

From Brown-field Barriers to "Super Seawall":

Elevating the Public Realm of Jiaojiang River's South Bank, Taizhou, China

Project Size: 35,000 SqM

Location: Taizhou, China

Award Category: Economic Viability

Situated on the southern shores of the Jiaojiang River at the gateway to Taizhou Bay, this project is a pivotal component of the riverfront public space and leads the developmental strategy of the Jiaojiang River. Under the theme “Welcoming Riverbank, Harmonious Life,” the exemplary phase of the development leverages the opportunity provided by seawall enhancement to create a **“Super Seawall.”** This innovative structure incorporates elements of “super memory,” “super ecology,” “super complex,” “super safety,” and “super joy.”

The project aims to elevate the protection standards of the seawall, introduce diverse urban functions, promote ecological conservation, and transform the public space on the south bank into a vibrant “Living Belt.”

Brown field Barriers



Before

Living Belt



After

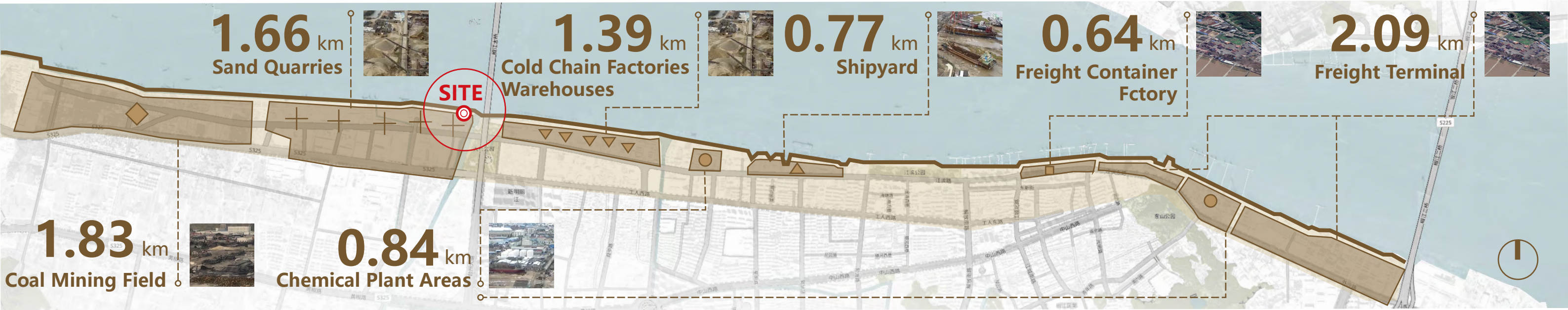
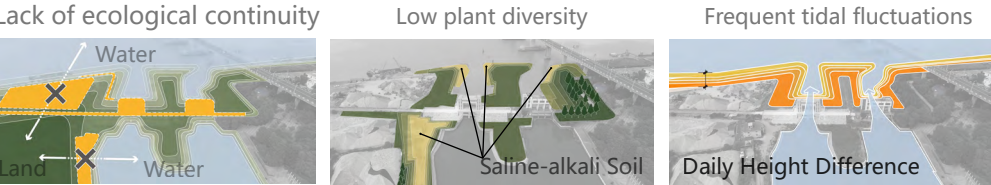
Context: Overcoming 11.2km Riverfront Brownfield Barriers

A significant number of industrial and transportation factories existed along the south bank of Jiaojiang River, forming 11.2km-long riverfront brownfield barriers. The long stretch of seawall breaks the connection between the city and the river, and also faces issues such as the frequency of river tides, the lack of protection against typhoons and the salinization of sandy mudflats.

Industrial Elements on Site



Challenges on Site



Concept: Super Seawall

Leveraging opportunity provided by seawall enhancement to create a “Super Seawall.” ,this innovative structure incorporates elements of “super memory,” “super ecology,” “super complex,” “super safety,” and “super joy.” The project aims to elevate the protection standards of the seawall, introduce diverse urban functions, promote ecological conservation, and transform the public space on the south bank into a vibrant "Living Belt."

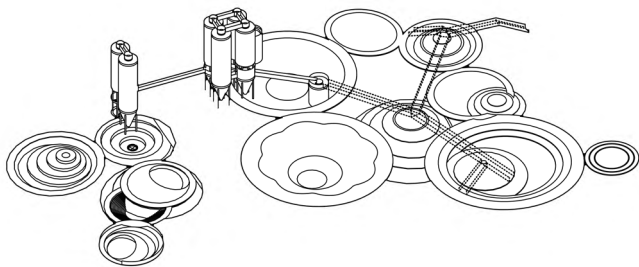


The aerial view

Strategy 01: Super Memory

The design team undertook prototype research on the expansive sand and stone fields remnants at the original site, drawing inspiration from the dune-like formations and linear conveyor belt structures to resonate with the site's historical essence. This approach transformed the dunes into verdant hills and repurposed the conveyor tracks into pedestrian pathways, creating a "Super Bowl" system for ecological and recreation.

Dune Prototype Development



Positive Dune
Bowls for Eco

Inverted Dune
Bowls for Joy

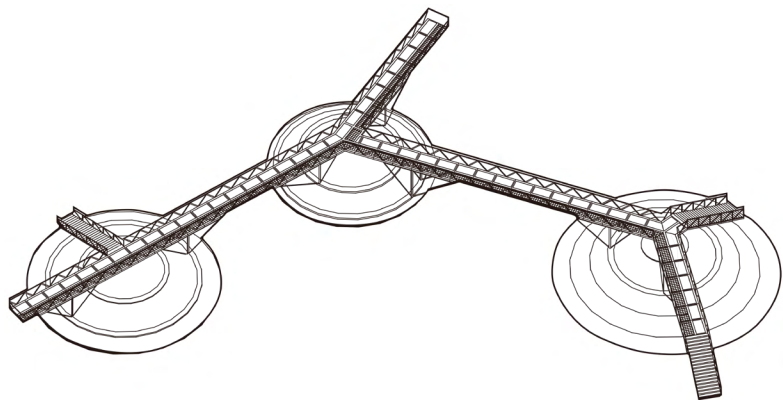


Interpretation of the Historical Essence

Strategy 01: Super Memory

This system invites interaction through a dynamic array of spatial configurations, allowing visitors to enter, ascend, traverse, and enjoy the landscape from various perspectives, both upright and inverted.

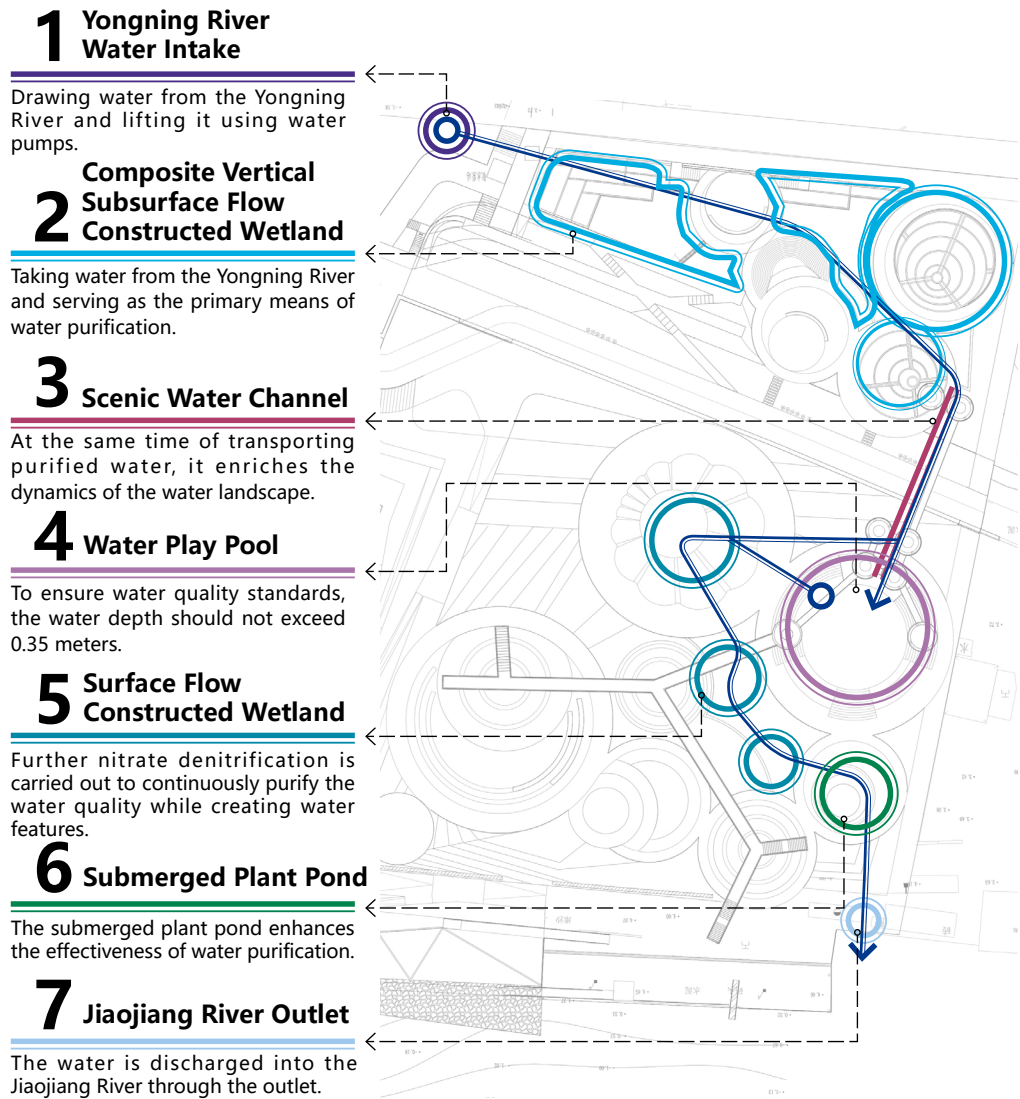
Conveyor Belt Prototype Development



The Symphony of Dune and Conveyor Belt

Strategy 02: Super Ecology

From the perspectives of water purification, biodiversity enhancement, and stormwater management, an innovative artificial wetland water purification system has been introduced, transforming the riverbank from a barren brownfield to a verdant green space.



The Artificial Wetland System

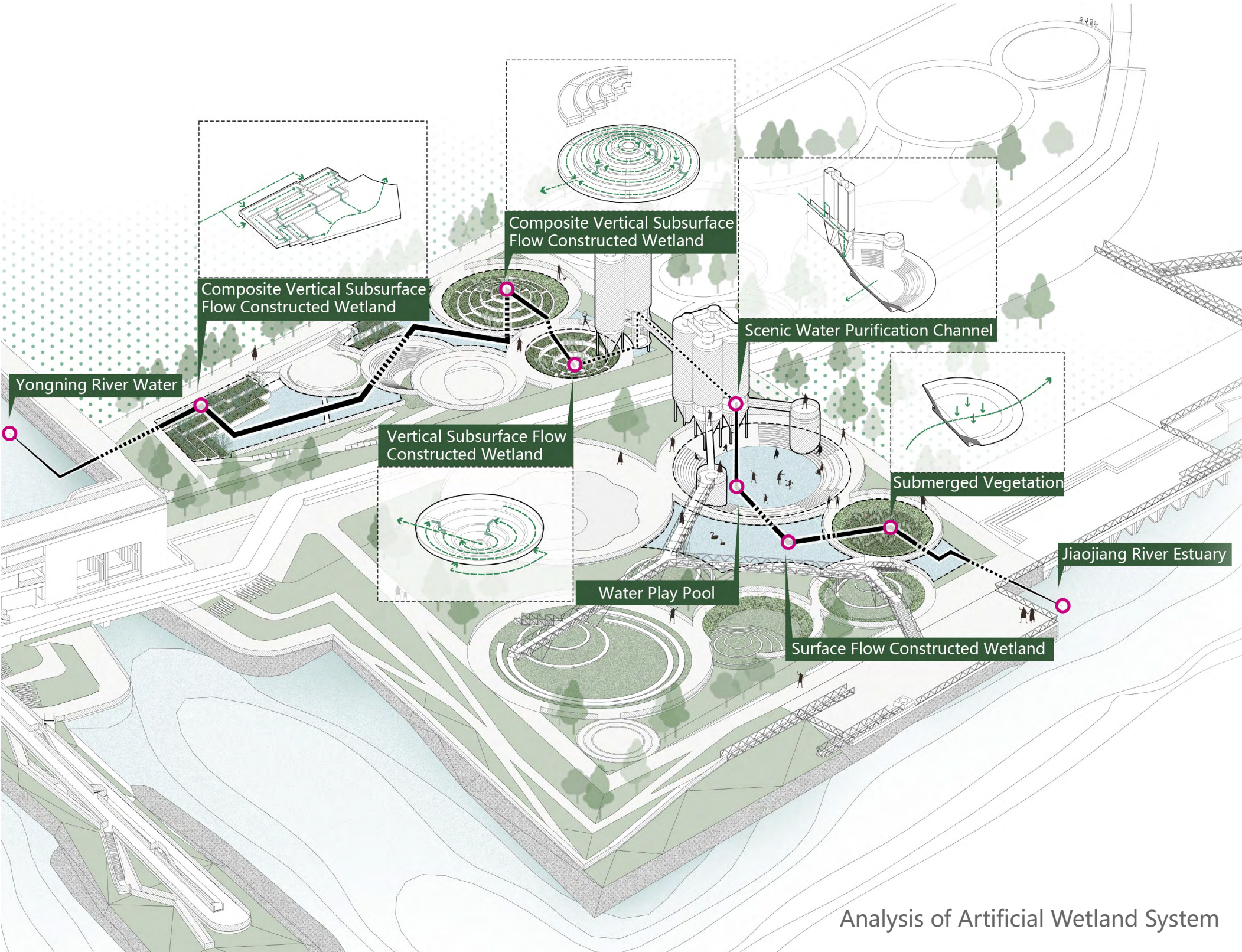


Ecological Seawall

Strategy 02: Super Ecology

The Mixed Wetland System

The water drew from inland river is cleansed through natural biological processes such as substrate adsorption and filtration, aquatic plant interception and adsorption, microbial degradation, etc. The water is then directed to tanks for disinfection, ultimately supplying a secure water source for the “Super Bowl.”

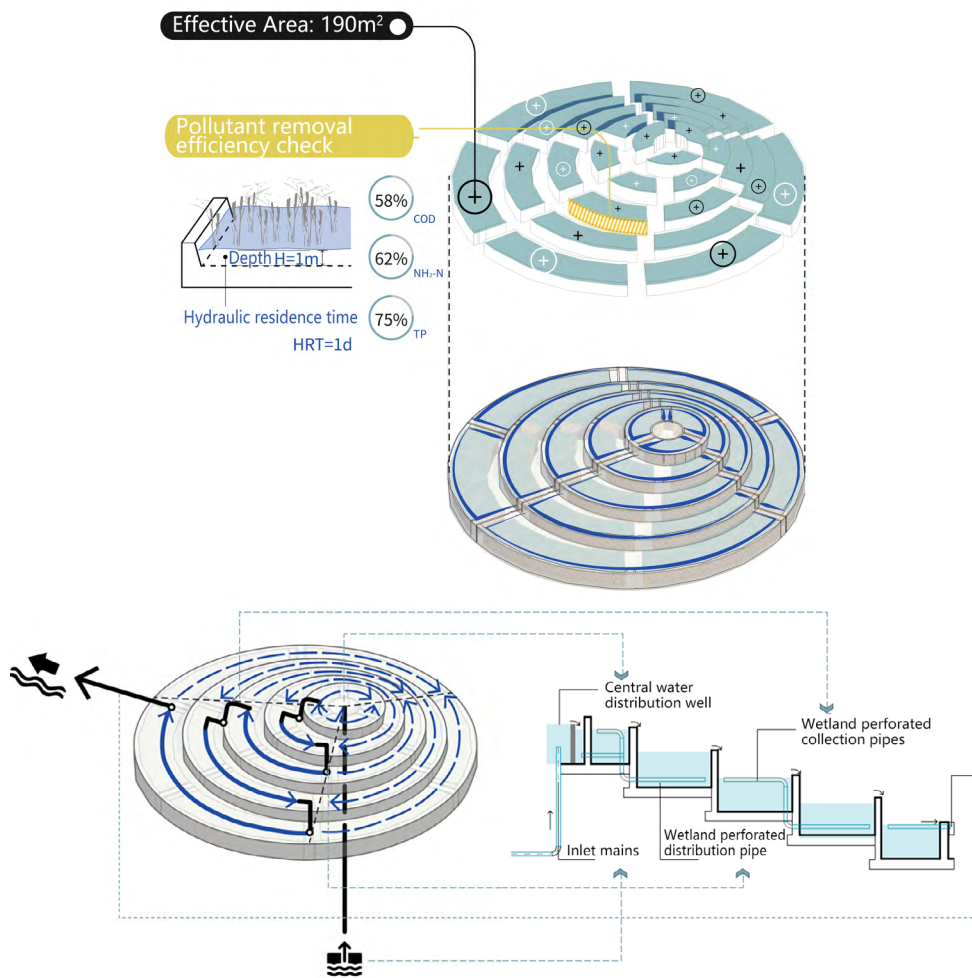


Analysis of Artificial Wetland System

Strategy 02: Super Ecology

Wetland Units Reflecting Established Forms on the Site

This integrated system encompasses a "horizontal subsurface flow constructed wetland + surface flow constructed wetland + submerged plant pond." These units, shaped like cones and terraces, merge water purification functions with recreational spaces, embodying the "Super Bowl" concept.



Stepped Horizontal Submerged Artificial Wetland Diagram



Strategy 02: Super Ecology

The Sustainable Ecosystem

The design implements polyurethane embankment materials to soften the perimeter of the pond, transforming the previously hard embankment into a nurturing ground for flora like reeds and cattails, thus cultivating a rich tapestry of vegetation. Concurrently, the tidal ebb and flow shape a layered vegetation scheme in the intertidal zone, providing a regenerative habitat for plants and animals to flourish along the riverside.



Nearshore Forest and Grass Communities:

Songbirds/Climbing Birds

Bird attracting plants attract birds

Nectar plant communities:

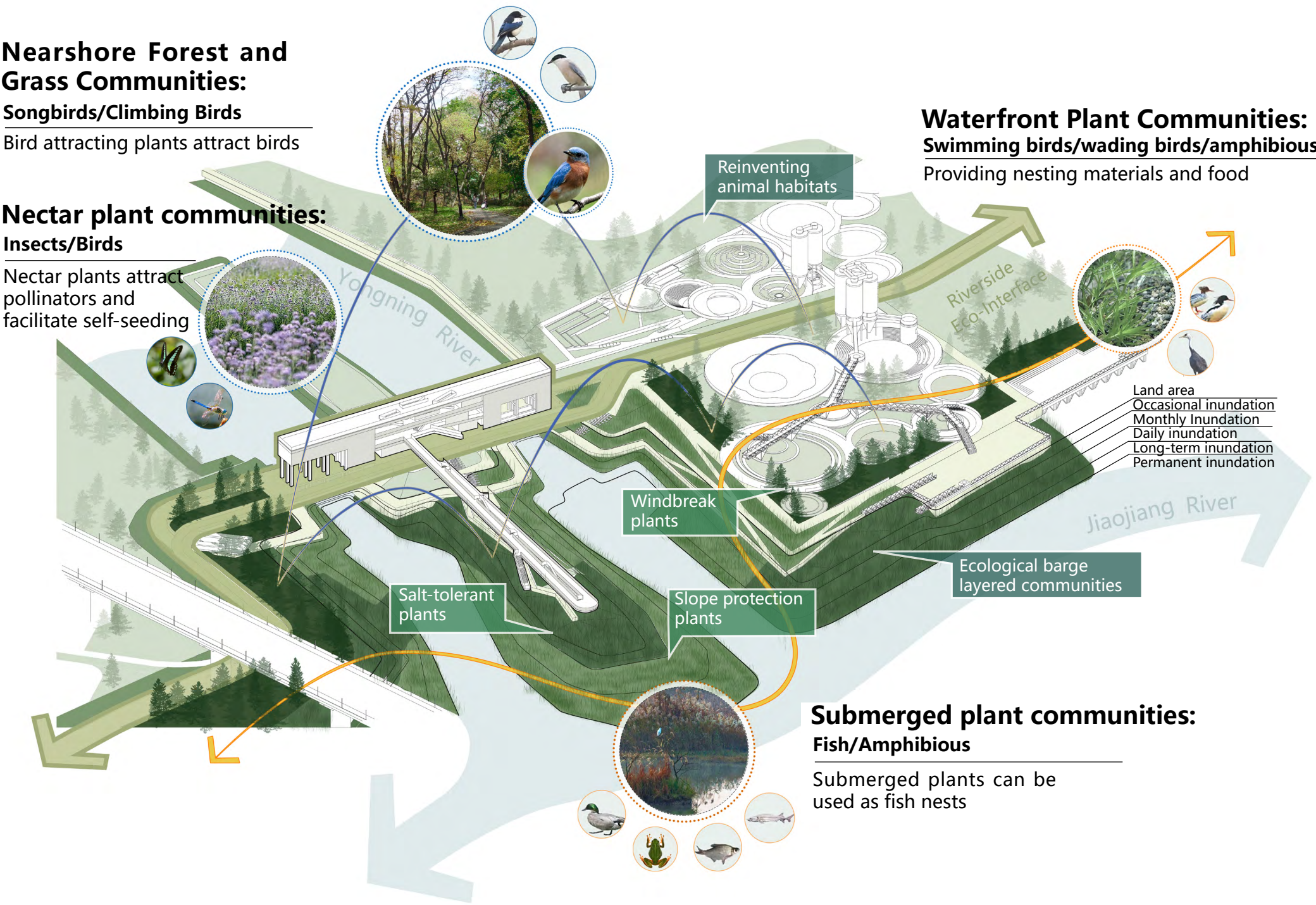
Insects/Birds

Nectar plants attract pollinators and facilitate self-seeding

Waterfront Plant Communities:

Swimming birds/wading birds/amphibious

Providing nesting materials and food



Strategy 03: Super Safety

The foundational requirement of the design is the fortification of the seawall's protective capabilities. The defense standard of the seawall has been heightened from a once-in-50-years to a once-in-100-years event, bolstered by the incorporation of a secondary ecological berm.



Strategy 03: Super Safety

Ecological Slope Protections

The adoption of ecological slope stabilization technology has transformed rigid revetments into thriving tidal zones that harmonize with tidal rhythms. This reinforcement is not only robust and erosion-resistant but also significantly elevates the overall safety of the seawall.

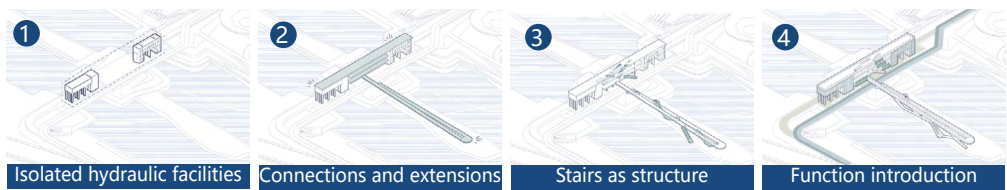


The Development of Ecological Slope Protections



Strategy 04: Super Complex

The design ingeniously capitalizes on the space between two sluice gates, establishing a multi-tiered observation deck that bridges the gap between these separate infrastructures. The platform features seven sets of sloping stairs as its core supporting framework, ingeniously blending structural integrity with a meandering pathway. Transparent glass enclosures are interspersed throughout, serving public amenities and offering visitors prime vantage points to view the river.



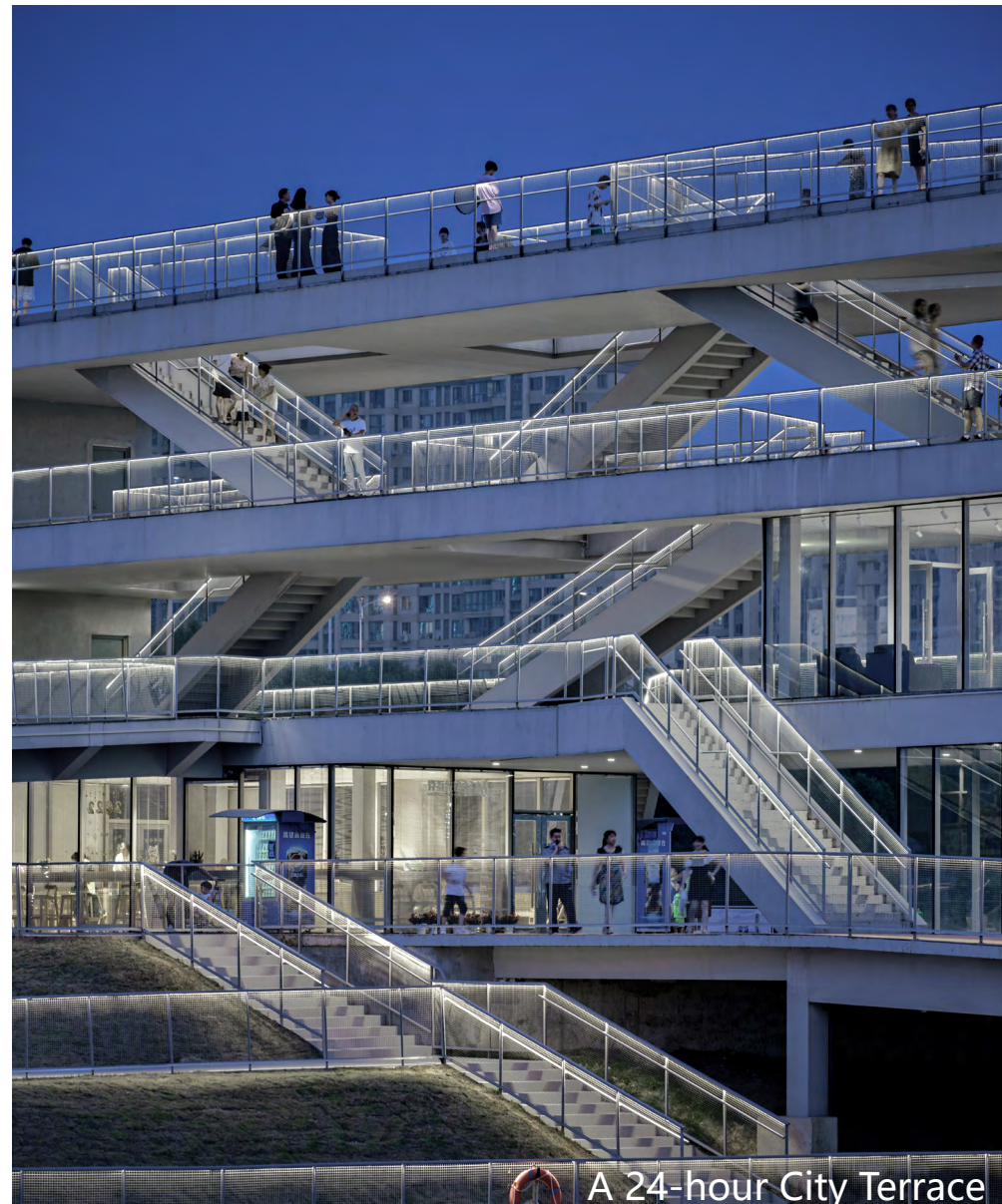
Generating Analysis of Super-Sluice



Strategy 04: **Super Complex**

A 24-hour City Terrace

A 100-meter-long bridge stretches over the seawall, providing a unique opportunity for visitors to draw near to the natural mudflat. The Super Sluice is accessible around the clock, inviting the public to enjoy uninterrupted views of the natural and urban landscape.



A 24-hour City Terrace



A 100-meter-long Bridge to Nature

Experience: Super Joy

The “Super Sluice” and “Super Bowl”, emerging from the embankment, have created extensive recreational spaces for the public. From rooftop terraces to the 100-meter-long bridge reaching into the Jiaojiang River, and from elevated walkways to the flower pools and waterfalls within the “Super Bowl”, the Super Seawall presents a rich, layered, welcoming, and unforgettable waterside experience for individuals from all walks of life.



First day of Opening



Lighting Commissioning

Experience: **Super Joy**

The Super Bowls

This unique system includes nine bowls designed for both entertainment and environmental purification.



Experience: **Super Joy**

The Sand Bowl

By softening the boundaries of the inverted cone prototype to form 10 "petals" that accommodate a variety of children's activities, children can play, climb, and unleash their natural instincts.



Experience: **Super Joy**

The Water Bowl

Pure water from off-site relocated beer cans filled these water bowls, providing a playful and interactive element for visitors of all ages.



The Water Bowl

Benefit: Making Waterfront Livable and Valuable

The Super Seawall adds ecological and economic value to the waterfront, making it a place for everyday public activity. On September 9, 2022, the initial segment of the seawall was inaugurated, attracting an average daily footfall of 20,000, proving the allure of "Super Joy."

Enhancing the Ecological Value of the Surroundings

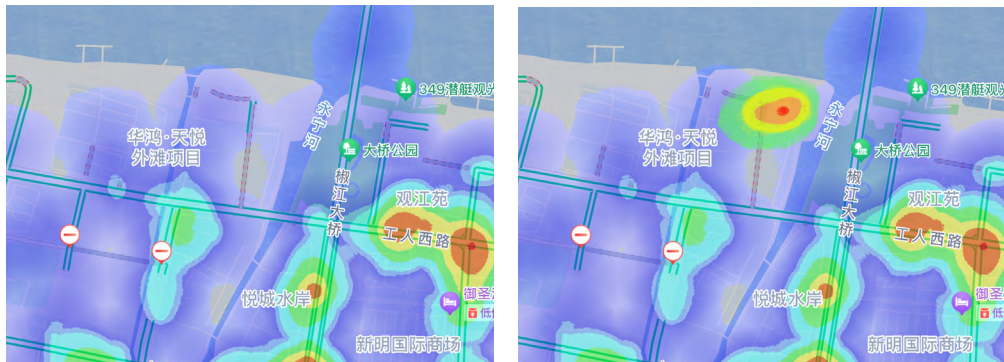
Upgrading the greening ratio of the site to **47%**

Enhancing the Economic Value of the Surroundings

>60% increase in neighboring price during 2020-2024

Increasing the Attractiveness of the Site

Maximum daily visitors of **≈ 20,000** during the trial operation stage



Heat Map Diagram of Pedestrian Traffic (before and after the completion)



First day of Opening

Benefit: Reconnecting Communities with Nature



Running trail through the Super Sluice



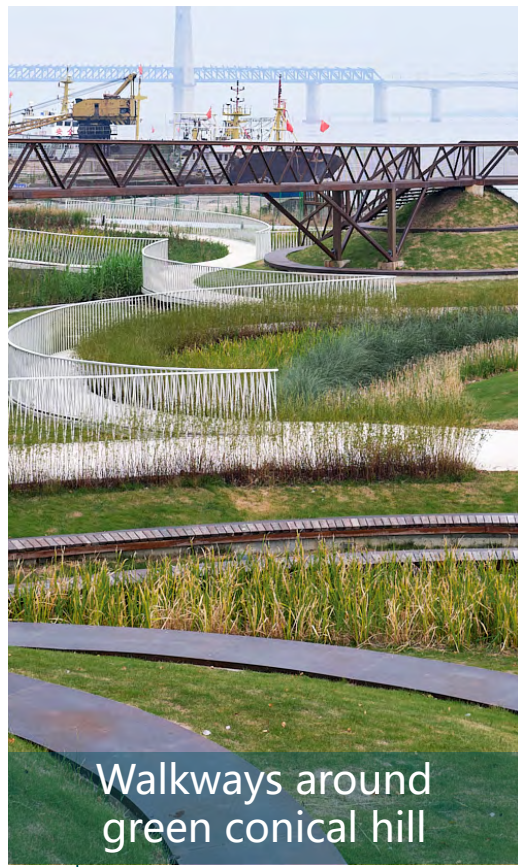
The walkway on the Super Seawall



Walkways through the Super Bowls



Playground utilizes the Super Bowls



Walkways around green conical hill



Waterside trestle along Jiaojiang River

