Transforming an Abandoned Cement Factory to a Green Space

Project Statement

Zibo, a traditional industrial city, was an important position in China. But in the era of ecological civilization promotion in China, the city is facing transformational challenges and new opportunities. The 130-year history of mountain digging and quarrying has demolished the ecological environment in this area. The air and water bodies have been seriously contaminated. The project takes ecological restoration as the starting point to drive the transformation of abandoned mine pit into a high-quality green park. The design follows the original texture of the site, preserves the memory of industrial civilization through the combination of old and new methods, such as retaining the remains of the original cement plant facilities, upgrading the plant building, and building a new exhibition hall. At the same time, it displays the future development direction and blueprint of the city. In the south side, ecological display nodes such as lake, rain garden are built by maintaining the current quarry rock, repairing forest facies and rainwater purification, which are used as places for mine ecological restoration display and ecological science popularization education.

Project Narrative

Background

Zibo is a typical industrial city in the transitional stage of late industrialization. It has an important position in the age of industrial development. However, the development of industry has brought air pollution and water pollution to Zibo. There are more than 90 days of serious air pollution throughout the year. Many water areas are in crisis and people's quality of life is low. Sibaoshan area is located in the eastern suburbs of the city and is the core area of urban development nowadays. This area has undergone mountain quarrying for more than 130years since 1894. Since 2003, the government has begun to take measures such as mountain restoration and ecological rehabilitation in an attempt to transform the area.

The site used to be a cement factory in a total area of 103500m². The waste left in the open northwest side of the site and the north side of the cliff wall needs to be cleaned. Part of the industrial waste can be transformed to create an industrial landscape. The current woodland and cliff vegetation on the south side of the site are intact, providing good landscape resources. The site retains the original cement plant equipment and buildings. The two sets of silos have retention value and carry the historical memory of the original site. The remaining buildings and equipment shall be demolished. The terrain of the original factory area is relatively flat, and the abandoned quarry in the south has a large height difference, with about 15m rock wall.

Design concept

The design respects the existing texture of the site, retains the facility remains, and transforms the plant building to show the memory of Zibo industrial civilization. At the same time, combined with the current characteristics of the rock wall, the natural landscape such as waterfall and water stack is created to show the ecological technology means. First, remove the muck and construction waste from the site, keep the current vegetation, keep the current cliff wall, keep the cement silo. Secondly, a new exhibition hall was built around the cement silo, a landscape lake body was set up with the abandoned mine, and a new music restaurant was built with the height difference. On the west side of the site, a parking lot is set to meet the needs of functional use. On the north side, the main interface of the exhibition hall facing the municipal road becomes the entrance image exhibition area. A enclosed square is formed between the exhibition hall and the music restaurant to meet the needs of both. Select the scenic spots and use the height difference to set the terrace garden. Select the scenic spots and use the height difference to set the terrace garden.

Strategy

1. Ecological restoration

The muck and garbage in the site should be cleaned up, the current cliff wall should be retained, and the viewing lake should be formed by using the pit area. At the same time, the waterfall should be designed on the relatively complete cliff face with good viewing effect, which can not only form a good viewing effect, but also play the role of water circulation and purification. Collect the catchment water in the site and purify it through the terrace garden before entering the lake.

2. Vitality promotion

A shared garden is set up between the exhibition hall and the music restaurant to provide a shared space for young people to communicate. The retained silo serves as a bookstore and cafe. The music restaurant and terrace garden can host outdoor concerts.

3. Industrial heritage

Relying on the retained cement silo as the main display, Industrial Imprint Square integrates "cement process" as the site memory into the square to evoke people's industrial memory of the original site. Describe the working principle of ball mill and cement production process, leaving memories of the original site cement factory. Retain the disused concrete blocks on the site and use them for the paving of the site.

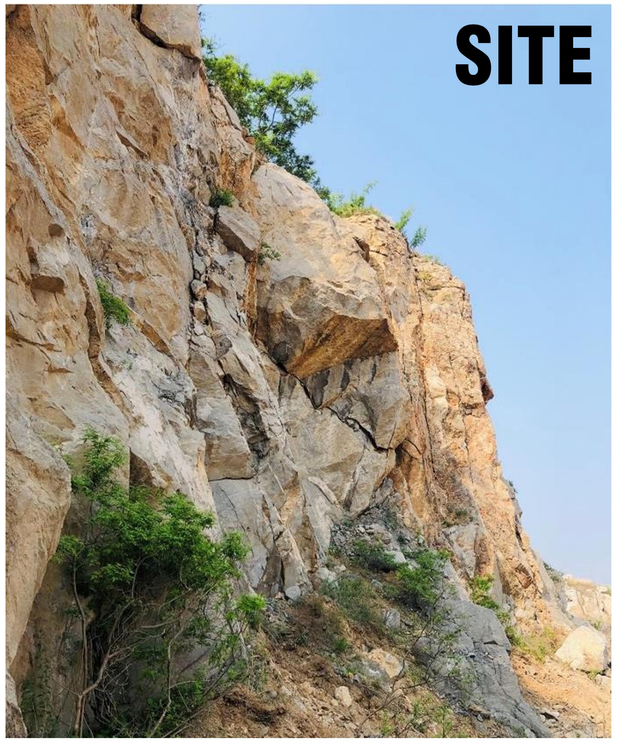
4. Digital landscape

In order to achieve the goal of scientific and accurate simulation, several application software tools are innovatively integrated. To achieve the goal of scientific and accurate simulation innovatively integrate different software tools. A 3D model with an accuracy of 0.1M is built by photogrammetry. The model is imported into AIM (Autodesk Infraworks Modeling), then the geological stability assessment results are imported to form the geographic information after being treated. ArcGIS is used to simulate the catchment and illumination, which is used to determine the area of restored green space. Then we select local plant species through the light conditions determine. Finally, a scientific restoration plan is formed.

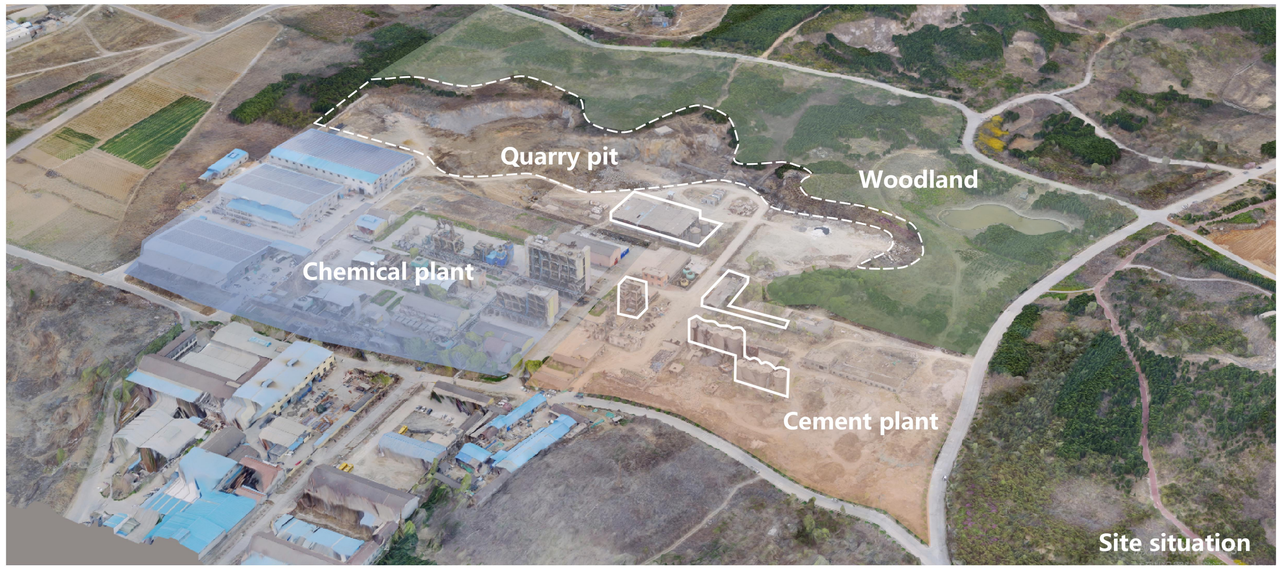
MASTERPLAN

LEGEND

1 Main Entrance
2 Exhibition Hall
3 Cement Silo
4 Parking Lot
5 South Plaza
6 Terrace Garden
7 Music Restaurant
8 Lake
9 Current Woods
10 Industrial Park
11 Cliff
12 Reservoir

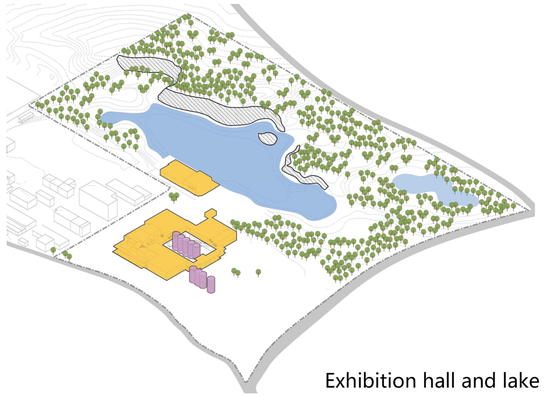

SITE

DESIGN CONCEPT



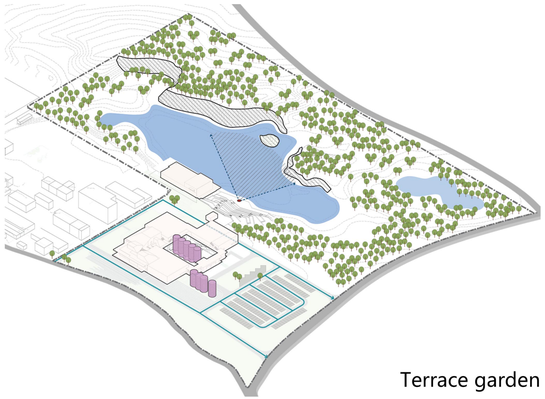
Site situtation

Current vegetation and cliffs

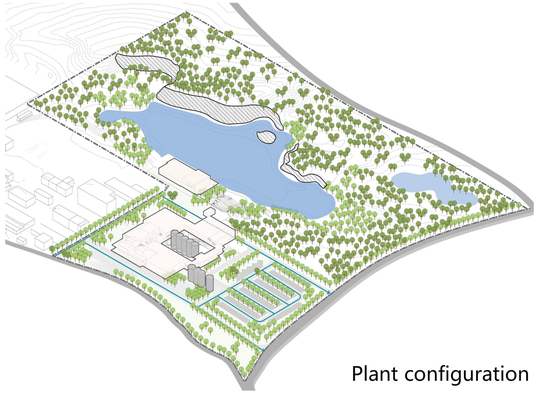


Exhibition hall and lake

Visitor service facilities

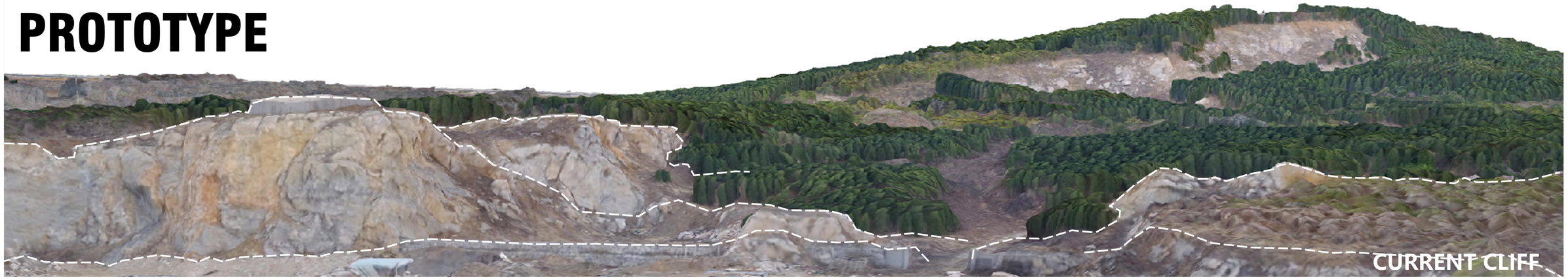


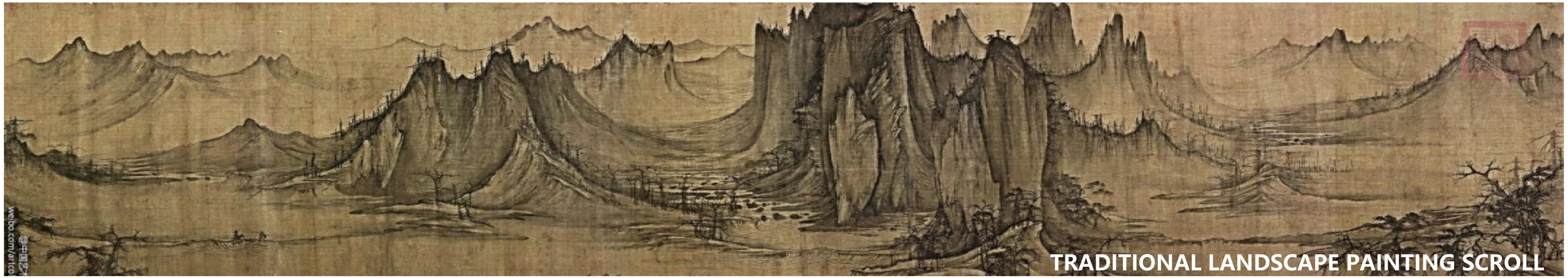
Terrace garden



Plant configuration

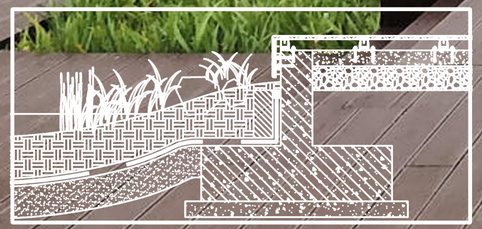
PROTOTYPE


CURRENT CLIFF


TRADITIONAL LANDSCAPE PAINTING SCROLL

LANDSCAPE

STORMWATER MANAGEMENT



HABITAT CREATION

LAKE VIEW

CEMENT SILOS

INDUSTRIAL HERITAGE

BALL CRINDING MILL

Mining → Raw material crushing → Raw material homogenization and storage → Raw material batching
Clinker burning → Clinker storage → Cement batching and grinding → Cement storage and shipping

VITALITY PROMOTION