For discussion **PWSC(2012-13)15**
on 16 May 2012

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 705 – CIVIL ENGINEERING
Civil Engineering – Land development
737CL – Dredging, management and capping of contaminated sediment disposal facility to the south of The Brothers

Members are invited to recommend to Finance Committee the upgrading of **737CL** to Category A at an estimated cost of $617.7 million in money-of-the-day prices for the dredging, management and capping of a new contaminated sediment disposal facility to the south of The Brothers.

PROBLEM

The existing facility at the east of Sha Chau (ESC facility) does not have adequate capacity to meet the forecast contaminated sediment disposal demand arising from on-going and planned projects.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade **737CL** to Category A at an estimated cost of $617.7 million in money-of-the-day (MOD) prices for the dredging, management and capping of a new contaminated sediment disposal facility to the south of The Brothers.

/PROJECT …..

PROJECT SCOPE AND NATURE

3. The scope of works under **737CL** comprises –

(a) forming and capping of a new facility comprising two mud pits in the sea-bed to the south of The Brothers for disposal of about five million cubic metres of contaminated sediments;

(b) conducting on-site management of disposal activities; and

(c) implementing environmental monitoring and audit (EM&A) programme.

A site plan showing the location of the proposed contaminated sediment disposal facility is at Enclosure 1.

4. Subject to the funding approval by the Finance Committee, we plan to commence forming the proposed facility in August 2012 for disposal of contaminated sediments between mid-2013 and end 2015. After the proposed facility is filled up to its designed capacity, it will be capped with clean mud so as to seal off the deposited contaminated sediment from the surrounding marine environment. The capping is expected to be completed by December 2016.

JUSTIFICATION

5. Infrastructure projects and maintenance dredging of the harbour fairway, rivers and drainage channels will generate contaminated sediments that need to be disposed of properly. Despite that we have been implementing measures to minimize the generation of sediments from infrastructure projects and fairway/river/drainage maintenance works, we estimate that 11.4 million cubic metres of contaminated sediments would still require disposal from 2012 to 2018. The list of projects which would generate contaminated sediments requiring disposal between 2012 and 2018 is at Enclosure 2.

6. As at end 2011, the available capacity of the ESC facility, including those remaining mud pits yet to be formed, is about 8.1 million cubic metres. This will not be adequate to meet the forecast disposal demand. We need to provide a new disposal facility in time to cope with the disposal demand; otherwise, implementation of the on-going and planned major infrastructure projects, flood protection works and harbour maintenance dredging works will either come to a halt or not be able to proceed.

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7. We have conducted a comprehensive territory-wide search to identify suitable sites for a new contaminated sediment disposal facility. The exercise identified the area to the south of The Brothers as the only remaining place within the territory suitable for the provision of new mud pits for confined marine disposal that can meet the environmental, engineering and planning requirements. We estimate that the proposed facility will have a maximum capacity of about five million cubic metres for contaminated sediment disposal. Together with the ESC facility, we will be able to cope with the forecast demand for disposal of contaminated sediment up to 2018.

8. In order to minimize the duration of disturbance to the surrounding marine environment, we plan to finish the capping of the proposed facility at about the same time when the Hong Kong-Zhuhai-Macao Bridge projects are completed (i.e. in 2016). To meet this target, we need to start construction of the proposed facility in August 2012 for sediment disposal to commence in mid-2013.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be $617.7 million in MOD prices (please see paragraph 10 below), broken down as follows –

			$ million	
(a)	Forming and capping of the proposed disposal facility[1]		272.0	
(b)	Conducting on-site management of disposal activities		37.2	
(c)	Implementing EM&A programme		160.9	
	(i)	Consultants' fees for overall coordination and monitoring	13.9	
	(ii)	Sampling and testing	147.0	
(d)	Contingencies		46.8	
		Sub-total	516.9	(in September 2011 prices)

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[1] The works involve dredging existing sea-bed sediments to the required depth according to design, and disposal of the dredged clean sediments for capping use or to other suitable designated facilities.

		$ million	
(e)	Provision for price adjustment	100.8	
	Total	617.7	(in MOD prices)

We propose to engage consultants to implement the EM&A programme involving field measurement, sampling and laboratory testing works for monitoring the marine sediment quality, water quality and marine biota in the vicinity of the proposed facility during its construction and operation. A breakdown of the estimate for consultants' fees by man-months is at Enclosure 3.

10. Subject to funding approval, we will phase the expenditure as follows –

Year	**$ million (Sept 2011)**	**Price adjustment factor**	**$ million (MOD)**
2012 – 13	40.7	1.05325	42.9
2013 – 14	148.1	1.11118	164.6
2014 – 15	148.5	1.17229	174.1
2015 – 16	72.8	1.23677	90.0
2016 – 17	40.3	1.30479	52.6
2017 – 18	40.3	1.37656	55.5
2018 – 19	26.2	1.45227	38.0
	516.9		617.7

11. We have derived the MOD estimate on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period from 2012 to 2019. We will deliver

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the proposed works for forming and capping of the pits, on-site control of disposal activities, as well as sampling and testing works of the EM&A programme under re-measurement contracts to cater for the uncertainty of the quantities of dredged sediment for disposal at different designated sites, the seabed conditions and the variance of the EM&A requirements during the course of the operations. We will employ consultants for overall coordination and monitoring of the EM&A programme on a lump-sum basis because the scope of services can be well defined. We will provide for price adjustments in the contracts and consultancies.

12. The project would increase the administration cost of the relevant departments/bureaux but it is not feasible to assess the impact on the fees and charges. The cost increase would be taken into account in fee review exercise for mud disposal service.

13. The proposed works will not give rise to any recurrent expenditure.

PUBLIC CONSULTATION

14. We consulted the Tourism, Agriculture, Fisheries and Environmental Hygiene Committee (TAFEHC) of the Islands District Council (IsDC) on 17 May 2010 about the project. Whilst members did not object to the project, they requested the Government to consider setting up a special fund outside the current ex-gratia allowance (EGA) mechanism[2] for compensation to fishermen for any economic loss caused by the proposed facility and establishing a monitoring group on the operation of the facility. We circulated an information paper to TAFEHC of IsDC on 2 March 2011 proposing a mechanism to investigate into fish kill incidents, if any, when reported by mariculturists. In case a fish kill is proved to be caused by the proposed facility, the affected mariculturists can claim for compensation. We would also invite parties concerned to join a liaison group for monitoring the implementation of the proposed facility. We received no further comment from TAFEHC of IsDC.

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[2] Under the current EGA mechanism, EGA would be paid as a form of assistance to eligible fishermen and mariculturists affected by marine works such as dredging and dumping.

15. We briefed the Aquaculture Fisheries Subcommittee and Capture Fisheries Subcommittee of the Advisory Committee on Agriculture and Fisheries[3] respectively on 2 April 2012 and 23 April 2012 on the project. The two Subcommittees did not raise any adverse comments.

16. We invited views from 12 green groups on the proposed facility in December 2009 and met with them in June 2010. We provided on 15 June 2010 our responses to the concerns raised and no further comment was received.

17. We gazetted the proposed facility under the Foreshore and Seabed (Reclamations) Ordinance (FS(R)O) on 11 and 18 June 2010. During the two-month objection period, we received 111 objections in nine correspondences. These objections comprised one from a green group, one from a fishermen organisation and the others from members of the public with most of them either residing in Tuen Mun or with corresponding address in Tuen Mun area. After listening to our explanations, three objections (lodged by the green group, the fishermen organisation and a member of the public residing in Tuen Mun) were withdrawn unconditionally. Having considered the details of the unresolved objections and the Government's responses (summarized at Enclosure 4), the Chief Executive in Council authorized the proposed facility without modification on 15 February 2011. The gazette for authorization of the proposed facility was published on 11 March 2011.

18. We consulted the Legislative Council (LegCo) Panel on Development about the proposed works on 29 March 2011. The meeting requested the Administration to provide further information about the environmental and ecological impacts during construction and operation of the proposed facility and to conduct further consultation with the fisheries industry and District Councils concerned (including Tsuen Wan District Council (TWDC) and Tuen Mun District Council (TMDC)) on the proposed facility, before submitting the proposal to the Public Works Subcommittee. Accordingly, we consulted the Environment, Hygiene and District Development Committee of TMDC on 20 May 2011 and 23 March 2012, the TWDC on 27 March 2012, and the representatives of the

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[3] The Advisory Committee is set up by the Government for advising the Government on matters pertaining to (i) the development of agriculture and fisheries production in Hong Kong, (ii) the formulation of agricultural, fisheries and other related policies, and (iii) any other matters relating to the production, distribution and marketing of agriculture and fisheries products as may arise. The Committee comprises, among others, academics and representatives of fishermen organizations and serves to facilitate communication between Government and practitioners on various matters and policies in agriculture and fisheries.

fishermen organizations including Ma Wan Mariculturists on 9 and 12 March 2012. We received no adverse comment on the project. We submitted the supplementary information about the environmental and ecological impacts of the proposed facility and the outcomes of the above further consultations to the LegCo Panel on Development on 19 April 2012 (Paper No. CB(1)1684/11-12(01)).

ENVIRONMENTAL IMPLICATIONS

19. The proposed facility is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) and an Environmental Permit (EP) is required for the construction and operation of the facility. We have completed an EIA which has concluded that the environmental impact of the proposed facility can be controlled to within the criteria under EIAO and the Technical Memorandum on EIA Process. The Director of Environmental Protection (DEP) approved the EIA report under the EIAO in September 2005. In 2009, we conducted a review study on the findings of the approved EIA report taking into account the cumulative effects of other planned projects to be carried out in the vicinity. The review confirmed that assessment, findings and recommendations of the approved EIA report are still valid after taking into account the up-to-date information of other planned projects. We also submitted an information note in August 2010 to the Advisory Council on the Environment (ACE) to update members on latest development of this proposed facility. ACE has no comment on the findings of the environmental assessments. We obtained the required EP for the construction and operation of the proposed facility on 3 November 2011.

20. We will implement good management practices and EM&A programme as recommended in the EIA report and stated in the EP at the construction and operation stages of the project, including the control of maximum weekly dredging rate for forming mud pits to minimize its environmental impacts such as noise and sediment dispersion to levels within the established standards and guidelines. Appropriate measures including temporary suspension of the construction and dumping activities will be taken if there are any abnormalities in the monitoring results. We will employ independent consultants to oversee the EM&A programme and estimate that the cost of EM&A programme to be about $160.9 million (in September 2011 prices), which has been included in the project estimate. The details of the management practices for sediment disposal are at Enclosure 5.

21. The proposed EM&A programme of this project, which is similar to the programmes for the existing mud pits at ESC with its construction commenced in 2009, will involve various field sampling and laboratory testing works to collect measurements to ensure that –

(a) the construction and operation of the facility will not result in any exceedance of the water quality objectives of the water control zone where the facility is situated;

(b) the operation of the facility will not increase sediment contaminant concentrations over time at individual stations or cause a trend of increasing concentrations in proximity to the active pit;

(c) the operation of the facility will not increase sediment toxicity over time at individual stations or cause a trend of increasing toxicity in proximity to the pit;

(d) the operation of the facility will not affect the fisheries resources and will not increase the tissue or whole body contaminant concentration over time in selected target species, and

(e) recolonisation is occurring at the capped pits such that the affected seabed will return to its pre-dredged state for marine organisms.

22. In response to the request of the LegCo Panel on Development as mentioned in paragraph 18 above, we recently reviewed the monitoring results of the ESC mud pits collected in the period between 2006 and 2010. The review revealed that there was no evidence of any unacceptable impact caused by the disposal activities at the ESC, and that the ESC facility has been operating in an environmentally acceptable manner within the EIA predictions. This provides assurance that the proposed facility, which is very similar to the ESC facility in terms of site location, design and mode of operations, will not violate the EIA predictions in terms of water quality, fisheries and marine ecological impacts.

/Separately …..

Separately, we engaged three renowned academics[4] from local universities to conduct an independent examination of the relevant parts of the approved EIA report for the proposed facility. The independent examination confirmed that the EIA findings, which were conducted according to the requirements of EIAO and in compliance with relevant international standards, were precise and accurate.

23. The proposed works will not generate any construction waste.

HERITAGE IMPLICATIONS

24. The project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

25. The proposed works does not require any land acquisition.

26. Under the established policy, EGA will be offered to eligible fishermen affected by marine works projects resulting in a permanent or temporary loss of fishing grounds. The proposed project is expected to give rise to 153 hectares of temporary loss of fishing ground. The estimated amount of EGA payable to eligible fishermen is about $7.9 million. As a one-off arrangement, in respect of six marine works projects (with **737CL** being one of the six projects) commenced/planned to commence from late 2011 to 2014 in Western waters, a special EGA is payable to the affected mariculturists at Ma Wan, Cheung Sha Wan and Sok Kwu Wan fish culture zones and the estimated cost is $74.1 million at the maximum. The actual expenditure will depend on the options opted by the eligible mariculturists as to whether they will continue, suspend or cease their mariculture operations. The EGAs will be charged to **Head 701 – Land Acquisition**.

/BACKGROUND …..

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[4] The academics for the independent review are –

Professor Joseph H.W. LEE, Chair Professor of the Department of Civil and Environmental Engineering and Vice-President for Research and Graduate Studies of the Hong Kong University of Science and Technology.

Professor WAI Wing-hong, Professor of the Department of the Civil and Structural Engineering of the Hong Kong Polytechnic University.

Professor WANG Wen-xiong, Professor of the Division of Life Science of the Hong Kong University of Science and Technology.

BACKGROUND

27. We included **737CL** in Category B in January 2009. We engaged a contractor to carry out site investigation in July 2009. We have charged the cost of about $19.5 million in MOD prices to block allocation **Subhead 5101CX** "Civil engineering works, studies and investigations for items in Category D of the Public Works Programme".

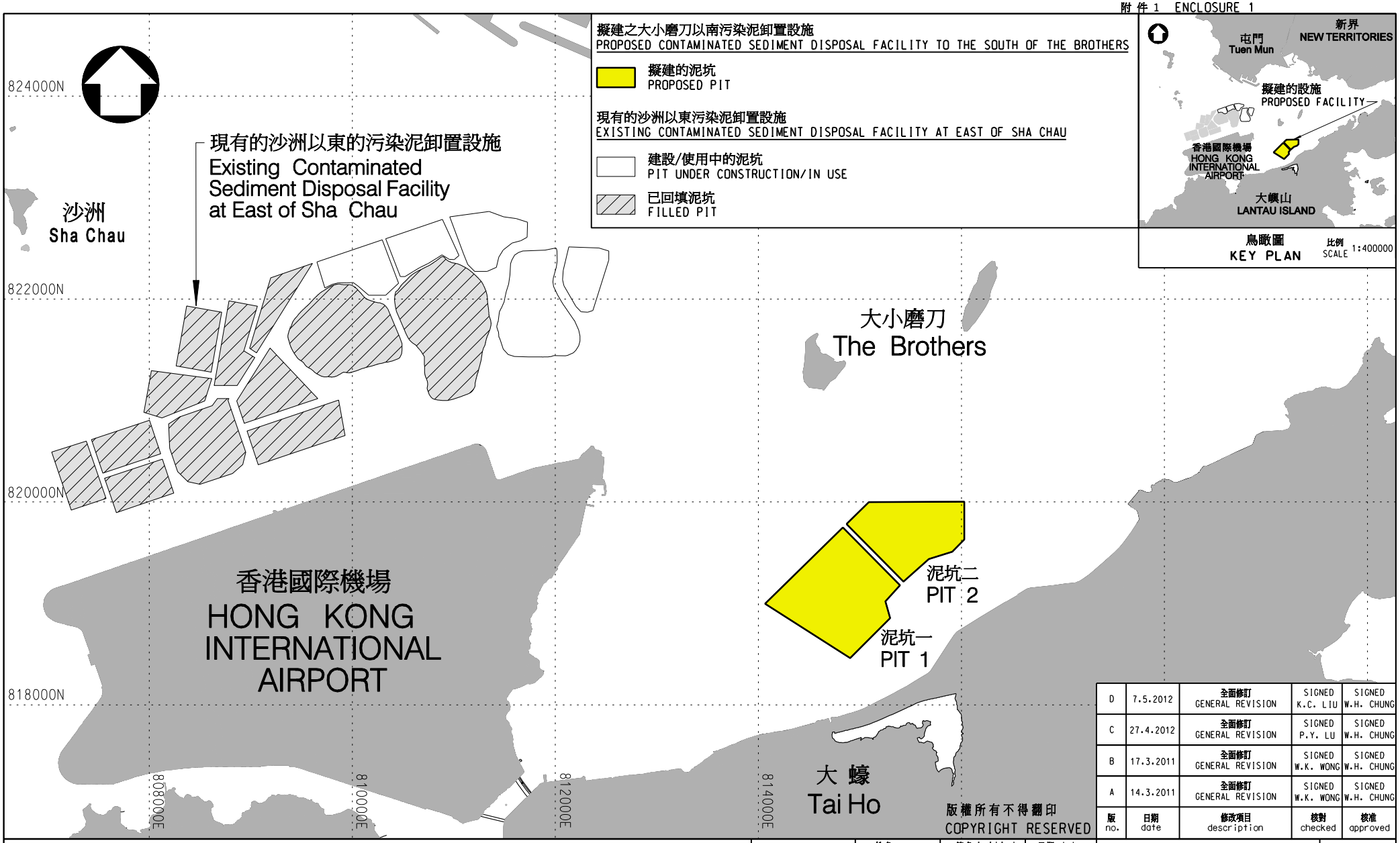
28. We have substantially completed the detailed design and tender documents using in-house resources.

29. The proposed works will not involve any tree removal or planting proposals.

30. We estimate that the proposed works will create about 77 jobs (41 for labourers and another 36 for professional/technical staff) providing a total employment of 2 715 man-months.

Development Bureau
May 2012

附件 1 ENCLOSURE 1



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D	7.5.2012	全面修訂 GENERAL REVISION	SIGNED K.C. LIU	SIGNED W.H. CHUNG
C	27.4.2012	全面修訂 GENERAL REVISION	SIGNED P.Y. LU	SIGNED W.H. CHUNG
B	17.3.2011	全面修訂 GENERAL REVISION	SIGNED W.K. WONG	SIGNED W.H. CHUNG
A	14.3.2011	全面修訂 GENERAL REVISION	SIGNED W.K. WONG	SIGNED W.H. CHUNG

名稱 title

大小磨刀以南污染泥卸置設施的挖掘、管理及覆蓋工程
DREDGING, MANAGEMENT AND CAPPING OF CONTAMINATED SEDIMENT DISPOSAL FACILITY TO THE SOUTH OF THE BROTHERS

	姓名 name	簽名 initial	日期 date
設計 designed	W.K. WONG	SIGNED	21.1.2011
繪畫 drawn	C.Y. WONG	SIGNED	21.1.2011
核對 checked	W.K. WONG	SIGNED	21.1.2011
核准 approved	W.H. CHUNG	SIGNED	21.1.2011

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Enclosure 2 to PWSC(2012-13)15

737CL – Dredging, management and capping of contaminated sediment disposal facility to the south of The Brothers

Projects which would generate contaminated sediments requiring disposal between 2012 and 2018

Project	**Estimated quantity (in million cubic metres)[1]**
Kai Tak Development	2.3
Tseung Kwan O – Lam Tin Tunnel[2]	0.1
Wanchai Development including Central-Wanchai Bypass	0.7
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel[2]	1.4
Central Kowloon Route[2]	0.2
Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link	0.2
Shatin to Central Link	0.9
Hong Kong-Zhuhai-Macao Bridge-Hong Kong Link Road	0.3
Maintenance dredging[3]	3.5
Other projects with small disposal demand including minor river regulation works[3]	1.8
Total	11.4

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1 The estimated amount of contaminated sediment requiring disposal between 2012 and 2018.

2 Implementation of the projects is subject to Finance Committee's funding approval.

3 The estimated quantities are derived from database of similar works in the past years.

737CL – Dredging, management and capping of contaminated sediment disposal facility to the south of The Brothers

Breakdown of the estimate for consultant's fee (in September 2011 prices)

		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)
Consultant's staff cost for overall coordination and monitoring in the environmental monitoring and audit programme (Note 2)	Professional	52	38	2.0	6.5
	Technical	174	14	2.0	7.4
				Total	**13.9**

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS salary point to arrive at the full staff costs including the consultants' overheads and profits as the staff will be employed in the consultants' offices. (At as now, MPS salary point 38 = $62,410 per month and MPS salary point 14 = $21,175 per month.)

2. The actual man-months and actual costs will be known after the consultants have been selected through the usual competitive lump sum bid system.

5737CL – Dredging, management and capping of contaminated sediment disposal facility to the south of The Brothers

Details of Objections and Administration's Responses under the Foreshore and Sea-bed (Reclamations) Ordinance (Cap. 127)

(a) Most of the objectors had concerns on the potential impacts, in particular the potential cumulative impacts due to other planned projects in the vicinity, of the proposed facility to the nearby environment.

We explained to the objectors that comprehensive Environmental Impact Assessment (EIA) pursuant to the requirements and standard of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) has been conducted for the project and the EIA report was approved by the Director of Environmental Protection pursuant to the EIAO. The EIA has evaluated potential environmental impacts, including those raised by the objectors arising from the proposed facility as listed below:

i. Water Quality Impact

The EIA made use of computer modelling to assess the potential water quality impact on the identified sensitive receivers including bathing beaches along Tuen Mun Coastal area, marine water near Tung Chung Wan, corals, Ma Wan Fish Culture Zone, and seawater intakes at the nearby. The assessment also took into account the cumulative effect of other concurrent projects nearby. Results indicated that the potential impact on the water quality by the proposed facility, with the implementation of the appropriate mitigation measures, would only confine to the water near the proposed facility. In particular, the impacts on those sensitive receivers in terms of suspended solid concentration, dissolved oxygen, heavy metal and nutrient contents concentration would be in compliance with the relevant environmental standard and legal requirements.

ii. Impact on Chinese White Dolphin (CWD)

The EIA adopted expert advice on CWD and assessed that the proposed site was not an important living ground with infrequent sightings of the CWD. Taking into account the fact that the impact due to the proposed facility would be of transient nature and the affected seabed would be restored after completion of the capping works, it was considered that there would not be any unacceptable impact on the CWD.

The EIA also included a health impact assessment for the CWD. The assessment realized that adverse effect on the health of CWD was

associated with the consumption of prey items with contaminants. The assessment took into account the respective contaminant concentration at water body, polluted substances accumulated in prey items and the consumption rates and concluded that the risks of an adverse effect on the health of CWD associated with the consumption of prey items would not be increased due to the proposed facility.

iii. Fisheries Impact and EGA payment

The EIA assessed the potential impact on fisheries resources and fishing operations. The results indicated that as the proposed site was not an important fishing ground with relatively less fishing operation and fish production, the transient impact of the proposed facility on the fisheries would not be unacceptable. Furthermore, as there was no unacceptable impact on the water quality, it would not induce unacceptable indirect impact on fisheries resources near the disposal facility. Following the established mechanism, EGA payment would be made to those eligible fishermen.

iv. Noise Impact

The EIA assessed the noise impact on major residential block near the proposed facility (around 2.2km distance) at different periods of time. The assessment concluded that the noise level at the nearby major residential block at about 2.2km away would be in compliance with the relevant requirements and standards of the Noise Control Ordinance and the Technical Memorandum of the EIAO (EIAO-TM). The proposed facility thus would not induce unacceptable noise impact on the nearby residents.

v. Marine Traffic Safety

The EIA included a Marine Traffic Impact Assessment (MTIA), which indicated that the proposed facility was situated outside main navigation fairways and the marine activities within the proposed site would be subject to regulatory control of the site staff. It is confirmed that the relevant activities would not affect the marine traffic safety at the nearby. Marine Department has endorsed this finding.

vi. Cultural Heritage

The EIA completed a sea-bed geophysical survey. The study concluded that no spots of important archaeological value had been identified within the proposed site and the nearby.

vii. Marine ecology

The EIA assessed the potential impact of the facility on marine ecology and concluded that as the benthic communities were of relatively low ecological value and there was similar living environment in the vicinity of the proposed facility, the impact on the benthic communities within the proposed site would be transitional and acceptable. The benthic communities were expected to

recolonise at the affected living environment after completion of the proposed capping works. Furthermore, as the proposed facility would not induce unacceptable water quality impact, there would not be unacceptable indirect impact induced by the proposed facility on the nearby marine ecology including the marine mammals, marine park, mangroves, intertidal mudflat and living ground of the horseshoe crab, and the seagrass area.

viii. Impact on human health

The EIA indicated that the potential impacts on human health by the proposed facility are mainly associated with consumption of contaminants accumulated in fishes/seafood. The assessment took into account the respective contaminant concentration at water body, at seafood from the proposed site and the consumption rates and concluded that the lifetime risks, both carcinogenic and non-carcinogenic, of an adverse effect on human health associated with the consumption of seafood from the proposed site would be in accordance with the relevant guidelines of the EIAO-Technical Memorandum (EIAO-TM) and the corresponding standards of the United States Environmental Protection Agency (US EPA) recognized by EPD. Hence, it was assessed that the proposed facility would not induce unacceptable health risk to the general public. CEDD would review the human health risk assessment regularly to safeguard that no unacceptable risk to human health would be induced by the proposed facility. Furthermore, the result of examination of the fish samples regularly obtained in the vicinity of the ESC facility revealed that the respective contaminant concentration in the bodies of fish was within the acceptable standards and was at similar level when compared with other samples collected at waters nearby.

ix. Leakage of contaminants

When the facility was fully filled, a 3m capping layer of clean material would be placed on top of the deposited contaminated sediment to prevent it from the reach of bioturbation and to protect it against wave erosion. This would seal off the deposited contaminated sediment from the nearby environment.

x. Air quality

As the proposed facility, similar to other marine works, would involve the deployment of limited number of working vessels and would be sited around 2.2km away from the nearby major residential areas, the estimated impact on air quality due to the proposed facility would be minimal. As the objector was located away from the proposed facility much more than 2.2km, the estimated impact on the air quality near the residence of the objector would be less.

xi. Visual impact

The proposed facility would mainly involve working vessels for the dredging and backfilling operations within the proposed facility site and the working vessels would not operate at the site after completion of the respective works. Therefore, the proposed facility would not result in long term visual impact on the proposed facility site.

xii. Past Experience of Existing Facility at East Sha Chau (ESC)

The long-term EM&A results of the ESC facility indicated that the contaminated sediment disposal and the relevant activities would not induce adverse impact on the nearby environment and ecology. Furthermore, benthic recolonization had occurred at the affected living environment after completion of the capping works.

xiii. Monitoring measures

In accordance with the EIAO, we would conduct EM&A works to verify the assessment results. Appropriate measures will be taken if there are any abnormalities in the monitoring results. Long-term EM&A results of the on-going activities in the ESC facility have revealed that the contaminated sediment disposal and the related activities have no adverse impact on the nearby environment.

Results indicated that the project can meet the requirements of the EIAO fully when mitigation measures in specified areas are taken. The conclusion of our EIA findings in respect of cumulative impacts remains valid with reference to the findings of the recently approved EIA reports of planned projects in the vicinity.

(b) The objectors questioned the suitability of the proposed site and requested provision of the proposed facility at other locations.

We advised them that comprehensive evaluation of different potential locations in Hong Kong waters has been conducted considering various factors including water quality, nearby environment, technology and effectiveness. Results indicated that the provision of the proposed facility at the proposed location is considered most viable. The results have been considered and endorsed by the Advisory Council on the Environment.

(c) Some objectors also had concerns on the on-site control of the disposal operation.

We advised them that disposal operation will be regulated by our site staff following the “Drift Disposal Method”. Under this method, the site staff would check the water current speed and direction upon arrival of a dumping barge and determine from the computer modelling the best

disposal location such that the disposed sediments following the water current direction would settle within the pit boundary. This method has been adopted in the existing ESC facility and proven to be successful.

(d) One objector had concerns on the cumulative impacts from concurrent projects in the vicinity on Chinese White Dolphins including bioaccumulation of organochlorines and heavy metals as well as their toxicity to dolphins of different age groups, and on lack of updated information on fisheries resources in the vicinity of the project site.

In response to its concern, we advised the objector of the followings:

(i) With respect to findings of the EIA report and data review of the proposed facility and other recently approved EIA reports of planned projects in the vicinity, there will be no unacceptable impacts on the Chinese White Dolphins due to the concurrent works. The potential of contaminant uptake through food chain bioaccumulation of organochlorine and heavy metals has been examined by a comprehensive bioaccumulation assessment and a marine mammal health risk assessment. Results of the assessment have indicated that the risks of an adverse effect on Chinese White Dolphins associated with the consumption of prey items at site of the proposed facility is low and acceptable as per the relevant criteria.

(ii) Baseline conditions of fisheries resources have been updated based on available literature, mainly from the territory-wide information kept by the Agriculture, Fisheries and Conservation Department (AFCD) and the ESC Contaminated Mud Pit Environmental Monitoring and Audit (EM&A) Programme. In particular, data from the ESC EM&A programme are the most up-to-date, geographically relevant as data has been collected from monitoring stations in the vicinity of the site since 2006.

(iii) Comprehensive EM&A programme will be conducted. The programme will help in formulation of management action and supplemental mitigation measures to be employed should any unexpected impact arise.

(iv) More surveys with concerted efforts of other concurrent projects on Chinese White Dolphins and on fisheries resources will be conducted before, during and upon completion of the proposed facility taking into account the objector’s concerns.

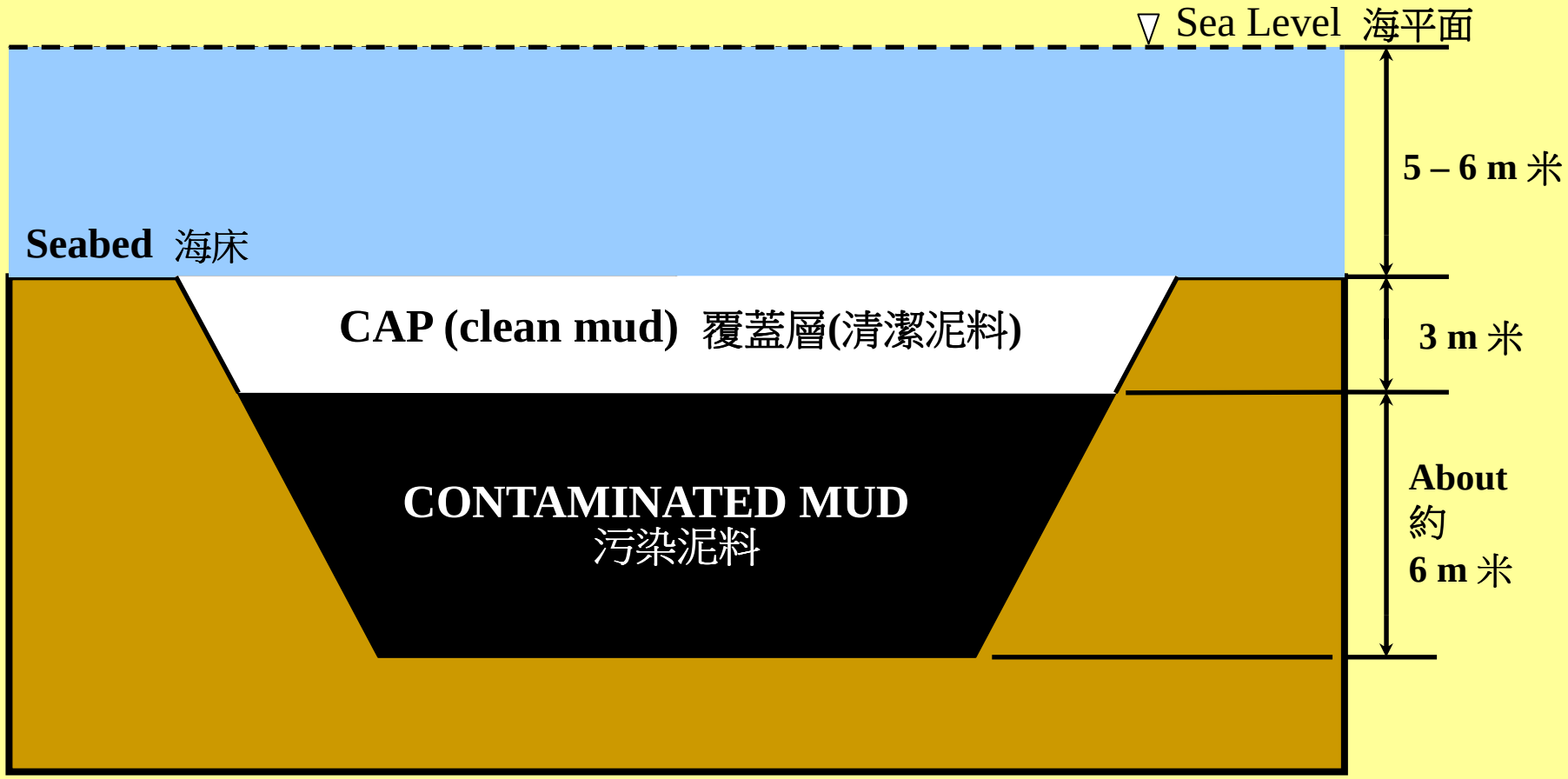
(e) Two objectors had concerns on the deteriorating water quality along the Tuen Mun Coastline.

According to Environmental Protection Department's routine marine water quality monitoring results from the six stations at the North-western water control zone (WCZ), there was no trend of deterioration in water quality. There was 94% compliance with respective water quality objectives of the WCZ in 2009.

(f) One objector requested setting up of liaison group to monitor the implementation of the project and its environmental performance.

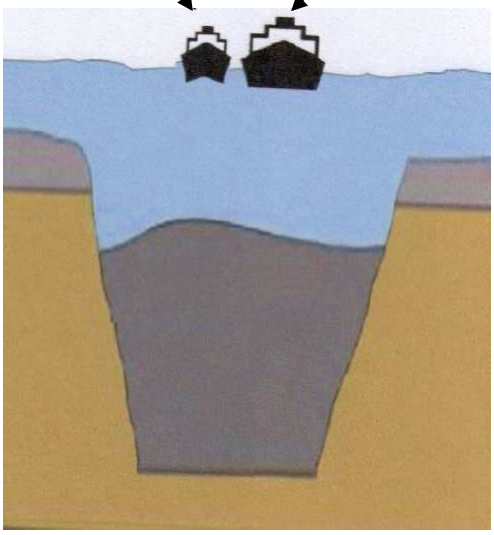
We advised the objector that same as that of the existing facility, we planned to post the EM&A results at the internet for public inspection during the proposed facility. Should there be any questions, the public can contact us according to the method suggested in the website or to contact EPD. We believed the setting up of this website could facilitate the objector and the general public to effectively monitor the progress of the proposed facility. If necessary, we will consider reporting regularly the EM&A results to the liaison group comprising various stakeholders including fishermen groups.

Cross-section of Mud Pit of the South of The Brothers Facility
大小磨刀以南設施的泥坑切面圖



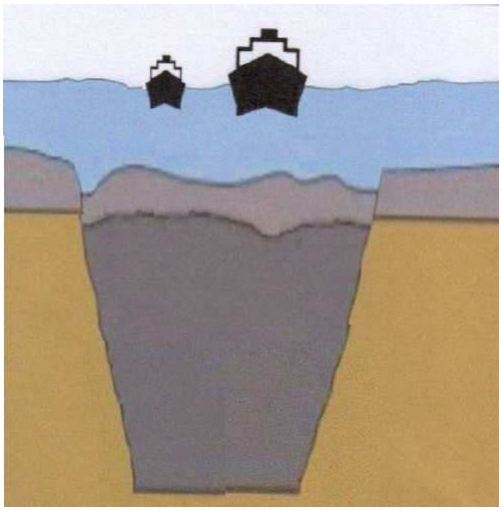
Schematic diagram showing the design of Contaminated Sediment Disposal Pits of the disposal facility to the South of The Brothers 大小磨刀以南設施採用的污染泥卸置坑設計示意圖
(Not to Scale) (不按比例)

Disposal Methodology 卸置方法



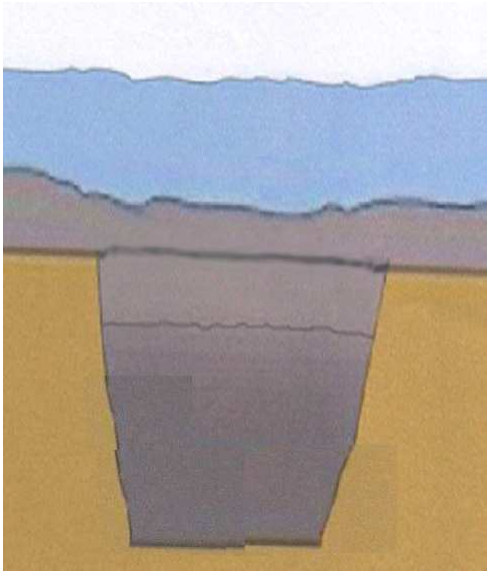
Disposal of contaminated mud in the disposal pit up to a level of 3m below the surrounding seabed

將污染泥料卸置在坑中，最高回填水平必須低於周圍海床 3 米



Capping using uncontaminated mud to isolate the disposed contaminated mud from the surrounding environment

將清潔泥料覆蓋在污染泥料上，使之與周圍環境隔離



Completion of capping the pit to the original seabed level

覆蓋完成後，泥坑位置的海床會回復原狀

Operation Procedure 運作程序