For information

Legislative Council Panel on Development

43WS – Uprating of Wan Chai salt water supply system

PURPOSE

This paper briefs Members on the proposal to upgrade **43WS** "Uprating of Wan Chai salt water supply system" to Category A, at an estimated cost of $271.1 million in money-of-the-day (MOD) prices, to enhance the existing salt water supply system for Wan Chai, Causeway Bay and Happy Valley, and to extend the system to provide salt water to Bowen Road areas in mid-levels, Central for flushing.

PROPOSAL

2. The scope of works under **43WS** comprises the following works-

(a) laying of approximately 7 kilometers (km) of salt water mains of sizes from 80 millimeters (mm) to 800 mm in diameter;

(b) provision of a roof cover to the existing Bowen Drive salt water service reservoir (SWSR);

(c) construction of a salt water pumping station (SWPS) at Bowen Drive with a pumping capacity of 7 200 m^3 per day;

(d) construction of a salt water service reservoir (SWSR) with a capacity of 2 400 cubic metres (m^3) at Magazine Gap Road and demolition of a decommissioned fresh water service reservoir at the same location; and

3. A site plan showing the proposed works is at **Enclosure 1**. Photomontages showing the proposed roof cover to the existing Bowen Drive SWSR, the Magazine Gap Road SWSR and the Bowen Drive SWPS are at **Enclosure 2**.

4. We plan to implement the proposed works in two stages. The first stage, planned to start in November 2009, is for the laying of the proposed salt water mains. The second stage comprising construction of the remaining works is planned to start in early 2010. All the proposed works are scheduled for completion in December 2014.

JUSTIFICATION

5. At present, the salt water supply to Wan Chai, Causeway Bay and Happy Valley is drawn from the Wan Chai seafront by the existing Wan Chai SWPS and then conveyed to the Bowen Drive SWSR while supplying salt water to users en route. The areas supplied by this system are shown as Area 1 in **Enclosure 1**. The current demand in these areas is about 38 900 m^3 per day and is anticipated to increase to 42 300 m^3 per day upon completion of planned developments in the areas. On the other hand, the capacity of the existing supply system is only about 33 000 m^3 per day. The current shortfall of 5 900 m^3 salt water supply is being met by fresh water as a temporary measure. Such shortfall will increase to 9 300 m^3 should no improvement works are to be implemented. From cost and water conservation considerations, there is a need to increase the capacity of the existing salt water supply system by uprating the existing Wan Chai SWPS and laying additional salt water mains in the areas.

6. As the existing Wan Chai SWPS will need to be relocated to facilitate construction of the Wan Chai Development Phase II (WDII) project, the proposed SWPS uprating works, together with part of the mainlaying works which falls within WDII project boundary, will be constructed under the project to avoid construction interfaces. Funding for these SWPS uprating and mainlaying works will be separately sought by the Civil Engineering and Development Department in conjunction with the WDII project. The remaining part of the mainlaying works outside the WDII project boundary is included under **43WS** to allow construction to proceed in parallel with the waterworks facilities to be implemented under WDII project.

7. Besides, the existing Bowen Drive SWSR which was built in 1987 is not provided with a roof cover. Though the reservoir is fenced off at present, there are occasional trespassers which have given rise to safety concern. For safety reason, we propose to provide a roof cover to the reservoir.

8. Separately, there is at present no salt water supply to Bowen Road areas in mid-levels, Central (Area 2 in **Enclosure 1**) and fresh water is being used there for flushing. In order to save fresh water, we propose the Wan Chai salt water supply system be extended by providing a new SWPS at Bowen Drive adjacent to the existing Bowen Drive SWSR, a new SWSR at Magazine Gap Road and laying the associated salt water mains in the area. Upon completion of the proposed works, the new Bowen Drive SWPS will draw water from the existing Bowen Drive SWSR for delivery to the proposed Magazine Gap Road SWSR while supplying salt water to users en route. This extended system will also help augment the inadequate salt water supply to the nearby area west of Garden Road between Conduit Road and Caine Road. The total estimated demand for salt water in these areas is about 6 000 m^3 per day.

9. The site proposed for the Magazine Gap Road SWSR is currently occupied by a fresh water service reservoir which was already decommissioned in 1997 due to ageing and leakage problems. We propose to demolish it to make way for the construction of the new SWSR.

10. The proposed works described above is in line with our Total Water Management (TWM) strategy, one of the key elements of which is the extension of the use of salt water for flushing to achieve the objective of water conservation. Upon completion of the proposed works, about a total of 15 300 m^3 of fresh water can be saved per day through conversion of fresh water flushing to salt water flushing.

FINANCIAL IMPLICATIONS

11. We estimate the capital cost of the proposed works to be $271.1 million in MOD prices, made up as follows –

			$ million
(a)	Bowen Drive salt water pumping station		41.5
	(i) civil works	18.2	

	(ii) electrical and mechanical works	23.3		
(b)	Demolition of Magazine Gap Road fresh water service reservoir		6.3	
(c)	Construction of Magazine Gap Road salt water service reservoir		31.4	
(d)	Roof cover to Bowen Drive salt water service reservoir		14.4	
(e)	Mainlaying		117.4	
	(i) 540 m with diameter 800 mm	22.1		
	(ii) 510 m with diameter 600 mm	14.0		
	(iii) 2 310 m with diameter 450 mm	43.6		
	(iv) 3 640 m with diameter 300 mm or below	37.7		
(f)	Greening works		0.6	
(g)	Environmental mitigation measures		7.7	
(h)	Contingencies		21.7	
	Sub-total		241.0	(in September 2008 prices
(i)	Provision for price adjustment		30.1	
	Total		271.1	(in MOD prices)

ENVIRONMENTAL IMPLICATIONS

12. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap 499). We carried out a Preliminary Environmental Review (PER) in March 2009. The PER concluded that the project would not have any long-term environmental impacts. We will incorporate the implementation of standard pollution measures to mitigate short-term

construction impacts in the works contracts.

13. For short term environmental impacts during construction, we will control noise, dust and site run-off within established standards and guidelines through implementation of environmental mitigation measures, such as frequent watering of site, the use of silenced construction plant and the use of movable noise barriers. We have included $7.7 million (in September 2008 prices) in the project estimate for implementation of these mitigation measures.

14. We have considered the alignment of the water mains, the layout and foundation level of the proposed pumping station and service reservoir in the planning and design stages to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimize the disposal of inert construction waste to public fill reception facilities. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

15. We will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

16. We estimate that the project will generate in total about 22 100 tonnes of construction waste. Of these, we will reuse about 7 100 tonnes (32.1%) of inert construction waste on site, deliver 14 500 tonnes (65.6%) of inert construction waste to public fill reception facilities[1] for subsequent reuse. In addition, we will dispose of about 500 tonnes (2.3%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill

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[1] Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

reception facilities and landfill sites is estimated to be $0.5 million for this project (based on a unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[2] at landfills).

TRAFFIC IMPLICATIONS

17. To minimize possible disruption to traffic during construction, we have completed the traffic impact assessment (TIA) for the proposed works. The TIA has concluded that the proposed works would not cause significant traffic impact. During construction, we will maintain smooth traffic flow through implementation of temporary traffic management measures, and will display notice boards on site to explain the reason of temporary traffic arrangements and the expected completion date of the concerned section of works. In addition, we will set up telephone hotlines for public enquiries or complaints. We will arrange to carry out construction works in busy road sections in non-peak hours. We will employ trenchless methods as far as practicable for mainlaying works crossing the tramway.

18. We will establish a Traffic Management Liaison Group (TMLG) under the works contract to discuss, scrutinize and agree on the proposed temporary traffic management measures. We will invite representatives from Transport Department, Hong Kong Police Force, Highways Department, the relevant District Offices and public transport operators to attend the TMLG before implementing the works. The TMLG will take into account all relevant factors such as site restrictions, existing/future traffic conditions, pedestrian safety, access to buildings/shop fronts, and provision of emergency vehicle access in considering the temporary traffic arrangements.

HERITAGE IMPLICATIONS

19. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interests and Government historic sites identified by the

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[2] This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at $90/$m^3$), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

Antiquities and Monument Office.

PUBLIC CONSULTATION

20. We consulted the Wan Chai District Council (WCDC) on 17 March 2009. Members agreed to the need of the proposed works and had no objection to the works to proceed. The Water Supplies Department would further consult WCDC when details of the construction arrangements are available.

21. We consulted the Traffic and Transport Committee of the Central and Western District Council on 16 April 2009. Members had no objection to the proposed works. The Water Supplies Department undertook to liaise with the Committee on the traffic arrangements during construction of the proposed works.

LAND ACQUISITION

22. The project does not require any land acquisition.

BACKGROUND INFORMATION

23. **43WS** was upgraded to Category B in November 2002.

24. We have completed the design of the proposed works to be upgraded to Category A in paragraphs 2(b) to 2(d) above using in-house resources. We will implement the proposed works in paragraph 2(a) above through a design and build contract.

25. We propose to remove 41 trees, including 40 trees to be felled and 1 important tree[3] to be transplanted to a location within the project site. Information of the important tree to be transplanted is provided at **Enclosure 3**.

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[3] An "important tree" refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria:
(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of important persons or events;
(c) trees of precious or rare species;
(d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
(e) trees with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.

We will incorporate planting proposals as part of the project, including estimated quantities of 40 trees, 10 shrubs and 300 m^2 of grassed area.

26. We estimate that the proposed works will create about 108 jobs (94 for labourers and another 14 for professional/technical staff) providing a total employment of 4 546 man-months.

WAY FORWARD

27. We intend to submit **43WS** for upgrading to Category A for consideration by the Public Works Subcommittee in June 2009, with a view to seeking funding approval from the Finance Committee in July 2009.

Development Bureau
May 2009

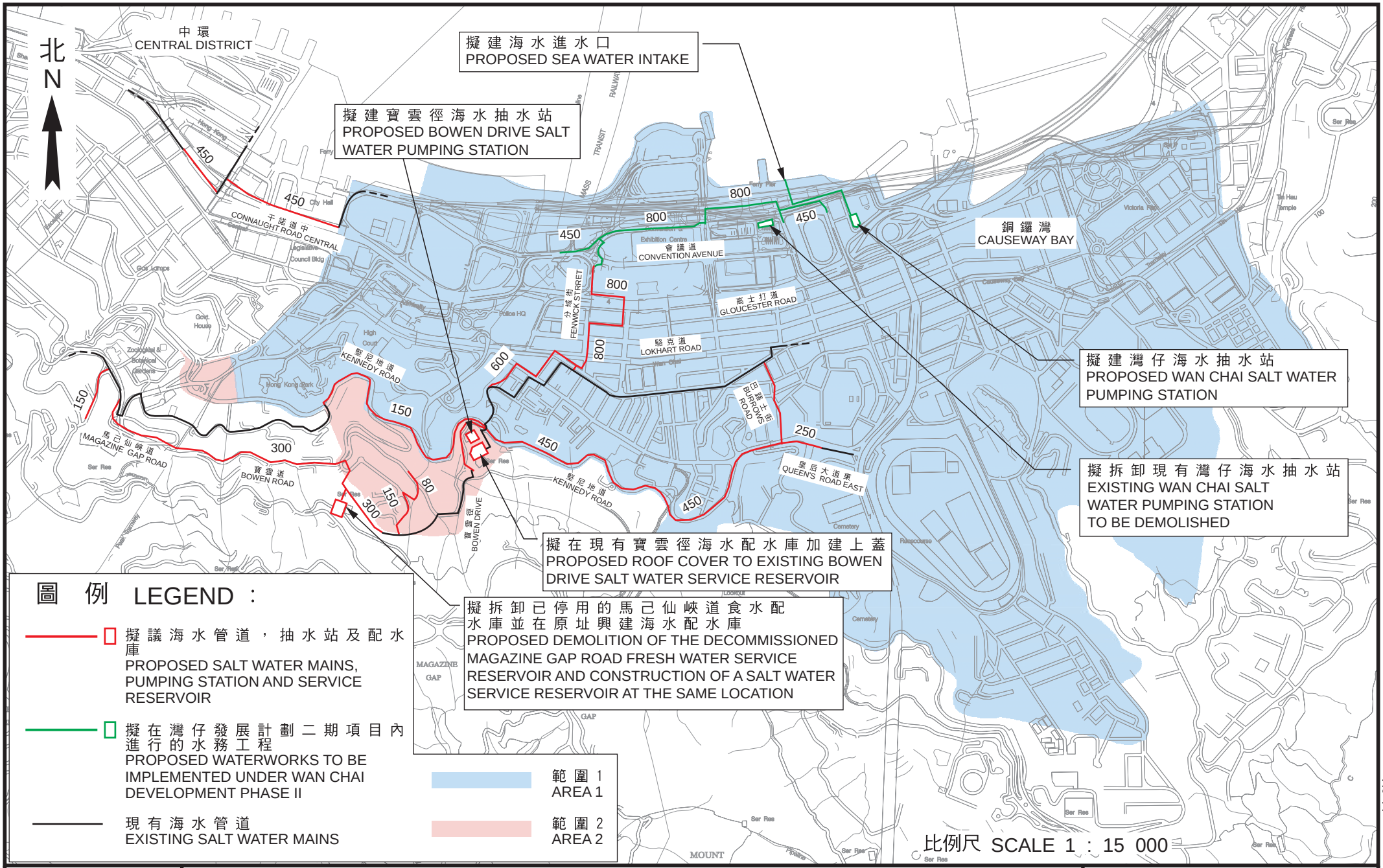


圖 例 LEGEND :

- 擬議海水管道，抽水站及配水庫
  PROPOSED SALT WATER MAINS, PUMPING STATION AND SERVICE RESERVOIR
- 擬在灣仔發展計劃二期項目內進行的水務工程
  PROPOSED WATERWORKS TO BE IMPLEMENTED UNDER WAN CHAI DEVELOPMENT PHASE II
- 現有海水管道
  EXISTING SALT WATER MAINS
- 範圍 1 AREA 1
- 範圍 2 AREA 2

比例尺 SCALE 1 : 15 000

核准 APPROVED
總工程師/設計 CE / Des

8/15 / 2009

工務計劃項目 43WS ----- 灣仔海水供應系統提升工程

（甲級工程）
(CAT 'A' Submission)

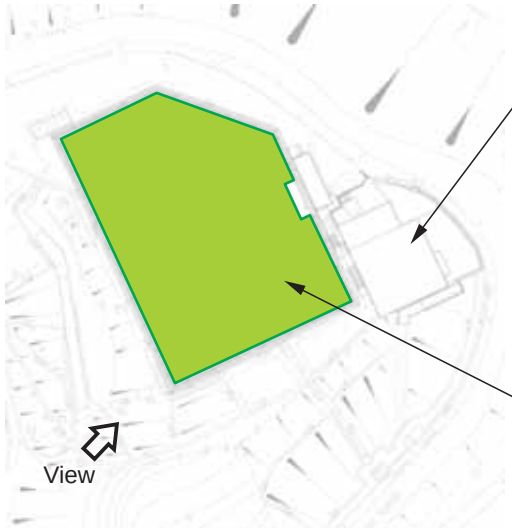
P.W.P. Item No. 43WS — Uprating of Wan Chai salt water supply system

水務署
WATER SUPPLIES DEPT.

草圖編號 SKETCH NO. SK 62008 / 207 / 001

REF. 62008-207_001.CDR

附件一 Enclosure 1



平 面 圖
Plan

擬 建 的 寶 雲 徑 海 水 抽 水 站
PROPOSED BOWEN DRIVE
SALT WATER PUMPING STATION

擬 綠 化 的 配 水 庫 上 蓋
PROPOSED GREENING TO THE
ROOF OF THE SERVICE RESERVOIR

擬 種 植 的 樹 木
PROPOSED TREES

核准 APPROVED

總工程師/設計 CE / Des

8/5 / 2009

（甲級工程）
(CAT 'A' Submission)

工務計劃項目 43WS ----- 灣仔海水供應系統提升工程
P.W.P. Item No. 43WS — Uprating of Wan Chai salt water supply system
擬 加 建 上 蓋 的 寶 雲 徑 海 水 配 水 庫
Proposed roof cover to existing Bowen Drive salt water service reservoir

水 務 署
WATER SUPPLIES DEPT.

草圖編號 SKETCH NO. SK 62008 / 207 / 002.1

REF. 62008-207_002_1.CDR

附件二（三張中的第一張）Enclosure 2 (Sheet 1 of 3)

擬綠化的配水庫上蓋
PROPOSED GREENING TO THE
ROOF OF THE SERVICE RESERVOIR

核准 APPROVED

總工程師/設計 CE / Des

8/5 / 2009

（甲級工程）
(CAT 'A' Submission)

工務計劃項目 43WS ----- 灣仔海水供應系統提升工程
P.W.P. Item No. 43WS — Uprating of Wan Chai salt water supply system
擬建的馬己仙峽道海水配水庫
Proposed Magazine Gap Road salt water service reservoir

水務署
WATER SUPPLIES DEPT.

草圖編號 SKETCH NO. SK 62008 / 207 / 002.2

REF. 62008-207_002_2.CDR

附件二（三張中的第二張）Enclosure 2 (Sheet 2 of 3)

附件二（三張中的第三張）Enclosure 2 (Sheet 3 of 3)

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總工程師/設計 CE / Des

8/5 / 2009

（甲級工程）
(CAT 'A' Submission)

工務計劃項目 43WS ----- 灣仔海水供應系統提升工程
P.W.P. Item No. 43WS — Uprating of Wan Chai salt water supply system

擬建的寶雲徑海水抽水站
Proposed Bowen Drive salt water pumping station

水務署
WATER SUPPLIES DEPT.

草圖編號 SKETCH NO. SK 62008 / 207 / 002.3

REF. 62008-207_002_3.CDR

Enclosure 3

43WS – Uprating of Wan Chai salt water supply system

Information of important tree to be transplanted

Tree ref. no.	Tree species (Botanical name)	Overall height (m)	Trunk diameter[1] (mm)	Average crown spread (m)	Form[2]	Health condition	Amenity value	Survival rate after transplanting	Recommendation (Retain/ Transplant/ Fell)	Remarks (including justification for proposed tree removal/ ecological and historical significance (if any) of affected trees, etc)
T16	Artocarpus hypargyreus	7	150	4	Poor	Fair	Medium	Medium	Transplant	The tree is a rare species under the species list in Rare and Precious Plants of Hong Kong. It stands near the middle of the proposed access road to the Magazine Gap Road SWSR. Due to limited site area, the access road cannot be re-aligned to avoid affecting the tree.

[1] Trunk diameter of a tree refers to its diameter at breast height (i.e. measured at 1.3 m above ground level).

[2] Form of a tree takes account of the overall tree size, shape, and any special feature.