

TIDAL SENSES

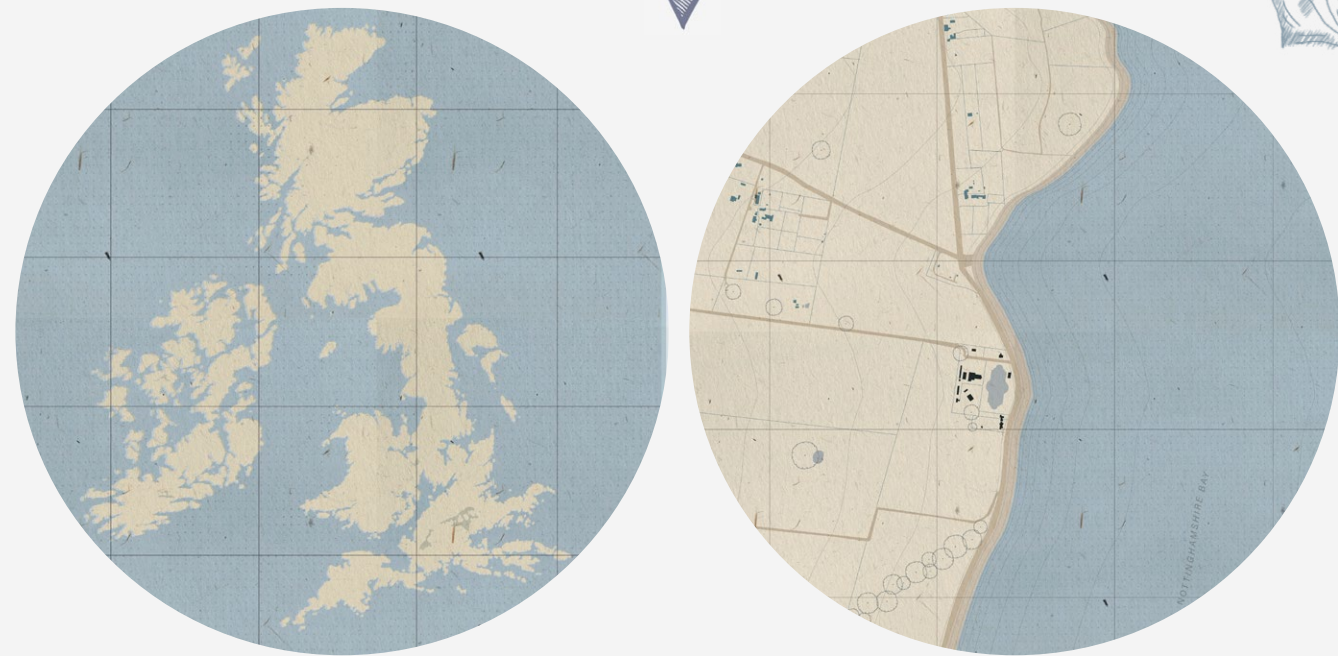
Project Summary:

Tidal Senses is a multi-sensory spa experience designed to reconnect people with their surroundings in an age of digital distraction. By engaging the senses, it immerses visitors in the rhythms of nature, encouraging awareness of the changing environment. As climate change reshapes the world, architecture must evolve to work alongside the elements rather than resist them. Tidal Senses explores this relationship, demonstrating how design can adapt to rising sea levels and shifting landscapes. Beyond its experiential value, the project actively supports biodiversity by creating tidal habitats and artificial reefs, ensuring long-term ecological benefit.

 Papplewick Pumping Station, Nottinghamshire

 Built in 2085

Project Background:



Sea Level:

By 2085, a catastrophic 95m sea level rise has submerged much of the UK, the result of decades of climate inaction. Once landlocked, Papplewick now sits on the coastline, its transformation reveals the severe impact of ignoring environmental limits.

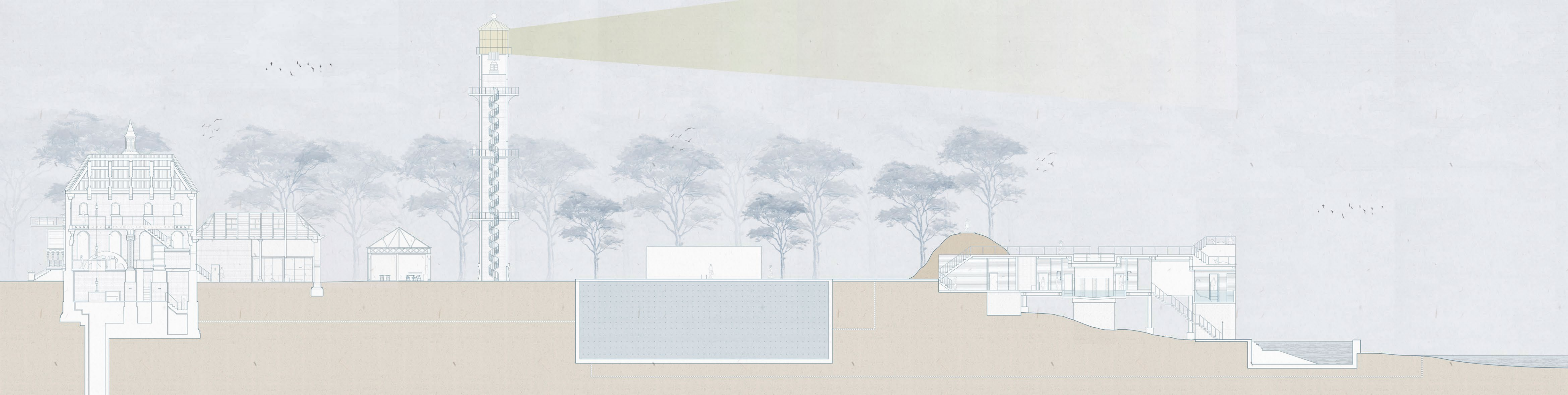
Loss of Sensory Engagement:

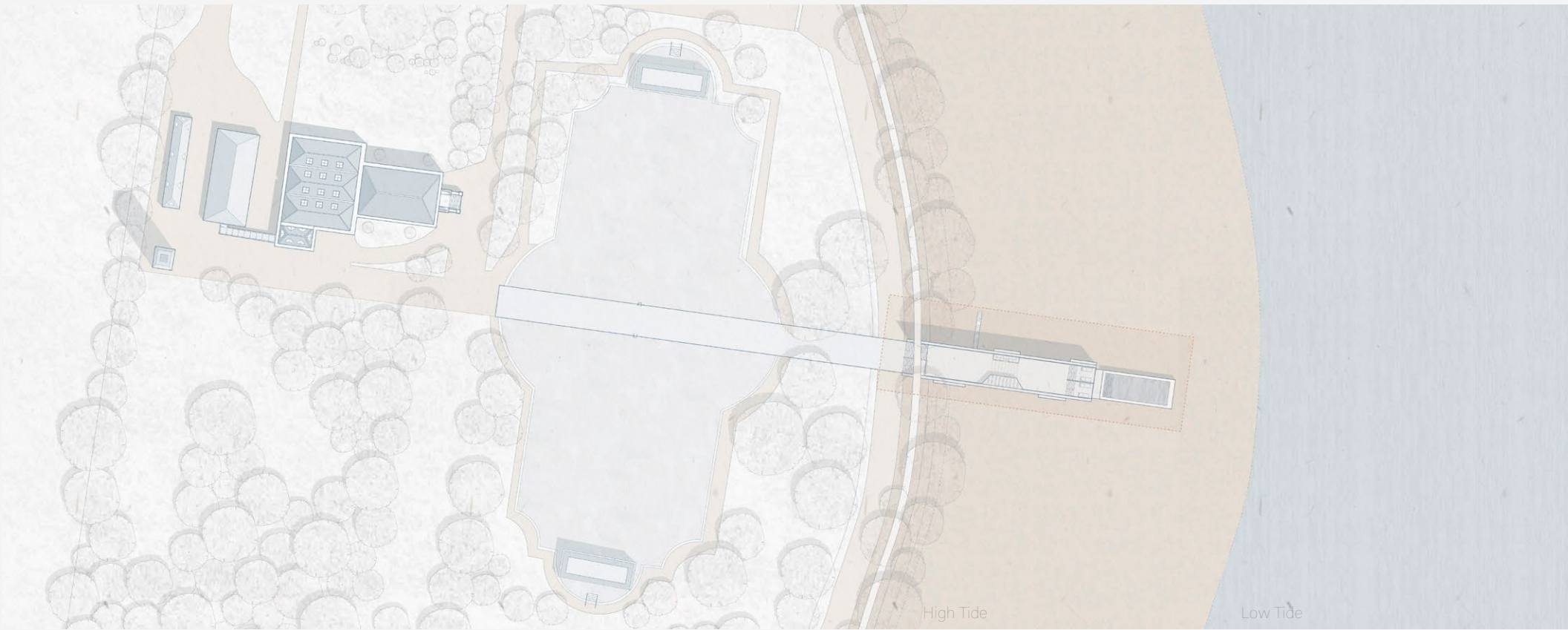
By 2085, hands-on activities like playing with dollhouses have been replaced by digital alternatives, leading to a loss of sensory engagement, and connection to the physical world.

Project Intent:

Tidal Senses is an immersive retreat which responds to decades of disconnection from nature, driven by technological dominance and environmental neglect. Through raw, sensory experiences rooted in natural elements, Tidal Senses invites individuals to reconnect with the physical world and their senses.

Experiential section through whole site





Overall Site Plan
Not to Scale
Area of focus

Site Overview

Tidal Senses prioritises sustainability by re- purposing Papplewick Pumping Station, demonstrating how existing infrastructure can adapt to climate shifts rather than be abandoned or replaced. By transforming a historic, landlocked site into a coastal retreat, the project showcases architecture’s ability to respond dynamically to environmental changes.

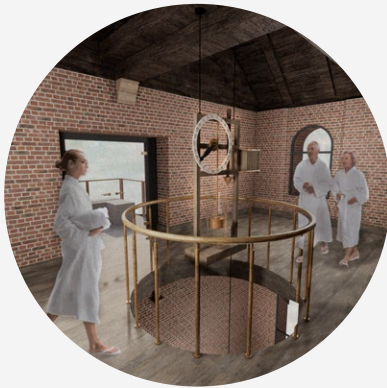
Essential facilities are retained within the original structure, minimising resource use and reducing the need for new construction. A walkway over the cooling pond links the existing building to the new tidal retreat, positioning it to engage directly with the shifting tide. This integration ensures the space functions in harmony with natural forces, embracing adaptation rather than resistance, proving that architecture can evolve with the planet rather than contribute to its decline.



Visuals of the Clepsydra

The design is inspired by the ancient water clock (Clepsydra), a device that measures time through the steady flow of water.

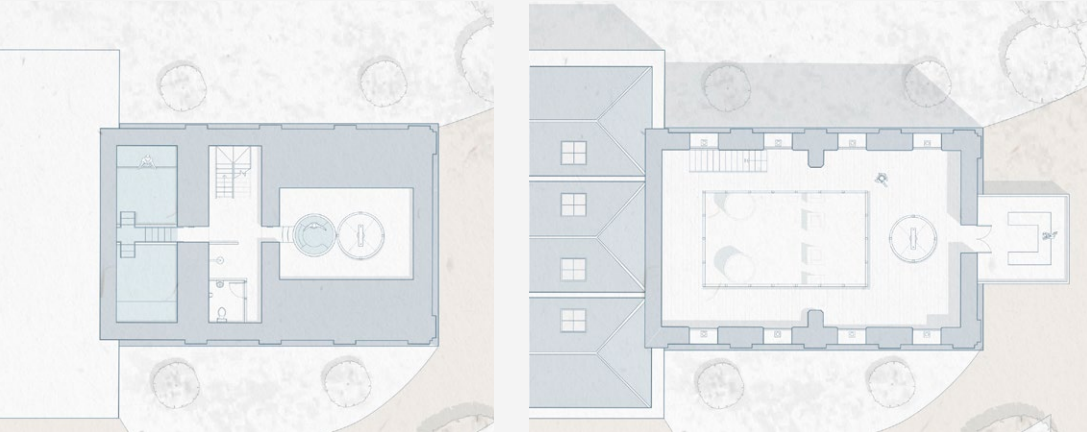
This symbolism of natural cycles influenced the project's core theme of tides and the sea. As a tribute to this inspiration, the water clock is displayed as a central feature in the main space, serving as a visual reminder of our need to live in harmony with natural cycles.



Visual of the Clepsydra display



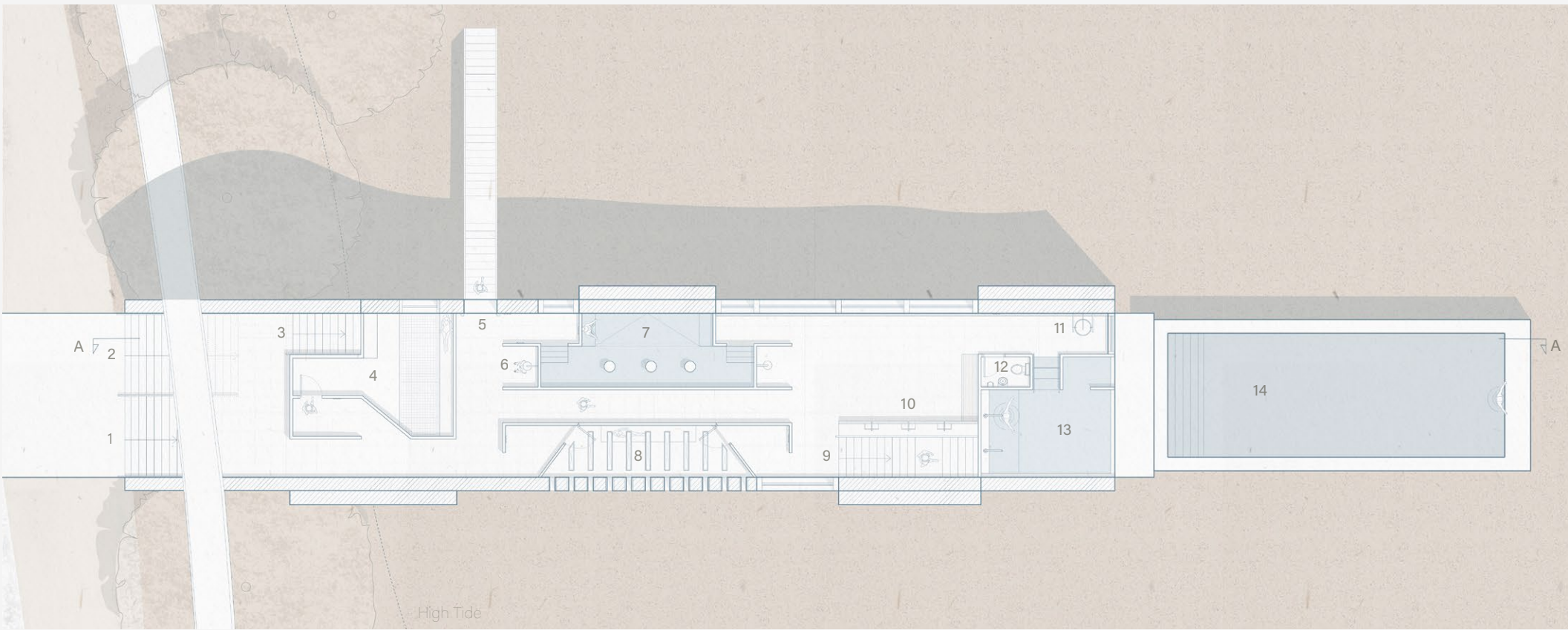
Visual of the Reflection Pool



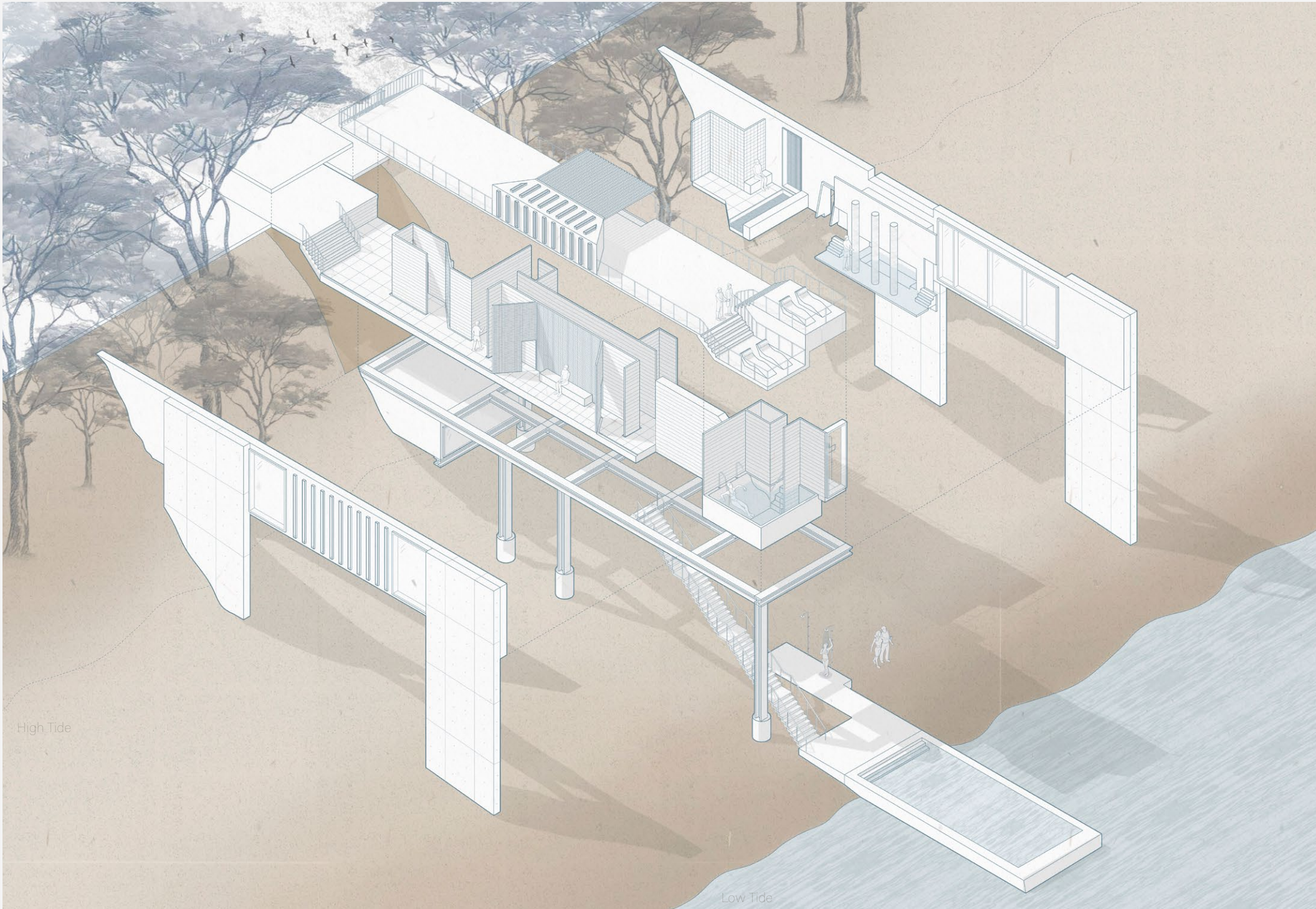
Basement Floor Plan
Not to scale
Key
1 Reflection Pool
2 Shower / WC
3 Hot Plunge
First Floor Plan
Not to scale
Key
4 Clepsydra Display
5 Viewing Platform



Ground Floor Plan
Not to scale
Key
1 Entrance
2 Check In
3 Cold Plunge
4 M Changing
5 Indoor Pool
6 Sauna
7 Steam Room
8 F Changing
9 Staff Facilities
10 Staff WC
11 Kitchen
12 Restaurant
13 Laundry
14 Light House
Existing Structure
New Structure



Area of Focus Floor Plan
Not to scale
Key
1 Entrance
2 Access to Roof
3 Access to Under Water Viewing
4 Sea Scents
5 Access to Beach at High Tide
6 Shower
7 Grouding Pool
8 Coastal Sounds
9 Access to Beach at Low Tide
10 Drinking Wall
11 Bucket Shower
12 WC
13 Lookout Pool
14 Tidal Pool
New Structure



Area of Focus Exploded Isometric
Not to scale

Structural Inspiration:
The structural approach for Tidal Senses draws from real-world examples that engage with landscape and climate. Key influences include ESO Hotel by Hernán Marchant and An Turas by Sutherland Hussey Architects. These projects embody a deep connection to natural surroundings.



Model made of ESO Hotel case study



Model made of An Turas case study

Tidal Impacts

The building is designed to adapt to its new coastal setting, working with tidal patterns rather than resisting them. Informed by sea level predictions, its resilient structure ensures long-term adaptability. Biodiversity is supported through habitat creation, such as artificial reefs and submerged tidal pools.

Low Tide:

At low tide, the retreat opens toward the beach, allowing visitors to engage directly with the tidal pool. This shifting threshold creates a physical and emotional connection to the rhythms of the sea, encouraging awareness of rising tides and climate change. By embracing the natural ebb and flow rather than resisting it, the space fosters a deeper understanding of how we can adapt our lifestyles to work in balance with the planet's systems.

High Tide:

At high tide, the tidal pool is submerged and temporarily inaccessible, reflecting the volatility of a changing climate. In response, visitors are drawn to the underwater viewing window, where they can quietly observe marine life and the rising sea. This moment encourages a shift in perspective, reminding us that adapting to natural change is essential for long-term resilience and ecological harmony.

Spacial model of the scheme



Tidal Senses external visual - Low tide



Tidal Senses external visual - High tide



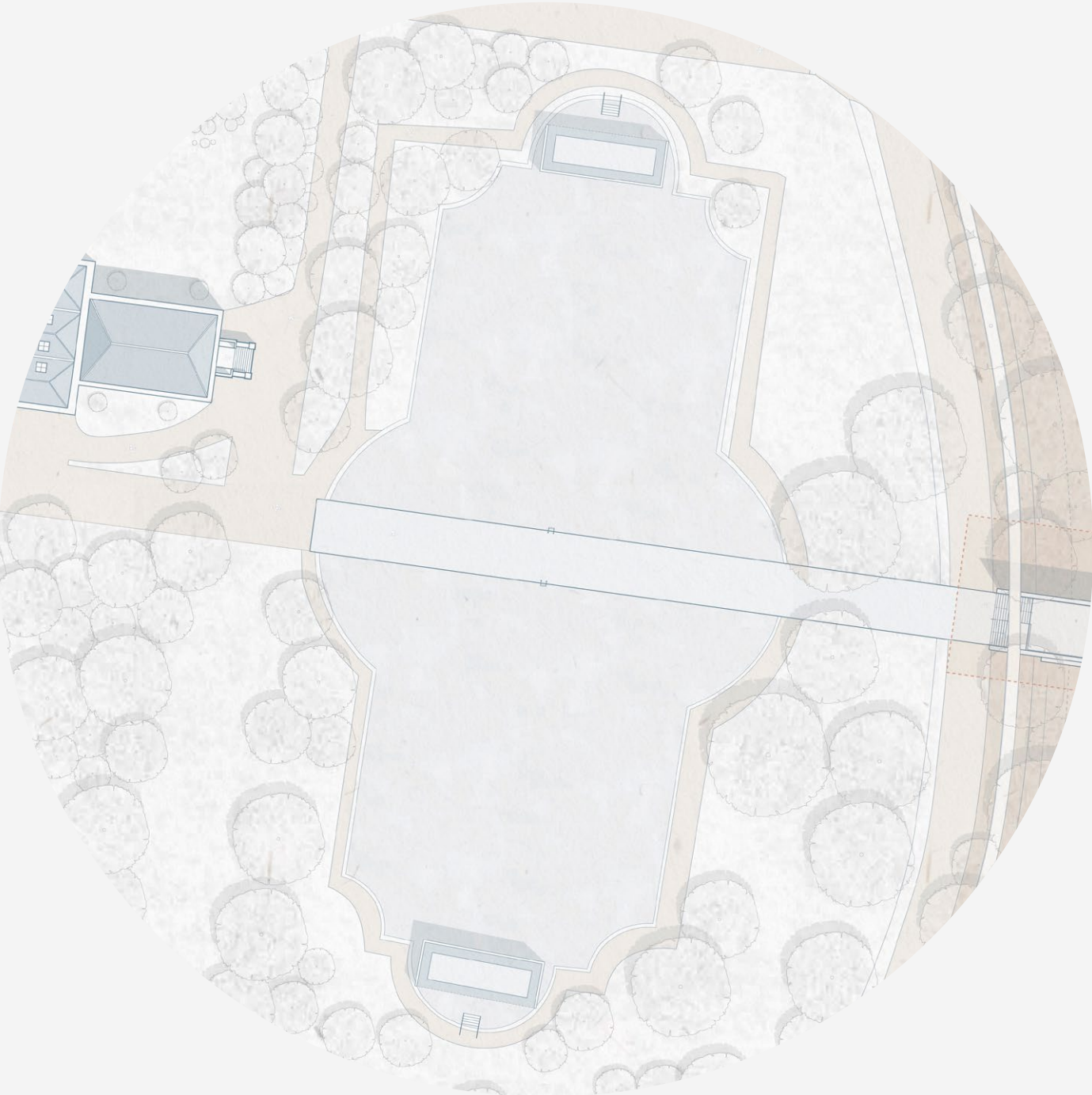
Energy Production

Blue Energy:

A key element of the design is the integration of blue energy, a sustainable method of generating electricity that harnesses the natural difference in salt concentration between seawater and freshwater. This process relies on osmotic pressure, which occurs when freshwater passes through a semi-permeable membrane, generating power through a turbine. Unlike conventional energy sources, blue energy offers a continuous and renewable solution that does not rely on fossil fuels. As climate change drives extreme environmental shifts, this technology provides an adaptable and resilient alternative for powering infrastructure without harming the planet.

Integration on Site:

At Tidal Senses, blue energy production is seamlessly incorporated into the site's existing cooling pond, demonstrating how sustainable power generation can coexist with natural spaces without disrupting ecosystems. The cooling pond serves both functional and experiential roles, remaining accessible to visitors as an outdoor pool while silently generating electricity. By working with the water cycles already present on-site, this approach minimises environmental impact, reducing the need for intrusive infrastructure. The retreats design reinforces the philosophy that sustainability should not be separate from daily life, but rather integrated in ways that feel natural and immersive.

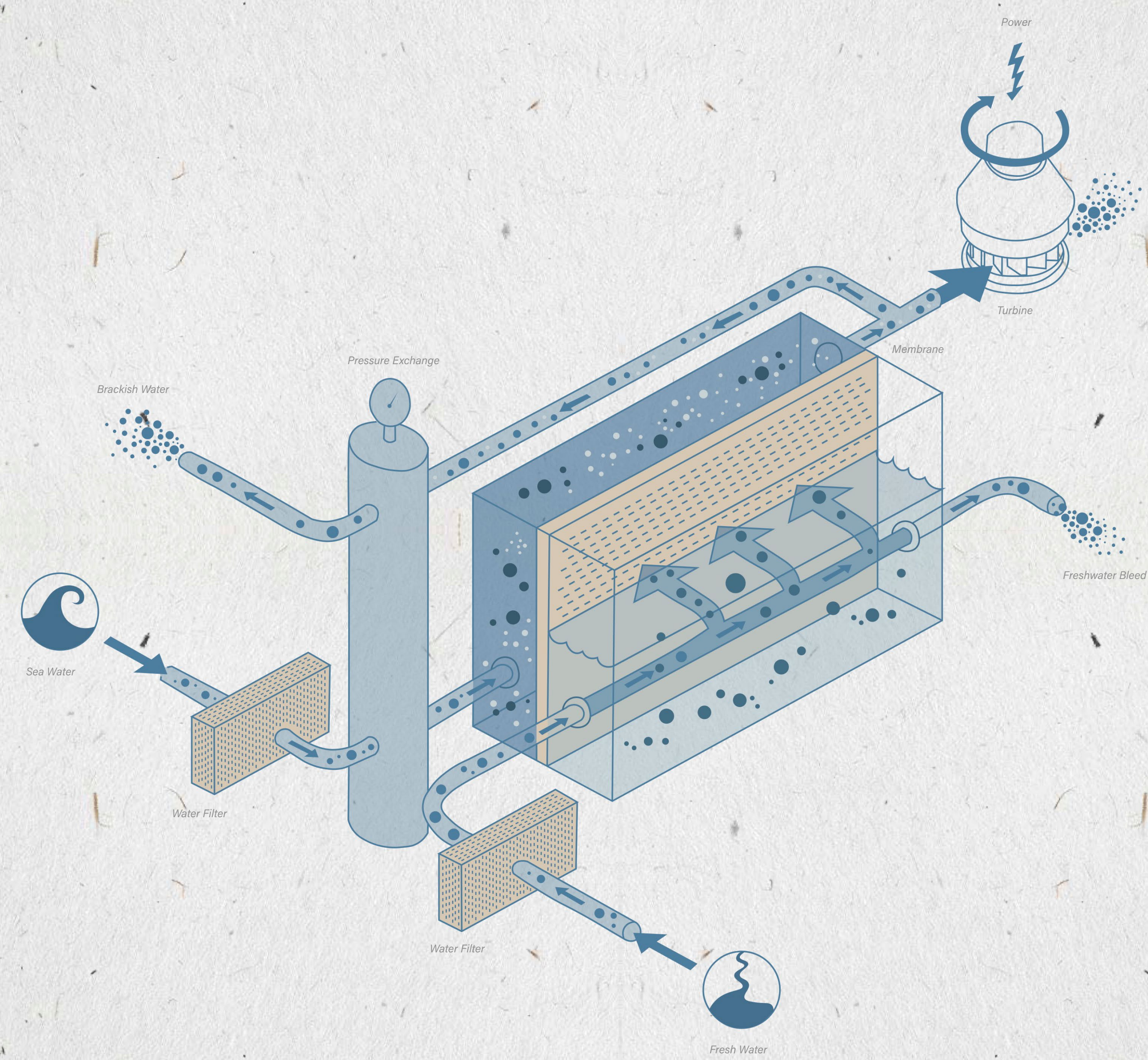


Site plan locating the cooling pond and energy production

Future Potential:

As rising sea levels reshape the planet, blue energy has the potential to become a primary power source, especially in regions where coastal landscapes are rapidly changing. Unlike land-dependent energy solutions, blue energy thrives in environments affected by flooding, making it particularly suited for submerged infrastructure, floating communities, and tidal retreats. The ability to convert a natural environmental challenge into an energy opportunity marks a shift towards self-sufficient, climate-resilient living. As freshwater sources increasingly mix with encroaching seawater, scaling this technology globally could transform the way we produce electricity, ensuring a future where power generation aligns with Earth's natural systems rather than disrupting them.

Illustration showing the process of blue energy production



Materiality and Detailing

Visual of main walkway within the Tidal Senses

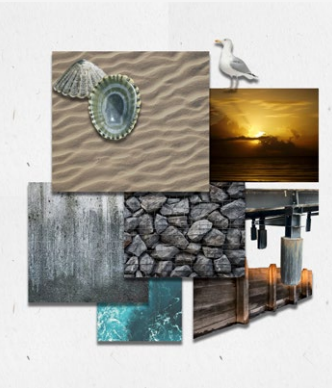


Materiality:

The design of Tidal Senses prioritises durability, ensuring materials can withstand harsh coastal conditions, minimising the need for repairs or replacements. This approach reduces waste, limits resource depletion, and prevents long-term environmental disruption. Rather than relying on materials that deteriorate quickly and require frequent maintenance, the project incorporates robust, low-maintenance materials that naturally age with the environment, extending their lifespan and reducing ecological impact.

Additionally, re-purposed and locally sourced materials further decrease emissions from transport and production, reinforcing a sustainable approach that works with natural systems rather than against them.

Beyond human experience, the external materials have been carefully selected to support the formation of artificial reefs, allowing the building to contribute to marine biodiversity. By fostering habitats for sea life, the structure becomes an active part of the ecosystem, ensuring the retreat serves not only people but also the environment it inhabits.



Inspiration:

The material palette was inspired by a personal visit to the coast, where the textures, colours, and natural formations observed along the shoreline informed a design that feels rooted in its environment.

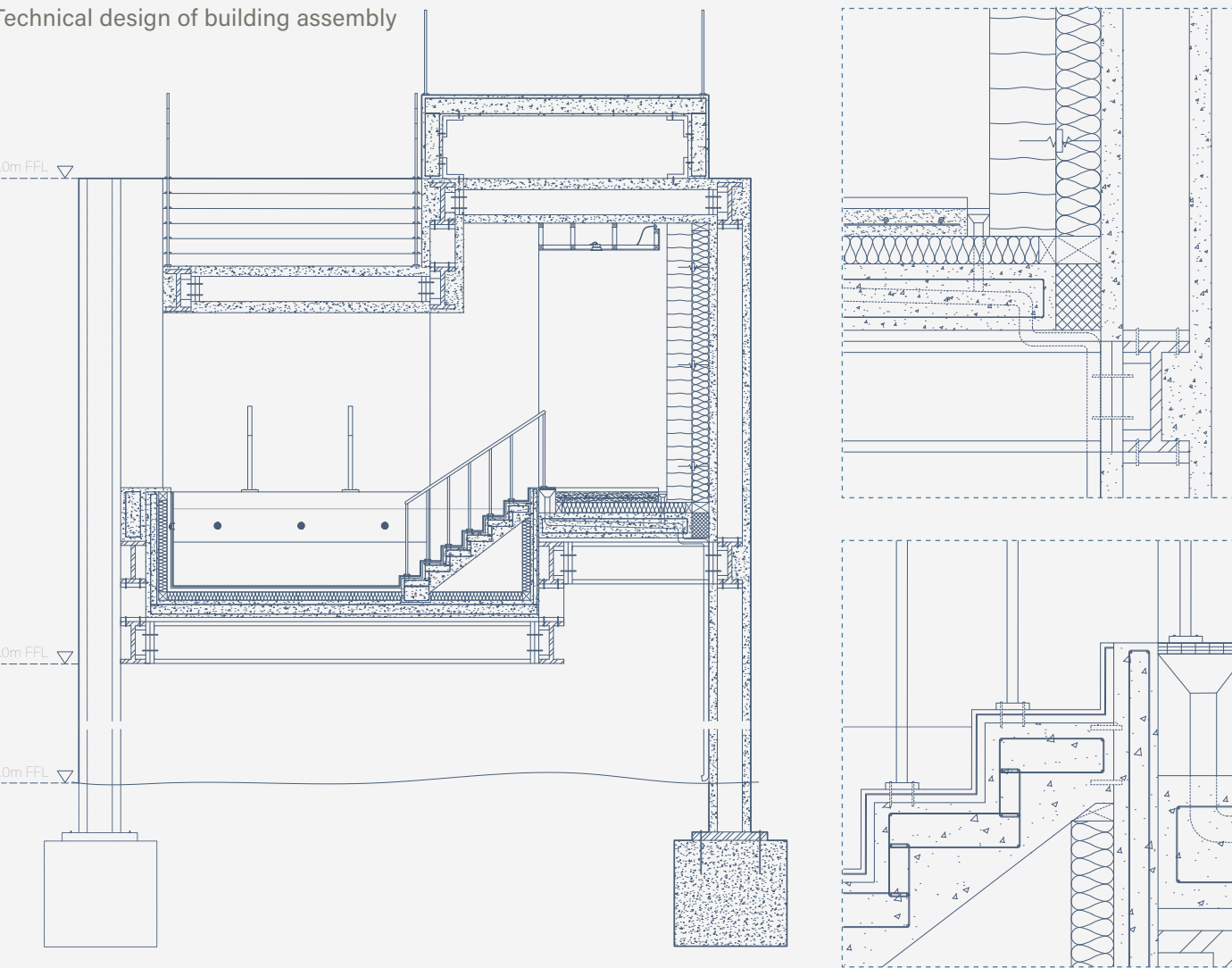
Technical Design:

The building has been carefully engineered to withstand harsh coastal conditions, with structural heights calibrated to predicted tidal variations, ensuring resilience against environmental extremities.

Designed for adaptability, it can be de-constructed and returned to its natural state if ever decommissioned, leaving behind only elements that enhance biodiversity and marine life. The materials are strategically selected and assembled to support longevity while enabling easy recycling and reuse, reducing resource depletion and minimising environmental impact over time.

Beyond resilience, Tidal Senses embraces a regenerative approach, ensuring architecture contributes positively to its environment. Rather than simply enduring the elements, the structure fosters biodiversity by integrating habitats for marine life and minimising long-term resource consumption. Its materials and construction methods reflect a commitment to circular design, proving that sustainability is not just about lasting—but about evolving in harmony with nature.

Technical design of building assembly



Visual of the drinking wall



Sensory room designs:

Each room reinterpreted nature rather than replaces it, using coastal elements to enhance the sensory experience. For example the taste room, taps dispensed salt water from taps for users to drink from their hands, a controlled alternative to the natural act of tasting the sea. This approach was applied across all rooms and senses.

Visual of Look Out Pool



Section AA of the Tidal Senses

