Ex-Sham Shui Po Service Reservoir

Background

Before the construction of the Kowloon Reservoir, water supply in the Kowloon Peninsula was characterized by the deployment of underground water as the main source. It was the only formal water supply utilizing underground water in the water supply history of the Hong Kong Government.

However, the Government soon realized that the sole reliance on underground water would not be able to cope with the growing demand as a result of the surging population growth in the Kowloon peninsula.

The government therefore instigated in 1902 the Kowloon Waterworks Gravitation Scheme which included the construction of:

i. Kowloon Reservoir and Catchwaters
ii. Tai Po Road Filter Bed
iii. Ex-Sham Shui Po Service Reservoir (Known as “Kowloon Tong Service Reservoir” at that time)
iv. Water pipes of various sizes connected the Kowloon Resercoir to the Tai Po Road Filter Beds, the Tai Po Road Filter Beds to the Ex-Sham Shui Po Service Reservoir, the Ex-Yaumati Service Reservoir, the Reservoir, the Yaumati Service Reservoir and the Hung Hom Service Reservoir.

The objective of the whole scheme was to deliver the fresh water to these 3 service reservoirs. Since the Ex- Yaumati Service Reservoir and the Hung Hom Service Reservoir were already in place in 1894, only one more service reservoir was required to build under this waterworks gravitation scheme, that was the then Kowloon Tong Service Reservoir and now the Ex-Sham Shui Po Service Reservoir. Completed in 1904, it supplied fresh water to the people residing in the areas of Kowloon Tong, Shum Shui Po and Tai Hang Tung since then.

As the Shek Kip Mei Fresh Water Service Reservoir was commissioned in 1970, with its massive storage capacity (30 million gallons), it provided stable water supply to lots of people living in the area of Sham Shui Po. Due to its relatively small storage capacity, the importance of Ex-Sham Shui Po Service Reservoir faded out and it ceased to operate in the same yar. In June 2021, the Ex-Sham Shui Po Service Reservoir was accorded a Grade 1 historic building status by the Antiquities Advisory Board.

Introduction

The Ex-Sham Shui Po Service Reservoir was the first circular underground service reservoir locally built. The characteristic of a circular appearance is that it can achieve the greatest area by the shortest perimeter, hence reducing the cost on building perimeter wall. The diameter of the service reservoir was 150 feet (approximately 46 metres), the height from floor to the vault was 22 feet 6 inches (approx. 6.85 metres), the storage capacity was 2.18 million gallons (approx. 9,900 cubic metres).The size of this service reservoir was huge when compared to the early covered brickwork service reservoirs like the Ex-Yaumati Service Reservoir (approx. 160,000 gallons/740 cubic metres) and the demolished Hung Hom Service Reservoir (approx. 90,000 gallons/420 cubic metres). In this connection, it would be very difficult to adopt roofand piers similar to ordinary brick service reservoir. As such, the roof of this service reservoir was casted by in-situ concreteto achieve the design span.

Sealed Tunnel Portal (Photo)

Wooden Vertical Staff (Photo)

Red Brick Arches (Photo)

The Main Scenic Spots and Architectural Styles

Layout Plan

1. Sealed Ventilator

2A. Original Perimeter Wall (built in 1904)

At the time of its completion in 1904, the diameter of the service reservoir was 150 feet (approx.. 46 metres), the centre-to-centre distances between the stone piers were 13 feet (approx. 4 metres) longitudinally and 12 feet (approx.3.7 metres) laterally. The size of this service reservoir was huge when compared to other covered brick service reservoirs in early year like the Ex-Yaumati Service Reservoir (approx.160,.000 gallons / 740 cubic metres) and the demolished Hung Hom Service Reservoir (approx. 90,000 gallons / 420 cubic metres).

2B. Circumferential Wall for Repair Works commenced in 1951

In order to rectify leakage problem, a 6-incg thick reinforced concrete wall backed with bitumen waterproof layer was built inside the service reservoir. With the repair works commenced in 1951, the internal diameter of the service reservoir was reduced to 124 feet (approx. 38 metres) and its storage capacity to 1.07 million gallons (approx. 4,800 cubic metres). The void between the new wall and the original wall filled and compacted with earth mixed with cement.

3A. Concrete Cove Ceiling

The top soil and the concrete ceiling itself, are supported on pentagonal profile granite spring blocks laid on rows of brick arches which imitate the Roman civil engineering works. The loading subsequently reaches the stone block piers made of rusticated granite blocks, before transmitting to the foundation safely.

3B. Red Brick Arches in imitation of Roman Civil Engineering Works

4. Granite Piers

Every rusticated granite block is 2 feet in length, 1 foot 6 inches in width and 1 foot in height. With the concrete upstand as the base, each pier is topped with 14 granite blocks of the same dimensions.

5. Red Brick Arches

The red brick arches are in Flemish bond.

6. Granite Spring Block

Concrete cove ceiling is supported by these pentagonal profile granite spring blocks.

7A. Wall-top Balancing Pipes

Two adjacent cove ceiling are linked with balancing pipes, which can balance the water levels and the pressure when water level is high.

7B. Pavement Light Openings/Ventilators

There were pavement light openings and ventilators, but they were all sealed by cement concrete since the decommissioning of the service reservoir. Some sealed pavement light openings (1 foot 6 inches in diameter) and ventilators (6 inches in diameter) can still be observed from inside.

8A. Stilling Well

Laid at the bottom of the inlet pipe, there is a steel stilling well. It restricted the vertical movement and the movement speed of a float of the ball float inlet valve.

8B. Half Round Channel

When cleaning the interior of the service reservoir, the half round channel caught the washed sediments and drained to the washout pipe. The sediments were brought away from the service reservoir.

8C. 12-inch-diameter Outlet Pipe

9A. 12-inch-diameter Inlet pipe

9B. 12-inch-diameter Overflow Pipe

10. 8-inch-diameter Washout Pipe

It was normally shut but could be opened when cleansing the service reservoir.

Location Map

The Ex-Sham Shui Po Service Reservoir is located on Mission Hill in Sham Shui Po.

Virtual Tour

Water Supplies Department launched a virtual tour of the Ex-Sham Shui Po Service Reservoir, which enables the public have a better understanding of the reservoir's history and functions, as well as appreciate its architectural styles and structures. Please access the link for details: https://www.wsd.gov.hk/VirtualTour/index.html

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