

# SHIXI GARDEN WATER WORKS

IFLA ASIA-PAC LA AWARDS REVIEW MATERIALS



04/2023



# PROJECT OVERVIEW

## PROJECT FILE

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**Project Title:** *Shixi garden water works*

**Award Categories:** *1.1. Built Projects - F) Green Infrastructure*

**Project size:** *13,718 square meters*

**Project overview:** *The Yajisha Water Intake Pump Station of Shixi Water Works is located on the east side of Jiangxin Island on the south bank of Shixi Village in Haizhu District, Guangzhou. The project incorporates the concept of green ecology and utilizes the principle of sponge ecology. In an economically disadvantaged environment, it adopts a low investment and high efficiency approach to transform the old pump station into a green and ecological pump station, allowing it to achieve perfect transformation, radiate new vitality, adhere to the urban green line, and polish the ecological background.*

## PROJECT CHALLENGE

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**1. Water purification equipment shall not be affected;**

*There are above-ground treatment ponds and underground pipe networks.*

**2. Independent closure of the island, transport only depends on water;**

*The island is gritty and overgrown, and capacity and timeliness are the biggest challenges.*

**3. Protect large trees and fruit trees on the island and extend the habitat space for migratory birds;**

*Lush vegetation, attracting a large number of water birds habitat breeding stop.*

**4. Create a new outdoor garden for water company enterprises.**

*Experience nature, science base.*

## PROJECT INNOVATION

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**1. Landscaping of water purification equipment;**

*After meticulous landscape treatment, industrial water purification equipment has become an important display window of tap water culture in the island.*

**2. Reuse construction waste to realize the concept of omni-sponge;**

*The ecological construction of low development accommodates a large amount of sand and gravel waste in the site, and forms a whole ecological drainage ditch network through terrain remodeling. With the wetland flower environment, to solve the island's perennial water situation.*

**3. Build ecological water purification and island science popularization base.**

*We will improve the island-wide visiting trails and arrange migratory bird viewing spots. Combined with the equipment window, promote the concept of ecological water purification.*

## PROJECT CHARACTERISTICS

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**1. The only independent island water purification plant in Guangzhou;**

**2. Perfect integration of industrial equipment and landscape design;**

*The modified water purification equipment is integrated with the original wetland ecological landscape.*

**3. Low development, the realization of the whole island sponge concept;**

*The original materials on the island are reused to realize the concept of omni-range sponge through self-arrangement.*

**4. Ecological water purification plant, a new home for migratory birds.**

*The self-regulating ecological landscape enriches biodiversity.*



# HISTORY OF TAP WATER IN GUANGZHOU

According to records, Guangzhou water project has a history of more than 1000 years. For thousands of years, the development of tap water ups and downs, so far Guangzhou is mainly based on 7 water plants, Shixi plant is one of them!

The stream of Pujian on **Baiyun Mountain** winds along the mountain to the southwest, changing from thin water to a small river. This stream is so sweet that people call it **"Ganxi"**. Guangzhou City relies on this "lifeline" to build and develop.

Ganxi was gradually silted up and dried up due to a lack of water. At the same time, the expansion of settlements and the improvement of well digging technology increased the number of "sweet Wells" in the city. **"Six veins Canal"** came into being at this time.

Construction of "Zengbu Water plant". Three pipelines run straight into affluent parts of Guangzhou.

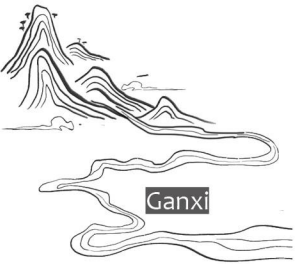
Guangzhou was changed into a special city, and **the government** sent the military police and takeover committee to form a management committee to take over the civilian-commercial office of **Guangzhou Water Co., LTD.**

Japanese fascist invasion, Guangzhou fell. Water plants **stopped supplying water**, workers left and factories stood empty. The army entered Zengbu water plant, the implementation of "military management", **water price is expensive.**



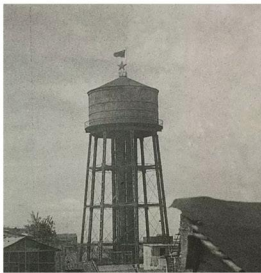
The Guomintang government **reorganized the Guangzhou Water and Electricity Administration Office**, but it was never restored to the pre-war level.

Several water Works were gradually built.  
In 1957, Baihedong Water Works was built.  
In 1959 the Yuancun water works was expanded .  
In 1960, Huangpu Water Works was built.  
In 1960, the Henan Water Works was established.  
In 1961, Chebei Water Works was built.  
In 1966, Jiangcun Water Works was built.  
**In 1969, the Shixi Works was built**  
In 1977, the Xintang Water Works was built.  
In 1983, Shimen Water Works was built.  
...



Shanghai rich businessmen and Guangzhou official cooperation, the establishment of **"Guangzhou provincial River water Company"** .

A boiling water ceremony was held at Zengbu Water Works. But the installed users did not meet expectations.



Guangzhou tap water ushered in the **golden moment**, the formal construction of Zengbu water plant water supply project, Guangzhou for many years water difficulties have been basically solved.

Dongshan Water Works was bombed by Allied planes, the Japanese disassembled the relevant supplies and shipped to Taiwan, **the Dongshan water Works ceased to exist.**

"Henan (now Haizhu District) Water Supply Project Preparation Office" was established, and "Henan people" drank tap water for the first time

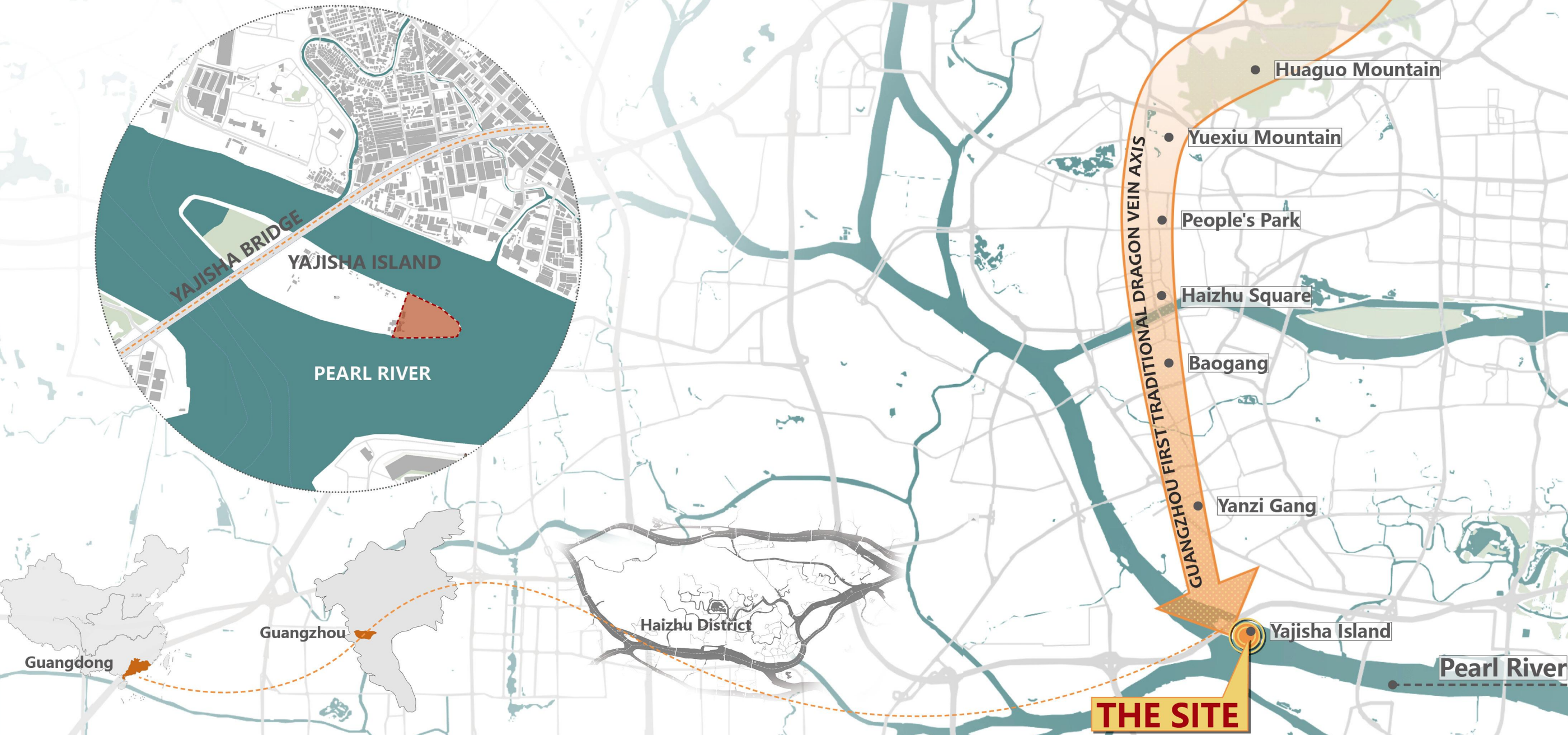


# LOCATION CHARACTERISTIC

The Shixi water plant is located at the end of the central axis of Guangzhou's first traditional dragon vein.

Yajisha Island is surrounded by water on all sides, the north is the river of the Pearl River, and Shixi Village, Haizhu District across the river, the south is the main channel of the Pearl River, Yajisha Pumping Station is located on the east side of Yajisha Island, since 1969, this is the water intake point of Shixi water plant.

Shixi water plant is located at the end of the central axis of Guangzhou's first traditional dragon vein. It is not only a natural pearl in the Pearl River, but also a treasure house of resources bearing the water demand of Guangzhou citizens.





# ANCIENT AND MODERN CHANGES

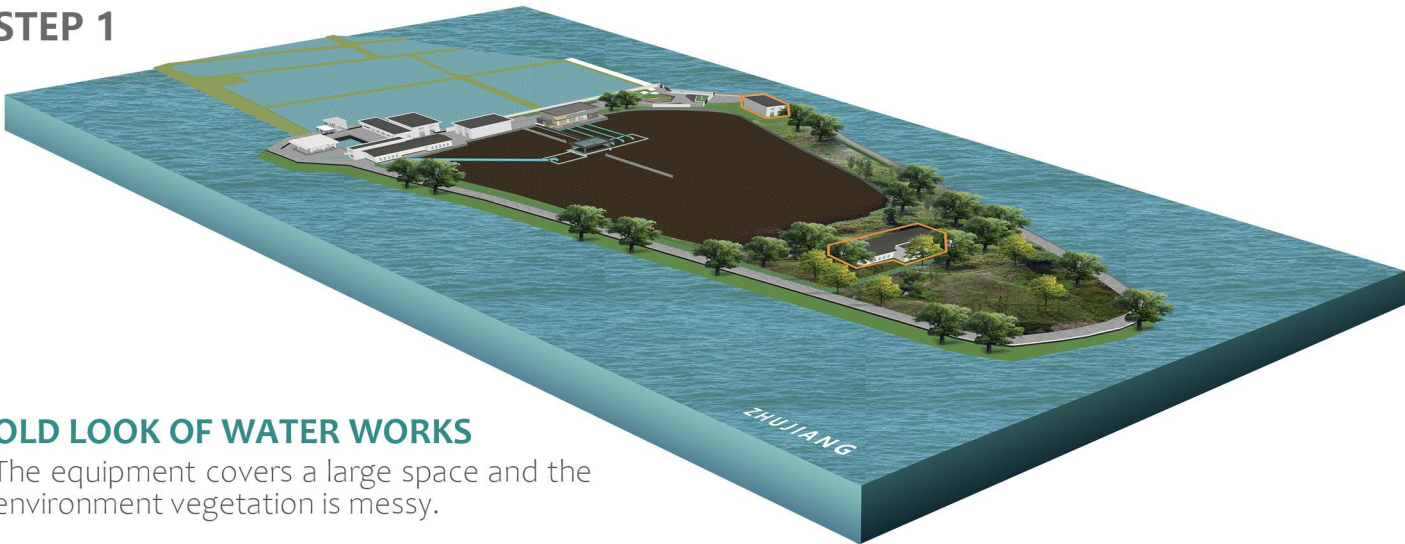
BEFORE



NOW



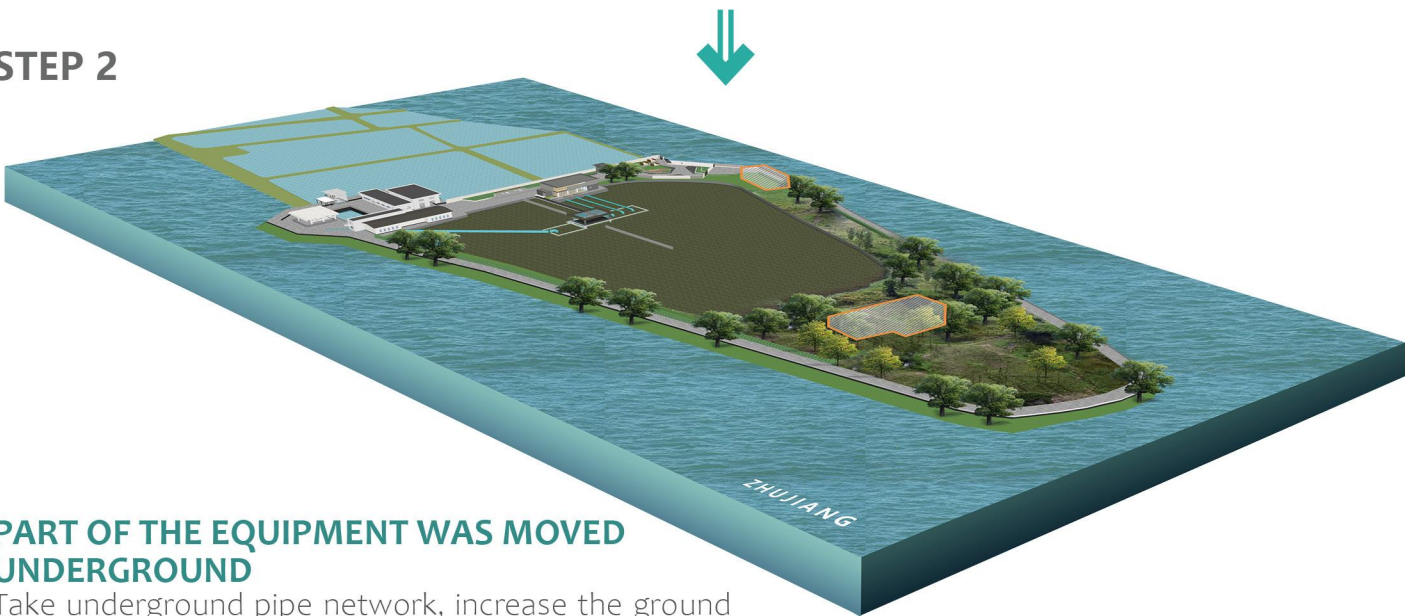
STEP 1



**OLD LOOK OF WATER WORKS**

The equipment covers a large space and the environment vegetation is messy.

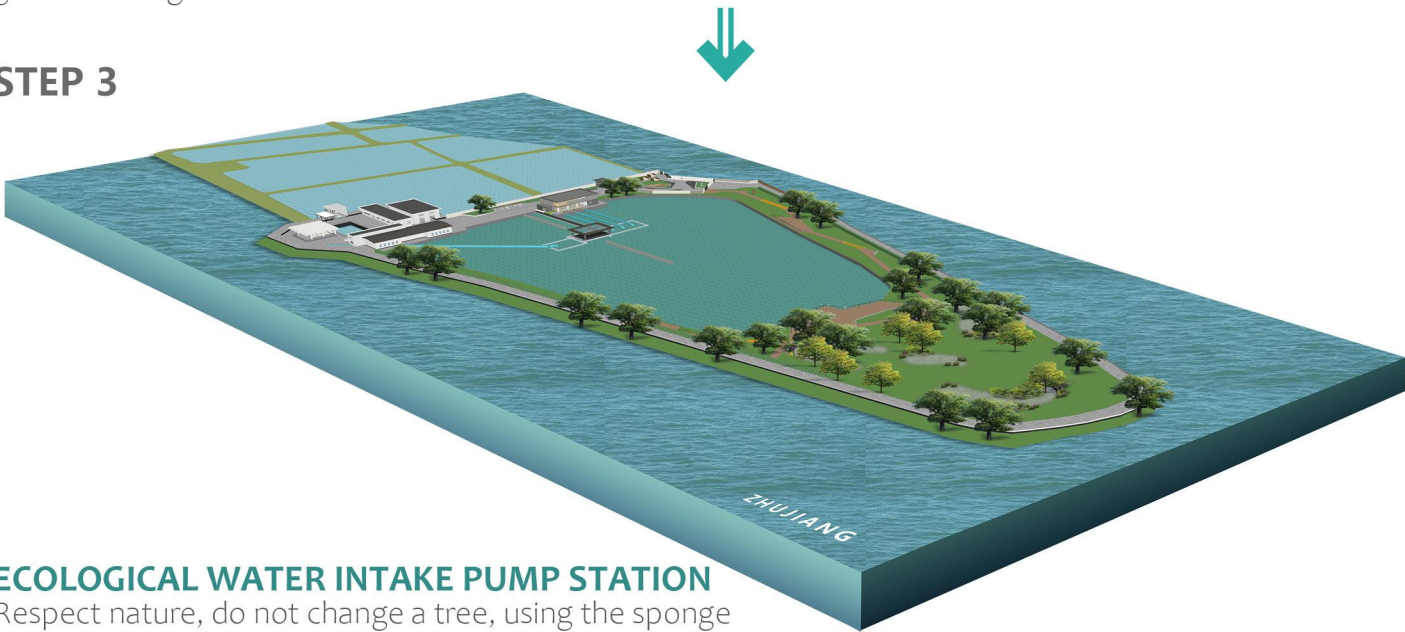
STEP 2



**PART OF THE EQUIPMENT WAS MOVED UNDERGROUND**

Take underground pipe network, increase the ground green coverage.

STEP 3



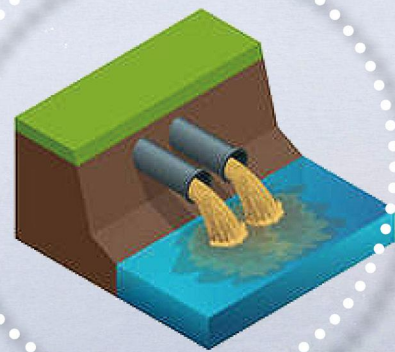
**ECOLOGICAL WATER INTAKE PUMP STATION**

Respect nature, do not change a tree, using the sponge ecological principle, to achieve the perfect integration of water plant function and ecological environment.



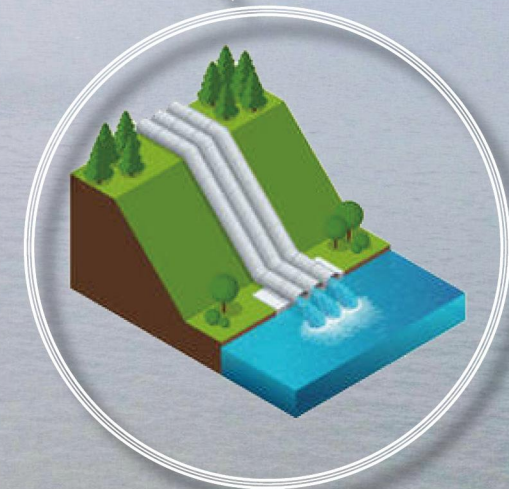
# FUNCTION OF WATERWORKS

The domestic wastewater is purified by the equipment of Shixi Water Plant, and the purified water can be discharged directly into the Pearl River.



WASTE WATER

PURIFY



TAP WATER

PEARL RIVER



# OLD IMPRESSION OF WATERWORKS

When it comes to Yajisha, many Guangzhou residents will think of it as an island in the middle of the Guangzhou section of the Pearl River.

Yajisha Island has abundant landscape resources, lush green trees and chirping birds. It also houses the Yajisha Pumping Station, which has been quietly serving the citizens of Guangzhou since 1969.

## HOWEVER, INSIDE THE YAJISHA INTAKE PUMP STATION

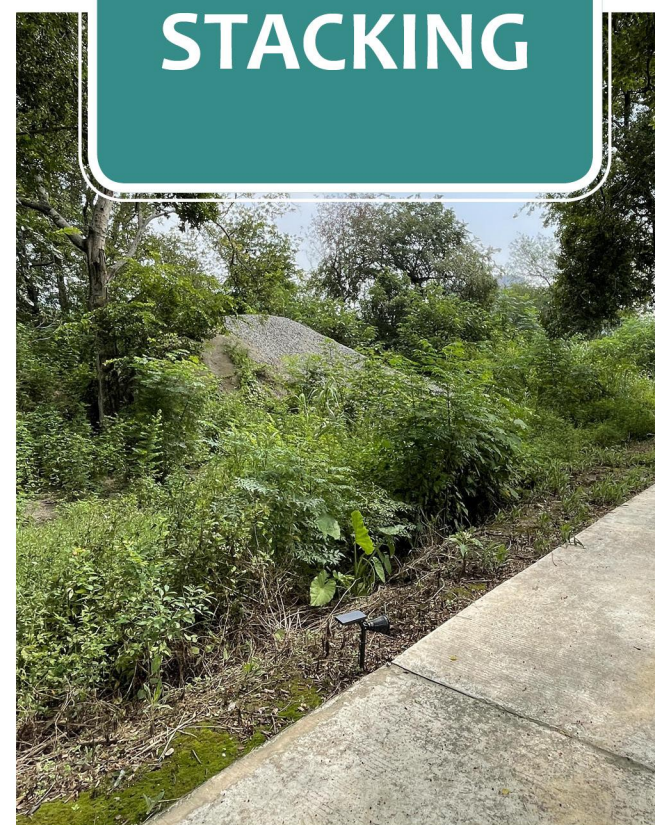
**LACK OF  
IDENTIFICATION**



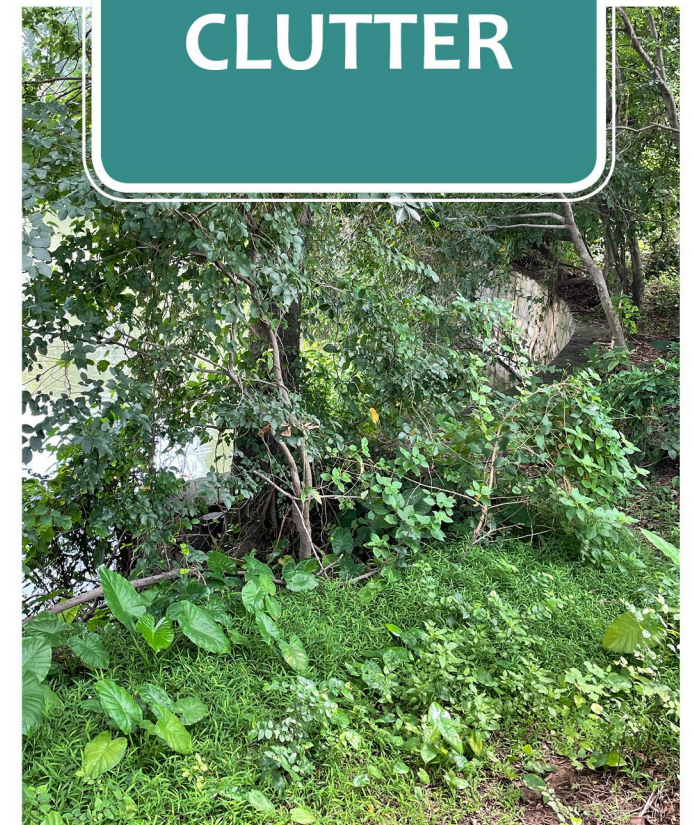
**EQUIPMENT  
EXPOSURE**



**SCRAP  
STACKING**



**VEGETATION  
CLUTTER**





## DESIGN IDEAS

### 1 IMAGE TRANSFORMATION

Entrance image display, water purification equipment landscape, low development of ecological construction

### 2 STRUCTURAL TRANSFORMATION

The combination of underground and above-ground space makes above-ground space a more valuable ecological restoration and composite structure

### 3 HABITAT TRANSFORMATION

Ecological conservation brings species diversity and leads the promotion of science popularization model in the factory



# PROJECT INNOVATION

## 1 LANDSCAPING OF WATER PURIFICATION EQUIPMENT

After meticulous landscape treatment, industrial water purification equipment has become an important display window of tap water culture in the island.

## 2 THE CONSTRUCTION WASTE IS REUSED TO REALIZE THE WHOLE SPONGE CONCEPT

The ecological construction of low development accommodates a large amount of sand and gravel waste in the site, and forms a whole ecological drainage ditch network through terrain remodeling. With the wetland flower environment, to solve the island's perennial water situation.

## 3 BUILD ECOLOGICAL WATER, ISLAND SCIENCE BASE

We will improve the island-wide visiting trails and arrange migratory bird viewing spots. Combined with the equipment window, promote the concept of ecological water purification.





KEY AND DIFFICULT POINTS OF THE PROJECT

# LOW INPUT, HIGH EFFECT ECONOMICAL DESIGN

COLLECT AND POLISH  
LOW INPUT



TERRAIN REUSE  
HIGH EFFECT



INFILTRATION

Gravel material discarded on site

The whole concept of sponge landscape embodiment



# PLAN

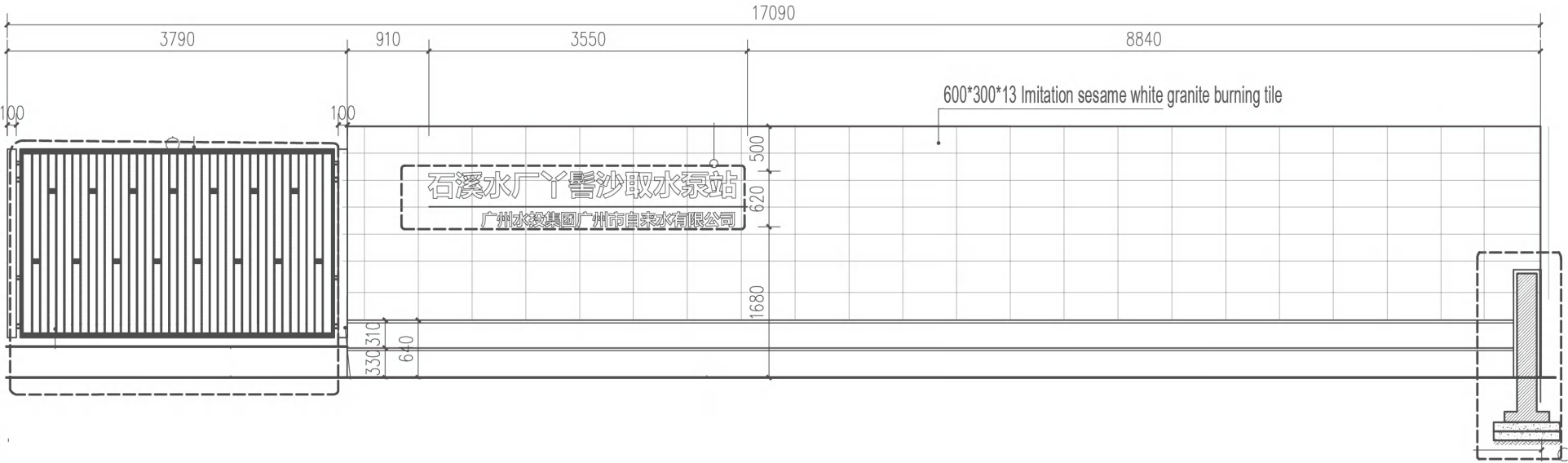


- |                      |                       |                          |
|----------------------|-----------------------|--------------------------|
| 1 Entrance square    | 4 Trestle             | 10 Feeding room          |
| 2 Anti-backflow well | 5 Landscape sculpture | 11 Leisure platform      |
| 3 View wall          | 6 Peripheral road     | 12 Post                  |
|                      | 7 Wooden bench        | 13 Landscape structure   |
|                      | 8 Viewing platform    | 14 Electric house        |
|                      | 9 Current water pipe  | 15 Machine room 1        |
|                      |                       | 16 Duty room             |
|                      |                       | 17 Water inlet           |
|                      |                       | 18 Comprehensive housing |





# DESIGN EFFECT

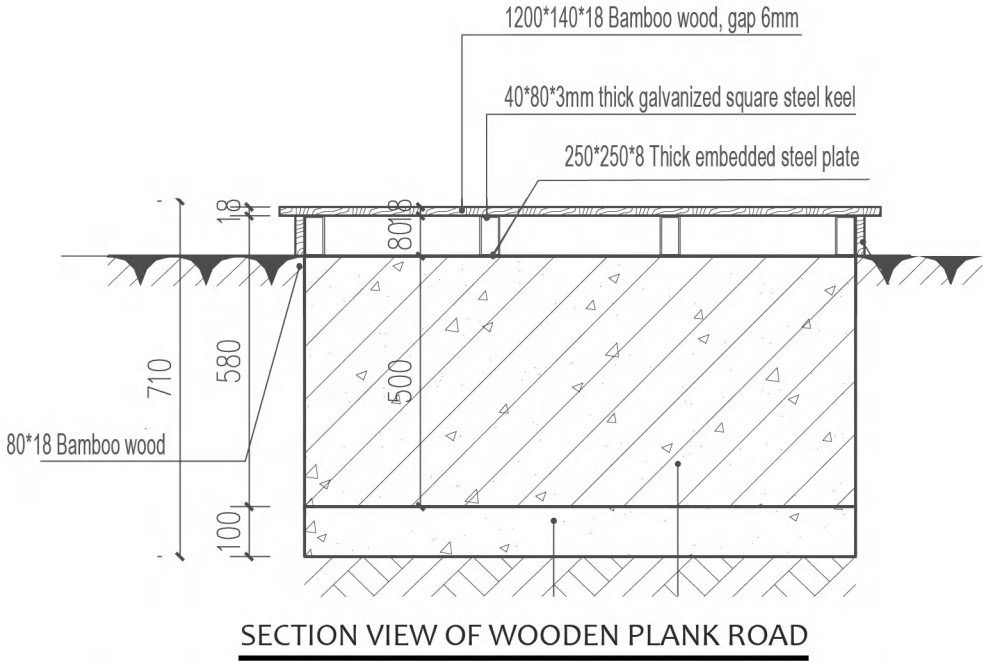


ENTRANCE VIEW WALL ELEVATION



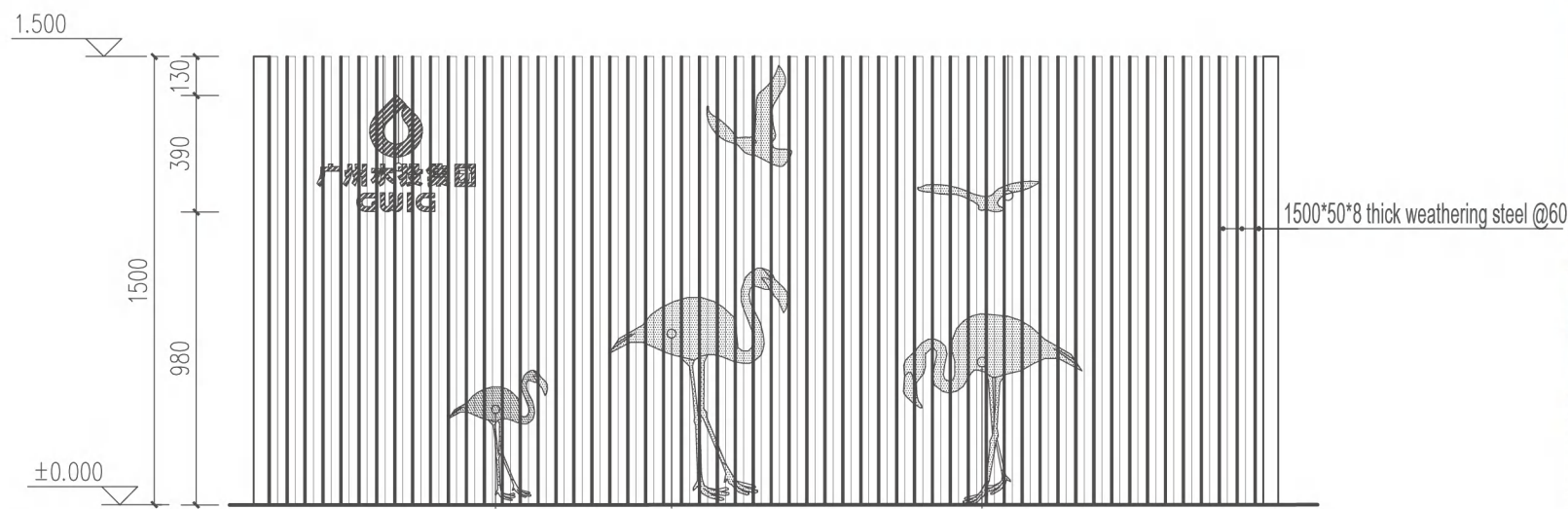


# DESIGN EFFECT





# DESIGN EFFECT



GRID ENCLOSED ELEVATION



NOW



BEFORE



EFFECT DRAWING



AERIAL VIEW

# 丫髻沙

——The only independent island water  
purification plant is in Guangzhou.





# NEW LOOK OF WATER WORKS



CREATE THE ENTRANCE FACADE

STONE LANDSCAPE WALL DECORATION



# ECOLOGICAL LANDSCAPE



ECOLOGICAL WALKWAY

PROTECTION STATUS TREE

A RAIN GARDEN THAT BREATHE



# A NEW LOOK TO THE ISLAND ENTRANCE

The entrance square is restored and the entrance scene wall with the logo of water intake pump station is newly added, which is simple and atmospheric in shape. The design of the square **respects** the growth needs of **the original trees**, and carries on the retention and pruning maintenance of the well-growing prynne.





# INTERNAL ABSORPTION

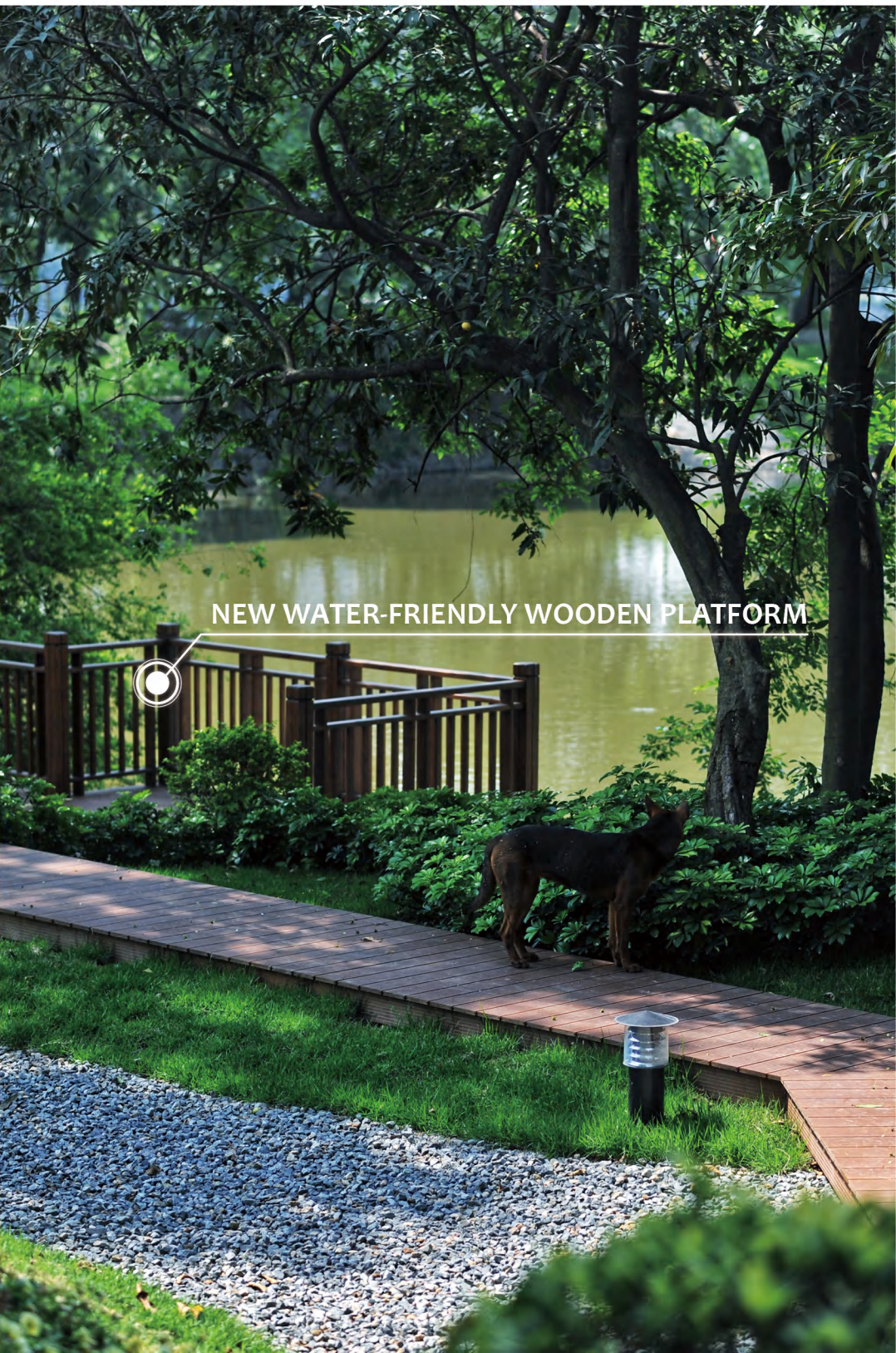
The ecological construction of low development accommodates a large amount of sand and gravel waste in the site, and forms a whole ecological drainage ditch network through terrain remodeling. With wetland mirror, to solve the island's perennial water situation.





# SMOOTH SIGHTSEEING ROUTE

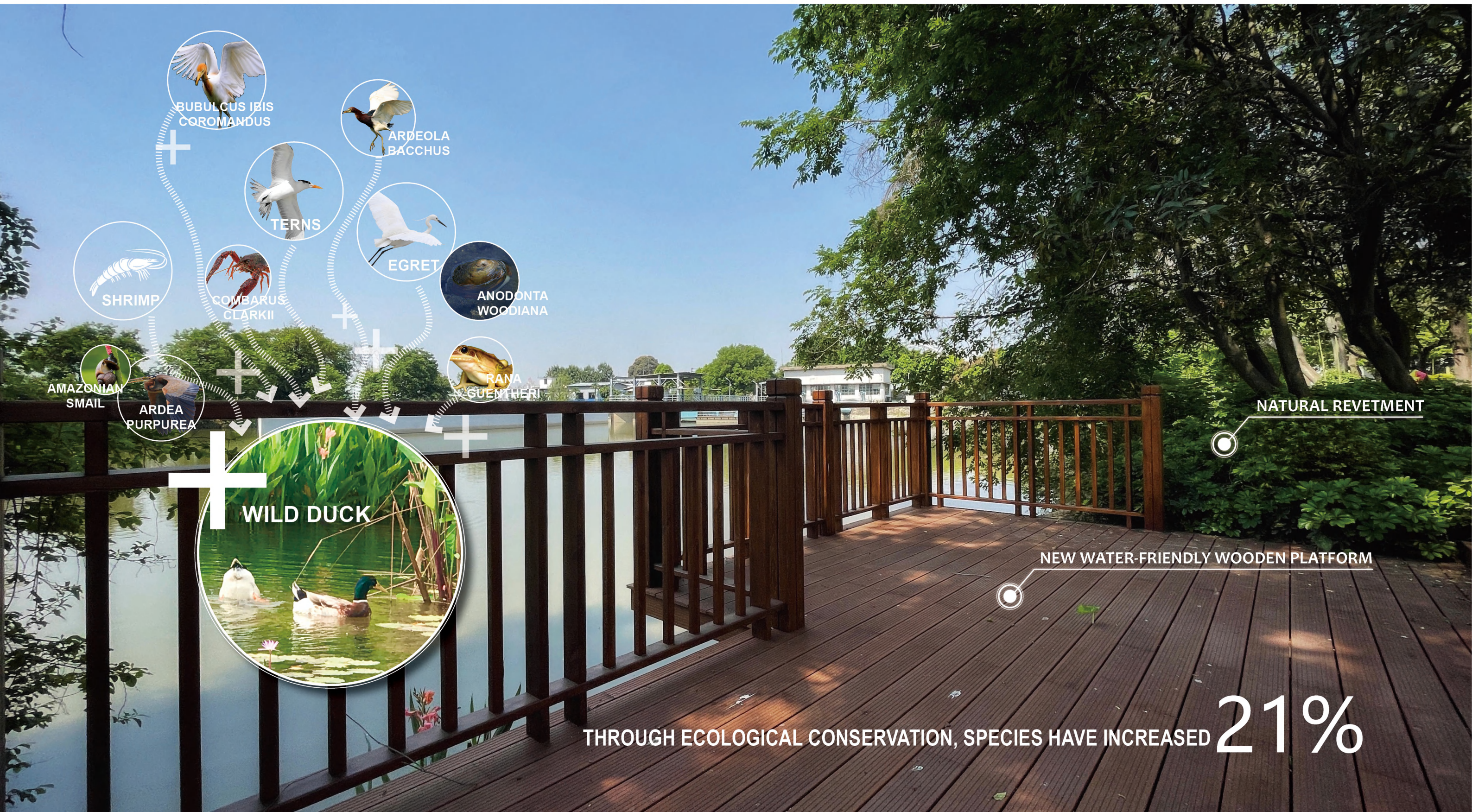
We will **improve the island-wide visiting walkways, set up migratory bird viewing spots**, and open sight corridors for visitors to enjoy the chirping of birds and the fragrance of flowers and the shade of trees when they rest. Through dredging the road network of the park, the multi-direction series of "forest - water - bank" can be realized.





# ECOLOGICAL CONSERVATION

We respect the structure and function of the ecosystem, do not overdevelop, do not change a tree, the island still maintains the original ecological wild interest, attract species habitat, realize ecological conservation.



THROUGH ECOLOGICAL CONSERVATION, SPECIES HAVE INCREASED 21%



# ECOLOGICAL CONSERVATION

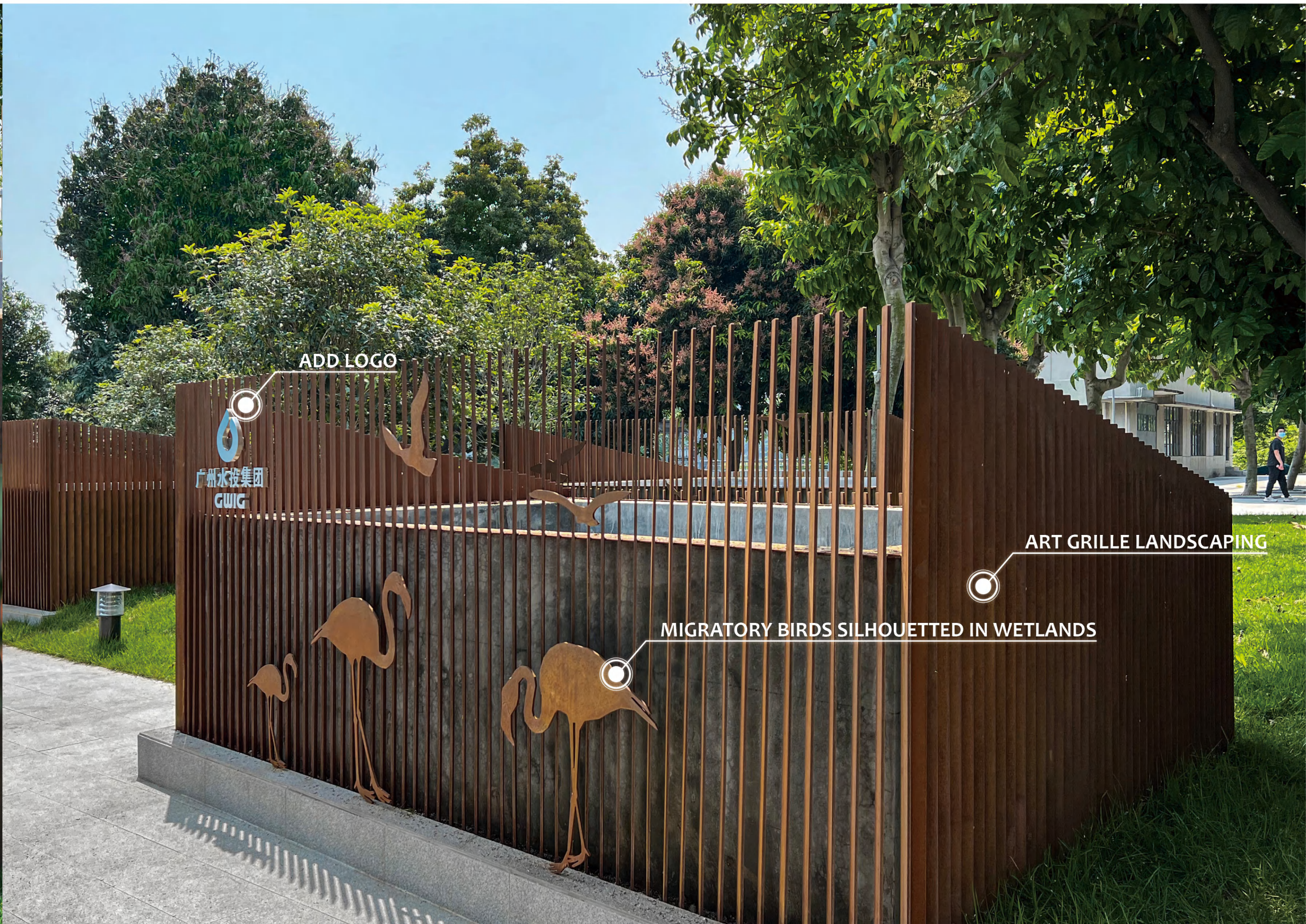
The ecological and natural environment of Yajisha Island is maintained due to **low development and renovation**, so that you can **enjoy the moment of bird life**.





# LANDSCAPING OF INDUSTRIAL EQUIPMENT

The facade beautification of the anti-backflow pool structure in the entrance square is covered by **art grating**. Supplemented by **the cultural exhibition of Guangzhou Water Tou Group and the silhouette design of wetland migratory birds**, it becomes an important display window of tap water culture in the island.





# TRANSFORMATION

**A new look at the island water treatment plant.** Use the advantages of ground space resources to improve the function of the plant, adapt to local conditions to create an ecological landscape with water resources recycling system, form a multifunctional plant environment, and enhance the cultural brand image of the water purification plant. At the same time, **low development ecological construction techniques** are adopted to absorb a large amount of gravel waste in the site and **realize the concept of omni-domain sponge by self-discharge.**

The water plant has achieved perfect transformation, full of new vitality, and become **a demonstration island ecological water plant, island science popularization base, and a new home for migratory birds.**





# POST DESIGN SEQUENCE

Rain or shine, no matter how many times we see our island from the boat, we feel particularly moving. It is not only a natural pearl in the Pearl River, but also a treasure house of resources carrying the hope of Guangzhou People's Daily water use. Now with our efforts, it has become more colorful and moving.

