

1. Basic Information

1.1 Project Title

Reconstruction of Pak Sha Wan Public Pier

1.2 Purpose and Nature of Project

The main purpose of the project is to reconstruct the aging Pak Sha Wan Public Pier at Hebe Haven in Sai Kung. According to the findings of the consultancy study in 1995 undertaken by CED to review the conditions of 93 nos. of reinforced concrete pier in Hong Kong, the existing Pak Sha Wan Public Pier was found to have reached the end of its design life which should be replaced.

1.3 Name of Project Proponent

Planning, Environment and Lands Branch is the policy branch. Civil Engineering Department is the client department and Port Development Division of Civil Engineering Department is the works agent responsible for the planning, detailed design and supervision of the construction work for the project.

1.4 History of Site and Location & Scale of Project

The existing pier was built in 1975 and is a public pier for 'Kaito' and pleasure vessel operating in Sai Kung area. As it has been deteriorating very severely, the Government intends to reconstruct it to safeguard the public.

The proposed replacement pier is in the immediate vicinity of the existing pier in Hebe Haven, Sai Kung. The location of the piers is shown on the attached Drawing No. PD 10143.

This is a marine work project comprising mainly the following :

- (a) Maintaining two landing facilities of the existing pier until the operation of the new pier;
- (b) Constructing a new pier in the immediate vicinity of the existing Pak Sha Wan Public Pier in the form of a reinforced concrete deck of about 640 m² with piled foundation, landing steps, fenders, navigation light and public lightings to re-provision the existing facilities;
- (c) Dredging of 2000 m² of marine mud;
- (d) Demolition of the existing pier (about 300 m³ of building debris); and
- (e) Constructing a roof cover for the new pier.

No mechanical ramp or lavatory will be provided.

The estimated cost of the project is \$ 49 million (at December 1996 Price).

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

This project profile only covers the project of "Reconstruction of Pak Sha Wan Public Pier". The project is classified as a Designated Project in accordance with C.12 (a)(viii) of Schedule 2 Part I of the EIAO that the proposed dredging operation is about 120m from the nearest boundary of an planned "Conservation Area" gazetted on 1.7.94.

1.6 Name and Telephone Number of Contact Persons

Port Development Division
Civil Engineering Office
Civil Engineering Department

2. Outline of Planning and Implementation Programme

2.1 The planning, design and supervision of construction of the project will be carried out by the in-house staff of Port Development Division.

2.2 The tentative implementation programme is as follows :

Preliminary Project Feasibility Study	1/1997 to 2/1998
Design and Tender Documents	8/1998 to 6/1999
Construction	7/1999 to 5/2001

2.3 The programme of the project has no interaction with other projects. The project shall be implemented as soon as possible in order to safeguard the public since the existing pier has been deteriorated severely.

3. Possible Impacts on the Environment

3.1 Possible impacts on the environment during both the construction and the operation stages are outlined in the following sections.

3.2 Noise

3.2.1 The pier is designed to be supported by piles on which the superstructure will be constructed. The use of piling equipment and other mechanical powered plant such as derrick barge will be of particular concern. The duration of piling works varies from 2 months to 4 months depending on the type of piling plant adopted by the contractor. However, the piling noise will be controlled by contractual provisions, and the contractor will also be governed by the licensing conditions of Construction Noise Permit to be issued under the Noise Control Ordinance by EPD.

3.2.2 In addition to piling work, the use of mechanical plant for demolition of the existing pier may also give rise to noise nuisance. The demolition work is expected to last for about 2 months.

3.3 Traffic Impacts

3.3.1 Marine Traffic

It is envisaged that marine construction traffic will be generated during construction of the piled foundation, the dredging of seabed in the vicinity of the pier site as well as during demolition of the existing pier. The impact is considered insignificant because the number of plant involved (about 2 barges) would be relatively small for project of this scale.

3.3.2 Land Traffic

Construction of the pier will also generate vehicular traffic which may cause land traffic impacts on the Hiram's Highway and Clearwater Bay Road. However, the impacts are considered insignificant because the number of plant involved is small (occasionally, about 2 lorries for transporting construction materials such as concrete, reinforcement, etc.).

3.4 Water Quality

3.4.1 Water turbidity will not be increased during substructure construction by virtue of a pile-type foundation being adopted. Impact associated with the pier construction works primarily relate to dredging and placing of fill during construction stage.

3.4.2 The Hong Kong Geological Survey (Memoir No. 1, Sheet No. 6) published in 1986 shows that the propose pier site will be underlain with shelly marine mud as superficial deposits. Such findings are also revealed by previous marine ground investigations conducted in 1970, 1972, 1973 and 1980.

- 3.4.3 Since a suspended deck structure is being proposed for the pier, there will not be any large scale dredging of marine mud during implementation of the project. However, minor dredging of the order of 2000 m³ is required for forming the abutment wall and for deepening the seabed around the new pier. Heavy metal analysis on vibrocore subsamples taken on site shows that the mud is uncontaminated in respect of Cu, Cd, Cr, Pb, Ni, Zn and Hg. However, according to the findings from a recent study carried out by EPD, the level of Tri-butyltin (TBT) contamination in the vicinity of the pier site could be as high as 1 800 ng/g. As such, the contaminated mud dredging procedure shall be followed unless the TBT tests on site verify that the mud is uncontaminated.
- 3.4.4 The dredging, transport and disposal of marine mud may have impacts to marine environment. The dredging will be carried out using closed grab, silt curtain will be deployed to enclose the dredging area and the rate of dredging shall not exceed 250 m³ per day (based on 8 hours per day). Therefore, the total period of dredging is estimated to be about two weeks.
- 3.4.5 The placing of fill material in the abutment of the pier will unlikely have any adverse effects on water quality because the fill material will be retained by concrete blocks in the abutment.

3.5 Disruption of Water Movement

Due to the fact that a pile-type foundation will be adopted, water circulation will not be impeded and, hence, introducing no stagnant water body around the pier site.

3.6 Air Quality

Dust emission resulting from on-site construction activities is expected. In addition, handling of dredged mud may cause odour nuisance to the surrounding environment.

3.7 Visual Appearance

Landscaping area will be provided to improve the visual appearance of the pier. In addition, due to the project's small scale, it is considered that there will not be any issues pertaining to adverse visual impacts.

3.8 Fisheries

The proposed project is about 1.2 km from the Ma Nam Wat fish culture zone. The impact of the works to the fish culture zone is considered insignificant with the implementation of the mitigation measures suggested in Section 5 below.

3.9 Waste

Handling and disposal of dredged mud and demolition waste are expected to have insignificant impact to the environment because of the small scale of the project (about 2000 m³ of dredged mud and 400 m³ of demolition waste).

4. Major Element of the Surrounding Environment

4.1 Sensitive receivers in the surrounding environment as shown on Drawing No. PD 10143 include mainly the following:

- (a) Residents in Kau Sai San Tsuen, Sha Tsui and Marina Cove;
- (b) Restaurants in Pak Sha Wan;
- (c) Swimmers at Trio Beach (gazetted beach);
- (d) Fish Culture Zone at Ma Nam Wat; and
- (e) Conservation Area at Pak Sha Wan.

4.2 Major elements of the surrounding environment which might affect the Pak Sha Wan area include the shipyards along the shoreline and Hiram's Highway. The zoning of the adjacent areas is shown on Drawing No. PD 10143.

5. Environmental Protection Measures to be Incorporated in the Design and Any Further Environmental Implications

5.1 Measures to minimise environmental impacts:-

5.1.1 Air Quality

The proposed pier site is situated at a location approximately 130 m south of the commercial activities in Pak Sha Wan. Since construction of the pier does not involve appreciable earthworks, dust pollution will not be a cause for concern and the Air Pollution Control (Construction Dust) Regulation will be followed to ensure no adverse dust impact to the air sensitive receivers. Odour nuisance that may be caused by dredged mud could be minimised by restricting stockpiling of the dredged mud on site and enclosing the dredged mud when being removed from the site.

5.1.2 Water Quality and Fisheries

It is expected that there is no appreciable impact on water quality during construction. However, due to the potentially high level of TBT contamination, precautionary measures, such as silt curtain, closed grab and dredging rate control would be implemented during dredging.

In addition, background water quality monitoring before construction works will be carried out at the pier site, fish culture zone in Ma Nam Wat and Trio Beach to obtain baseline information for subsequent water quality monitoring. Regular and frequent water quality monitoring will be carried out at the above locations throughout the whole construction period to ensure that the potential water quality impacts arising from dredging and other construction activities would be within the established environmental guidelines and standards. The details of the water quality monitoring scheme will be submitted separately.

In the unlikely event that adverse impacts do occur, an event contingency plan will be implemented.

Details of the environmental monitoring and audit programme will be submitted to the Director of Environmental Protection for approval before application for an Environmental Permit. Personnel carrying out the water quality monitoring work will be experienced in water quality monitoring and will be agreed with the Director of Environmental Protection prior to the commencement of the baseline monitoring.

5.1.3 Noise

The piling operation and the demolition works for the existing pier will inevitably cause noise nuisance. The nearest noise sensitive receiver, about 130m away from the pier, is the developments along the shoreline where seafood restaurants are blending with dwelling houses. Because of low population density as well as low patronage on the existing kaito service, the number of people being affected is very limited.

Noise generated during pile driving and demolition of the existing pier in restricted hours will be controlled by the Noise Control Ordinance. Through application for a Construction Noise Permit by the contractor, the conditions with respect to the permitted hours of operation, type and number of equipment items allowed to be used and other noise control measures to be adopted are imposed in order to protect nearby noise sensitive receivers from excessive noise exposure. For construction works in non-restricted hours, the daytime construction noise criteria stipulated in ProPECC Note 2/93 will be adopted.

5.1.4 Waste

A detailed programme for sampling and testing the dredged mud will be prepared and implemented to determine whether the mud is contaminated in accordance with WBTC No. 22/92. The contaminated mud dredging procedure shall be followed unless the TBT tests on site verify that the mud is uncontaminated. Licence for dumping the dredged mud shall be obtained from EPD prior to the commencement of the dredging works. In order to minimise the impact to the environment, the handling and disposal of the dredged mud and other waste materials will be in accordance with the Waste Disposal Ordinance, the Dumping at Sea Ordinance, the Public Health and Municipal Service Ordinance and the Water Pollution Ordinance.

5.2 Possible Severity, Distribution and Duration of Environmental Effects:-

The possible severity, distribution and duration of environmental effects and further implications are summarised below:-

	Effects	Severity	Distribution	Duration
Air Quality	Dust emission from construction activities and odour nuisance from dredged mud.	Slightly affected	Local - near the pier	About 12 months
Noise	Noise nuisance from piling and demolition works.	Slightly affected	Local - near the pier	About 4 months
Water Quality & Fisheries	Sediments from dredging of marine mud and piling works.	Slightly affected	Local - near the pier	About 3 months
Waste	Handling and disposal of about 2000m ³ of dredged mud and 400m ³ of demolition waste.	Slightly affected	Local - near the pier	About 4 months

5.3 Public Consultation to Date

5.3.1 The village representatives and the Sai Kung Provisional District Board member - Mr. Hiew Moo-siew were consulted through Sai Kung District Office in May 1998. They had no particular comment on the project.

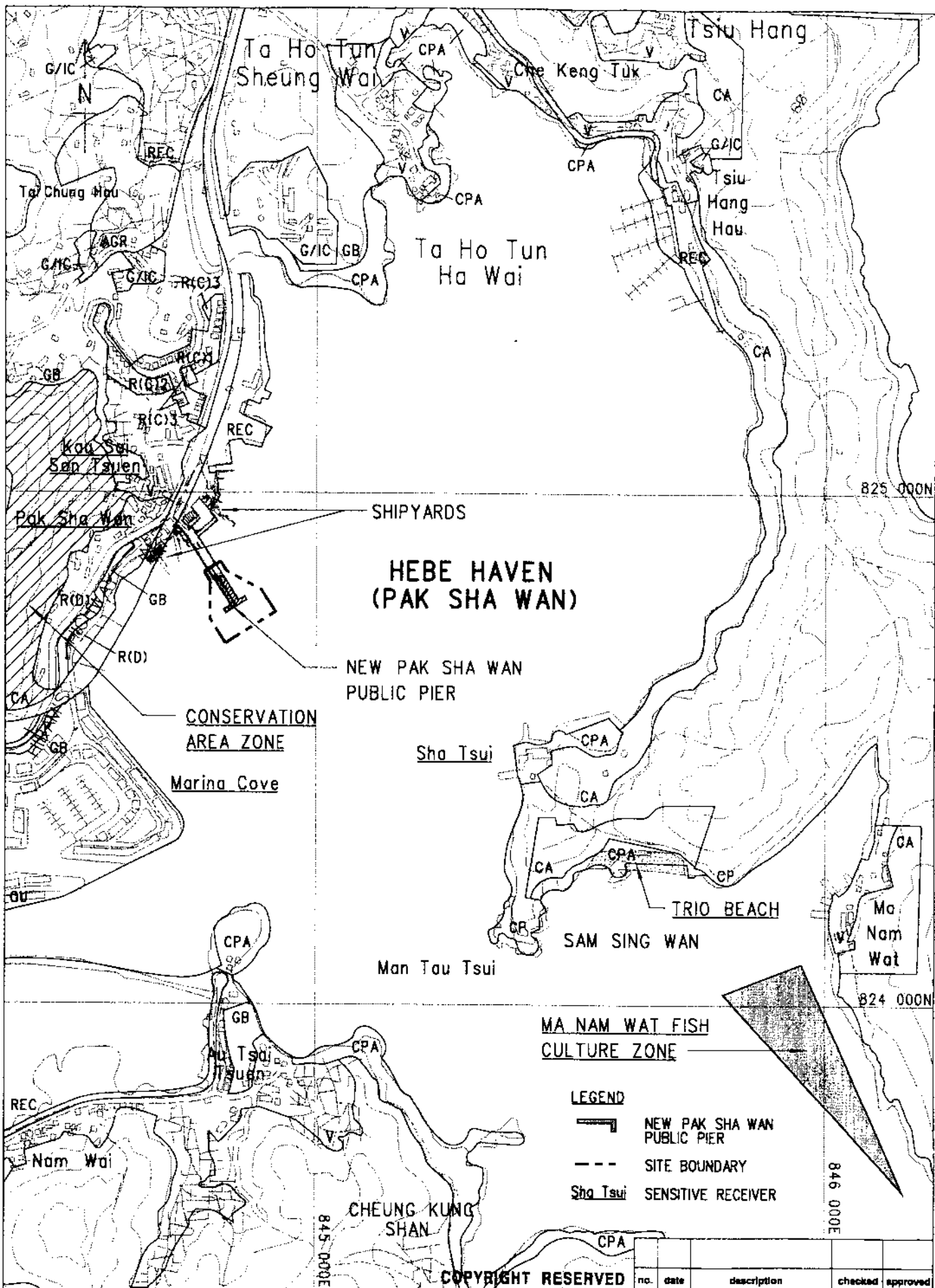
5.3.2 Minimal public interest and political sensitivity are expected.

5.4 History of Similar Project

The construction of ferry berths at Sok Kwu Wan at Lamma Island (CED Contract No. CV/95/15) is being implemented with environmental protection measures similar to those proposed in Section 5 above. No complaint and adverse impact to the environment was recorded in the construction of the above ferry berths.




6. **Use of Previously Approved EIA Reports**

No previously approved EIA report can be used.



**HEBE HAVEN
(PAK SHA WAN)**

LEGEND

-  NEW PAK SHA WAN PUBLIC PIER
-  SITE BOUNDARY
-  Sh_a Tsui SENSITIVE RECEIVER

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**RECONSTRUCTION OF
PAK SHA WAN PUBLIC
PIER -
LOCATION OF
SENSITIVE RECEIVERS**

	name	initial	date
designed	Y. K. AU	<i>YKA</i>	13.1.99
drawn	K. L. LAU	<i>KL</i>	14.1.99
checked	Y. K. AU	<i>YKA</i>	2.2.99
approved	J. RALSTON	<i>JR</i>	2.2.99
office	PORT DEVELOPMENT DIVISION CIVIL ENGINEERING OFFICE		

no.	date	description	checked	approved

drawing no.
PD 10143

scale
1:10 000

 **CIVIL ENGINEERING
DEPARTMENT
HONG KONG**

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MaterialLab

HOKLAS
REGISTRATION NO. 15

Report No. : 980341EN80915

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Results :

Sample Identification		Copper Content mg/kg	Cadmium Content mg/kg	Chromium Content mg/kg	Lead Content mg/kg	Nickel Content mg/kg	Zinc Content mg/kg	Mercury Content mg/kg	Classification of contamination level (*)
Borehole No.	Depth								
V1	0.0-0.1m	110	<0.5	41	45	6	210	<0.4	C
V1	0.9-1.0m	<10	<0.5	15	<15	<6	50	<0.4	A
V1	1.9-2.0m	<10	<0.5	15	<15	<6	45	<0.4	A
V1	2.8-2.9m	<10	<0.5	14	<15	<6	41	<0.4	A
V2	0.0-0.1m	39	<0.5	27	24	6	110	<0.4	A
V2	0.9-1.0m	<10	<0.5	15	<15	<6	46	<0.4	A
V2	1.9-2.0m	<10	<0.5	16	<15	<6	48	<0.4	A
V2	2.8-2.9m	<10	<0.5	15	<15	<6	25	<0.4	A
V3	0.0-0.1m	37	<0.5	24	22	<6	98	<0.4	A
V3	0.9-1.0m	<10	<0.5	14	<15	<6	51	<0.4	A
V3	1.9-2.0m	<10	<0.5	15	<15	<6	48	<0.4	A
V3	2.8-2.9m	<10	<0.5	17	<15	<6	41	<0.4	A
V4	0.45-0.55m	<10	<0.5	12	<15	<6	44	<0.4	A
V4	0.9-1.0m	<10	<0.5	16	<15	<6	42	<0.4	A
V4	1.9-2.0m	<10	<0.5	17	<15	<6	49	<0.4	A
V4	2.8-2.9m	<10	<0.5	15	<15	<6	33	<0.4	A
V5	0.0-0.1m	<10	<0.5	12	<15	<6	32	<0.4	A
V5	0.9-1.0m	<10	<0.5	13	<15	<6	34	<0.4	A
V5	1.9-2.0m	<10	<0.5	14	24	<6	28	<0.4	A
V5	2.8-2.9m	<10	<0.5	13	20	<6	22	<0.4	A

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REGISTRATION NO. 15

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Sample Identification		Copper Content	Cadmium Content	Chromium Content	Lead Content	Nickel Content	Zinc Content	Mercury Content	Classification of contamination level (*)
Borehole No.	Depth	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
V6	0.0-0.1m	<10	<0.5	11	<15	<6	44	<0.4	A
V6	0.9-1.0m	<10	<0.5	10	<15	<6	47	<0.4	A
V6	1.9-2.0m	<10	<0.5	9	<15	<6	27	<0.4	A
V6	2.8-2.9m	<10	<0.5	8	<15	<6	20	<0.4	A
V7	0.2-0.3m	46	<0.5	32	22	18	130	<0.4	A
V7	0.9-1.0m	<10	<0.5	14	<15	<6	49	<0.4	A
V7	1.9-2.0m	<10	<0.5	15	<15	7	48	<0.4	A
V7	2.8-2.9m	<10	<0.5	14	20	<6	39	<0.4	A
V7	5.8-5.9m	<10	<0.5	<5	<15	<6	<15	<0.4	A

- Remarks :**
- Results are based on mass of sample dried at 103-105°C.
 - Analytical data are attached in the Appendix.
 - Testings of the seven heavy metals content of sediment are accredited by HOKLAS.
- * The classification of contamination level of sediment is an opinion of the laboratory, based on the following table issued by EPD and is not covered under the HOKLAS accreditation

Table 1 - Classification of Sediments by Metal Content (mg/kg dry weight)

	Cd	Cr	Cu	Hg	Ni	Pb	Zn
Class A	0.0-0.9	0-49	0-54	0.0-0.7	0-34	0-64	0-140
Class B	1.0-1.4	50-79	55-64	0.8-0.9	35-39	65-74	150-190
Class C	1.5 or more	80 or more	65 or more	1.0 or more	40 or more	75 or more	200 or more

Supervised by : K.F. Wong

Certified by : 
Approved Signatory : K.M. Ho

Date

31/12/98

