

Task Force on Harbourfront Developments on Hong Kong Island

For discussion
on 25 April 2023

TFHK/02/2023

Conceptual Design of Dry Weather Flow Interceptor at Wan Chai East

PURPOSE

This paper seeks Members on the revised design of the Dry Weather Flow Interceptor (DWFI) at Wan Chai East.

BACKGROUND

2. The Government has been striving to enhance the Victoria Harbour waterfronts and develop new promenades and open space. In the densely populated old urban districts on both sides of Victoria Harbour, due to vibrant city activities, some polluted surface runoff will inevitably drain into the harbour via the stormwater drainage system and affect the quality of the near-shore waters. The non-point pollution sources of surface run-off are extensive, including roadside wet markets, outdoor eateries and various cleaning activities in public places and back alleys etc. Besides, misconnection of foul sewers from old buildings to stormwater drainage system may discharge sewage into the stormwater drainage system, hence affecting the coastal water quality and environment of Victoria Harbour.

3. To improve the water quality and alleviate odour nuisance at the waterfront of Wan Chai East, Drainage Services Department (DSD) is planning to construct DWFI at Wan Chai East. Upon completion of the DWFI, the coastal water quality and the general environment at Wan Chai East will be improved. The location plan of the DWFI is at **Annex A**.

SCOPE OF WORKS

4. The proposed scope of works comprises the following –

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- (i) Construction of a filtering station at Wan Shing Street, a flow interception device (FID) at Tunnel Approach Rest Garden (TARG) with automatic penstocks, underground pumping station and the associated electrical and mechanical (E&M) kiosk;
- (ii) Construction of an underground bypass box culvert and associated pipelines; and
- (iii) Ancillary works, including landscaping works, aesthetic works and minor works.

CONCEPTUAL DESIGN OF WAN CHAI EAST DWFI

Enhanced Design of Filtering Station at Wan Shing Street

5. DSD last presented the conceptual design to Members at the 43rd meeting on 1 December 2022. DSD subsequently worked with the Consultant and Architect of the project to revise the design of the filtering station in response to the comments received in the meeting.

6. The filtering station comprised large equipment and components to support the efficient functioning of the filtering process. Provision of sufficient space and headroom for operation and maintenance are required. The revised design of the filtering station, comprising 1st floor, ground floor and basement is at approximately 19 mPD and the footprint area is reduced from the original design of 700 m² to about 300 m². The compressed filtering station is now located in a subtle location on the south-east corner of the Site. Besides, an existing big tree, *Ficus virens* will be relocated close to the north-east corner of the Site creating a natural barrier in front of the filtering station to further reduce its visual intrusiveness.

7. Moreover, co-use of the Site will be maintained in the way that the ground level will be shared use by the filtering station and

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the coach park having the underground usage expanded for housing more DWFI facilities.

Design of FID

8. The FID is designed to intercept the DWF from the existing Wan Chai East Box Culvert underneath the TARG. It is directly above the downstream section of the existing Wan Chai Box Culvert near the outfall to the harbour, in order to optimize the interception efficiency. Double-leaf penstock will be adopted to reduce the structure height above ground. To minimize the visual impact, the FID is designed to form part of the TARG with soft landscape as the cover and integrate with the new sheltered seating bench for smooth blending in with the garden environment. The pumping station will be housed at underground with E&M Kiosk at above-ground due to operation and maintenance need.

9. The latest architectural and landscaping design of the filtering station and FID is shown in **Annex B**.

Harbour Planning Principles

10. The following Harbour Planning Principles have been observed in the enhanced design scheme to ensure its compatibility with the surrounding environment —

(a) **Preserving Victoria Harbour and Sustainable Development**

The purpose of the DWFI is to reduce the amount of pollutants discharging into Victoria Harbour and to alleviate the visual and odour problems by filtering the polluted dry weather flows before discharging into Victoria Harbour.

Upon completion of the DWFI, the near-shore water quality and the general environment of Victoria Harbour along Wan

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Chai East Promenades will be enhanced. Victoria Harbour will be protected and preserved for Hong Kong people and visitors as a natural public asset.

(b) Stakeholder Engagement

We consulted the Development, Planning & Transport Committee of Wan Chai District Council on the Wan Chai East DWF1 project in November 2022. The Committee have no adverse comment on the proposed project. Public consultation will continue during the development of the project where necessary.

(c) Integrated Planning

The design scheme integrates seamlessly with the adjacent neighbourhood. By expanding the use of underground space and relocating *Ficus virens* within the Site at Wan Shing Street, the footprint of the filtering station (i.e. ground floor and 1st floor) is optimized and located at the south-east corner of the Site, while the FID at TARG is designed to be covered by soft landscape and a new seating bench avoiding being an eyesore in the garden. The design brings additional benefit and makes smooth integration with the park.

The operation of the filtering station will be in close integration in terms of the operation with the adjacent Wan Chai East Preliminary Treatment Works to achieve the synergy effect, including the shared use of power supply, and the use of plant facilities in order to reduce the spatial requirement of the filtering station.

(d) Proactive Harbour Enhancement

The reduced footprint of the filtering station above ground will minimize its visual impact to the harbourfront area. The façade treatment of filtering station adopts the continuation of aluminum vertical frames with inset of

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vertical greening and functional louvres. It will be complementary to and in harmony with the adjacent GREEN@Wan Chai Recycling Station and the promenade.

(e) Vibrant and Accessible Harbour

The aesthetic design of the filtering station and FID would be in harmony with the adjacent Wan Chai promenade and the TARG. Various plants will be introduced to the landscape area around the coach park to enhance the greenery of the overall environment.

(f) Public Enjoyment

The footprints of the filtering station and FID will be the minimum areas required taking into account functional, operation and maintenance requirements.

Soft landscape will be adopted to cover up the hardcore installations of the FID in TARG. The FID is also designed as a sheltered seating area which will be equipped with some fun gadgets such as decorative lighting and mobile devices charging powered by the roof-top PV panel, selfie stand, table and cup holders, etc.

The enhanced design of the filtering station will create more public space around the relocated *Ficus virens* for public enjoyment. The green area around the filtering station Site can provide a harmonious walking experience with the surrounding environment for visitors to the promenade.

PROGRAMME

11. The proposed works are anticipated to commence in the 3rd quarter of 2024 for completion in the 3rd quarter of 2028.

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WAY FORWARD

12. Following consultation with the Task Force and the District Council, we will consider the received comments and will draw up the detailed design of the DWFI facilities.

ADVICE SOUGHT

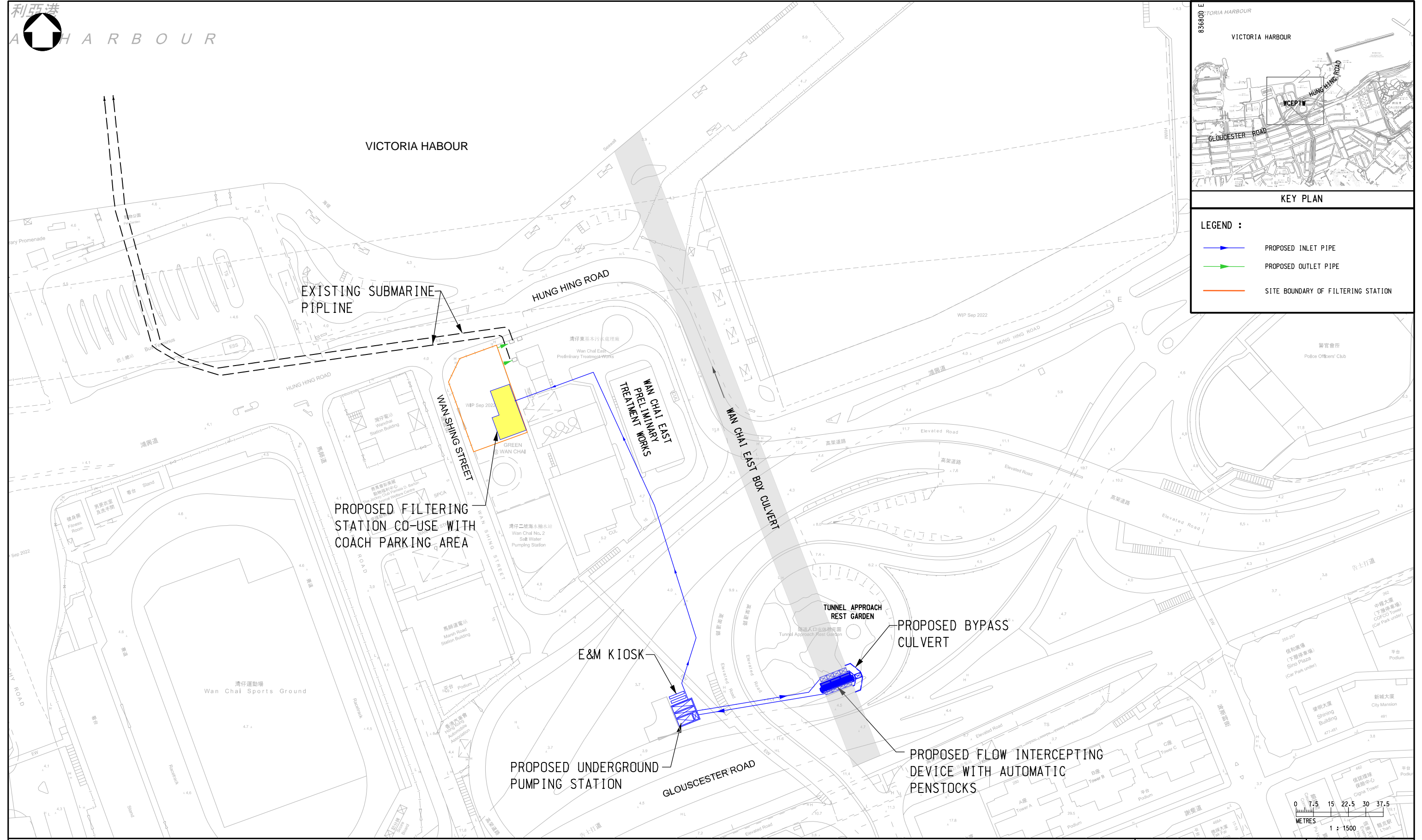
13. Members are invited to give views on the enhanced design of the DWFI project at Wan Chai East.

APPENDICES

Annex A Location Plan of Proposed Dry Weather Flow Interceptor at Wan Chai East

Annex B Architectural and Landscaping Conceptual Design of Wan Chai East Dry Weather Flow Interceptor

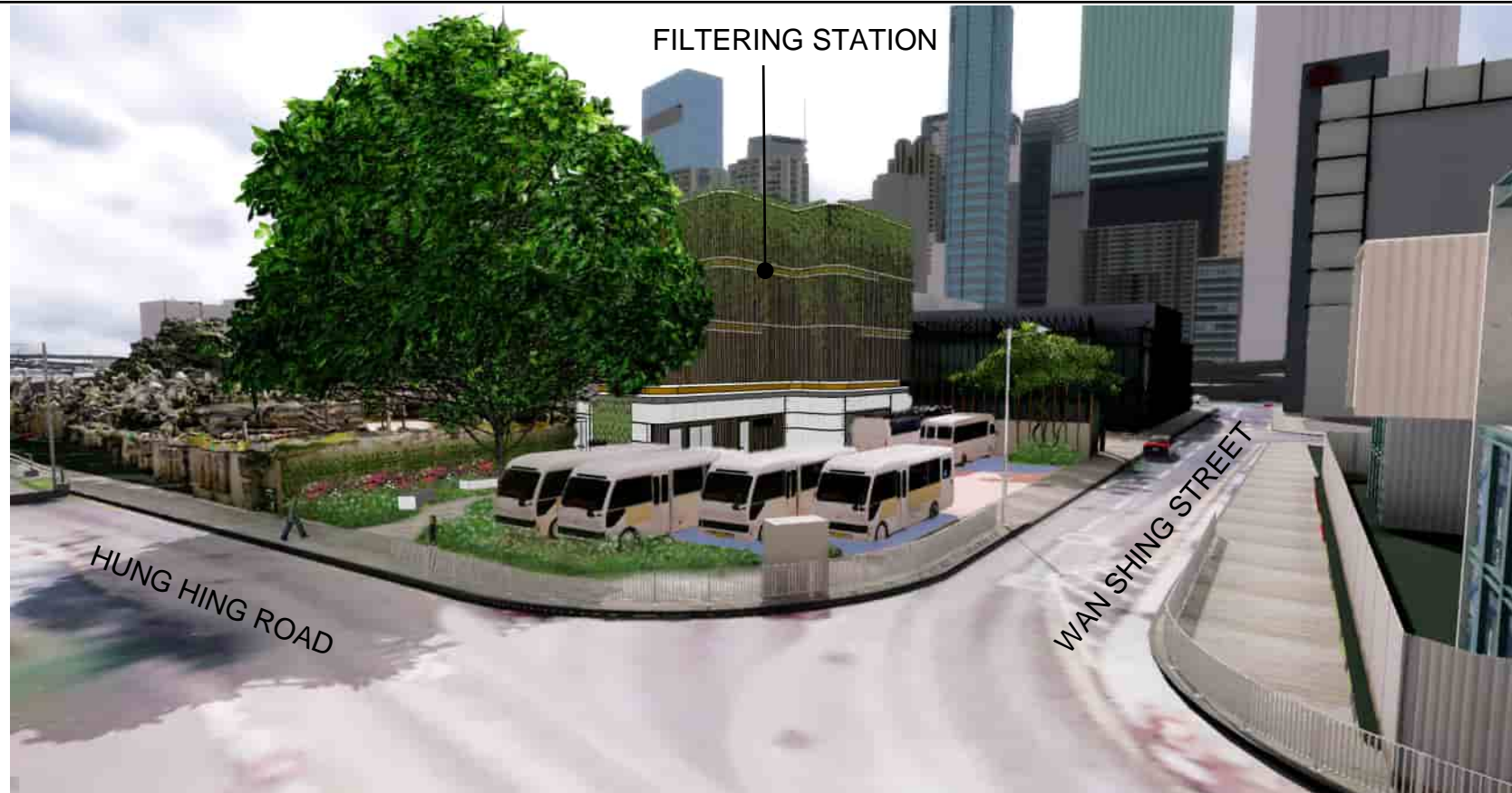
**Drainage Services Department
April 2023**



DRAWING TITLE:

LOCATION PLAN OF PROPOSED DRY WEATHER FLOW INTERCEPTOR AT WAN CHAI EAST

系統管理部 SYSTEM MANAGEMENT DIVISION	SCALE: 1:1500 (A3)
香港特別行政區渠務署 DRAINAGE SERVICE DEPARTMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	DATE: 29 MAR 2023
DRAWING NO. ANNEX A	



DRAWING TITLE:

ARCHITECTURAL AND LANDSCAPING CONCEPTUAL DESIGN OF
WAN CHAI EAST DRY WEATHER FLOW INTERCEPTOR

系統管理部 SYSTEM MANAGEMENT DIVISION	SCALE: N.T.S
 香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG	DATE: 15 MAR 2023
SPECIAL ADMINISTRATIVE REGION	DRAWING NO: ANNEX B - 01

Flow Interception Device at Tunnel Approach Rest Garden



FLOW INTERCEPTION DEVICE



FLOW INTERCEPTION DEVICE



FLOW INTERCEPTION DEVICE

DRAWING TITLE:

ARCHITECTURAL AND LANDSCAPING CONCEPTUAL DESIGN OF WAN CHAI EAST DRY WEATHER FLOW INTERCEPTOR

系統管理部 SYSTEM MANAGEMENT DIVISION	SCALE: N.T.S
 香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	DATE: 15 MAR 2023
	DRAWING NO: ANNEX B -02