Dredging Works for Proposed Cruise Terminal at Kai Tak

Project Profile

November 2006

Civil Engineering and Development Department

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1. BASIC INFORMATION

1.1 Project Title

Dredging Works for Proposed Cruise Terminal at Kai Tak

1.2 Purpose and Nature of the Project

1.2.1 The purpose of the Project is to remove a section of existing seawall at the southern tip of the former runway of Kai Tak Airport to facilitate the construction of a quay deck structure for two berths in the future cruise terminal, and to dredge the seabed fronting the new quay to provide the necessary manoeuvring basin of adequate draught for cruise vessels.

1.3 Name of Project Proponent

Kowloon Development Office, Civil Engineering and Development Department (CEDD), the Government of Hong Kong Special Administrative Region

1.4 Location and Scale of Project and History of Site

1.4.1 The former Kai Tak Airport is located in the south-eastern part of Kowloon Peninsula, comprising the north and south aprons and runway area extending into the Kowloon Bay. The project site is located at the southern tip of the former airport runway covering a strip of land about 35 m wide and 900 m long and a harbour area of about 57 hectares. The location and layout of the Project are shown in **Drawing No. KZ 462** at Appendix.

1.4.2 The former Kai Tak Airport was the international airport of Hong Kong, which had come into operations since 1920s. The operation of the former Kai Tak Airport was ceased and replaced by the new airport at Chek Lap Kok in July 1998. After closure, the disused airport site has been occupied by various temporary uses, including a golf driving range on the land side of the subject site.

1.4.3 The harbour area concerned is currently being used as two mooring areas and the Eastern Quarantine and Immigration Anchorage Area. In addition there is a pair of 400 mm diameter submarine gas pipelines, running across part of the proposed dredging area.

1.4.4 In 2002, the Chief Executive in Council approved the Kai Tak Outline Zoning Plans (No. S/K19/3 and S/K21/3) to provide the statutory framework to proceed with the South East Kowloon Development at the former Kai Tak Airport. However, following the judgement of the Court of Final Appeal in January 2004 regarding the Harbour reclamation, the originally proposed development which involved reclamation has to be reviewed. The planning review has resulted a Preliminary Outline Development Plan for Kai Tak in October 2006. Subsequently, the Administration announced in October 2006 a plan to implement a cruise terminal at Kai Tak, as part of the development, with the provision of the first berth by 2012.

1.5 Number and Types of Designated Projects to be Covered by the Project Profile

1.5.1 The Project will involve dredging of about 2,210,000 million m^3, which falls within item C.12 of Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) in that the dredging operation will exceed 500,000 m^3. It is therefore a Designated Project requiring an EIA report subject to approval of the Director of Environmental Protection under EIAO.

1.6 Name and Telephone Number of Contact Person

1.6.1 All queries regarding the Project can be addressed to:

Mr Talis Wong (Chief Engineer / Kowloon)
Kowloon Development Office
Civil Engineering and Development Department
Government of Hong Kong Special Administrative Region
Tel: 2301 1455, Fax: 2369 4980

2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1 Project Implementation Time Table

2.1.1 The objective of the Project is to remove a section of existing seawall at the southern tip of the former runway, to carry out the necessary dredging works in stages at the seabed off the ex-runway tip for the future cruise terminal and to implement appropriate mitigation measures with a view to ensure that environmental impacts generated during the construction stage will be controlled within acceptable levels.

2.1.2 It is planned to implement the works as soon as possible so that the first berth of the future cruise terminal will be ready for operation by 2012. The preliminary dredging programme is given in the following table:

Stages	**Year**	**Volume of dredging (m^3)**	**Volume of Marine Disposal (m^3)**	**Remark**
Stage 1 Dredging for the 1st berth & manoeuvring basin	2010	1,070,000	670,000 (400,000 from existing seawall to be temporarily stockpiled for re-use on new seawall)	In addition, about 200,000 m^3 at the existing seawall will concurrently be excavated by land plant. Though this quantity is not included in the figure for dredging, the excavation works should be included within the scope of this project profile.
	2011	450,000	450,000	To suit the timing of operating the first berth by 2012
Stage 2 Remainder works for the 2nd berth	2014	400,000	400,000	Works to commence after operation of the 1st berth and diversion of the submarine gas pipelines - tentatively set by 2013.
	2015	290,000	290,000	To suit the timing of operating the second berth by 2016
Total		**2,210,000**	**1,810,000**	

2.1.3 Unlike the removal of the existing seawall and construction of the new quay deck structure, which will be carried out in one go, the dredging of seabed will be conducted in stages to suit the diversion of the existing submarine gas pipelines. About 1.81 million m^3 of sediment will be dredged from the existing seabed. About 0.60 million m^3 of rockfill / general fill will be generated from the removal of the existing seawall (out of which about 0.20 million m^3 to be carried out by land plant and 0.40 million m^3 by marine plant). Hence the total volume of marine dredging works would be around 2.21 million m^3 (i.e. 1.81 + 0.40 million m^3). The materials

removed from the existing seawall should be temporarily stockpiled on site for the future re-use on the new seawall. As a result, only about 1.81 million m^3 of sediment dredged from the existing seabed will need to be disposed of, out of which about 1.07 million m^3 is expected to be contaminated and about 0.74 million m^3 uncontaminated. The marine disposal grounds will be designated by EPD jointly with the Marine Fill Committee. Whilst the programme of disposal is yet to be worked out (by the developer for the future cruise terminal who will carry out the dredging as well), in general the disposal of contaminated sediment should generally precede that for the uncontaminated as the former overlays the latter. Details of the proposed work sequences etc. are shown in **Drawings No. KZ 454 and 455** at Appendix. The existing seabed levels are depicted on **Drawing No. KZ 463**.

2.2 Interactions with other Projects

2.2.1 There are likely interactions with the following proposed projects next to or outside the Project Area:

(i) Proposed infrastructure and other development components along the run-way, particularly the piling work and construction of seawall, quay deck and all other superstructures for the cruise terminal;

(ii) Gas main diversion works by Hong Kong & China Gas Co. Ltd. (hereinafter called HKCG) which may or may not involve dredging concurrent with the works covered under this project profile;

(iii) For Stage 2 Works only, the operation of the first berth and the residual effect if any due to the gas main diversion; and

(iv) The immersed tunnel construction of the Central Kowloon Route.

2.2.2 Apart from the above, it is anticipated that there are unlikely interactions with other projects, since the project site is located far away from all land-based sensitive receivers.

2.2.3 The 'harbour' area of the project site is currently being used as two mooring areas and the Eastern Quarantine and Immigration Anchorage Area. These facilities have to be relocated to neighbouring areas. The relocation will not involve significant engineering works on site that will cause environmental impacts. Close liasing with stakeholders specially the Marine Department will be necessary.

3. POSSIBLE IMPACTS ON THE ENVIRONMENT

3.1 General

3.1.1 An outline of the environmental impacts or issues is given in the following paragraphs. In general, environmental impacts arising from the dredging works should be minor, as the project site is remote from sensitive receivers.

3.2 Air Quality

Gaseous Emission

3.2.1 A low level of gas emission from the dredging fleet is anticipated.

Dust

3.2.2 No dust problem is envisaged as the operation is mostly marine based and disposal will be by barges.

Odour

3.2.3 Site observations of the sediment samples gathered so far suggest that there is little or no odour arising from the dredging operation.

3.3 Noise Impacts

3.3.1 Construction noise will be generated by the dredging fleet throughout the project period. Given the project site is a large open area and the nearest sensitive receivers are at a distance (about 1.2 km away), noise impacts arising from the construction works are anticipated to be insignificant.

3.3.2 It is most likely that night-time operations will be required. Appropriate noise mitigation measures (e.g. silencers, etc.) will be adopted. Furthermore, such construction works to be carried out in restriction periods (including evening, night-time and holidays) will be subject to approval under the relevant ordinance.

3.4 Marine Traffic

3.4.1 The project site is basically an open water off from the Eastern Fairway and Hung Hom Fairway. To mitigate environmental impacts, the bulk of sediment dredging will be controlled at any one time to a reasonable minimum. As such, the traffic generation should not be significant. Close liasing with Marine Department will be arranged as to the interaction with the neighbouring users.

3.5 Water Quality

3.5.1 The major sensitive receivers are seawater intakes along the waterfront on either side of the Victoria Harbour, with the nearest[a] along the direction of prevailing tide being the Cha Kwo Ling Intake and the Tai Wan Shan Intake. Each is at about 1.7 and 2.1 kilometer away from the project site respectively. Whilst the sediment plume arising from the dredging operation may cause a risk of clogging to the intake or the pumping equipment, the impacts are anticipated to be minimal. Hydraulic modelling will be adopted to confirm the extent of the impact.

3.5.2 Discussion has been initiated with HKCG on the gas main diversion and request will be made to HKCG to avoid concurrent dredging during the peak period of 2010. Close liaison will continue with Highways Department on the immersed tunnel construction of the Central Kowloon Route to ensure cumulative impacts, if any, arising from these projects will be mitigated within acceptable limits.

3.6 Wastes and Contaminated Sediment

3.6.1 Wastes generated by construction works are likely to include site wastes, workforce wastes, chemical wastes, and construction and demolition materials. Chemical wastes, including residual fuel, solvent, lube oil and free oil may be generated from the construction plant particularly those land plants. These wastes, though small in quantities, would be collected by licensed contractor and disposed off-site at the designated treatment centre(s).

3.6.2 From the earlier site investigation, about 1.07 million m^3 contaminated sediment will need to be disposed of to the contaminated mud pit at East Sha Chau or other designated marine dumping site(s). Disposal facilities will be secured from the Marine Fill Committee. Further detailed site investigation will be carried out so as to ascertain the amount of contaminated sediment involved.

3.7 Risk of Accidents which would result in Pollution or Hazard

3.7.1 No such risk is envisaged, save those mentioned in the foregoing.

3.8 Disruption of Water Movement

3.8.1 No disruption of water movement is envisaged throughout dredging which is carried out at open sea. We will introduce silt curtains to restrain the dispersion of sediment plumes; but this will not pose undesirable impacts to the environment.

3.9 Unsightly Visual Appearance

3.9.1 The presence of dredging fleet is no different from that of the routine maintenance dredging within the Harbour area. The rockfill /general fill material for reuse will be properly stockpiled on bank at the temporary storage yards on the ex-runway.

[a] There are also two intakes at Hong Kong Island, which are near to the project site. However, as both are not located within the direction of prevailing tides and are splitted from the dredging site by fairway, they are therefore not considered as 'nearest'. Impact to them will be unlikely, and hydraulic modelling will confirm this.

Therefore no significant visual impact is expected, either from dredging or stockpiling.

3.10 Ecological & Fishery Impacts

3.10.1 The project site, with a grossly polluted seabed, is expected to have low ecological value and dredging will not pose unacceptable impacts to the local benthic communities, even if there are any. Preliminary underwater inspection will be carried out at existing seawall prior to dredging to ascertain this point. There is perhaps little impact towards fishing by small vessels (shorter than 15m) during the construction stage. Bearing in mind that the site was previously designated for mooring and hence will discourage large–scale commercial fishing activities there and that the site is within the Harbour area where only small fishing vessels can operate effectively, we do not consider the impacts to fishing significant. The nearest fish culture zone is at Tung Lung Chau, about 11 kilometres away. Impact to it will be unlikely.

3.11 Cultural Heritage

3.11.1 As the subject site has been designated as mooring areas and is next to fairways, both of which are subject to constant surveillance for the purpose of maintenance dredging, there is little chance of existence of any items of archaeological value at the concerned seabed. Our earlier diving inspection at all the adjacent areas affirmed this point. It is therefore proposed that other than spot diving no archaeological diving inspection is required to be carried out prior to dredging. However during the dredging operation, precaution will be taken such as to dredge in shallow depths. We will also closely liaise with the Antiquities and Monuments Office on this aspect. Items of historic value on land like wind poles will be carefully taken down for future use.

4. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

4.1 The Project site covers a narrow strip of land at the southern tip of the former runway, access to which by general public has been and can be restricted. The bulk of the site is at open sea. There are no sensitive receivers within the site or in the surrounding.

4.2 There are to our knowledge no natural habitats of high ecological value in the surrounding area. In the past, environmental conditions around the Project area were generally poor because of noise from the airport, industrial sources and the existing transport links. Air quality is generally adversely affected by traffic and major industries. In particular, the odour and water quality of Kai Tak Approach Channel have long been concerns of the local community. Given such a past history and with implementation of necessary mitigation measures, any environmental impacts caused by the proposed construction activities should not be discerned by the public.

4.3 The nearest sensitive receivers are the seawater intakes at Cha Kwo Ling and Tai Wan Shan of Hung Hom. As stated in 3.5.1, they are still at a distance away; and adverse impacts to them are unlikely. Water quality impacts arising from this project and possibly those from the gas main diversion works etc. will be monitored and controlled.

5. ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND ANY FURTHER ENVIRONMENTAL IMPLICATIONS

5.1 Measures to Minimize Environmental Impacts

5.1.1 The future EIA for this project will identify, assess and specify methods, measures and standards to be included in the detailed design and construction of the works, which are necessary to mitigate the cumulative environmental impacts to acceptable levels.

5.1.2 An initial list of mitigation measures is as follows:

Key Environmental Impacts	**Mitigation Measures to be Considered**
Air Quality	*Emission* • Plant will be carefully chosen and maintained (such as adequately lubricated) to minimize gas emission. *Dust* • Regular watering of exposed site surfaces, unpaved roads, and particularly dusty areas; • Provision of side enclosure and covering of any aggregates or dusty material storage piles; • All dusty vehicles to and from and between site locations should be covered with tarpaulin; • Speed controls for on-site vehicles; and • Provisions of vehicle wheel washing bays, when necessary. *Odour* • Not required
Noise	• Plant will be carefully chosen and maintained (such as adequately lubricated) to minimize noise generation. In view of the remote location of the Project site, it is unlikely that noise from the construction works would be a concern. All works carried out during restricted hours will be subject to Construction Noise Permit control.
Marine Traffic Impacts	• To limit plant resources to as reasonably low level as possible; • To allow adequate room for manoeuvring of all vessels in the vicinity and to liaise with Marine Department to provide buoys, lighting etc. so as to aid safe navigation

Key Environmental Impacts	**Mitigation Measures to be Considered**
	within the area; and • To liaise closely with Marine Department and other stake-holders including the Cruise Ship Operator Association as to the programme of the works or any special traffic arrangements within and in the vicinity of the project site
Water Quality	• Any surface runoff on land side could be controlled satisfactorily without adverse impact during the construction works, by providing proper and adequate site drainage according to good practices outlined in Practice Note for Professional Persons (ProPECC PN)1/94 " Construction Site Drainage". • Dredging rate, including that from the diversion works of the gas mains and construction of the immersed tunnels for the Central Kowloon Route, if required, will be carefully controlled so as to minimize the potential release of sediment during the dredging operation. • Closed type silt curtains will be installed at the dredger(s). • Line typed silt curtain may be installed during the removal of the existing seawall. • Pending the results of the prediction of modelling, silt curtain could be installed too at the seawater intakes if they are found to be adversely affected. • Environmental Monitoring & Audit will be carried out including implementing action plans during the construction stage. If it is found that there are no unacceptable impacts during Stage 1 (which will be implemented at a much greater dredging rate than Stage 2), the requirements for the water quality monitoring should be relaxed or waived at the Stage 2 Works.
Waste Management & Disposal of Contaminated Sediment	• Waste management in the way of avoiding, minimizing, reusing, and recycling should be adopted to reduce waste generation; for example, on site sorting of demolition debris will be carried out, scrap metals or abandoned equipment will be recycled. • The contaminated sediment will, subject to its detailed classification by a forthcoming site investigation, be properly disposed of to relevant designated dumping ground(s). No significant impact is expected in this regard. • In the unlikely event that special treatment is required to handle the specially contaminated sediment, we have the

Key Environmental Impacts	Mitigation Measures to be Considered
	expertise to handle the disposal properly by for example packing the sediment in proprietary geo-bags, followed by marine dumping.
Risk of Accidents which would result in Pollution or Hazard	• Nil
Disruption of Water Movement	• Nil
Unsightly Visual Appearance	• Visual impacts of stockpiles to be minimized by proper stockpiling and covering with tarpaulin, if required.
Ecological & Fishery	• EM&A together with action plans will be implemented, though it is unlikely that unacceptable impact will occur. Preliminary diving inspection at the existing seawall prior to dredging will be carried out to ensure that no creatures of high ecological values would be affected
Cultural Heritage	• To salvage the cultural relics of the former airport like the wind poles at the southern end of the ex-runway, as landscape feature for future use. • To carry out spot diving check prior to dredging and to exercise precautionary dredging operation.

5.2 Possible Severity, Distribution and Duration of Environmental Effects

Short Term Effect

5.2.1 Potential environmental impacts described in Section 3 are expected to last for the construction period only. As such, the effects are considered to be temporary and short term. With the incorporation of appropriate mitigation measures, no insurmountable effects are anticipated.

Beneficial Effects

5.2.2 The Project will transform the subject site into a piece of land for future commercial, tourism and leisure developments to meet the long term development, economic and social needs of Hong Kong.

5.3 Implications of the Project

5.3.1 So far we have held a series of public consultation sessions on the proposed development in Kai Tak including the cruise terminal. The public at large supports the implementation of the Project. On 24 October 2006, the Administration announced the launching of the Project, with the target of putting the first berth into use by 2012 and the second by 2016.

6. USE OF PREVIOUSLY APPROVED EIA REPORTS AND SUBSEQUENT STUDY REPORTS

6.1 The following approved EIA Report can be referred to in this project study:

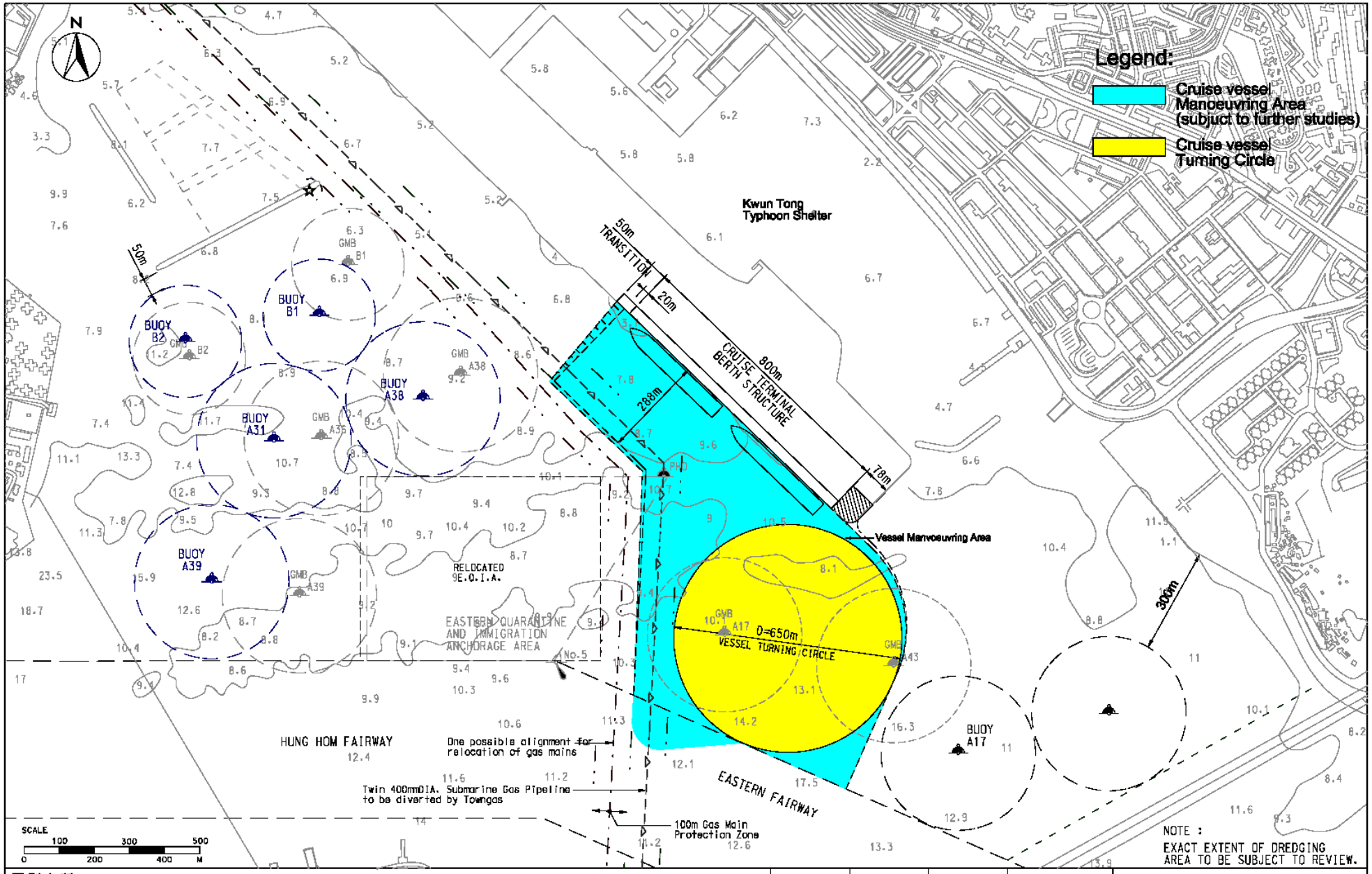
- Comprehensive Feasibility Study for The Revised Scheme of South East Kowloon Development (EIA Register No. AEIAR-044/2001 approved with conditions on 25 Sep 2001).

6.2 The afore-mentioned EIA report is for the overall development of the entire Kai Tak Site, including this Project site. Text of particular relevance to this Project is contained in Clause 4.2.5 which refers to sensitive receivers and Clause 11 which refers to Fisheries Impact.

6.3 We carried out our foregoing assessment based on the site data contained in the Report. Another further site investigation, aimed mainly to classify the sediment for the disposal purpose, will soon be carried out. Results will be incorporated in our future EIA report to be submitted to EPD.

APPENDIX

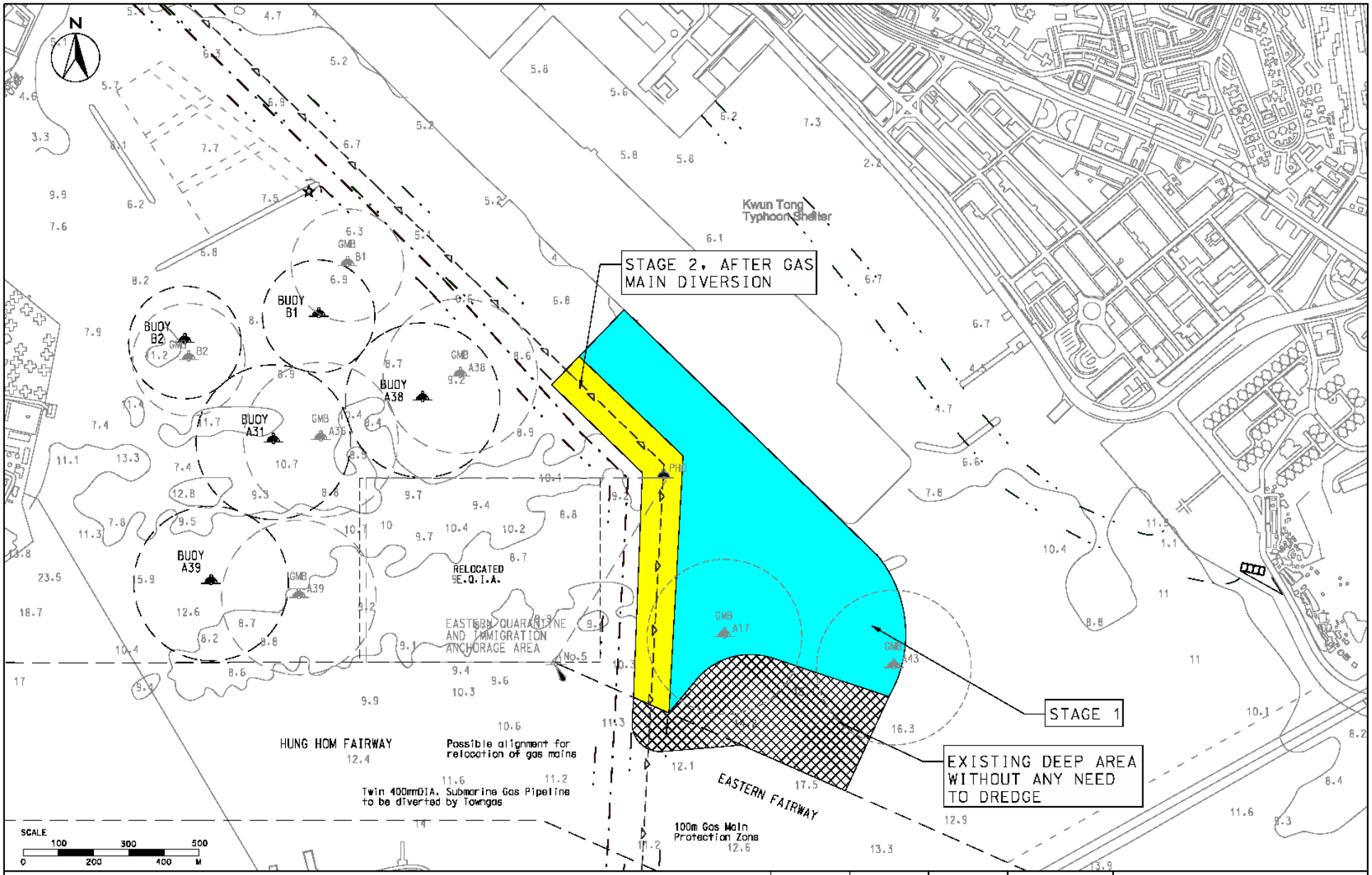
LIST OF DRAWINGS



圖則名稱 drawing title

擬議啓德郵輪碼頭挖泥工程 - 項目位置及範圍
DREDGING WORKS FOR PROPOSED CRUISE TERMINAL AT KAI TAK – LOCATION AND LAYOUT PLAN

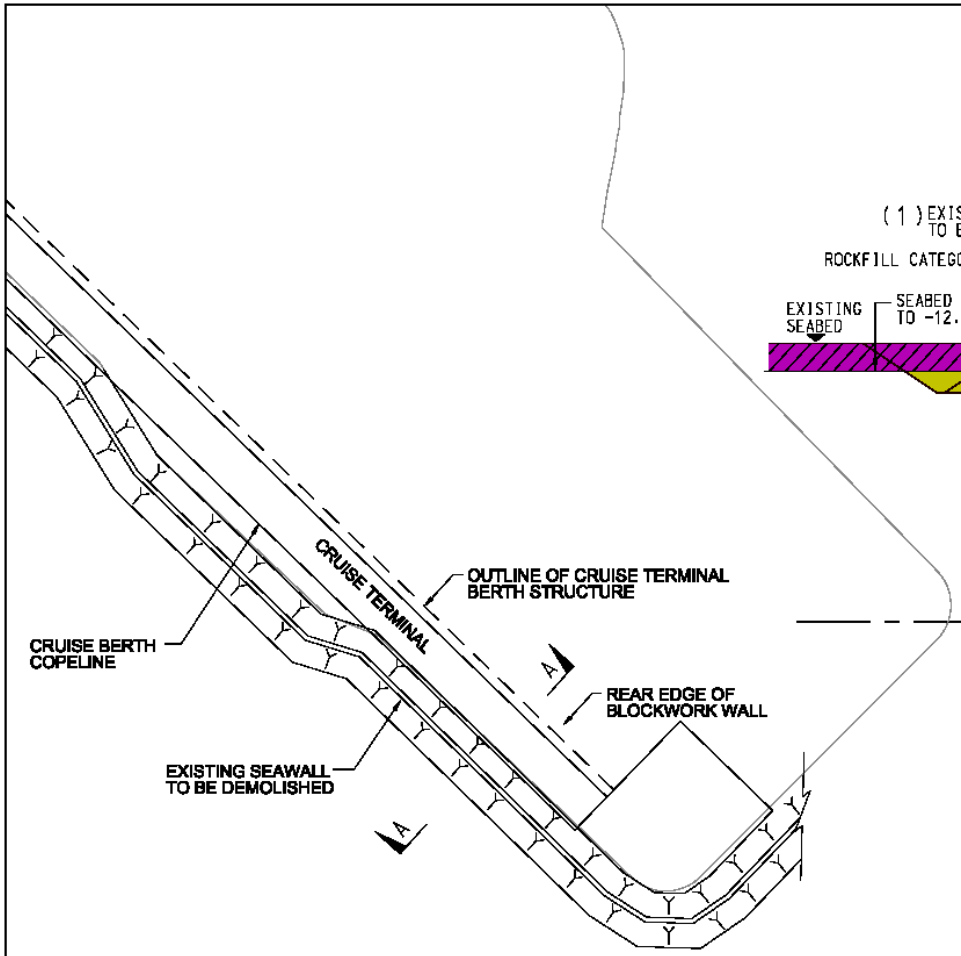
繪圖 drawn	簽署 initial	日期 date	項目編號 Item no.	辦事處 office
C.F. NG	signed	14 Nov 2006	–	九龍拓展處 KOWLOON DEVELOPMENT OFFICE
核對 checked	簽署 initial	日期 date	比例 scale	
T.S. TSUI	signed	14 Nov 2006	As shown	土木工程拓展署 CEDD CML ENGINEERING AND DEVELOPMENT DEPARTMENT
核准 *	簽署 initial	日期 date	圖則編號 drawing no.	
–	–	–	KZ 462	

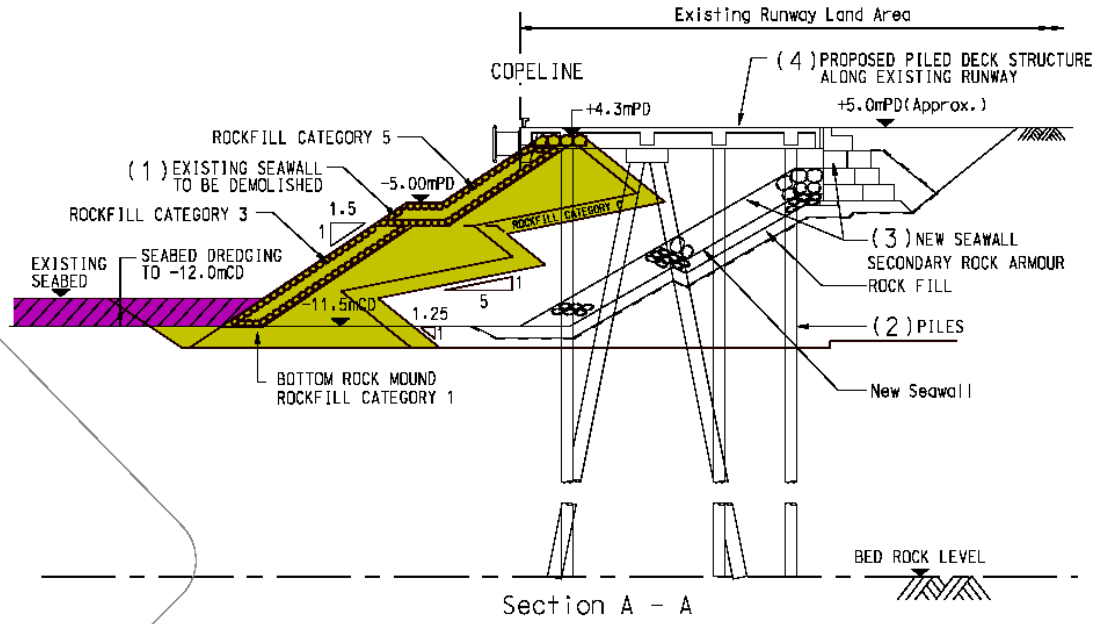


圖則名稱 drawing title

挖泥分階段安排
STAGED DREDGING REQUIREMENTS

繪圖 drawn	簽署 initial	日期 date	項目編號 item no.	辦事處 office	
C.F. NG	signed	26 Oct 2006	–	九龍拓展處 KOWLOON DEVELOPMENT OFFICE	
核對 checked	簽署 initial	日期 date	比例 scale		
T.S. TSUI	signed	26 Oct 2006	As shown		
核准 *	簽署 initial	日期 date	圖則編號 drawing no.	CEDD 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	
–	–	–	KZ 454		





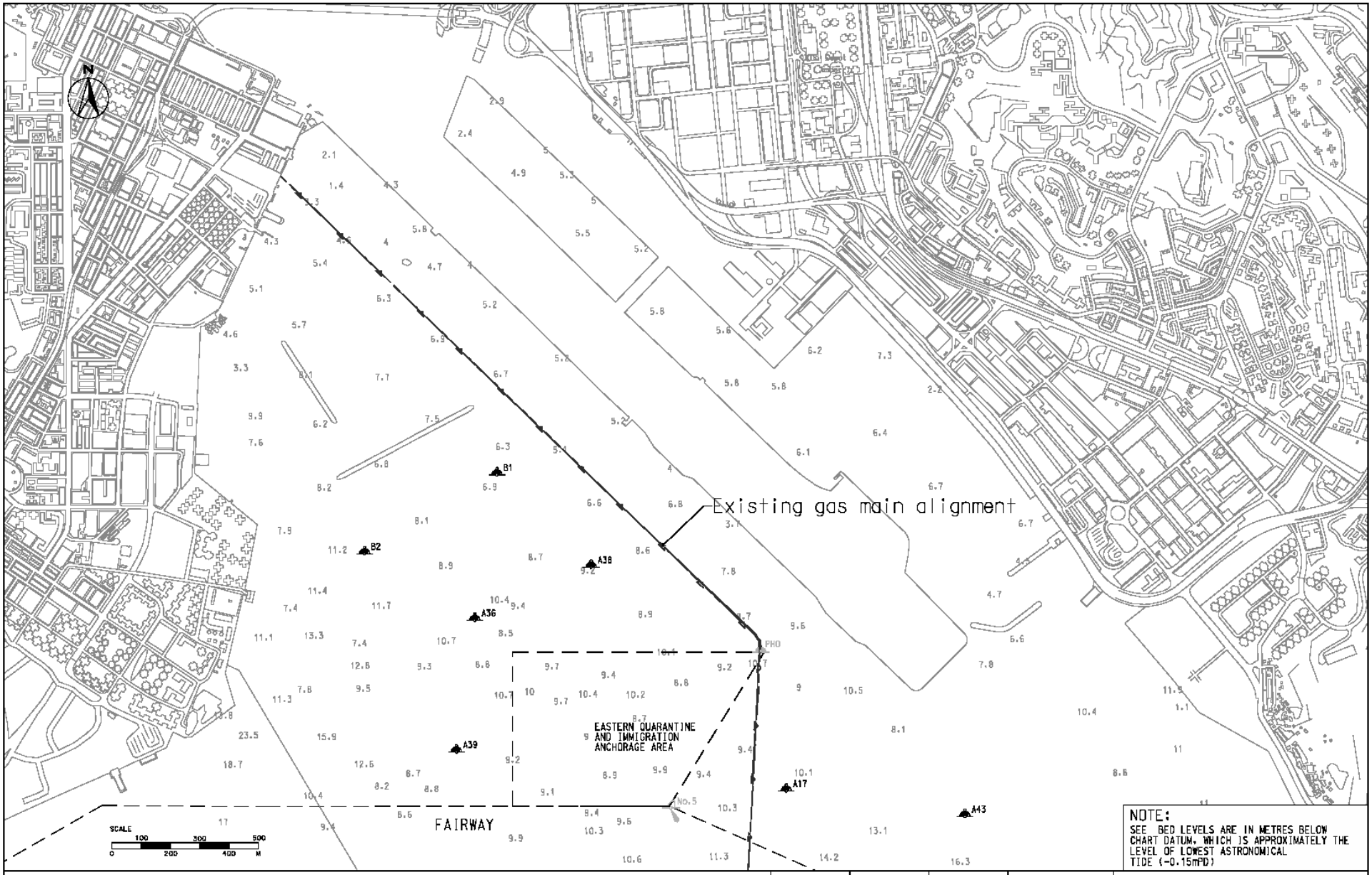
NOTE :
1. CONSTRUCTION SEQUENCE IS SHOWN ABOVE AS (1) TO (4)

SCALE
0 100 200 300 400 500 M

圖則名稱 drawing title

挖泥及其他相關工程的擬造程序
PROPOSED CONSTRUCTION SEQUENCE BETWEEN DREDGING AND OTHER RELATED WORKS

繪圖 drawn	簽署 initial	日期 date	項目編號 item no.	辦事處 office
C.F. NG	signed	26 Oct 2006	–	九龍拓展處 KOWLOON DEVELOPMENT OFFICE
核對 checked	簽署 initial	日期 date	比例 scale	
T.S. TSUI	signed	26 Oct 2006	As shown	土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
核准 *	簽署 initial	日期 date	圖則編號 drawing no.	
–	–	–	KZ 455	



NOTE:
SEE BED LEVELS ARE IN METRES BELOW CHART DATUM, WHICH IS APPROXIMATELY THE LEVEL OF LOWEST ASTRONOMICAL TIDE (-0.15mPD)

圖則名稱 drawing title

現有海床水平
EXISTING SEA BED LEVELS

繪圖 drawn: C.F. NG	簽署 initial: signed	日期 date: 14 Nov 2006	項目編號 item no.: –	辦事處 office: 九龍拓展處 KOWLOON DEVELOPMENT OFFICE
核對 checked: T.S. TSUI	簽署 initial: signed	日期 date: 14 Nov 2006	比例 scale: As shown	CEDD 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
核准 * : –	簽署 initial: –	日期 date: –	圖則編號 drawing no.: KZ 463	