

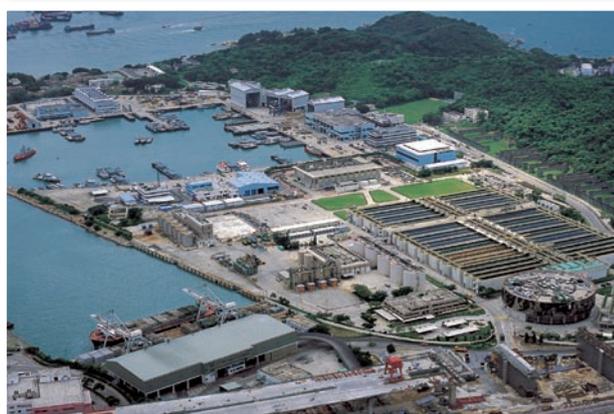
# 昂船洲污水處理廠

## Stonecutters Island Sewage Treatment Works

昂船洲污水處理廠是淨化海港計劃第一期的重要組成部份，它建於填海區上，佔地十公頃，是世界上同類型污水處理廠中規模最大及佈局最密集的廠房之一，污水經由七所基本污水處理廠收集，其服務的地區包括香港島東北部和九龍市區。該兩地區的人口預計在二零二一年將達三百五十萬。

昂船洲污水處理廠設計為每日1 700 000立方米污水提供化學輔助一級污水處理。污水處理廠在二零零一年十二月全面投入使用。現時每日的處理量達1 400 000立方米。

過去數年，香港特區政府完成了多項淨化海港計劃的發展研究。淨化海港計劃第二期將會分兩階段進行，分別是第二期甲及第二期乙。第二期甲工程包括提升昂船洲污水處理廠設計處理量，由每日1 700 000立方米增至2 400 000立方米，以處理整個淨化海港計劃集水區的污水。此外，該污水處理廠亦會在二零零九年底加設消毒系統，把所有經處理的排放水消毒後才排放，大大減少在排放水中的大腸桿菌含量。第二期甲工程亦會把現時在港島八間基本處理廠的設備提升，及接駁到新建的污水輸送系統。昂船洲污水處理廠內建有渠務署首個專門向公眾介紹污水處理的資訊中心，中心在二零零六年二月落成和啟用。資訊中心過往曾接待不少本地團體和國內外機構的參觀。



**Stonecutters Island Sewage Treatment Works** (Stonecutters Island STW) is one of the largest and compact sewage treatment works of its type in the world, occupying 10 hectares of reclaimed land. The plant forms an important part of the Harbour Area Treatment Scheme (HATS) Stage 1 and provides treatment to sewage collected by the seven preliminary treatment works (PTWs) in main urban areas of Kowloon and Northeast Hong Kong Island with a projected population of about 3.5 million by the year 2021.

Stonecutters Island STW is designed to provide Chemically Enhanced Primary Treatment for an average flow of 1.7 million m<sup>3</sup> per day. It was fully commissioned in December 2001. Its current inflow is about 1.4 million m<sup>3</sup> per day.

Over the years, the Government has taken a series of studies on the development of further stages of the Harbour Area Treatment Scheme (HATS). HATS Stage 2 will be implemented in two stages, stage 2A and 2B. Stage 2A comprises upgrading the existing Stonecutters Island STW from the present design treatment capacity of 1.7 million m<sup>3</sup> per day to 2.4 million m<sup>3</sup> per day for the whole of HATS catchment. In addition, there will be provision of disinfection facilities to reduce substantially the bacterial content of all HATS flow before discharge by end 2009. Stage 2A also includes upgrading of the existing eight PTWs on Hong Kong Island and the construction of the sewage conveyance system. The first Sewage Treatment Information Centre of Drainage Services Department was established at Stonecutters Island STW in February 2006. It has received many visitors from local institutions, organizations in mainland China and overseas.

### 我們的抱負 Our Vision

提供世界級的污水和雨水處理排放服務，以促進香港的可持續發展。

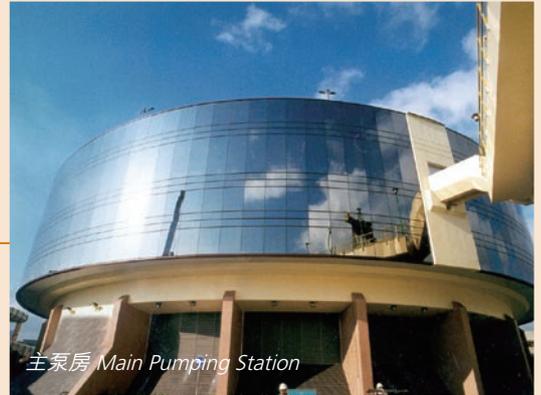
To provide world-class wastewater and stormwater drainage services enabling the sustainable development of Hong Kong.

## 污水處理過程 Sewage Treatment Process

### 抽水設施

港九各地(除西北九龍區外\*)七所基本處理廠內已隔濾及去除砂礫的污水，經由深層污水隧道及昂船洲污水處理廠內的抽水設施，被輸送到沉澱池前端的接收槽裡。

抽水設施的總抽水量為每秒40立方米。



主泵房 Main Pumping Station

### Pumping Facilities

The screened and degrittied sewage from seven PTWs located in various places in Kowloon and Hong Kong (apart from NW Kowloon area\*) is conveyed via deep tunnels and pumped into reception channels at the head of the sedimentation tank complex.

The main pumping station has a pumping capacity of 40m<sup>3</sup> per second.



三氯化鐵投放裝置 FeCl<sub>3</sub> Dosing Unit

### 化學輔助一級處理沉澱設施

已調好劑量的化學劑(包括三氯化鐵及聚合物)被注入沉澱設施的入口處，並於混合池內與污水快速混合。

混合後的污水流過絮凝池，形成絮凝塊後分配入沉澱池。

污水中絮凝物最後在沉澱池中沉澱成污泥，再利用鏈板收集器把污泥送至污泥漏斗槽，而水面的浮渣也會被浮渣收集器撇走。污泥和浮渣最後被抽送至另一組設施進行脫水處理。

整個處理工序可消除污水中約百分之八十的懸浮物和百分之七十的生化需氧量。

為了減少空間耗用，沉澱池採用了雙層式的設計。



絮凝池 Flocculation Tanks

### Sedimentation Facilities for Chemically Enhanced Primary Treatment

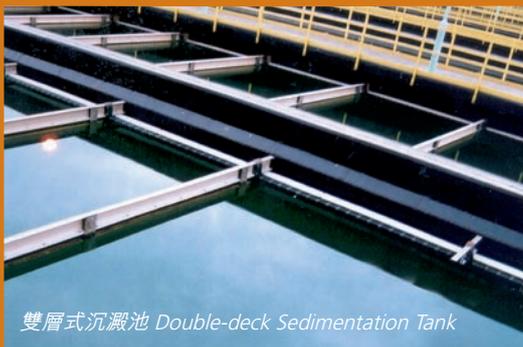
Chemicals (ferric chloride and polymer) are injected at the inlet to the works at required dosages and mixed with the sewage inflow in rapid mixing chambers.

The flow passes through flocculation tanks to form flocs. It is then distributed along a main distribution channel into banks of sedimentation tanks.

The flocs settle in the sedimentation tanks as sludge and are removed using chain and flight sludge collectors to sludge hoppers. The lighter foam and floatable solids referred to as scum rise to the surface and are skimmed off by scum collectors. The sludge, together with the scum, are pumped to a separate facility for dewatering.

The process removes about 80% of the suspended solids and 70% Biochemical Oxygen Demand.

In order to save space, double-deck sedimentation tanks have been adopted.



雙層式沉澱池 Double-deck Sedimentation Tank

\* 西北九龍收集的污水直接泵往一所隔篩廠，然後再經毗鄰的昂船洲污水處理廠作進一步處理。

Sewage from Northwest Kowloon is pumped direct to a PTW for preliminary treatment before further treatment at the adjacent Stonecutters Island STW.



三氯化鐵儲存缸 FeCl<sub>3</sub> Storage Tanks

### 化學劑調控設施

化學劑調控設施包括儲存、配劑和輸送三氯化鐵及聚合物溶液往沉澱池的所需設備。

### Chemical Dosing Facilities

The chemical dosing facilities include the storage, batching and pumping of ferric chloride and polymer solution to the sedimentation tanks.

### 污泥處理設施

污泥和浮渣被泵到污泥貯存缸，混和聚合物後被輸送到離心式脫水機，脫水至最少含固體量百份之三十，然後用密封式容器把脫水後的污泥送往堆填區棄置。污泥處理設施每天可處理的污泥最高可達900噸。

### Sludge Treatment Facilities

After being pumped into holding tanks, the settled sludge & scum will be mixed with polymer before being pumped again into the centrifuge for dewatering to achieve a minimum dryness of 30%. The dewatered sludge would then be transported using sealed containers for disposal at landfill. The facilities have a maximum treatment capacity of 900 tonnes of sludge cakes per day.



污泥脫水機 Sludge Dewatering Centrifuges

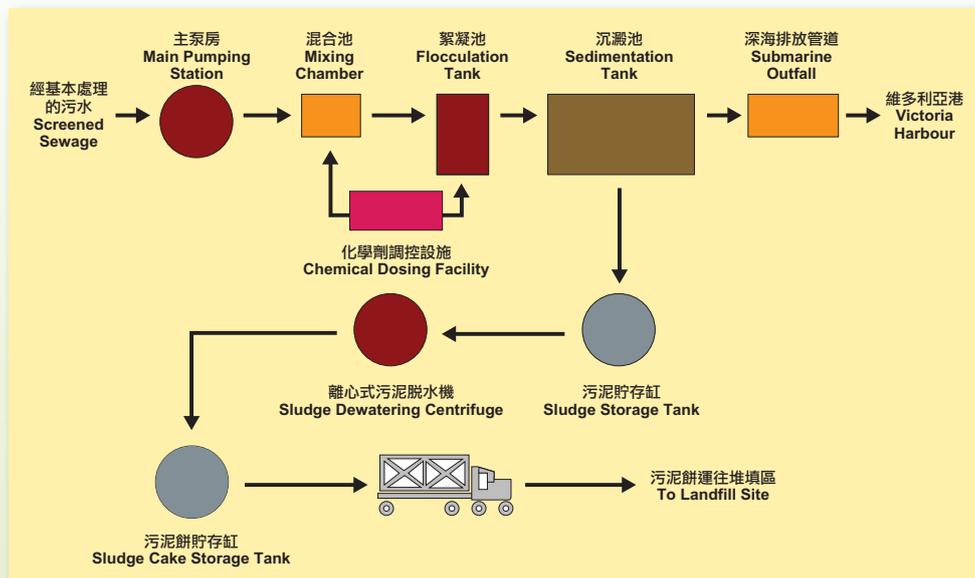


## 環境保護 Environmental Protection

作為淨化海港計劃第一期的主要部分，昂船洲污水處理廠採用了化學輔助一級處理方法和先進設備來處理污水，務求減低對維多利亞港的污染。經處理的排放水會通過深海排放管道在維多利亞港西面水域排放。污水廠現時每天清除污水中約600噸的污泥。為改善附近居民的生活環境及提供更優質的服務，本廠已安裝了一系列辟味設施，配合已實施的氣味管理系統。我們亦已開展工程，盡快全面覆蓋昂船洲污水處理廠沉澱池，同時加添辟味設施，進一步減少氣味對附近環境的影響。

As a key component of Stage 1 of the Harbour Area Treatment Scheme (HATS), Stonecutters Island STW adopts a Chemically Enhanced Primary Treatment process and employs the latest technology and equipment available to reduce the pollution in Victoria Harbour. The treated effluent is discharged via a submarine outfall into the western approaches of Victoria Harbour. The STW produces about 600 tonnes of sludge per day. To act proactively in an environmental manner and to provide a better service to the nearby residents, an odour management system with deodourizing facilities has been put into operation. We have commenced works to cover up all sedimentation tanks and install new deodourizing systems to further reduce the odour nuisance to the surrounding.

## 污水處理流程圖 Sewage Treatment Process Flowchart



## 經處理的排放水重要參數 Key Parameters of Treated Effluent

### 重要參數 (Key Parameters)

### 排放標準 (Discharge Standards)

設計流量 (Design Flow)	每日1,700,000立方米 (m <sup>3</sup> /day)
總懸浮固體 (Total Suspended Solids)	≤55毫克/升 (mg/L)
五天生化需氧量 (5-day Biochemical Oxygen Demand)	≤75毫克/升 (mg/L)