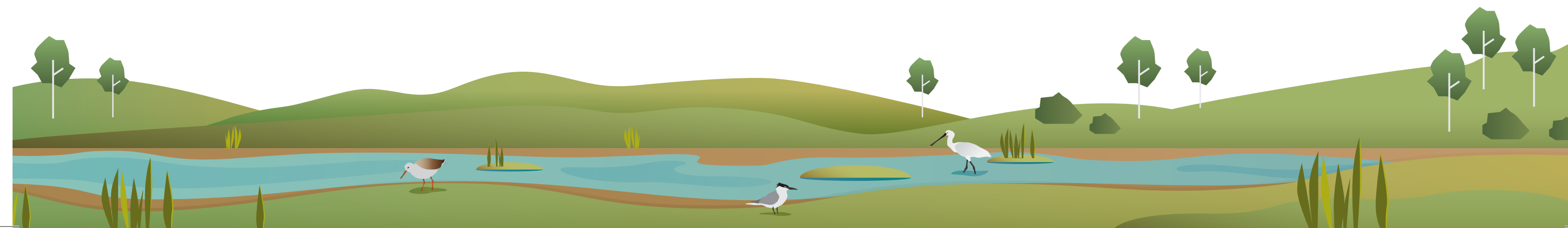


How will the Furzebrook Stream discharge to the harbour?

A new flapped outfall structure, in the Western Embankment, will allow the Furzebrook Stream to flow into the harbour at low tide and will close to prevent the high tide from flowing back in. Fish friendly flap valves will allow better passage of fish and eels through the structure.

The structure will have three flapped outfalls, each 900mm diameter. One outfall will be set at the current bed level of the stream, to take normal flows, and two outfalls will be set above to take higher flows when needed. Keeping normal flows in one outfall helps to keep the channel clear of debris.

The Environment Agency's field team will carry out regular inspection and maintenance of the structure.



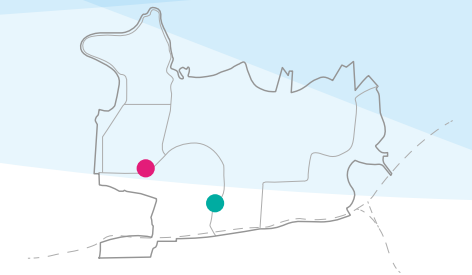
How will visitors be able to access the area?

There will be new permissive walking routes at the southern end of the site along the edge of the freshwater areas (no dogs, as these would disturb the birds).

Viewing points and viewing screens will enable the intertidal and lagoon areas to be seen.

A new off-road path from Sunnyside car park to the area will be provided to improve safe access.

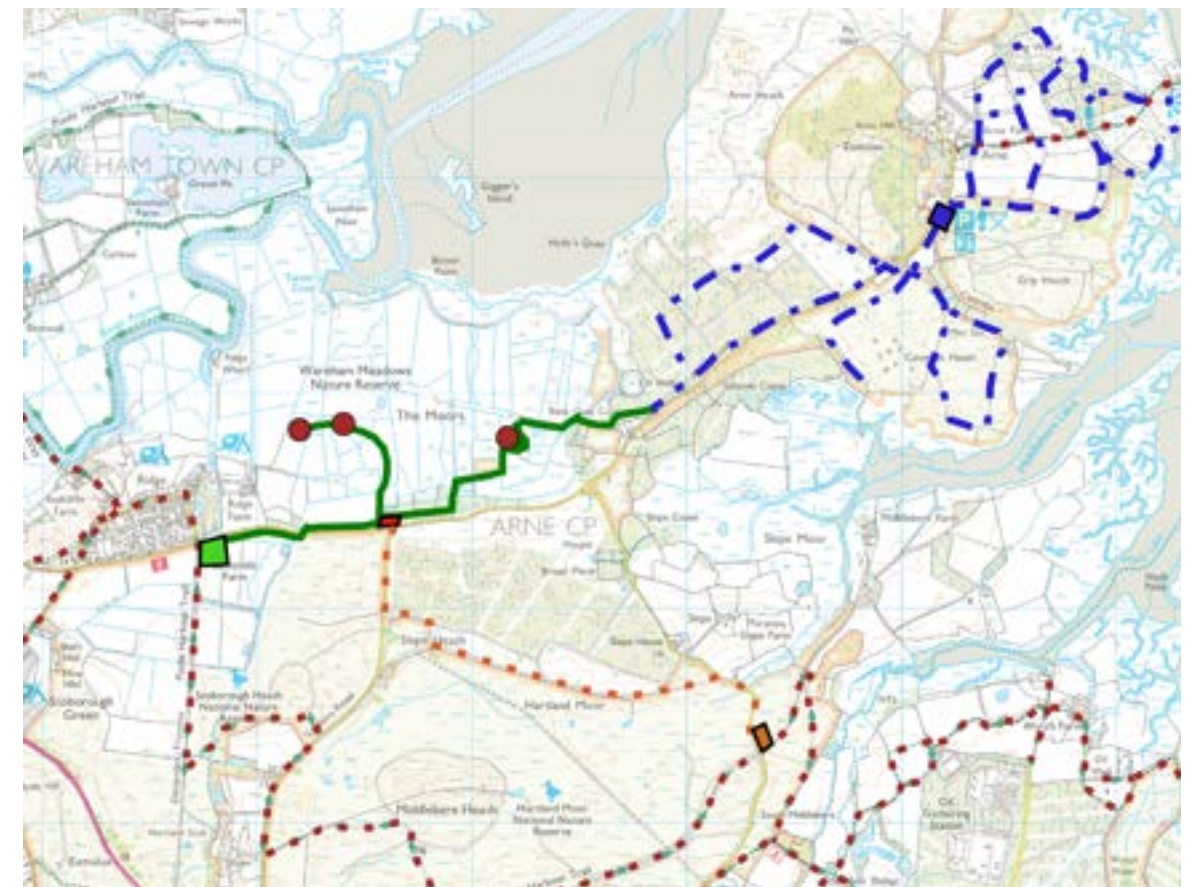
The new paths will link to existing local walking routes and give a wide choice of available walks (see green path on map).



View of new saline lagoon.



View of Western Embankment and freshwater area.



Map showing how the new permissive access (green line) connects with existing walking routes.

Access to Nature

How The Moors at Arne fits into access to nature across the wider Purbeck area.



What are we doing to care for habitats and species?

The Moors at Arne are covered by several environmental designations and are home to many different species of plants and animals. Our ecological surveys have helped us to design a mitigation strategy that covers all protected species on site and, where possible, to retain as many of the existing features as possible.

We're creating:

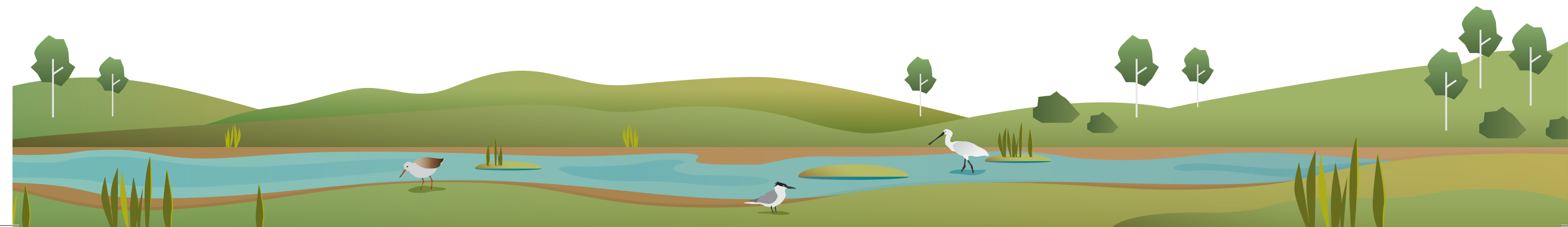
- ▶ Intertidal saltmarsh, a rare and priority habitat that will provide a key source of food for birds.
- ▶ Two saline lagoon habitats suitable for a variety of species, in particular wetland birds.
- ▶ Islands within the lagoons to provide high tide roosting sites.
- ▶ New ditch and freshwater habitat to rehome water voles.
- ▶ Freshwater features such as ditches and new pools.
- ▶ New tidal protection to some landward habitats such as the nationally rare Viper's grass and the wetland habitats within the Dorset Heaths and Studland Dunes SAC.

We're keeping and enhancing:

- ▶ Habitats landward of the main embankments, and the high ground near the harbour that is home to sand lizards.
- ▶ Ditches and other wetland habitat behind the Western Embankment, for a variety of species.
- ▶ Existing unique ditches whose water flows and pathways will be retained to protect rare aquatic species.



Sand Lizard at Arne Moors.



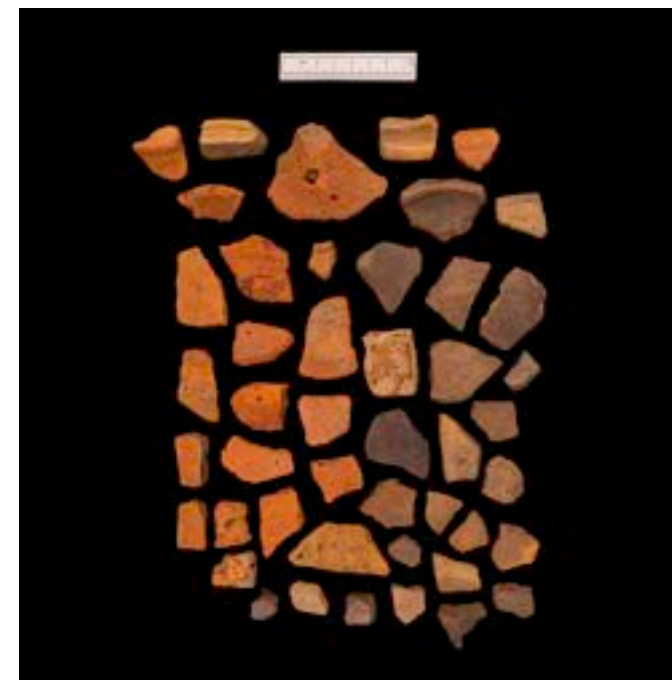
How are we respecting history?

With the advice of Historic England, we're exploring the history of the Moors at Arne to help us understand what changes have occurred to the people and the landscape since the last Ice Age.

Using boreholes and trial trenches, we've recorded soil sequences, ancient pollen and plants that have been present over time and dated them using radiocarbon dating and pollen analysis. The differences discovered in the soil types have provided evidence of how the Moors have changed. For example, from dry islands within a multi-channel high energy river system, to calmer wetlands formed when the sea levels rose after the last Ice Age.

We've also discovered human artefacts, such as Iron Age and Roman pottery, which suggests that people were using coastal resources to extract salt and create pottery during these periods. 'Over the past year we have identified additional areas of archaeological interest, which we will continue to examine ahead of construction'.

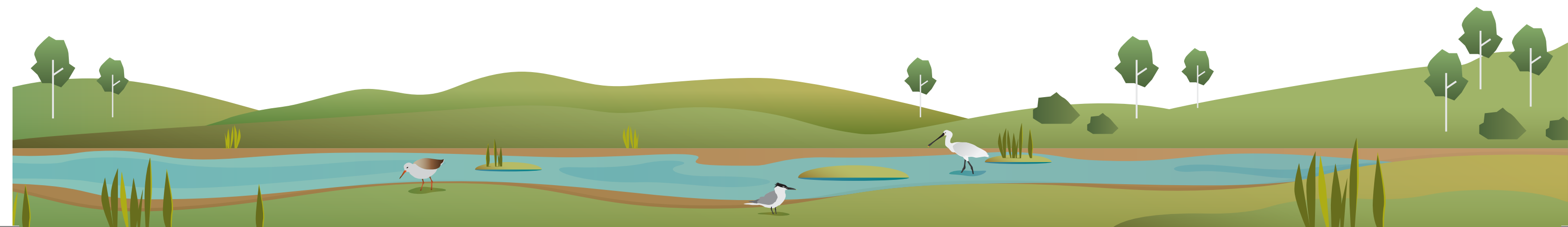
Our work on this project will add to the existing historical knowledge of the area gained from nearby sites such as Bestwall Quarry. This provides a better record of its human occupation and historical changes in climate.



Some Roman pottery found in one of our trenches.



An excavator digging a trench with an archaeologist looking for artefacts and soils information.



What did we find?

From Iron Age pottery production to its role in modern day military history, the archaeological findings across the site provide a fascinating insight into human interactions with coastal-wetland landscapes.

- A** Iron Age and Romano-British pottery and briquetage
- B** Evidence of peat cutting
- C** Iron Age ring gullies and ditches
- D** Post-Medieval ditches
- E** World War II Bomb craters
- F** Early Mesolithic peat deposits
- G** Possible Medieval flood bank



Excavation of Iron Age ring gullies



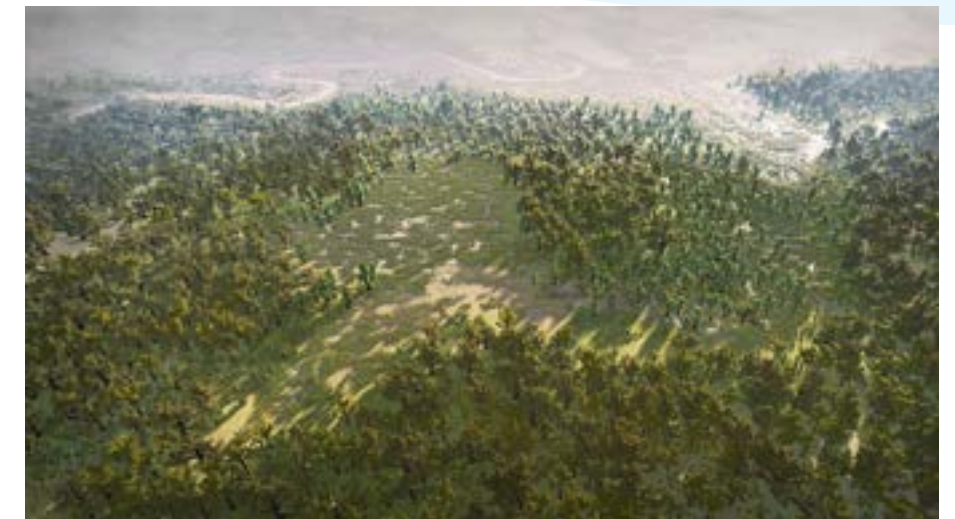
How has the landscape changed over time?

We have used boreholes and geoarchaeological investigations to provide us with a long term picture of this dynamic coastal landscape in response to global, regional and local changes in climate, environment and sea-levels.

The reconstructions provided by Wessex Archaeology illustrate the effect of past climate change on the landscape over the past 10,000 years.



Early Mesolithic: 9,700 – 6500 BC



Neolithic and Bronze Age: 3000 – 1000 BC



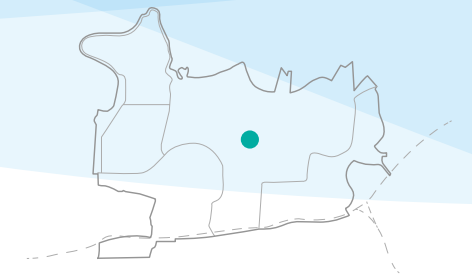
Late Bronze Age and Iron Age: 1000 BC – 50 AD



Present day

How intertidal habitats will be created

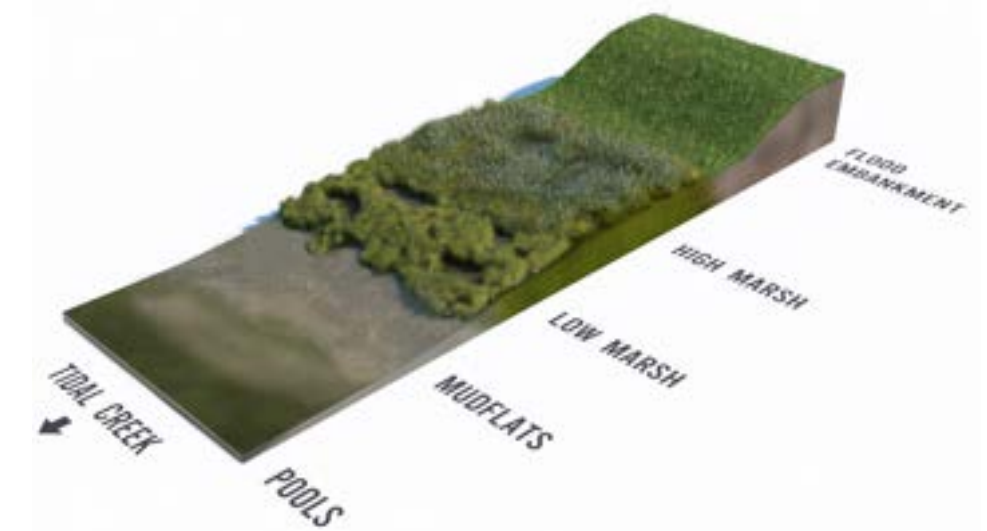
The creation of the intertidal habitats will involve the construction of new tidal embankments further inland than the existing ones. Once in place, the land in front of the new embankments will be open to the action of the tides, which will create the new intertidal habitats. The habitats will take several years to establish and will continue to evolve over time.



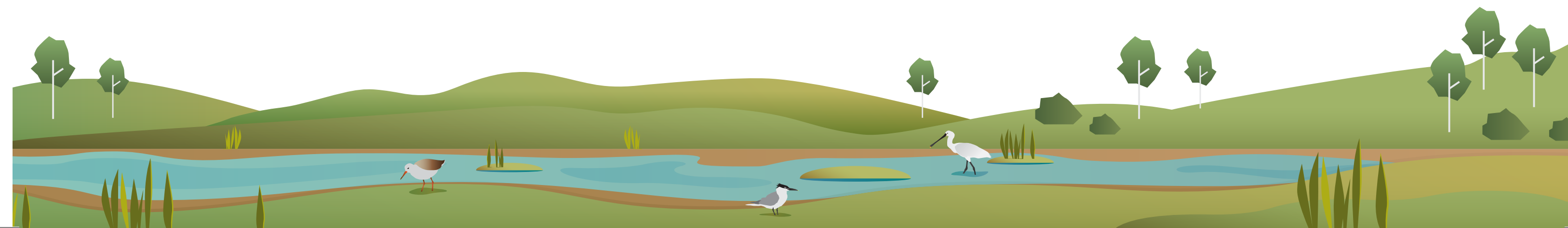
Intertidal habitat at RSPB Lytchett Fields.



Intertidal habitat at RSPB Lytchett Fields.



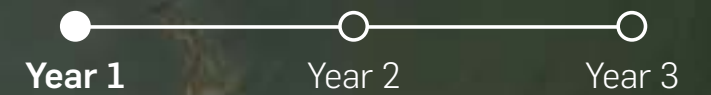
Typical intertidal habitat types.



Construction methodology

Once permission is granted and construction begins, we'll be working with contractors who are members of the Considerate Constructors Scheme and will ensure all works are carried out in a way that's sensitive to the landscape and the wildlife that live there. In the first year of construction, we'll be:

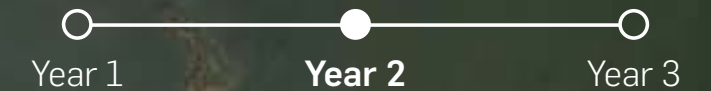
- A** Building the onsite compounds (main compound A1 and satellite compounds A2 and A3, accessed through the site)
- B** Constructing the Furzebrook outfall structure
- C** Constructing the freshwater area
- D** Transplant important plants
- E** Constructing the site access route
- F** Creating habitats, including relocating important aquatic features and reptile logs
- G** Installing two culverts in existing embankment to facilitate drainage during construction
- H** Removing dams, water retaining structures, and other obstructions to improve and manage site drainage
- I** Refurbishing Bower Point outfall structure for temporary surface water management
- J** Completing our heritage investigations



Construction methodology

In the second year of construction, we'll be carrying out ecological mitigation works to manage the construction footprint from the year 1 works. We'll also be constructing:

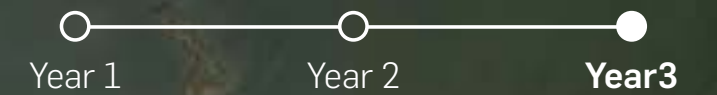
- K** The shallow saline lagoons, including the lagoon structures, islands and embankments
- L** The Western and Eastern Embankments
- M** The Causeway outfall
- N** The Eastern Embankment outfalls
- O** The toe ditch on the dry side of the Western Embankment
- P** Footpaths
- Q** Access routes



Construction methodology

In the third year of construction, we'll be completing the construction works and carrying out the finishing works including:

- R** Constructing an impermeable core in all embankments
- S** Creating a cattle crossing areas and infill ditches in intertidal areas
- T** Installing a fencing and gates
- U** Landscaping
- V** Finalising footpaths and disabled car parking
- W** Creating breaches, allowing tidal flows into the site
- X** Constructing the new footpath from Sunnyside Car Park



Frequent topics of concern answered by our FAQs

Flood risk – no adverse impact

Detailed studies have been carried out into the flood risk impact on:

- ▶ Ridge Community
- ▶ Ridge Farm
- ▶ Ridge Wharf
- ▶ Bank Gate Cottages

Traffic after construction – no planned increase:

- ▶ There will be no additional car parking (except two disabled spaces)
- ▶ Arne's main reserve is signposted for visitors

River Frome changes –

We will share data from ongoing and post-scheme monitoring with interested parties'.

Construction traffic impact – minimum impact possible:

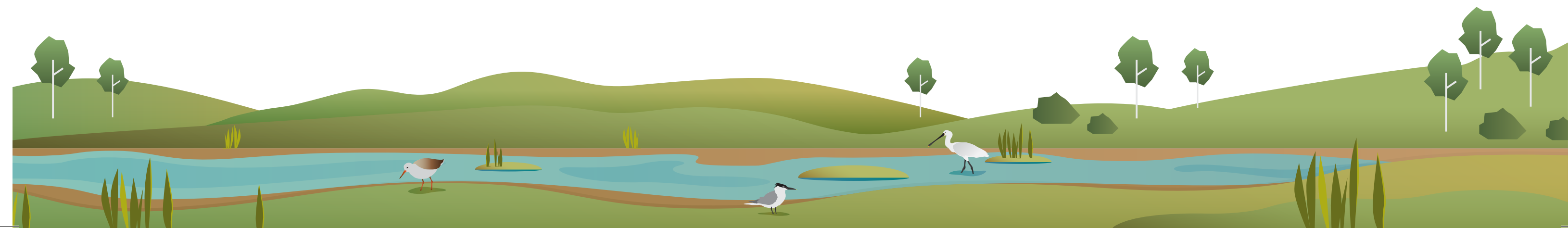
- ▶ Earthworks design has been chosen to use site-won material, to avoid importing material, giving an approximate 80% reduction in traffic
- ▶ Construction vehicles will be marshalled and escorted locally
- ▶ School pickup times will be avoided
- ▶ Wareham bypass will be used

Biting insects

The project won't result in an increase of biting insects, the reasons being:

- ▶ The new habitats created by the project will be unsuitable for mosquitoes
- ▶ Only five of the 34 species of UK mosquitoes can use brackish habitats
- ▶ No mosquito species can breed in a fully tidal environment
- ▶ Mosquitoes cannot breed in large, open bodies of water

There is a net reduction in potential habitat for mosquitoes, but they will continue to be present in the surrounding wetland habitats (as they are currently, and can fly long distances to feed).



The Moors at Arne project team

www.dorsetcoast.com/groups/the-moors-at-arne-coastal-change-project/

TheMoorsAtArne@environment-agency.gov.uk

