0'
215'

MODULAR UNITS TO ASSIST SEDIMENT ACCRETION

FORMER DREDGE CHANNEL NOW
RETURNED TO NATURAL PROCESSES

NEW DOCK FOR FERRY AND FISHING

REINFORCED BRIDGE

NEW MARINA USED AS A WORKING
AND PROCESSING HUB FOR
WATERMEN

BULKHEAD BROKEN APART TO CREATE
GRADUAL WATER ENTRY

AQUACULTURE

FORMER MARINA

EXISTING HOMES TO REMAIN UPLAND

HOME FOUNDATIONS TO
SUPPORT ELEVATED PATH

LOOKOUT POINT DIRECTS ATTENTION TO THE ROAD
THAT ONCE CONNECTED SAXIS TO THE WORLD

ASSUMPTIONS

People will continue to harvest oysters in this location

People will hold on to their land and livelihood as long as possible

Oysters will latch on to any hard infrastructure if the conditions are right and the spat is present

Sediment will collect on the shelf

Sediment is moving North due to wave action from North westerly winds

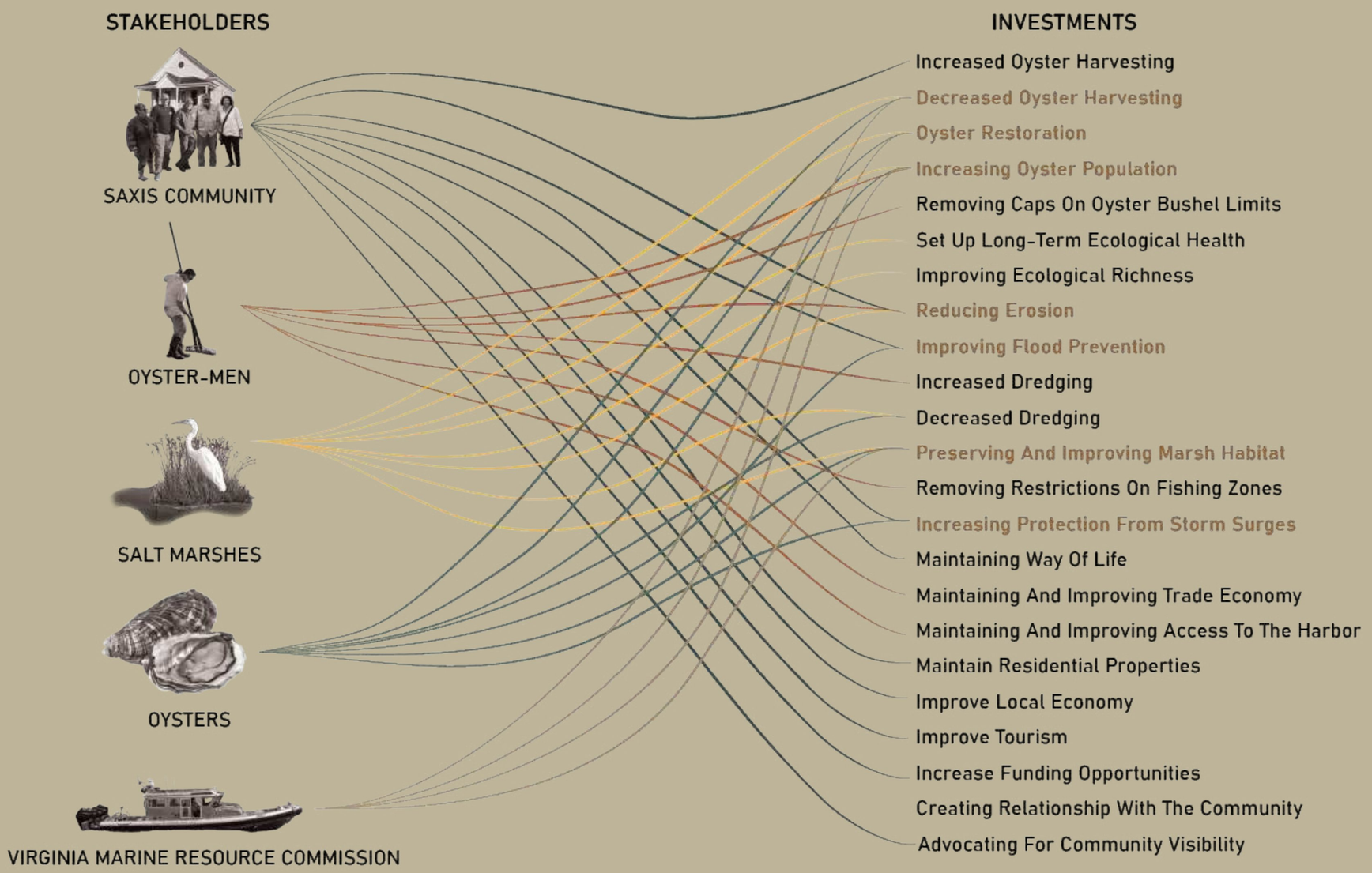
VALUES

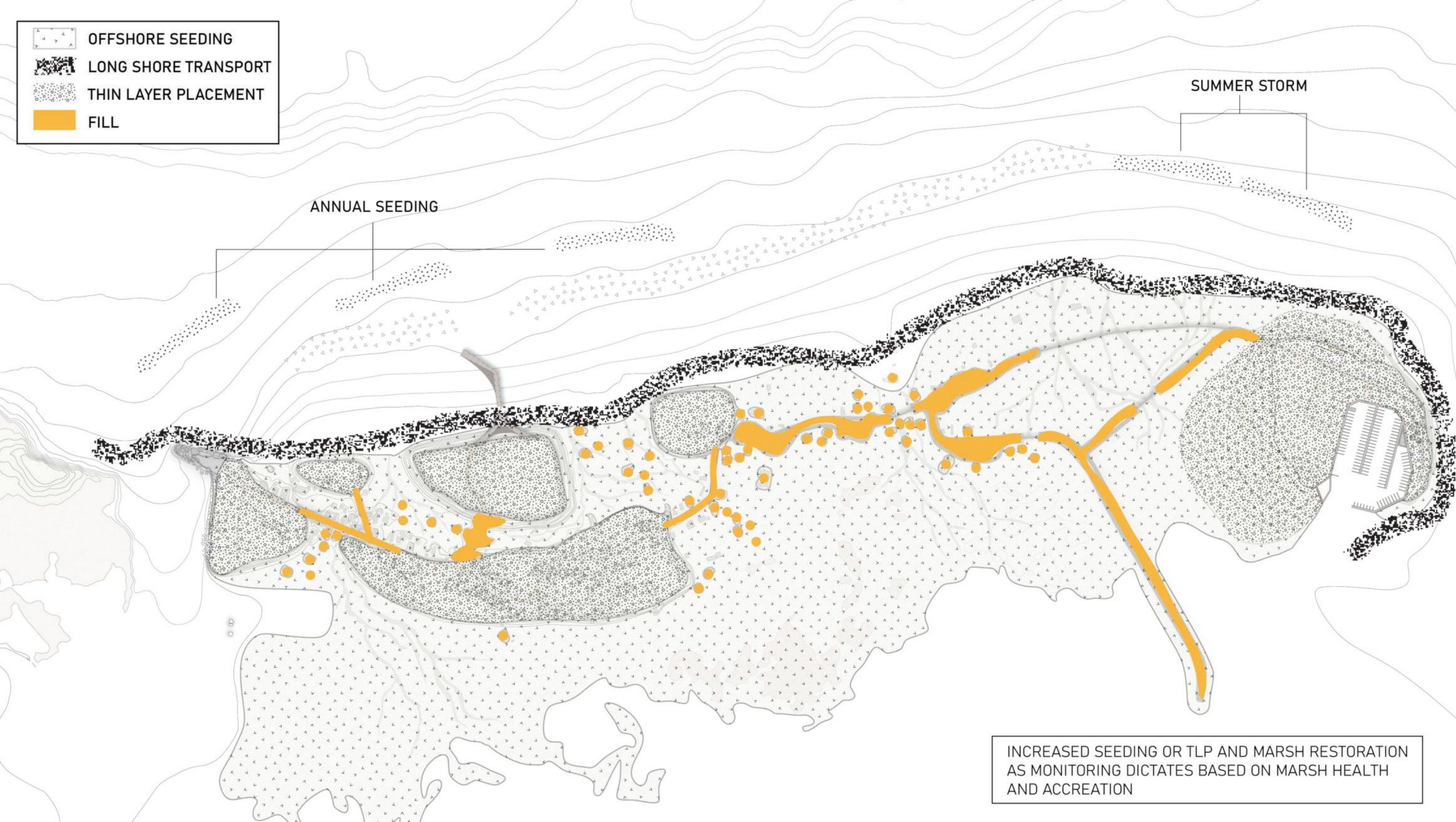
The current life of Saxis and unique culture and the people who live there

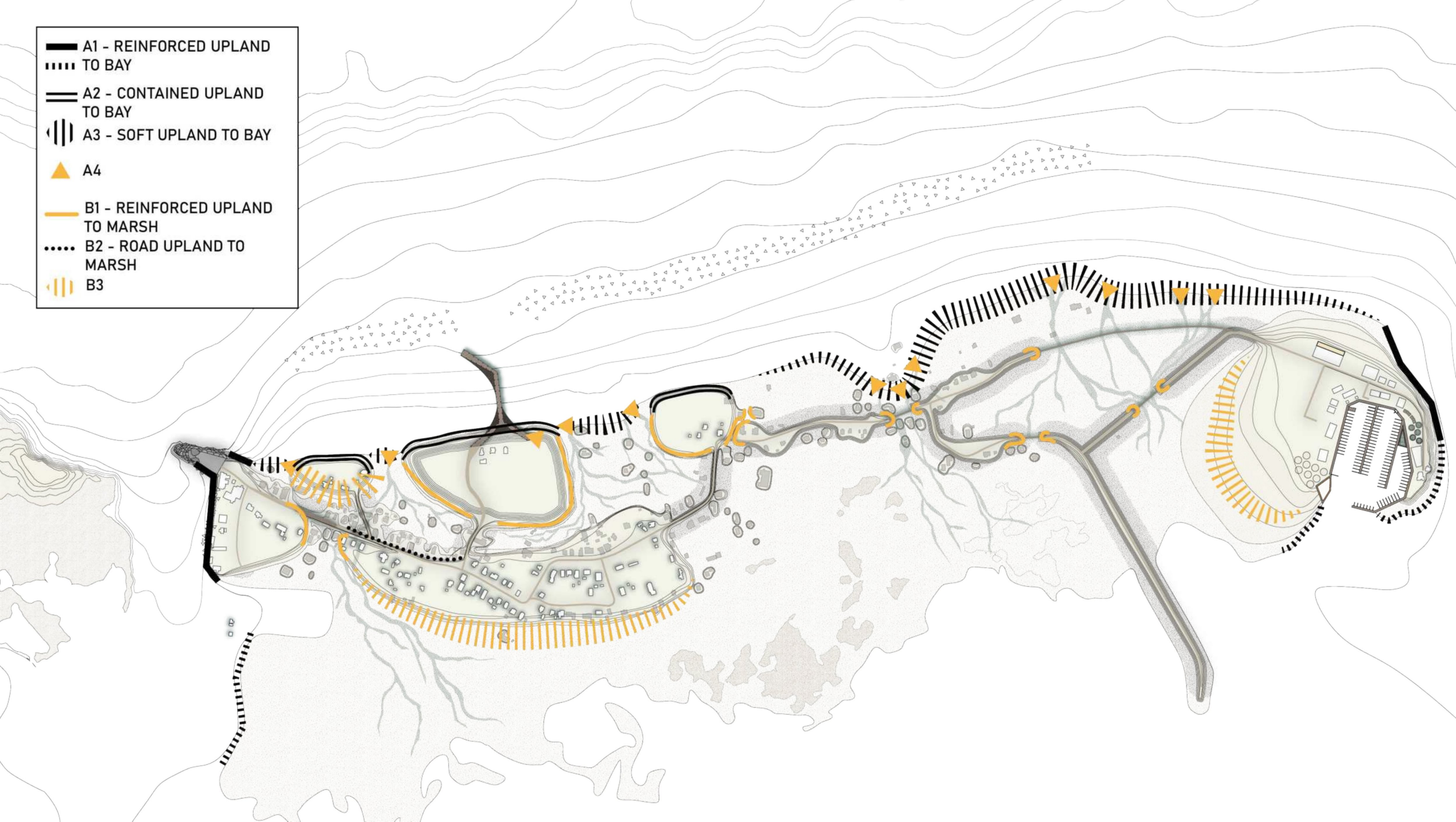
Increasing the adaptability of the current systems through dynamic intervention

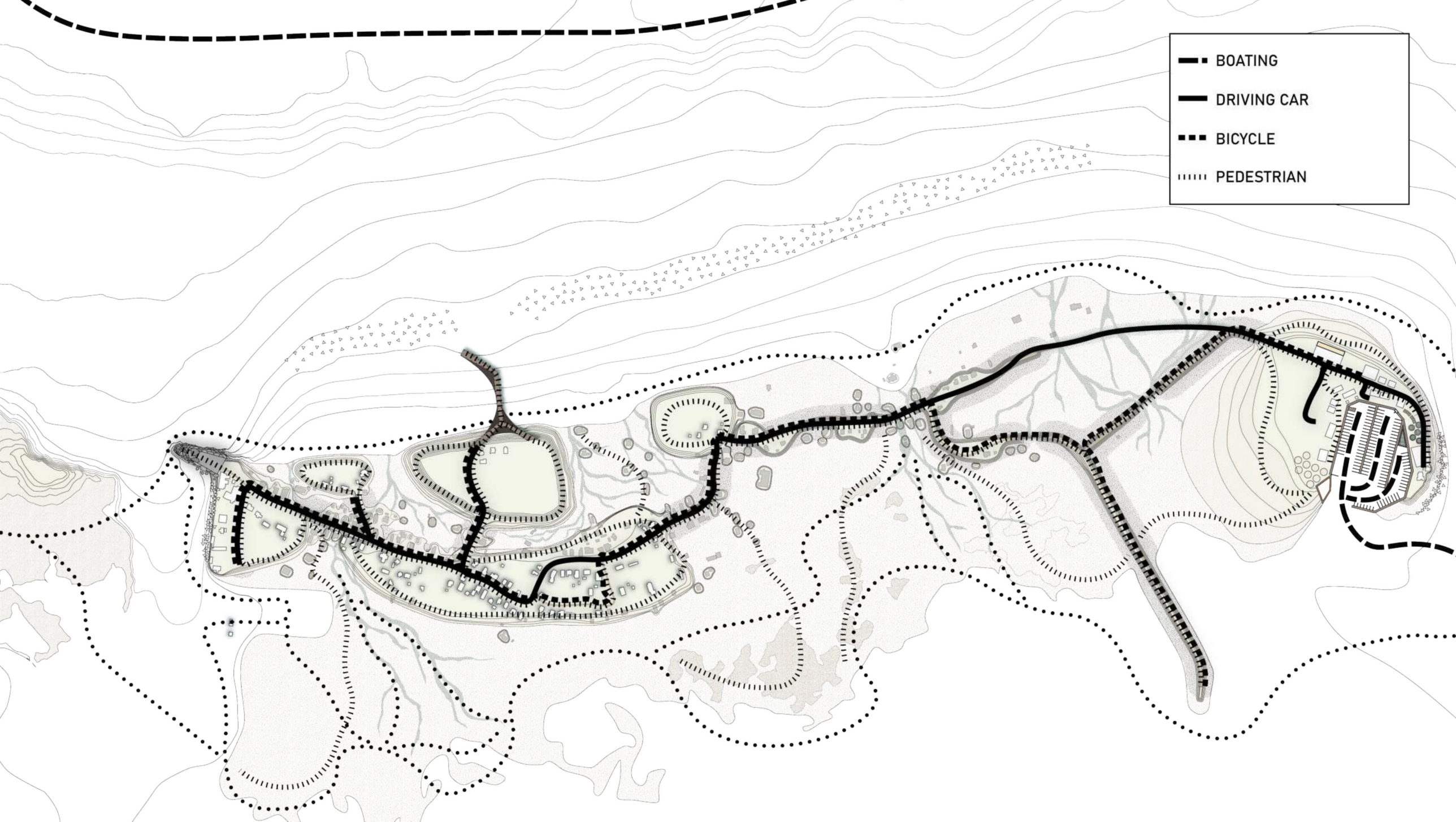
Ecological health of the Pocomoke Sound

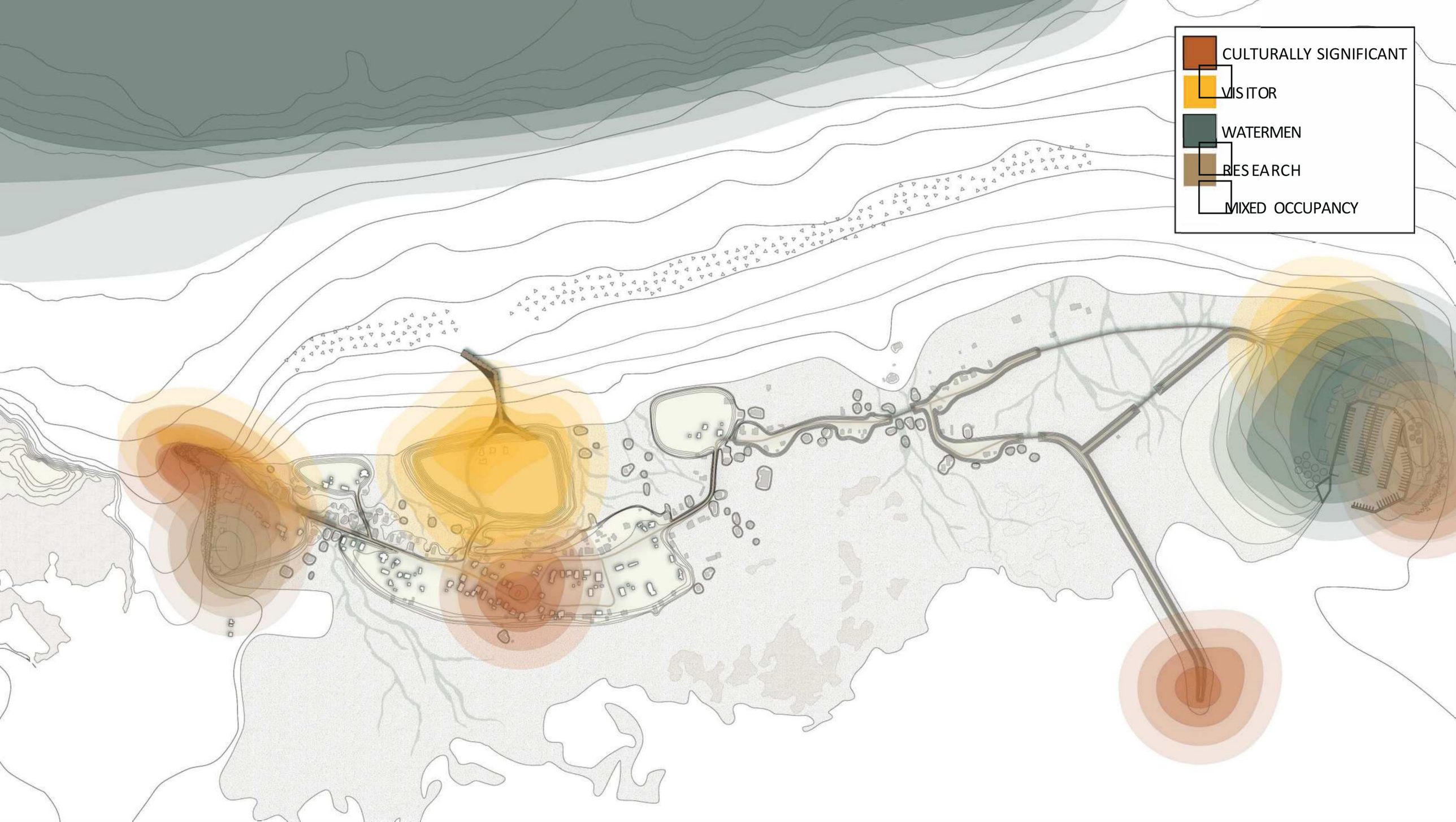
Oyster Habitat and future success both for oyster/ecological reasons and to support the people who depend on oysters

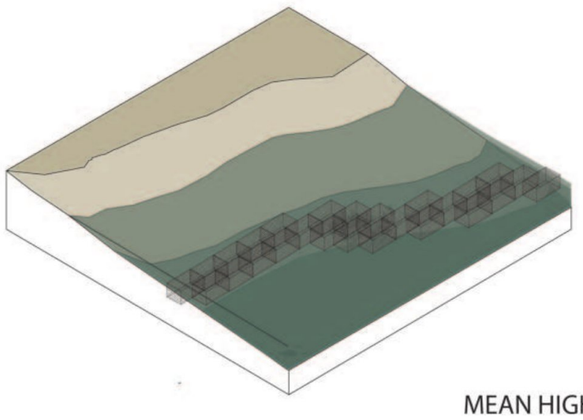



OFFSHORE SEEDING
LONG SHORE TRANSPORT
THIN LAYER PLACEMENT
FILL
SUMMER STORM
ANNUAL SEEDING
INCREASED SEEDING OR TLP AND MARSH RESTORATION AS MONITORING DICTATES BASED ON MARSH HEALTH AND ACCREATION

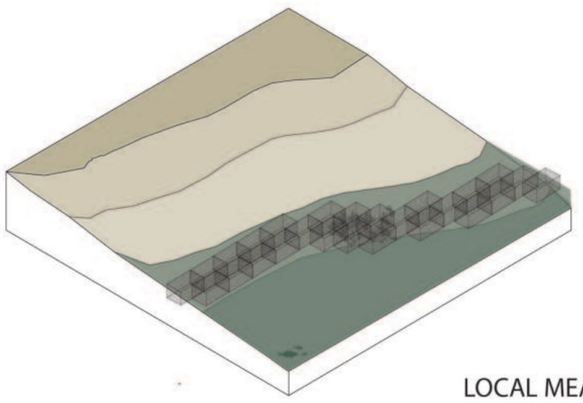

A1 - REINFORCED UPLAND TO BAY
A2 - CONTAINED UPLAND TO BAY
A3 - SOFT UPLAND TO BAY
A4
B1 - REINFORCED UPLAND TO MARSH
B2 - ROAD UPLAND TO MARSH
B3


BOATING
DRIVING CAR
BICYCLE
PEDESTRIAN

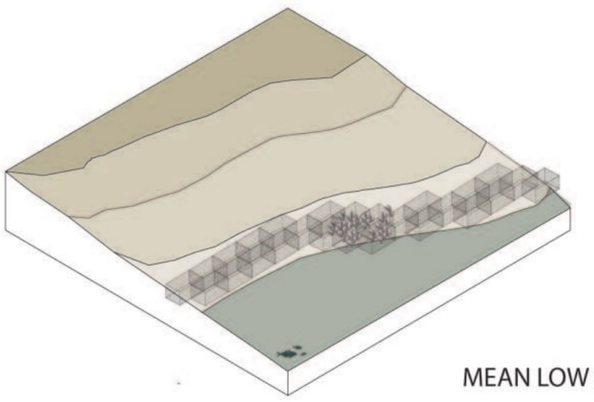

CULTURALLY SIGNIFICANT
VISITOR
WATERMEN
RESEARCH
MIXED OCCUPANCY



MEAN HIGH WATER



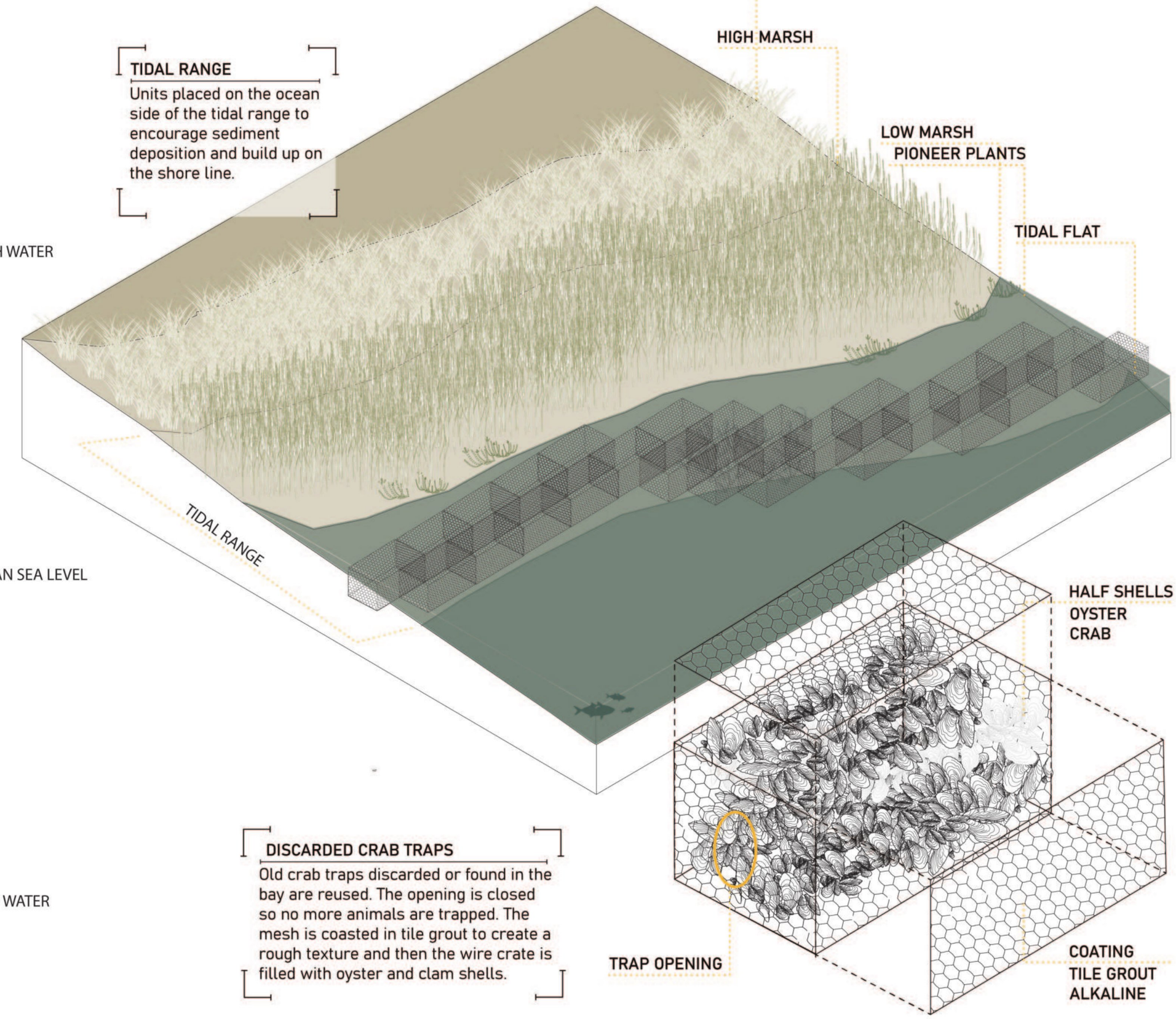
LOCAL MEAN SEA LEVEL



MEAN LOW WATER

TIDAL RANGE

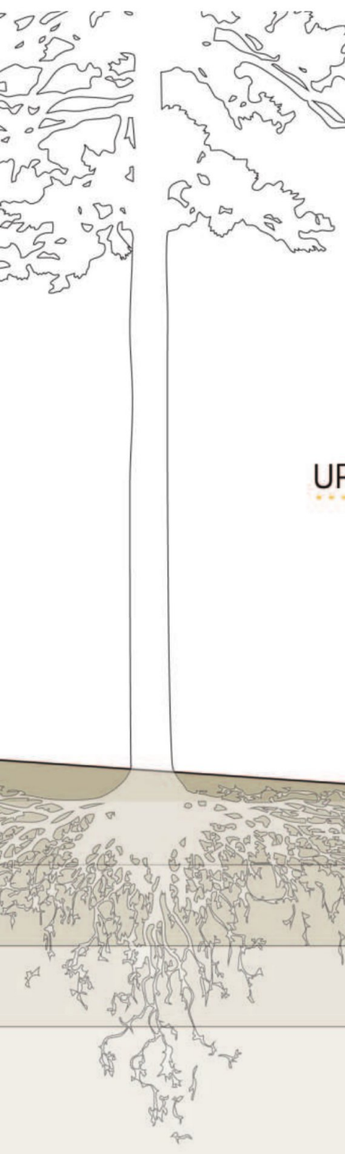
Units placed on the ocean side of the tidal range to encourage sediment deposition and build up on the shore line.



DISCARDED CRAB TRAPS

Old crab traps discarded or found in the bay are reused. The opening is closed so no more animals are trapped. The mesh is coasted in tile grout to create a rough texture and then the wire crate is filled with oyster and clam shells.

0' 4' 8' 16"



SAMPLE

TESTING SEDIMENT COMPOSITION AND MARSH HEALTH

COLLECT

AREA OF SEDIMENT ACCRETION

GROW

CRAB TRAP SILL CREATES SPACE FOR OYSTER REEF GROWTH

UPLAND

HIGH MARSH

LOW MARSH

PIONEER PLANTS

PIONEER PLANTS

LOW MARSH

TIDAL FLAT

MEAN HIGH WATER

LOCAL MEAN SEA LEVEL

MEAN LOW WATER

Sediment Deposition

Sediment Deposits on the shore side of the units raising the low marsh during high tide and the high marsh during High High water.

UPLAND

HIGH MARSH

LOW MARSH
PIONEER PLANTS

TIDAL FLAT

Soft Slope

Creates wash zone and time for sediment deposition and absorption

Irregular Units

Irregular placement of units creates diversity of wave sediment interaction to disperse wave energy with out creating harsh new sediment forms

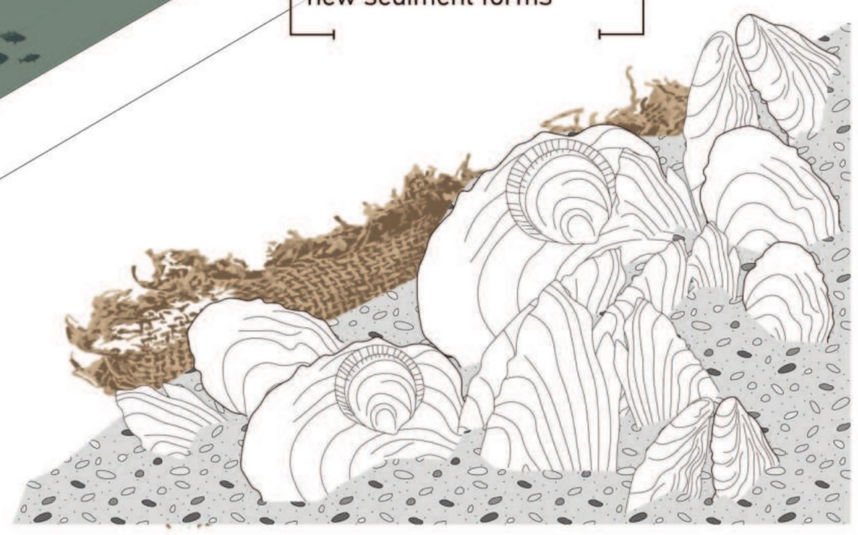


Irregular Units

Pilling of units creates nooks for tidal creatures to inhabit and the diversity of sizes will grow as the units break down over the next 3 - 10 years

Materiality Creates Habit

Units are made of shell fragments, cements, lime, and burlap to create a rough surface for spat to attach to and oysters to grow on.



0' 4' 8' 16"

SAMPLE

BOTHERING THE MARSH COLLECTING CORE SAMPLES TO TEST THE DEVELOP-MENT OF THE NEWLY PLACED SEDIMENT

COLLECT

AREA OF SEDIMENT ACCRETION

GROW

CEMENT UNITS CREATE A VARIETY OF SPACES AND A ROUGH SURFACE

UPLAND

HIGH MARSH

LOW MARSH
PIONEER PLANTS

PIONEER PLANTS

LOW MARSH

TIDAL FLAT

MEAN HIGH WATER

LOCAL MEAN SEA LEVEL

MEAN LOW WATER

UPLAND

HIGH MARSH

LOW MARSH

PIONEER PLANTS

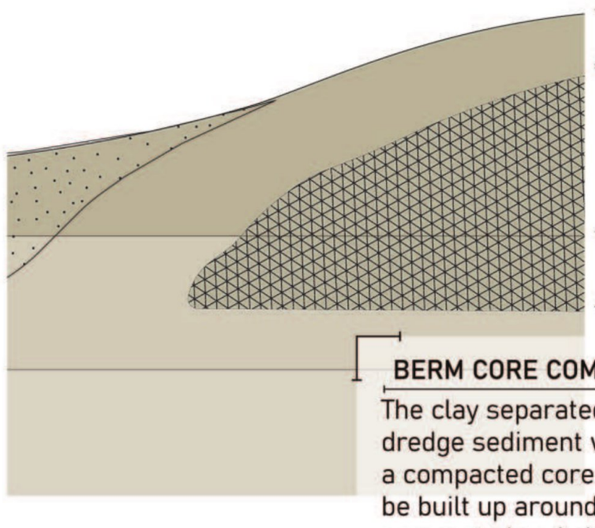
TIDAL FLAT

LIFTING THE UPLAND

Rate of fill behind the berm to build up upland condition to grade depends on existing conditions. Conditions primarily dominated by Phragmites australis soil can be added all at once after removing the vegetation in places with desired vegetation soil added 2 - 6 inches at a time.

SEDIMENT TRANSPORT

Sediment accretion created by offshore units reducing wave energy and by opening up the southern sediment source for long shore transport.



BERM CORE COMPOSITION

The clay separated from the processed dredge sediment will be used to create a compacted core. Sediment will then be built up around the core and compacted and planted for stability marsh grasses

0' 4' 8' 16"

SAMPLE

TESTING UPLAND SOIL COMPOSITION AND PLANT GROWTH AS SOIL IS EXPOSED TO OXYGEN AND AGES.

SAMPLE

ROUTINE CHECKS OF BERM INTEGRITY AND REPAIR AND REPLANTING AS NEEDED.

COLLECT

AREA OF SEDIMENT ACCRETION DUE TO OFFSHORE UNITS AND LONG SHORE SEDIMENT TRANSPORT

UPLAND

HIGH MARSH

LOW MARSH

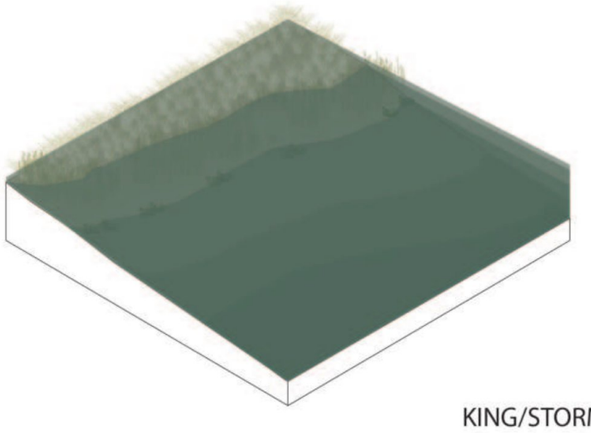
LOW MARSH

TIDAL FLAT

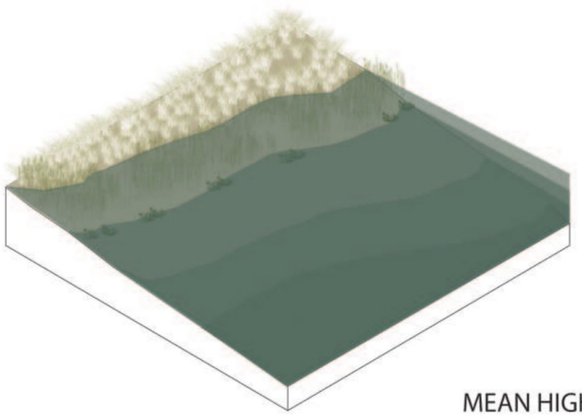
MEAN HIGH HIGH WATER

MEAN HIGH WATER

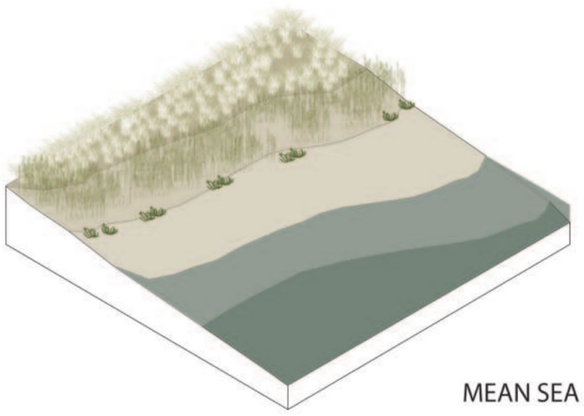
LOCAL MEAN SEA LEVEL



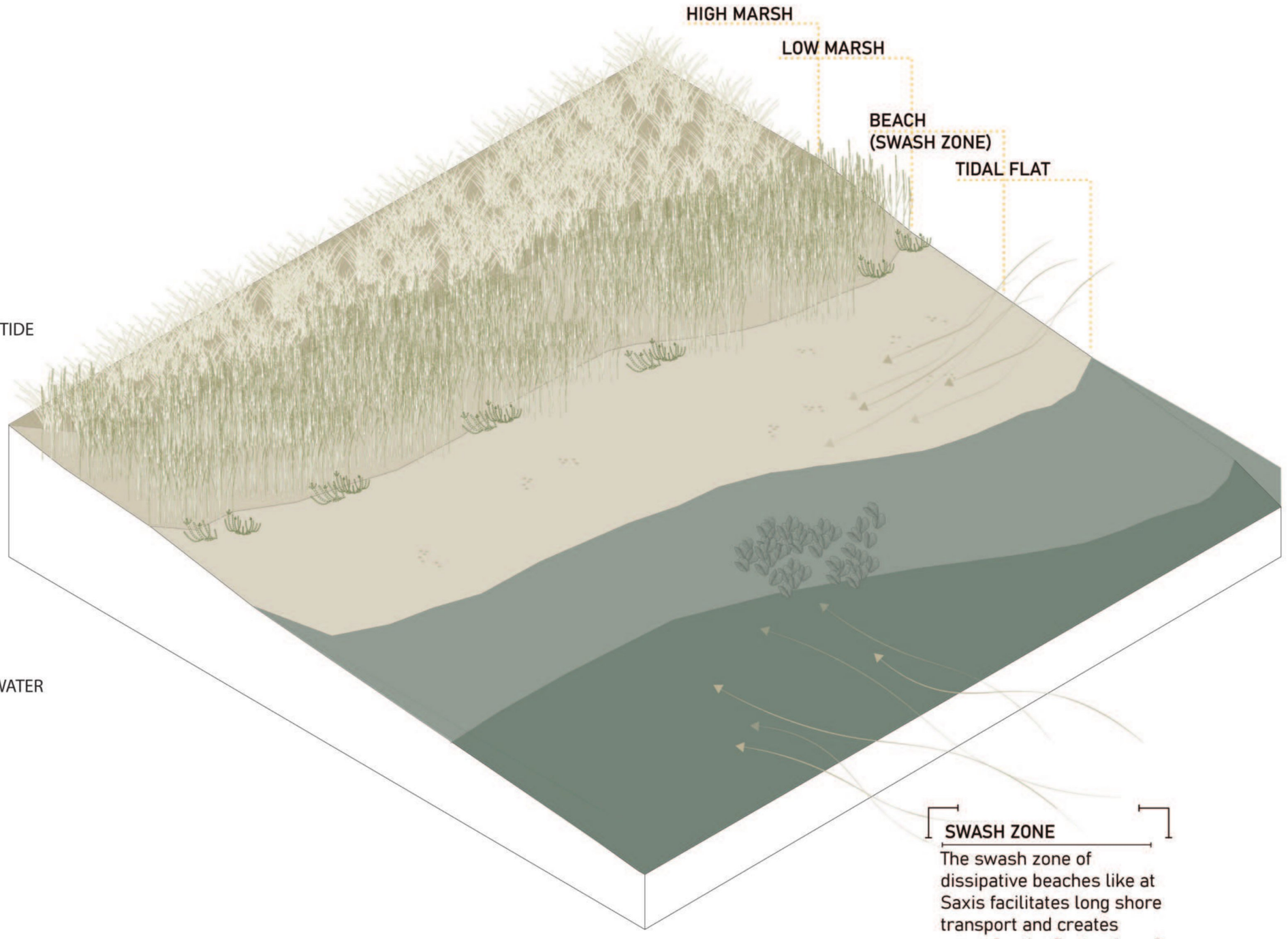
KING/STORM TIDE



MEAN HIGH WATER

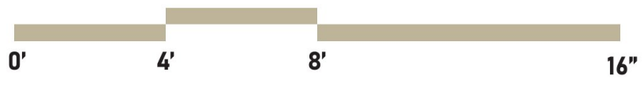


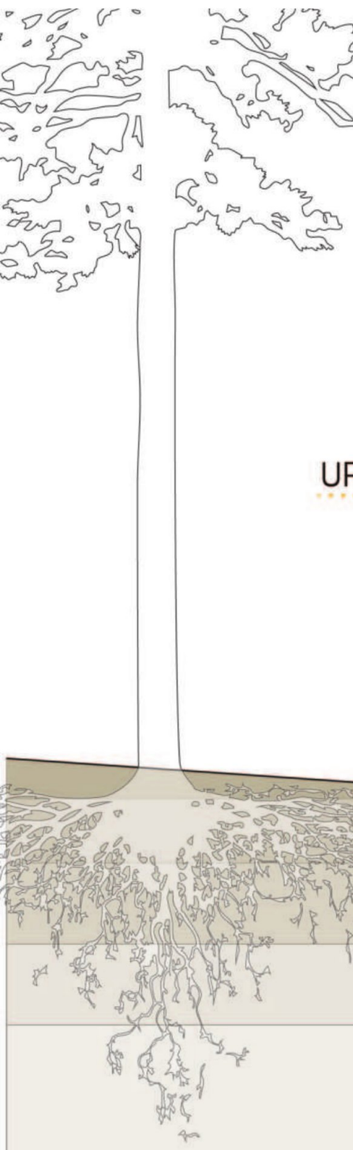
MEAN SEA LEVEL



SWASH ZONE

The swash zone of dissipative beaches like at Saxis facilitates long shore transport and creates space for the fluctuation of storm conditions.





SAMPLE

TESTING STABILITY OF SEDIMENT CYCLE

CYCLES

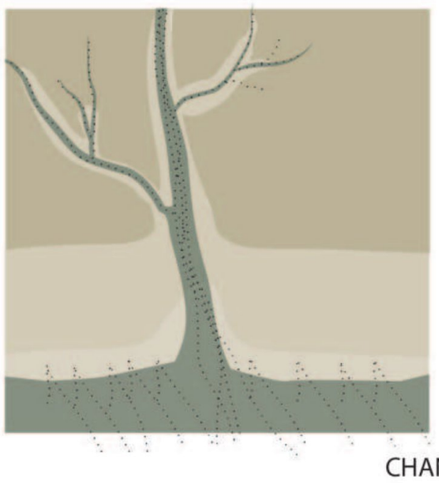
THE LONG SHORE TRANSPORT CREATES A DYNAMIC BEACH PROFILE THAT FLUCTUATES BETWEEN SUMMER AND WINTER



STORM EVENT



CHANNEL GROWTH



CHANNEL SHIFTS

SEDIMENT CHOREOGRAPHY 2100 2075 2025

HABITAT

Marsh channels created important access points for fauna and create pools. The moving water keeps pools from getting stagnant

HIGH MARSH

LOW MARSH

BEACH (SWASH ZONE)

TIDAL FLAT

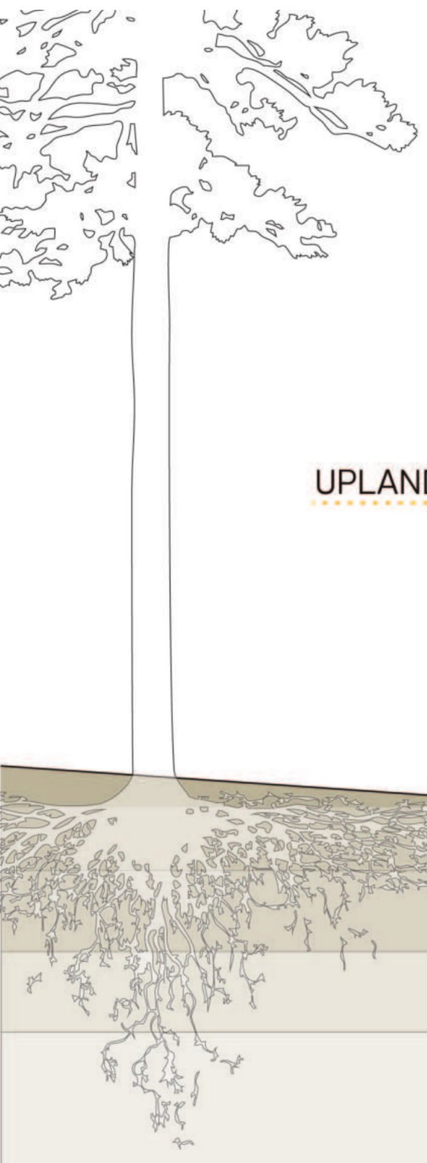
CREATING INLETS

The area voided of planting creates a natural place for sediment to erode to create a marsh channel that can deliver sediment deeper into the marsh.

0' 4' 8' 16"

MARSH CHANNEL

THE MARSH CHANNEL FORMS OVER TIME AS THE TIDE EBBS AND FLOWS PULLING OUT SEDIMENT



UPLAND

HIGH MARSH

LOW MARSH

PIONEER PLANTS

TIDAL FLAT

MEAN HIGH WATER

LOCAL MEAN SEA LEVEL

MEAN LOW WATER

UPLAND

HIGH MARSH

LOW MARSH

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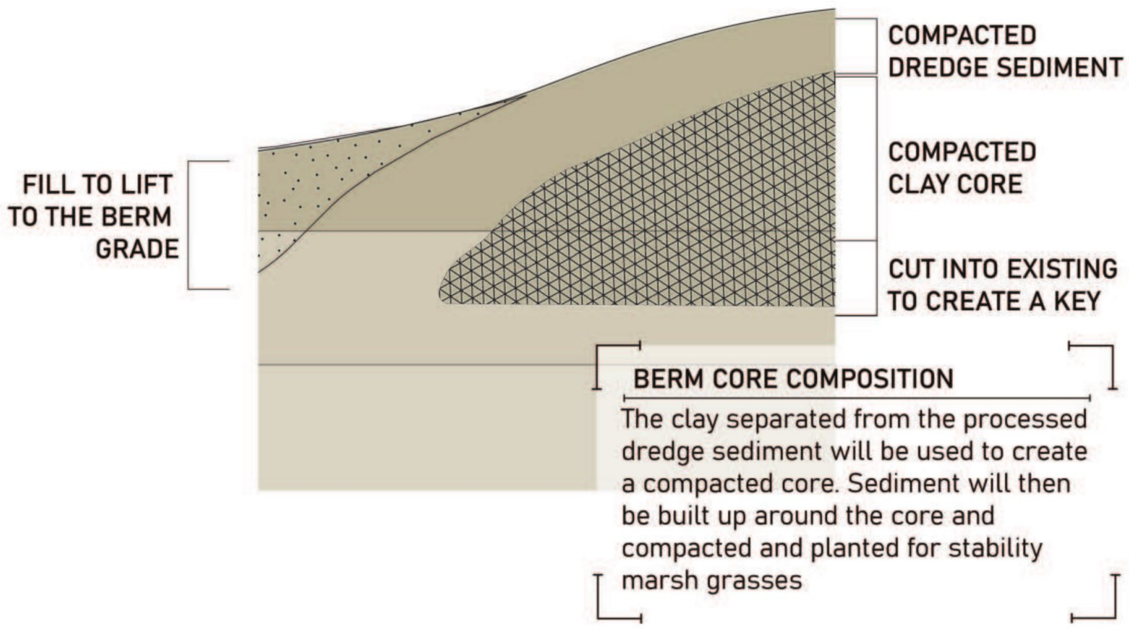

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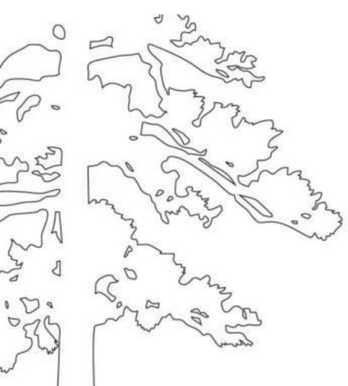
0' 4' 8' 16"





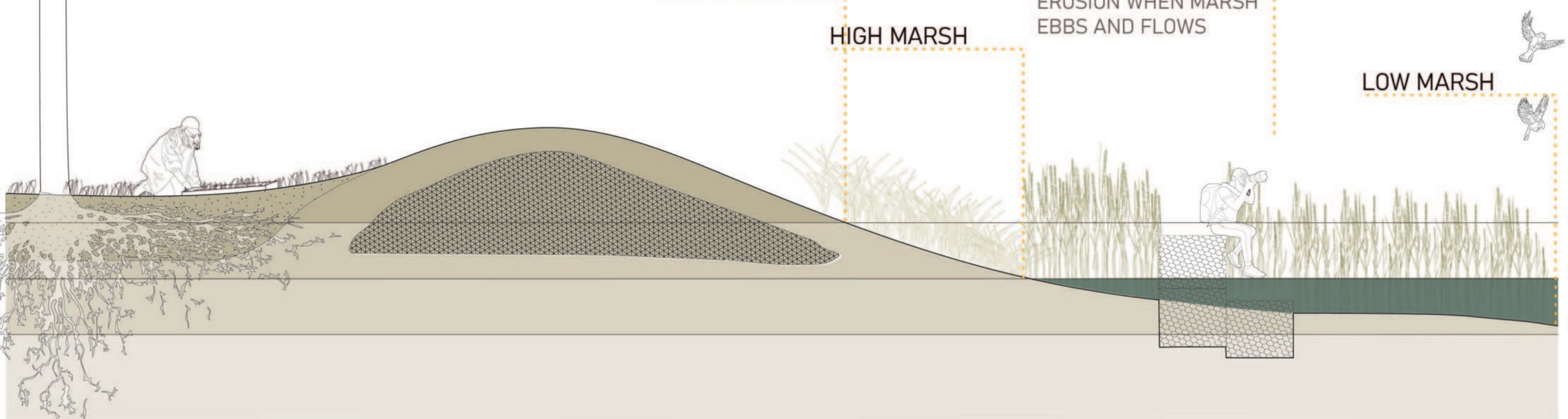
SUPPORT

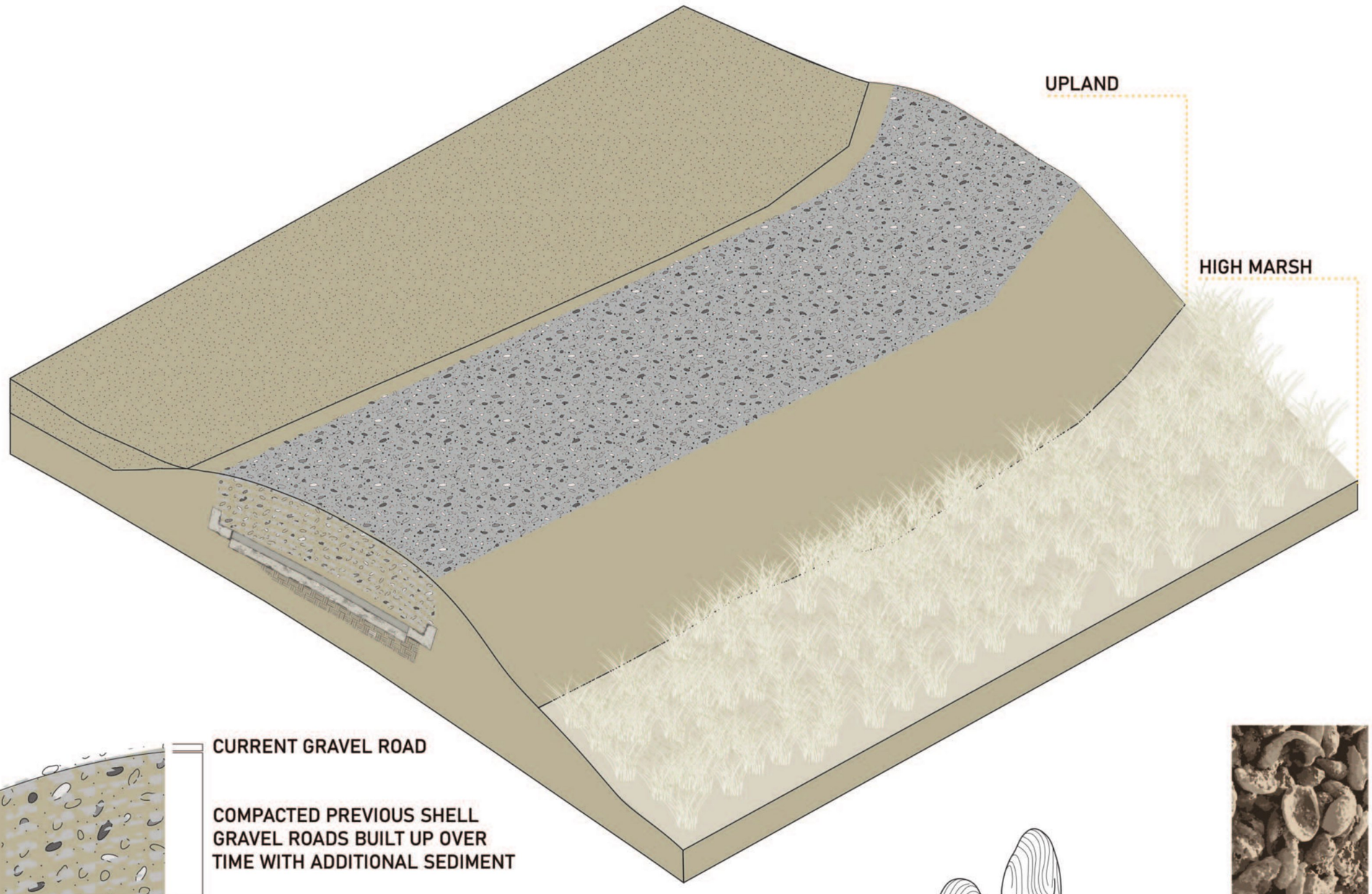
TRAPS CREATE ADDITIONAL STABILITY AND GAURD AGAINST EROSION WHEN MARSH EBBS AND FLOWS

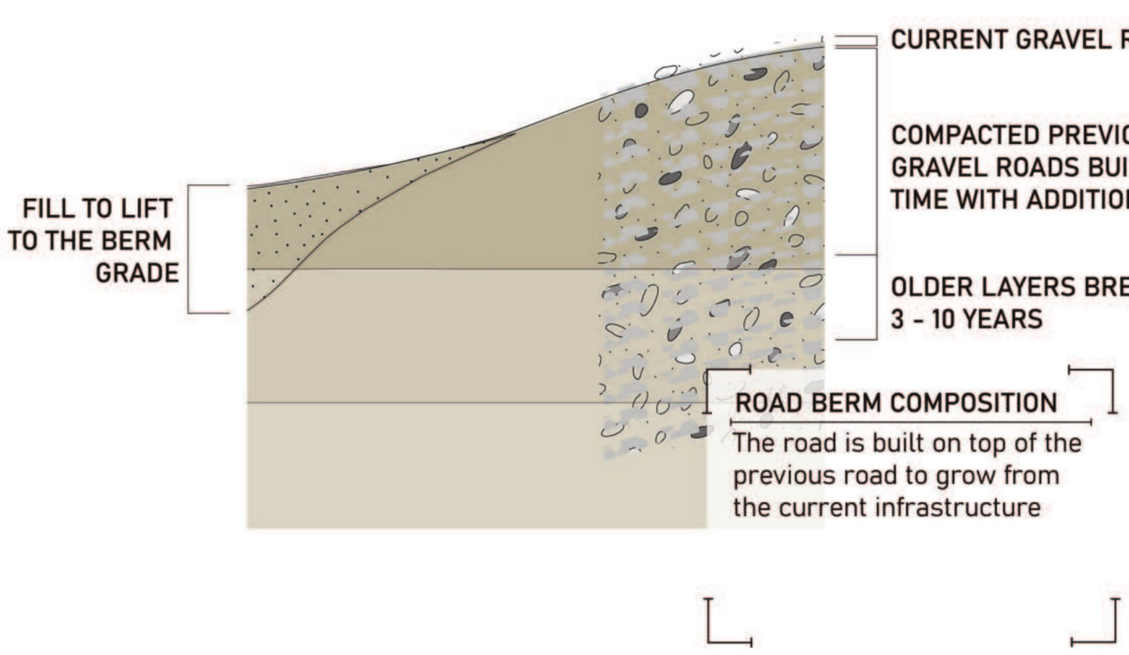
UPLAND

HIGH MARSH

LOW MARSH

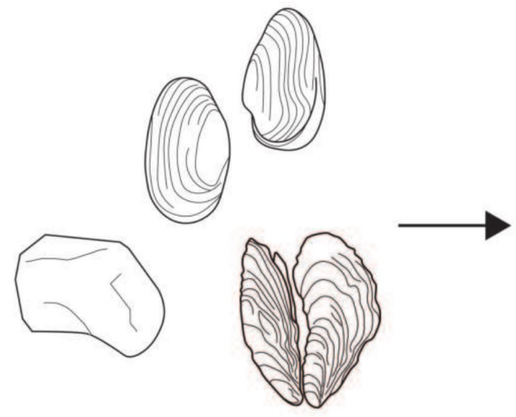


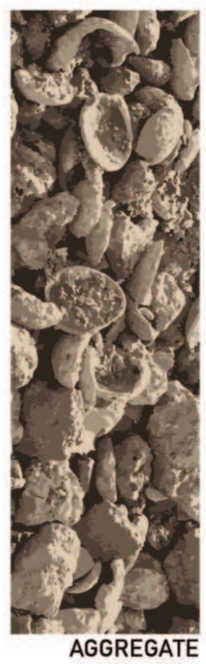


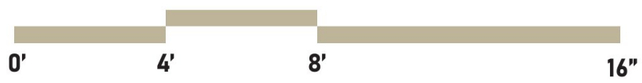


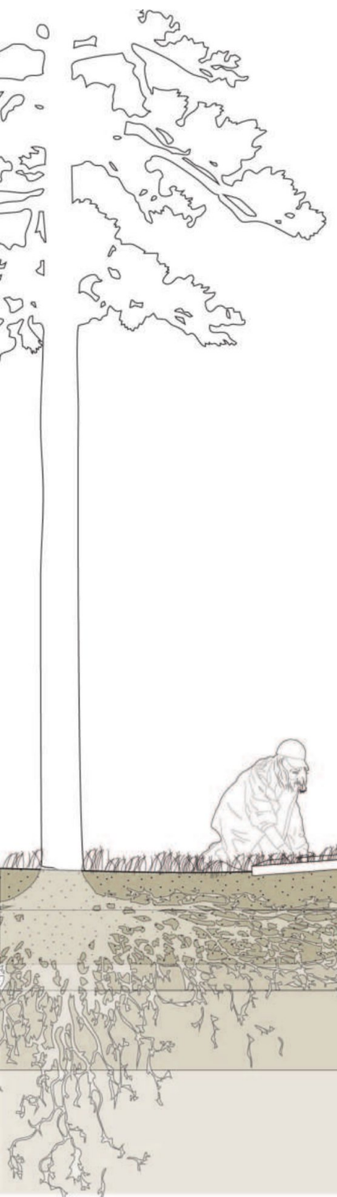
ROAD BERM COMPOSITION

The road is built on top of the previous road to grow from the current infrastructure





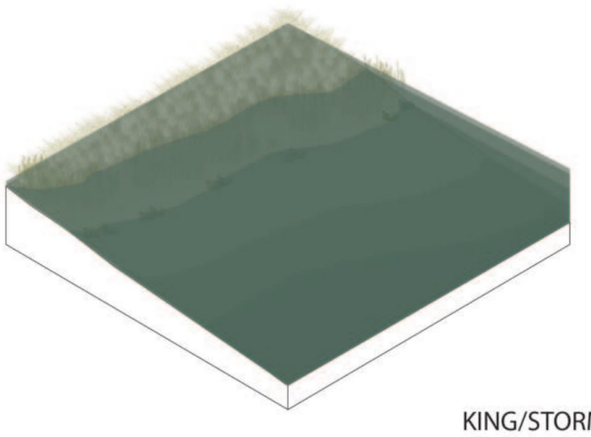




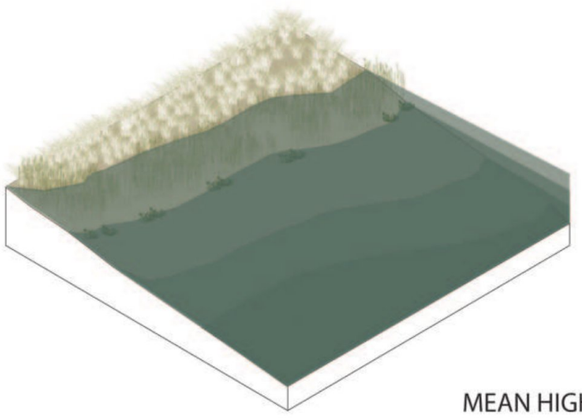
MAINTENANCE

ROUTINE MAINTENANCE WILL BE NEEDED TO REPAIR AND LAYER THE ROAD IN RESPONSE TO WEAR AND SLR

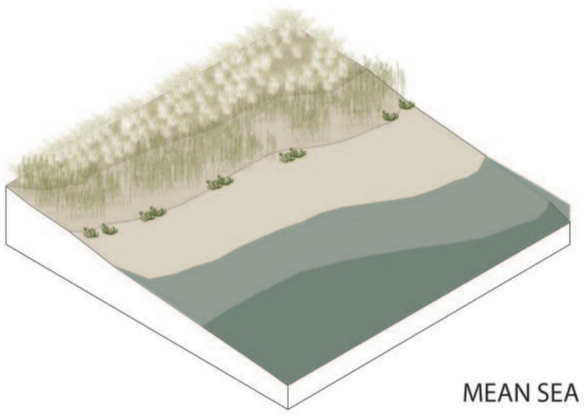




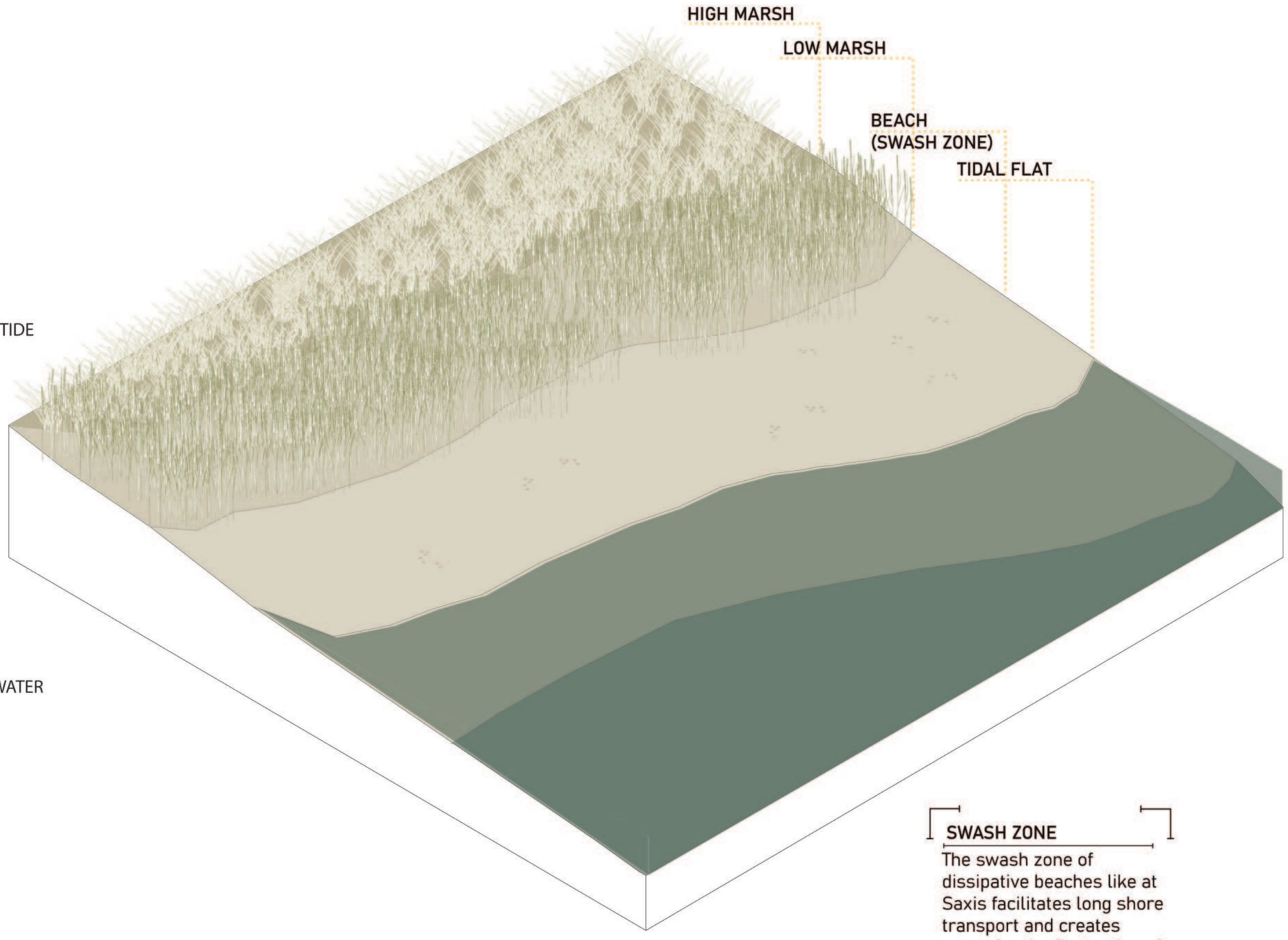
KING/STORM TIDE



MEAN HIGH WATER



MEAN SEA LEVEL



SWASH ZONE

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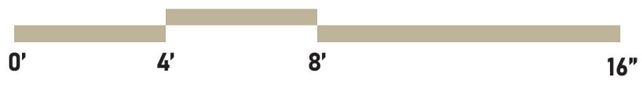
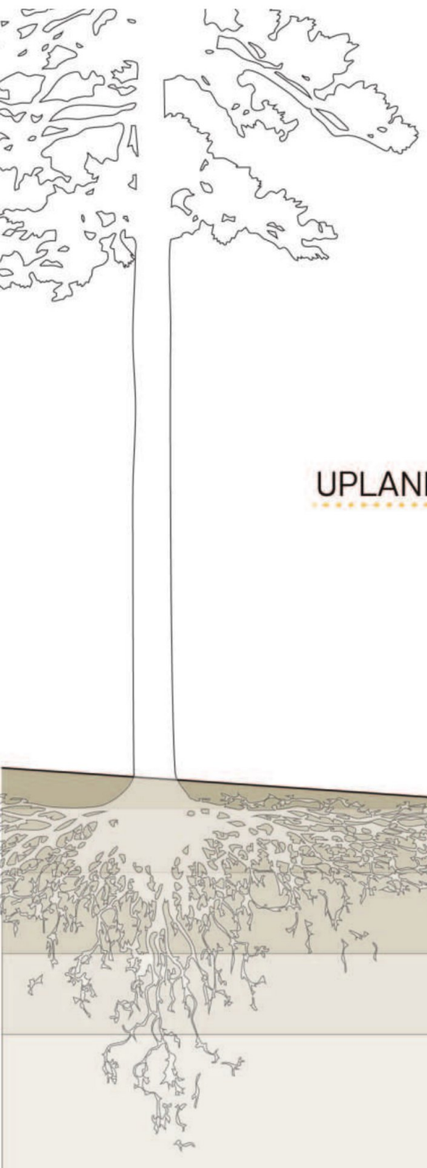




SAMPLE

TESTING STABILITY OF SEDIMENT CYCLE

CYCLES

THE LONG SHORE TRANSPORT CREATES A DYNAMIC BEACH PROFILE THAT FLUCTUATES BETWEEN SUMMER AND WINTER

UPLAND

HIGH MARSH

LOW MARSH

PIONEER PLANTS

TIDAL FLAT

WINTER PROFILE

SUMMER PROFILE

MEAN HIGH WATER

LOCAL MEAN SEA LEVEL

MEAN LOW WATER

UPLAND

HIGH MARSH

LOW MARSH

TIME FOR ACCRETION

The long shallow slope of the marsh creates space for the flow of the tide to slow, as it slows the sediment drops out of the water column and reduces erosion due to the steady decrease in wave energy as it moves both through the plants and up the slope.

STORM PROTECTION

During storm conditions with high levels of flooding the large buffer of marsh also helps reduce the risk of flooding on the upland acting as a high friction buffer and a sponge

GRASSES SLOW THE WATER

SLOW INCREMENTAL RISE OF THE WATER ALLOWS FOR INUNDATION

0’ 4’ 8’ 16”

COLLECT

SEDIMENT BROUGHT IN FROM THE BAY WITH THE TIDE COLLECTS SETTLES IN THE MARSH

UPLAND

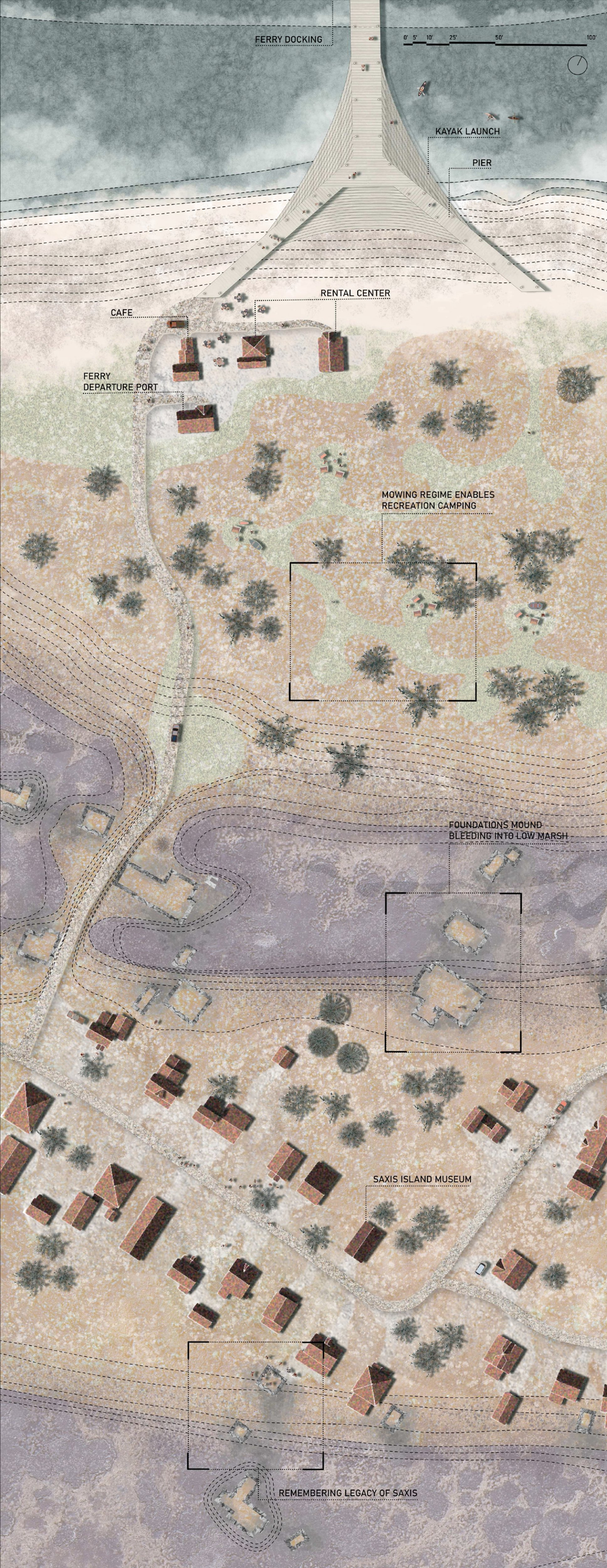
HIGH MARSH

LOW MARSH

MEAN HIGH HIGH WATER

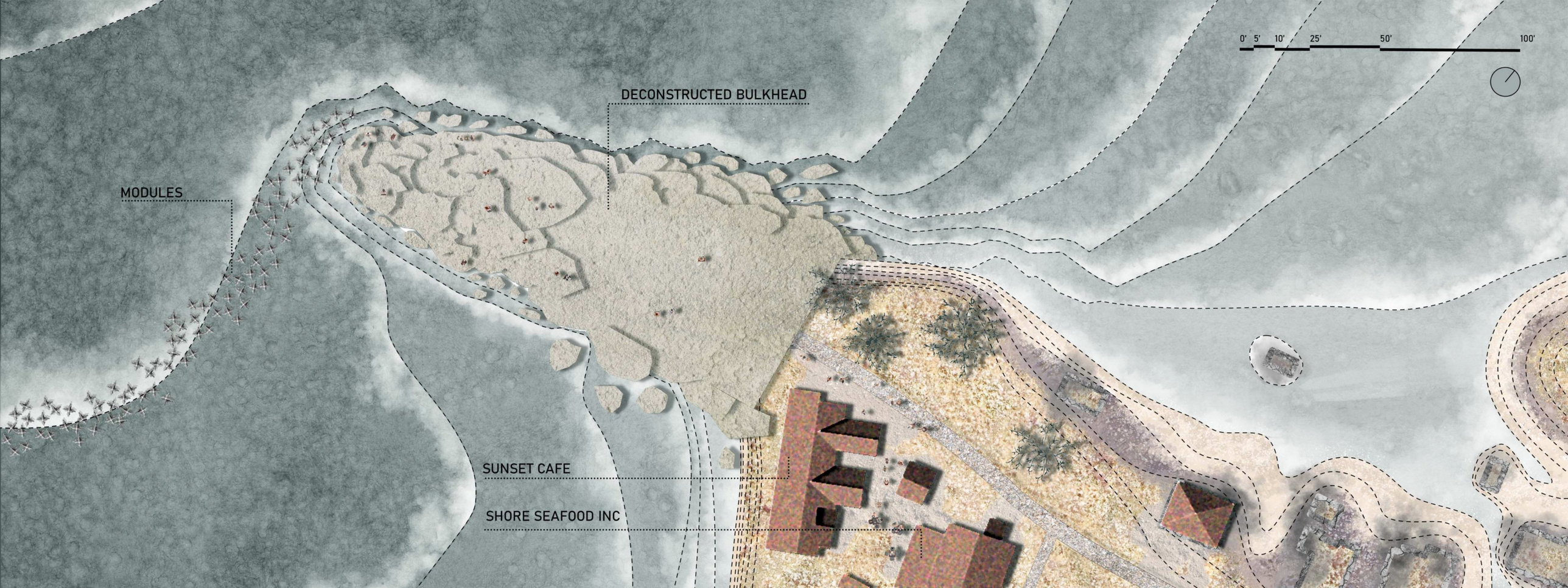
MEAN HIGH WATER

LOCAL MEAN SEA LEVEL


FERRY DOCKING
0' 5' 10' 25' 50' 100'
KAYAK LAUNCH
PIER
RENTAL CENTER
CAFE
FERRY
DEPARTURE PORT
MOWING REGIME ENABLES
RECREATION CAMPING
FOUNDATIONS MOUND
BLEEDING INTO LOW MARSH
SAXIS ISLAND MUSEUM
REMEMBERING LEGACY OF SAXIS


0’ 5’ 10’ 25’ 50’ 100’
COMMUNITY CENTER
WATERMAN FACILITIES
BATHROOMS
WATERMAN FACILITIES
WATERMAN FACILITIES
RESEARCH FACILITIES
KAYAK STORAGE
WATERMAN FACILITIES
WASH STATIONS
SPAT TANKS
WATERMAN FACILITIES
RESEARCH POOL
BOAT REPAIR
DREDGE PROCESSING
DREDGE PILES
MARINA OFFICE
DREDGE DUMP
FUELING ZONE
SMALL BOAT SLIPS

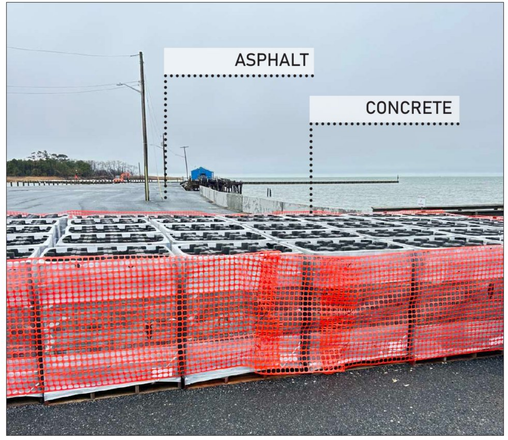

0' 5' 10' 25' 50' 100'
MOUNDED ROAD SYSTEM
REMEMBERING
LEGACY OF SAXIS
BRIDGE ENABLES NATURAL
HYDROLIC SYSTEMS
MOUNDS SUPPORTED BY
FOUNDATIONS
BLEEDING INTO LOW MARSH
CRUSHED SHELL/GRAVEL
ROADS ALLOW FLEXIBILITY
IN RESPONSE TO
NATURAL SYSTEMS


DECONSTRUCTED BULKHEAD
MODULES
SUNSET CAFE
SHORE SEAFOOD INC
0' 5' 10' 25' 50' 100'







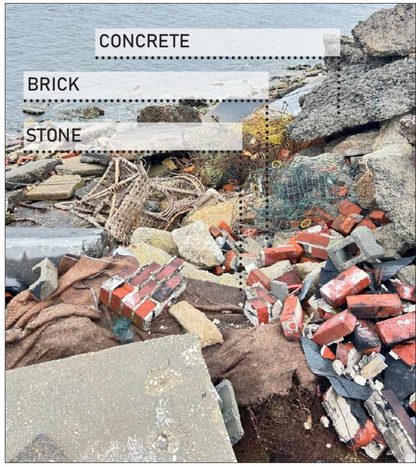


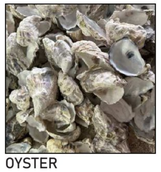






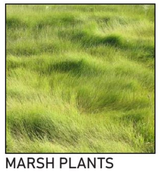




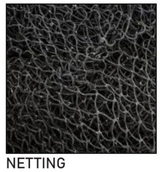

OYSTER SHELLS


WOOD PLANKS


STEEL


MARSH PLANTS


SEDIMENT


NETTING

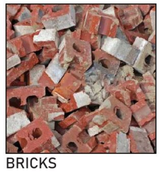

CORRIGATED STEEL


LOGS

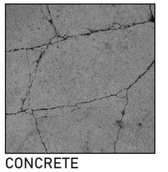

WATER

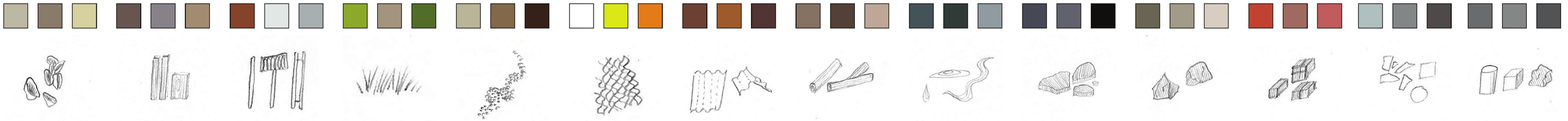

ASPHALT

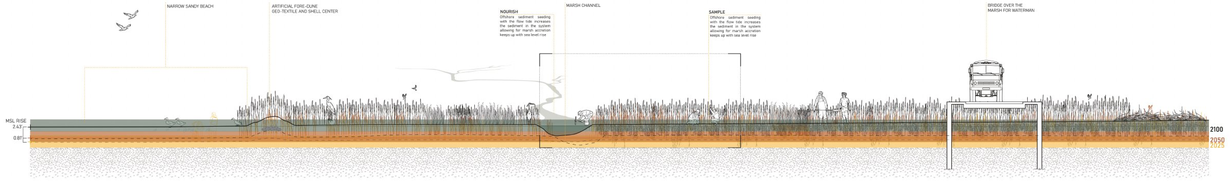

STONE


BRICKS


GLASS


CONCRETE





Tidal Flat

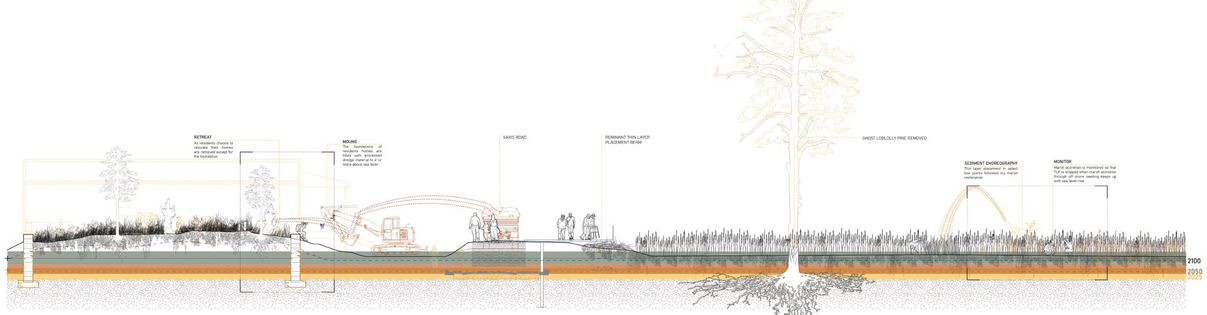
Spartina Alternaflora | Smooth Cordgrass
Salicornia | Glasswort
Geukensia demissa | Ribbed Mussels
Scylla serrata | Mud Crab
Crassostrea virginica | Eastern Oyster
Mercenaria mercenaria | Clams (Steamers)

Low Marsh Species

Spartina Alternaflora |Smooth Cordgrass
Juncus Roemerianus | Black Needle Rush
Callinectes sapidus | Blue Crab
Casmerodius albus | Great Egret

High Marsh Species

Spartina patens | Salt meadow Cordgrass
Juncus Roemerianus | Black Needle Rush
Phragmites australis | Common Reed
Lateralius jamaicensis | Eastern Black Rail



Upland

Pinus taeda | Loblolly Pine
Panicum virgatum | Switchgrass
Phragmites australis | Common Reed

High Marsh Species

Spartina patens | Salt meadow Cordgrass
Juncus Roemerianus | Black Needle Rush
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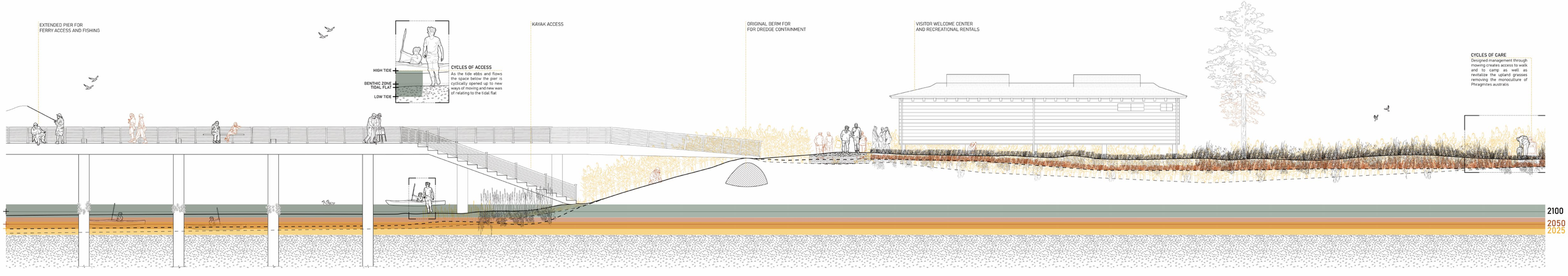
Casmerodius albus | Great Egret

SECTION CUT
SEDIMENT CHOREOGRAPHY



Tidal Flat

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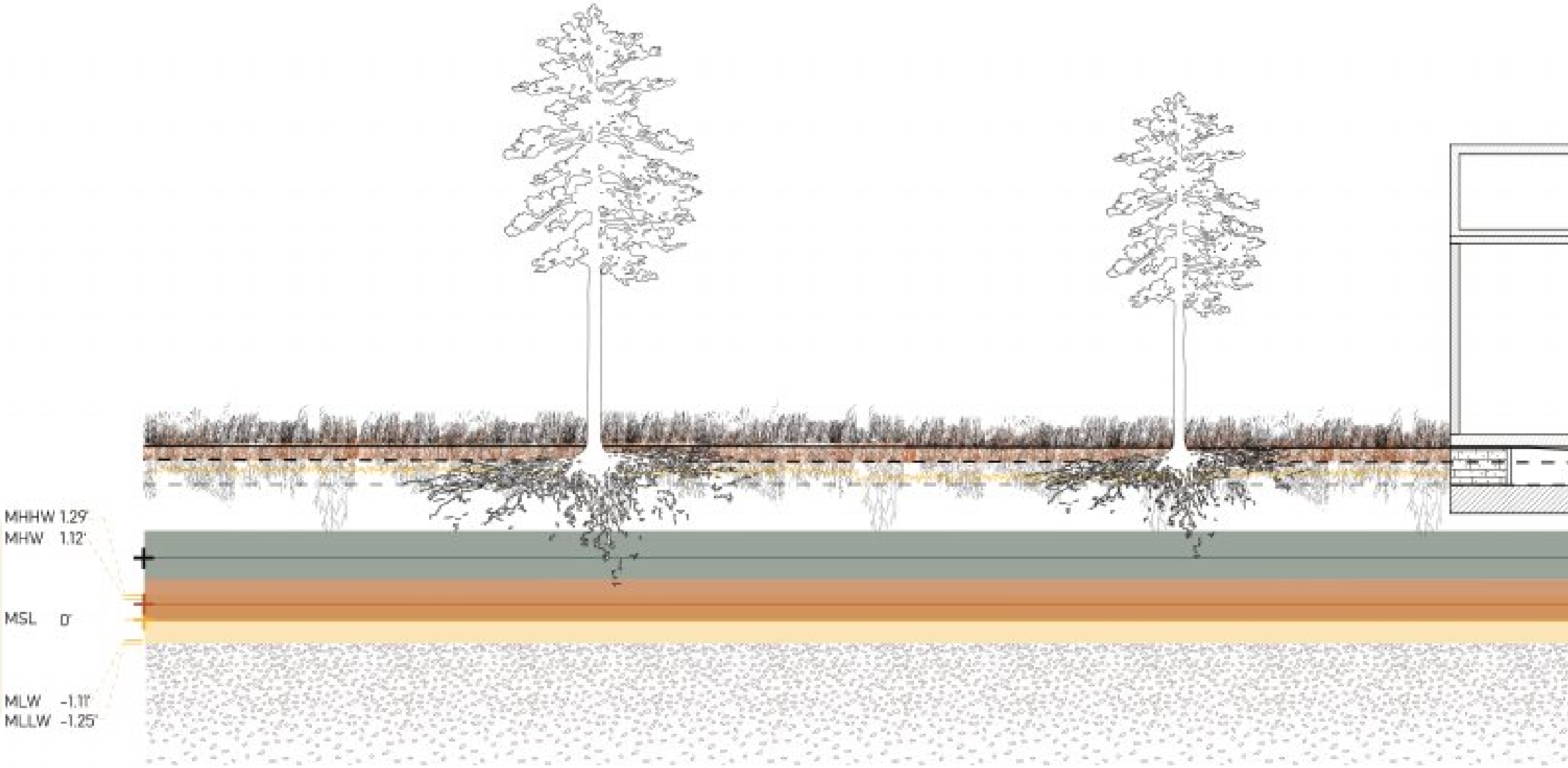
Upland

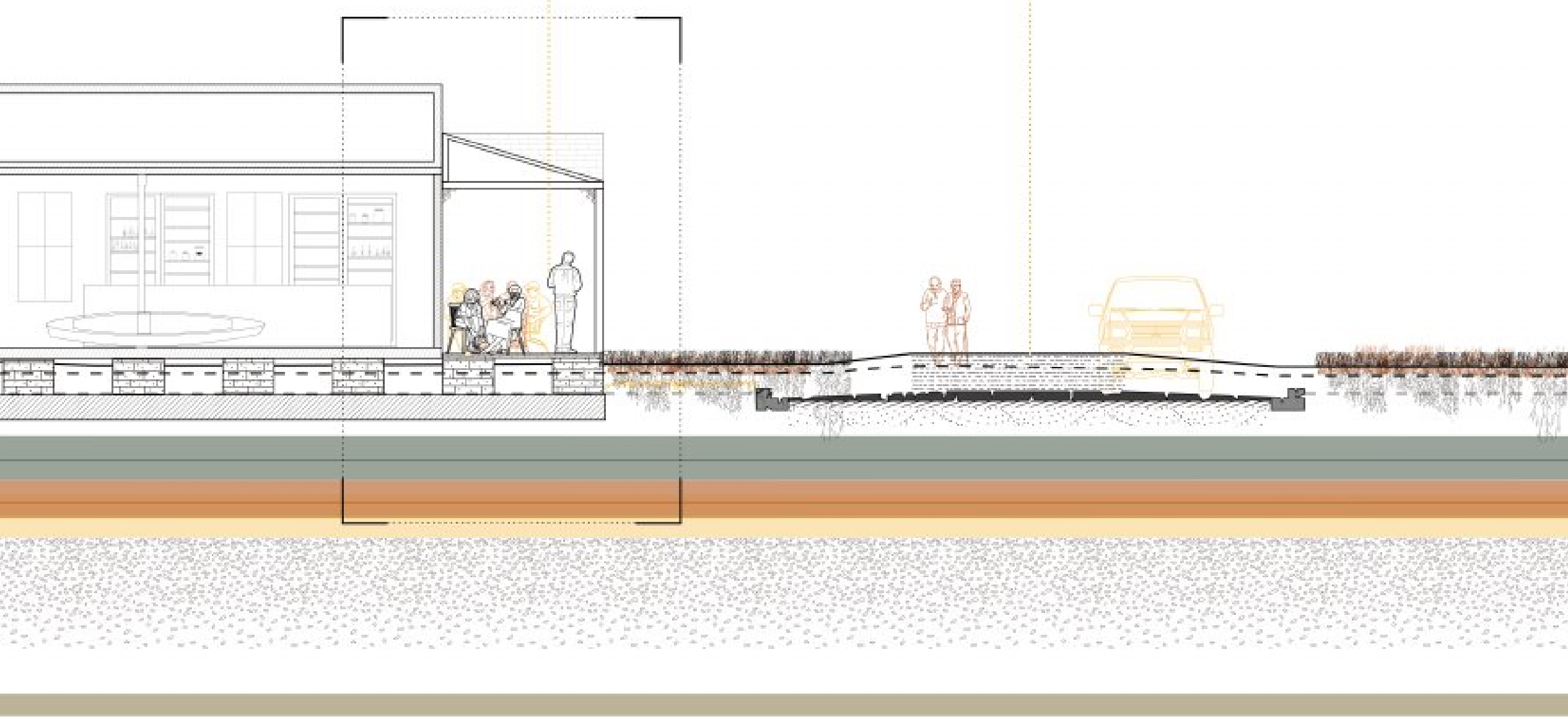
Pinus taeda | Loblolly Pine
Panicum virgatum | Switchgrass
Phragmites australus | Common Reed

SECTION CUT — 2100 — 2075 — 2050
SEDIMENT CHOREOGRAPHY ····· 2100 ····· 2075 ····· 2025



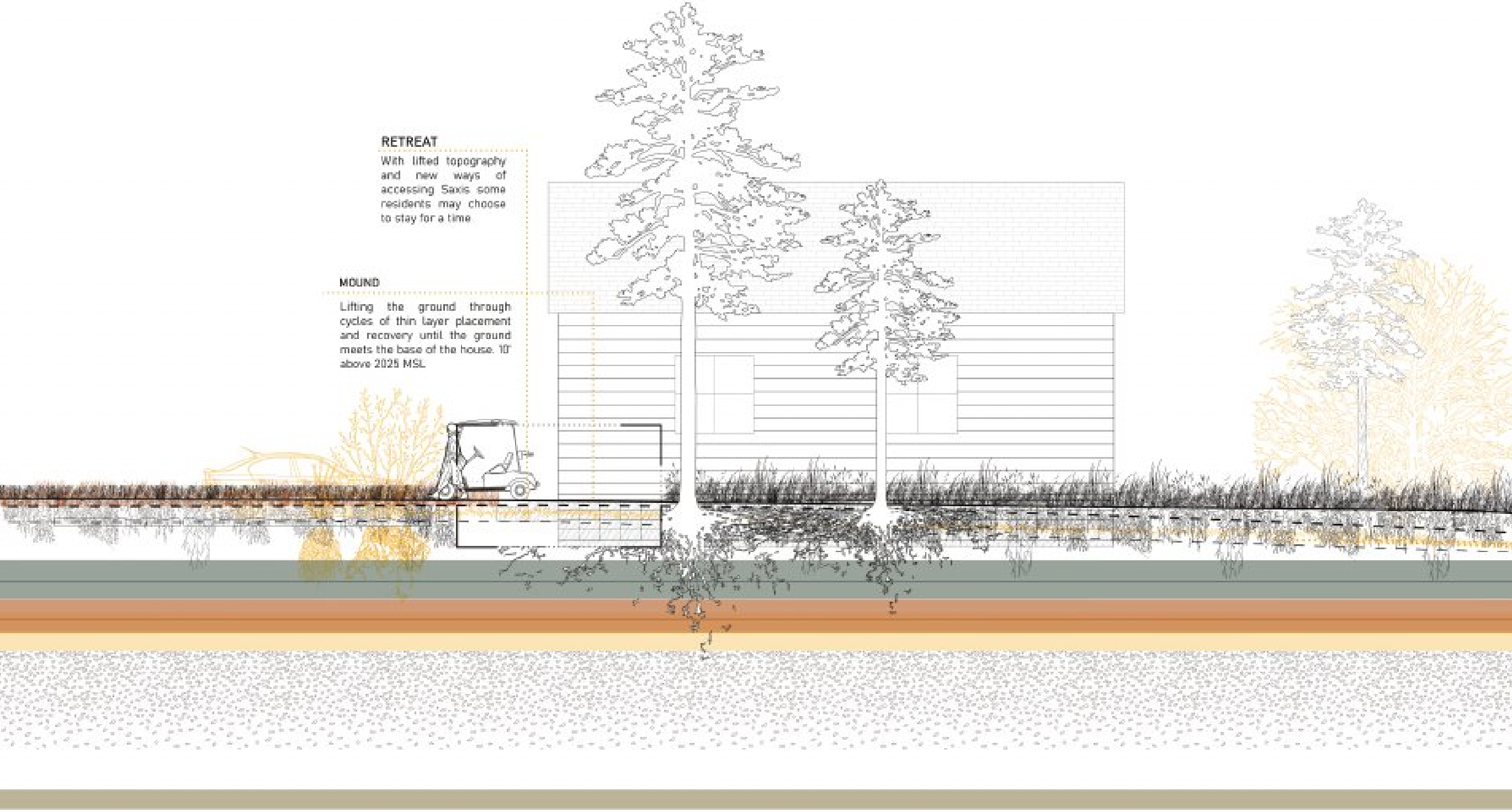
Upland

Pinus taeda | Loblolly Pine
Panicum virgatum | Switchgrass
Phragmites australus | Common Reed



COLLECT

200 years of Saxis community members gathering in the Saxis museum building continues and new visitors come and go with the seasons



RETREAT

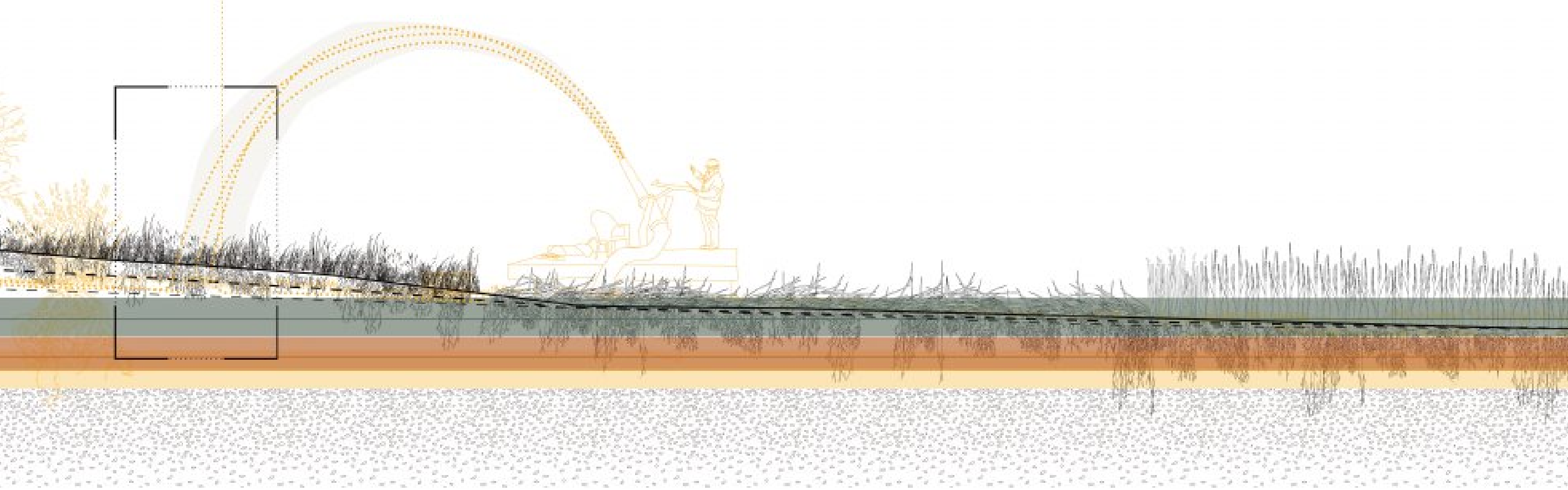
With lifted topography and new ways of accessing Saxis some residents may choose to stay for a time

MOUND

Lifting the ground through cycles of thin layer placement and recovery until the ground meets the base of the house. 10' above 2025 MSL

SEDIMENT CHOREOGRAPHY

In areas that already contain a healthy upland condition sediment can be built up more slowly with thin layer placement



High Marsh Species

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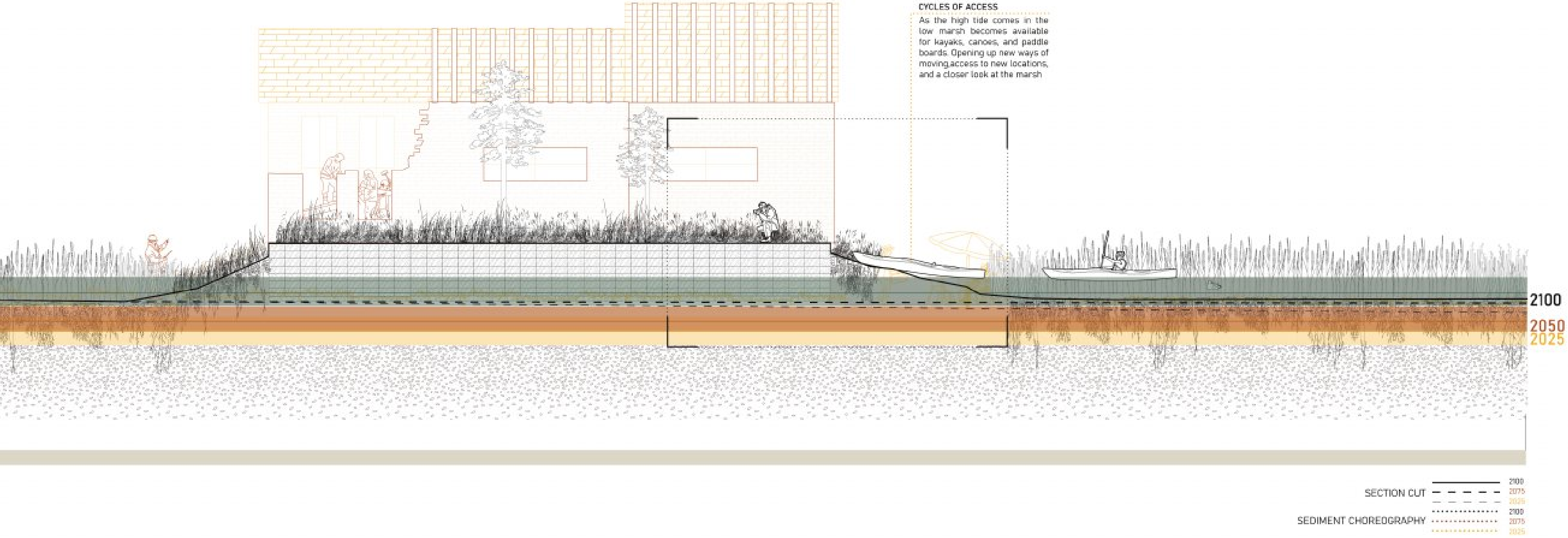
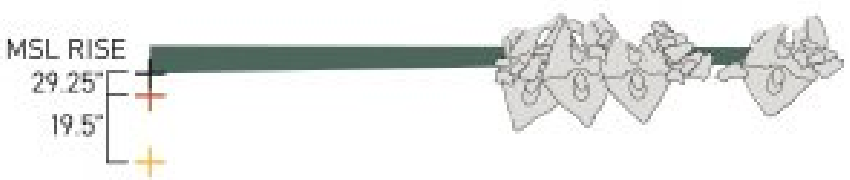
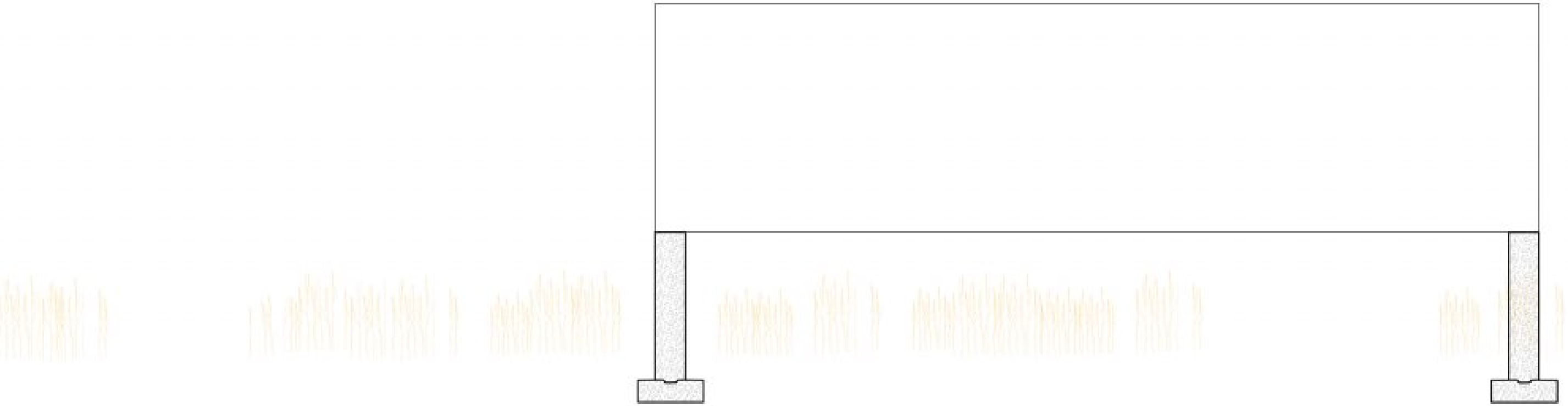
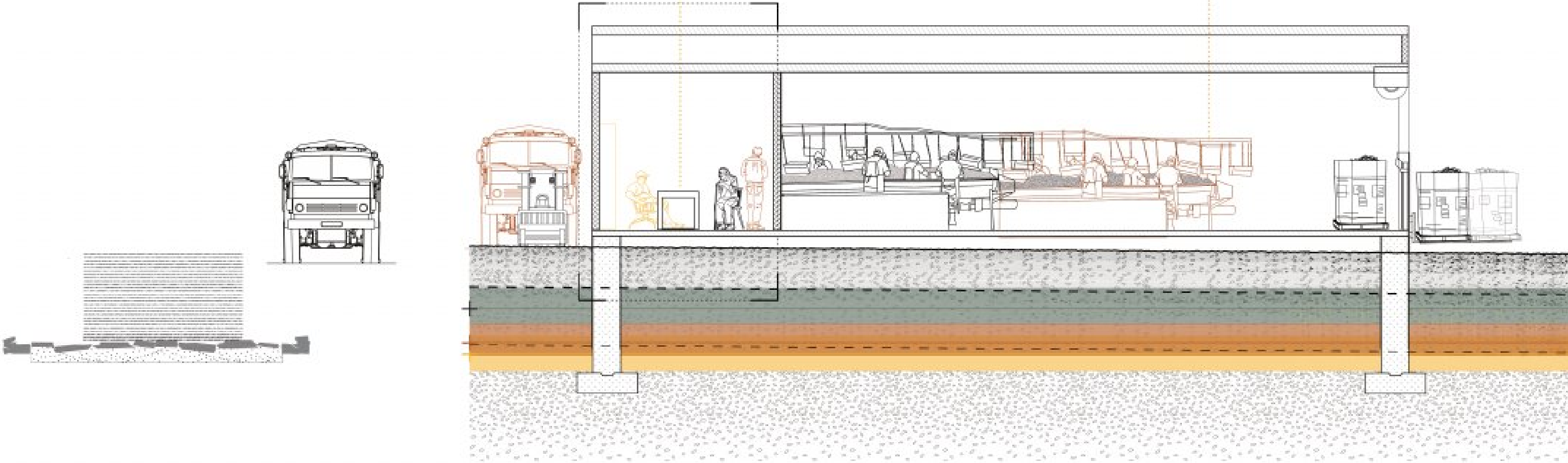


CYCLES OF ACCESS

As the high tide comes in the low marsh becomes available for kayaks, canoes, and paddle boards. Opening up new ways of moving,access to new locations, and a closer look at the marsh



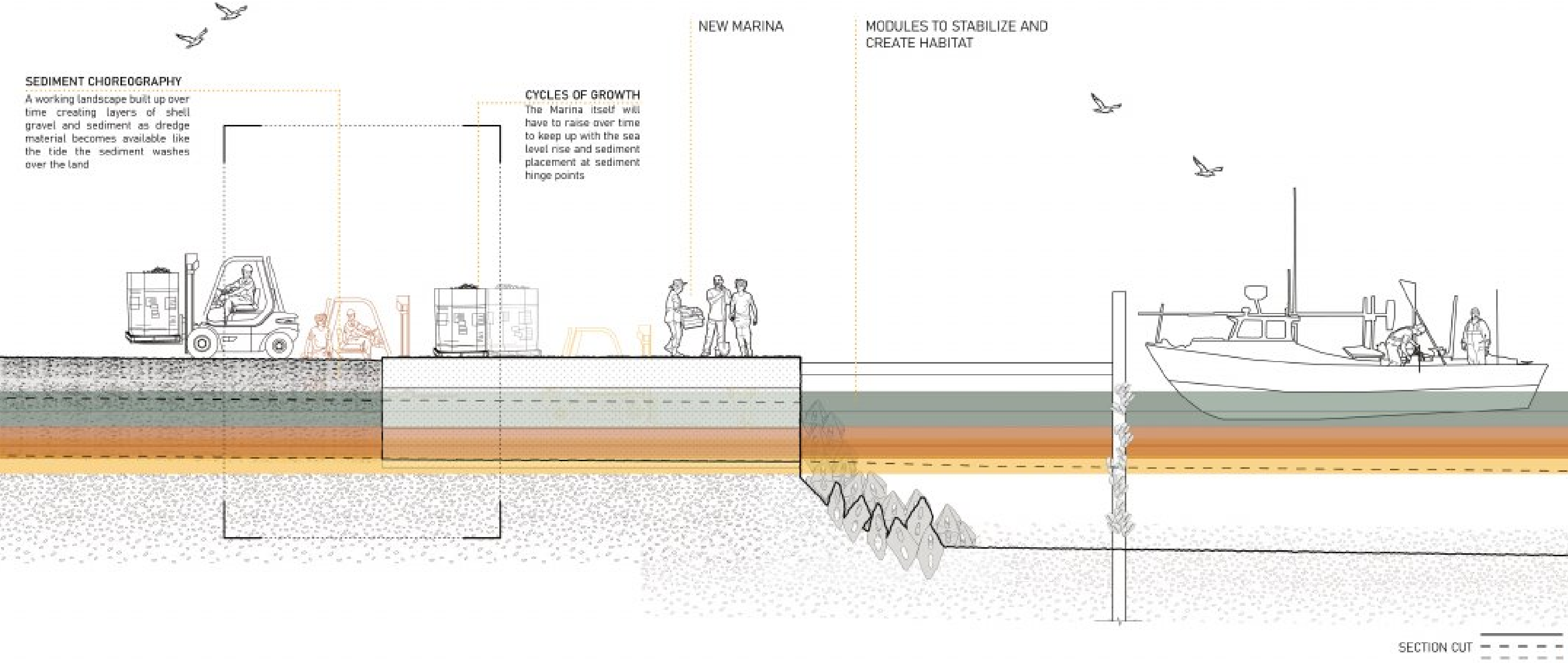




COLLECT

With the new space Waterman and women who currently work in Saxis and continue and the business that have been here for 100 years as well as new companies can build for the future

PUBLIC OR PRIVATE PROCESSING FACILITY



SEDIMENT CHOREOGRAPHY

A working landscape built up over time creating layers of shell gravel and sediment as dredge material becomes available like the tide the sediment washes over the land

CYCLES OF GROWTH

The Marina itself will have to raise over time to keep up with the sea level rise and sediment placement at sediment hinge points

NEW MARINA

MODULES TO STABILIZE AND CREATE HABITAT








RUNDEMEN
RUNDEMEN



