



俊和 - 中國中鐵聯營

CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02


Wan Chai Development Phase II

Central - Wan Chai Bypass at Wan Chai East

Silt Curtain Deployment Plan

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## Silt Curtain Deployment Plan

C	08/06/10	Submission for Approval	Cecil Cheng	P C Chan 
B	01/06/10	Submission for Approval	Cecil Cheng	P C Chan
A	22/03/10	Submission for Approval	Cecil Cheng	P C Chan
0	01/03/10	Submission for Approval	Cecil Cheng	P C Chan
Rev	Date	Status	Prepared By	Reviewed and Approved By Construction Manager



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## 1.0 Introduction

The purpose of this deployment plan is to illustrate the general layout, the construction programme, details on the design, operation and maintenance of the silt curtains to be installed for the dredging and filling works of “Wan Chai Reclamation” as recommended in the approved EIA report (Registration No.:AEIAR-125/2008).

## 2.0 List of documentation to be referenced

- 2.1 Particular Specification, the relevant clauses and our remarks for the marine ground investigations is listed as follows for ease of references.

PS Clause No.	Relevant Remarks
PS Appendix 25.4	EP No. EP-356/2009 Clause 2.8 refers. The silt curtain deployment plan shall

## 3.0 General Layout of Silt Curtain (SD-Hanging Type) by Stages

- 3.1 The deployment of Silt Curtain would be divided in to stages based on the locations of works and the working period, the details of the staging are as follow:
1. Stage 1 Silt Curtain to be deployed for the reclamation works of WCR1 for approximate 7 months, anticipated from May 2010 to November 2010.
  2. Stage 2 Silt Curtain to be deployed for the reclamation works of WCR2 for approximate 6 months, anticipated from February 2012 to August 2012.
  3. Stage 3 Silt Curtain to be deployed for the reclamation works of WCR4 and TWCR4 for approximate 10 months, anticipated from April 2012 to January 2013.
  4. Stage 4 Silt Curtain to be deployed for the reclamation works of WCR3 for approximate 11 months, anticipated from February 2014 to January 2015.
  5. Stage 5 Silt Curtain to be deployed for the construction of permanent seawall blocks near reclamation works of WCR4, the removal of temporary reclamation TWCR4 and the reinstatement of original seabed. The silt curtains to be deployed for approximate 6 months, anticipated from March 2016 to August 2016.
- 3.2 The layout plans for deployment of silt curtains during different stages and its general arrangement should refer to Appendix A. To suit the site condition and with reference to the tidal range, the silt curtain would be extended to as close to the seabed level as practicable.
- 3.3 The working procedure for installation of silt curtain should refer to Appendix C.



3.4 The maintenance procedure for silt curtain is as follow:

1. Site supervisors should be responsible to inspect the condition of the silt curtain daily during the course of marine works. An inspection checklist will be prepared and filled in by site supervisors. All checklists should be kept on site for record purpose. A template of checklist is attached on Appendix E.
2. If silt curtain is found to be damaged and repairing works are identified if necessary, all marine works at 50m from the location of silt curtain would be temporary suspended. The silt curtain would be lifted up from sea by chain block pulley system, the whole/part of (depends on damaged condition) silt curtain would be replaced. In case of repairing damaged floats, temporary suspension of marine works should not imply.
3. The suspended marine works as above-mentioned would only be resumed after satisfactorily repairing of the damaged silt curtain.
4. As a regular maintenance, refuse or debris around the silt curtain would be collected on daily basis to avoid adverse effect to marine plants as well as to the public.
5. Spare silt curtain sheets and the associated material would be stored on site to maintain for prompt replacement in case of any damages observed.
6. Prior to removal of the silt curtain, site supervisor should closely monitor with the marine plant's operators to ensure no marine works should be carried out 50m from the location of silt curtain maintenance.



#### 4.0 Deployment Schedule

4.1 The deployment schedule of the silt curtain could refer to the table below. It is prepared based on the Initial Works Programme and may subject to changes to reflect the actual site progress:

Staging	Anticipated Installation Works		Silt Curtain to be Maintained until	Anticipated Removal by	Total Duration, days = (b)- (a)
	From (a)	To			
Stage 1	1 May, 2010	15 May, 2010	15 November, 2010	22 November, 2010	205
Stage 2	3 February, 2012	17 February, 2012	28 July, 2012	4 August, 2012	183
Stage 3	2 April, 2012	16 April, 2012	2 January, 2013	9 January, 2013	282
Stage 4	18 February, 2014	4 March, 2014	5 January, 2015	12 January, 2015	328
Stage 5	1 April, 2015	14 April, 2015	20 August, 2015	27 August, 2015	148

4.2 Silt Curtain would be installed at least 28 days prior to the commencement of dredging works, the silt curtain would only be removed upon completion of filling works at each stage.

#### 5.0 Construction Programme.

5.1 The Initial Works Programme for the project is enclosed in Appendix B.

#### 6.0 Technical Details

6.1 The technical details on the design, operation and maintenance of the silt curtains are enclosed in Appendix C: SD Type configuration with Impervious silt curtain (Brand: MakMax) and hanging type installation method would be adopted for our project.

#### 7.0 Appendices

7.1 Appendix A – Layout plan for silt curtain deployment at different stages

7.2 Appendix B – Initial works program

7.3 Appendix C – Technical details of the silt curtain

7.4 Appendix D – Daily Checklist Template



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CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02

Wan Chai Development Phase II

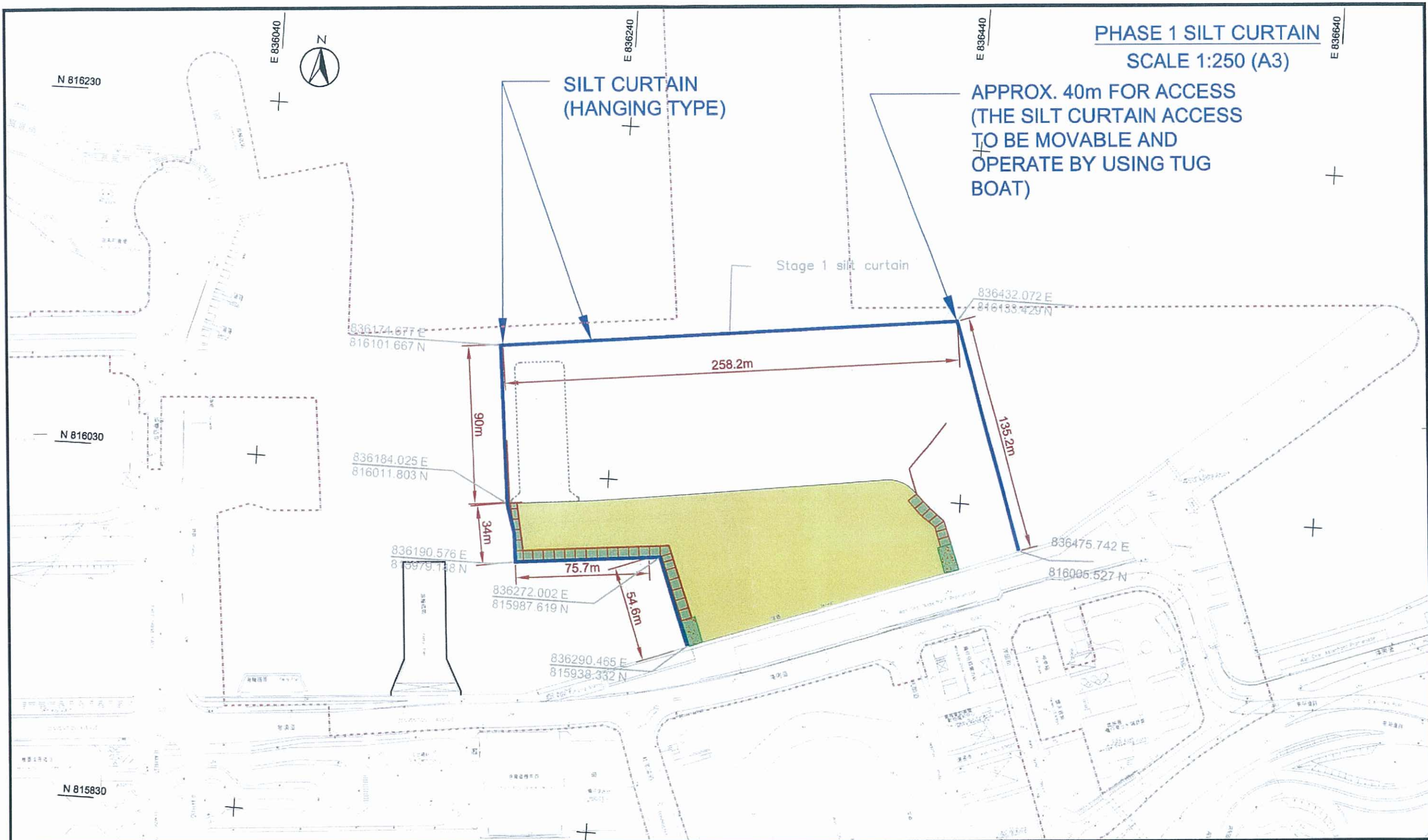
Central - Wan Chai Bypass at Wan Chai East

Silt Curtain Deployment Plan

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## **7.1 Appendix A**

# **Layout plan for silt curtain deployment at different stages**



**PHASE 1 SILT CURTAIN**  
**SCALE 1:250 (A3)**

**SILT CURTAIN (HANGING TYPE)**

**APPROX. 40m FOR ACCESS (THE SILT CURTAIN ACCESS TO BE MOVABLE AND OPERATE BY USING TUG BOAT)**

Stage 1 silt curtain

CLIENT	CONTRACTOR  <b>俊和 - 中國中鐵聯營</b> CHUN WO - CRGL JOINT VENTURE	JOB TITLE:	SCALE	1:2000	REF. TO DWG. NO.		
ENGINEERS REPRESENTATIVE	PROJECT: CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST	Silt Curtain Arrangement - Phase 1	DATE	12 MAY 2010	Sheet 1 of 1	REV	
			DRAWN	SUNNY NG			DESIGNED
			CHECKED	---	APPROVED	---	CWCJRJV/HK200902/SK0017
						B	

PHASE 2 SILT CURTAIN  
SCALE 1:250 (A3)



E 836040

E 836240

E 836440

E 836640



PERPOSED FERRY PIER

SILT CURTAIN  
(HANGING TYPE)

836177.4278 E  
816013.4580 N

836179.1040 E  
815953.4814 N

836154.7800 E  
815921.7270 N

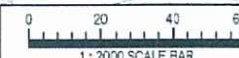
60m

40m

EXISTING  
FERRY PIER

APPROX. 40m FOR ACCESS  
(THE SILT CURTAIN ACCESS  
TO BE MOVABLE AND  
OPERATE BY USING TUG  
BOAT)

A		Silt curtain boundary, Utility of Star Ferry Pier	2010/06/01
REV.	NO.	DESCRIPTION	DATE
CLIENT			
		土木工程拓展署 Civil Engineering and Development Department	
		俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	
WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST			
Silt Curtain Arrangement - Phase 2			
<b>AECOM</b>			
DRG NO.	HK/2009/02/M/R/013A		
DESIGNED BY	CONTACT NO.	P. REV. APPROVED	
	HK/2009/02		
DRAWN BY	STATUS		
SCALE			
DIMENSIONS ARE IN		© COPYRIGHT RESERVED	
METRES		版權所有	





PHASE 3 SILT CURTAIN  
SCALE 1:250 (A3)



APPROX. 40m FOR  
ACCESS (THE SILT CURTAIN  
ACCESS TO BE MOVABLE  
AND OPERATE BY USING  
TUG BOAT)

SILT CURTAIN  
(HANGING TYPE)

SILT CURTAIN  
(HANGING TYPE)

836397.882 E  
816120.276 N

836393.201 E  
816080.551 N

836402.601 E  
816041.671 N

836557.848 E  
816117.002 N

836586.132 E  
816088.718 N

160m

40m

40m

NO.	REVISION	DATE

CEDD 土木工程拓展署  
Civil Engineering and  
Development Department

CHUN WO - CRGL JOINT VENTURE

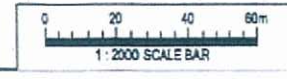
WAN CHAI DEVELOPMENT PHASE II -  
CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST

Silt Curtain Arrangement - Phase 3

AECOM

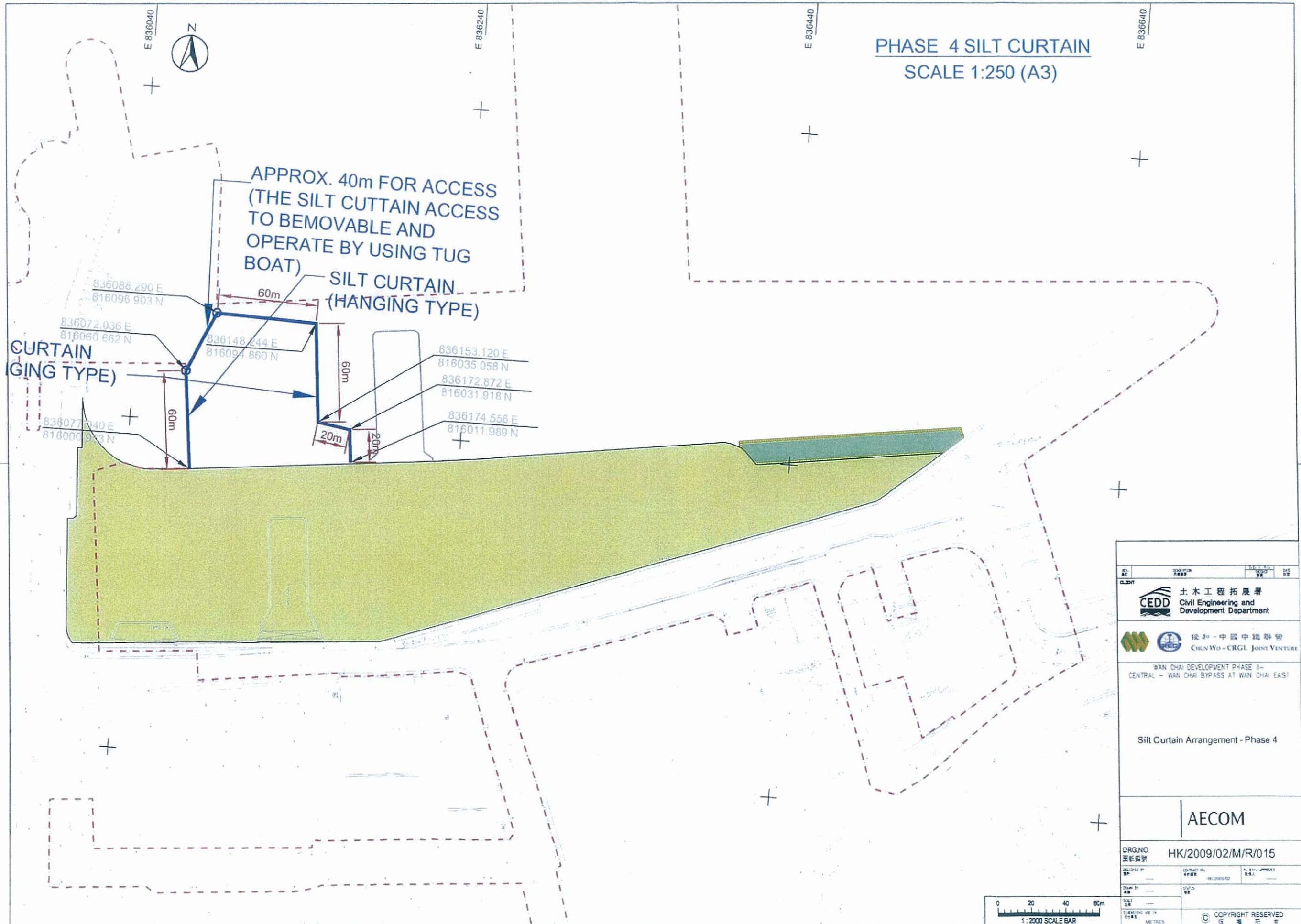
DRG. NO. HK/2009/02/M/R/014

DESIGNED BY	CHECKED BY	DATE
SCALE		



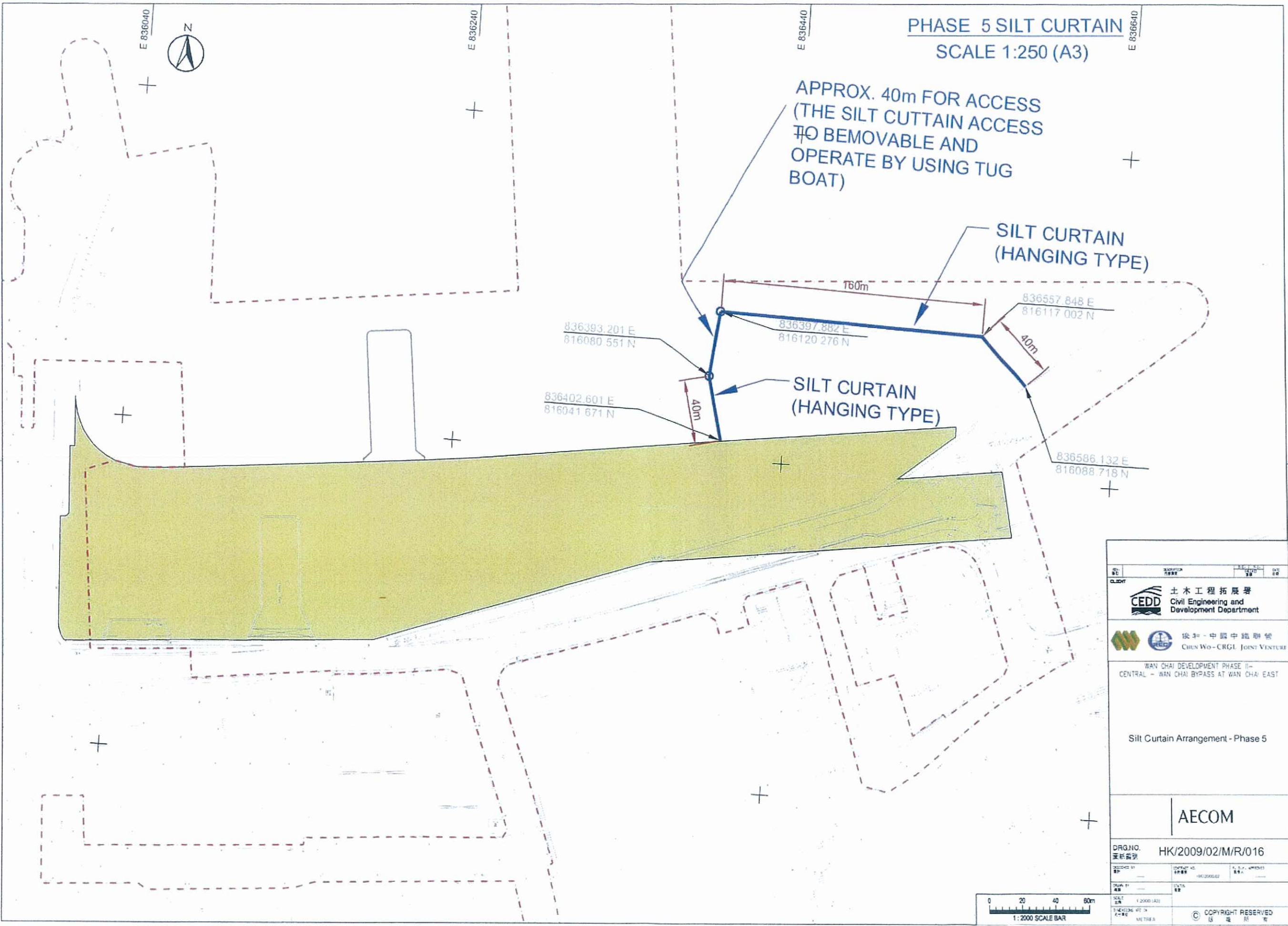
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PHASE 4 SILT CURTAIN  
SCALE 1:250 (A3)



NO.	REVISION	DATE
土木工程拓展署 Civil Engineering and Development Department		
俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE		
WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST		
Silt Curtain Arrangement - Phase 4		
ORG/NO	HK/2009/02/M/R/015	
DESIGNED BY	CHECKED BY	DATE
DRAWN BY	STATUS	
SCALE	1:2000 SCALE BAR	
SHEETING NO. IN 1-45 METRES		
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PHASE 5 SILT CURTAIN  
SCALE 1:250 (A3)



 土木工程拓展署 Civil Engineering and Development Department	
 俊和 - 中國中鐵聯營 CRUN Wo - CRGL JOINT VENTURE	
WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST	
Silt Curtain Arrangement - Phase 5	
<b>AECOM</b>	
DRG. NO. 圖紙編號	HK/2009/02/M/R/016
DESIGNED BY 設計人	CHECKED BY 校核人
DRAWN BY 繪圖人	SCALE 1:250 (A3)
1:2000 SCALE BAR 	
© COPYRIGHT RESERVED 版權保留	



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Contract No. HK/2009/02

Wan Chai Development Phase II

Central - Wan Chai Bypass at Wan Chai East

Silt Curtain Deployment Plan

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## **7.2 Appendix B**

### **Initial works program**

Activity ID	Activity Name	Duration	Start	Finish	Total Float	2010												2011												2012												2013												2014												2015												2016																																																																							
						J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D																																				
<b>Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East</b>																																																																																																																																																					
<b>Initial Programme</b>																																																																																																																																																					
<b>Key Dates</b>																																																																																																																																																					
KD0010	Works Commencement Date	0d	28-Jan-10		0d	◆ Works Commencement Date																																																																																																																																															
KD0020	Whole of Works Completion Date	0d		22-Sep-16	0d																																																																																																																																																
KD0030	Completion of Section I Works (290 days) - Public Fill Sorting Facility at TKO	0d		13-Nov-10	0d	◆ Completion of Section I Works (290 days) - Public Fill Sorting Facility at TKO																																																																																																																																															
KD0040	Completion of Section II Works (350 days) - Road Improvement at Fleming Road and Gloucester Road	0d		12-Jan-11	0d	◆ Completion of Section II Works (350 days) - Road Improvement at Fleming Road and Gloucester Road																																																																																																																																															
KD0050	Completion of Section III Works (630 days) - Modification of Expo Drive East	0d		19-Oct-11	0d	◆ Completion of Section III Works (630 days) - Modification of Expo Drive East																																																																																																																																															
KD0060	Completion of Section IV A Works (770 days) - Cooling Water Pumping Station for Sun Hung Kai Centre	0d		07-Mar-12	0d	◆ Completion of Section IV A Works (770 days) - Cooling Water Pumping Station for Sun Hung Kai Centre																																																																																																																																															
KD0070	Completion of Section IV B Works (770 days) - Cooling Water Pumping Station for China Resources Building	0d		07-Mar-12	0d	◆ Completion of Section IV B Works (770 days) - Cooling Water Pumping Station for China Resources Building																																																																																																																																															
KD0080	Completion of Section IV C Works (770 days) - Cooling Water Pumping Station for Great Eagle Centre/Harbour Centre	0d		07-Mar-12	0d	◆ Completion of Section IV C Works (770 days) - Cooling Water Pumping Station for Great Eagle Centre/Harbour Centre																																																																																																																																															
KD0090	Completion of Section V Works (750 days) - WSD Salt Water Pumping Station in Area 5	0d		16-Feb-12	0d	◆ Completion of Section V Works (750 days) - WSD Salt Water Pumping Station in Area 5																																																																																																																																															
KD0100	Completion of Section VI Works (820 days) - Submarine Sewage Outfall in Area 6	0d		27-Apr-12	0d	◆ Completion of Section VI Works (820 days) - Submarine Sewage Outfall in Area 6																																																																																																																																															
KD0110	Completion of Section VII Works (830 days) - Box Culvert N1, Flood Relief System & Works in Area 7	0d		06-May-12	0d	◆ Completion of Section VII Works (830 days) - Box Culvert N1, Flood Relief System & Works in Area 7																																																																																																																																															
KD0120	Completion of Section VIII A Works (1000 days) - Wan Chai Ferry Pier in Area 8	0d		23-Oct-12	0d	◆ Completion of Section VIII A Works (1000 days) - Wan Chai Ferry Pier in Area 8																																																																																																																																															
KD0130	Completion of Section VIII B Works (1440 days) - Temporary Covered Walkway to Convention Avenue	0d		06-Jan-14	0d	◆ Completion of Section VIII B Works (1440 days) - Temporary Covered Walkway to Convention Avenue																																																																																																																																															
KD0140	Completion of Section VIII C Works (1470 days) - Landscape Softworks in Area 8	0d		06-Feb-14	0d	◆ Completion of Section VIII C Works (1470 days) - Landscape Softworks in Area 8																																																																																																																																															
KD0150	Completion of Section VIII D Works (1835 days) - Establishment Works in Area 8	0d		06-Feb-15	0d	◆ Completion of Section VIII D Works (1835 days) - Establishment Works in Area 8																																																																																																																																															
KD0160	Completion of Section IX A Works (1340 days) - Bulkhead of Central - Wan Chai Bypass Tunnel & Demolition of Helipad Stru	0d		28-Sep-13	0d	◆ Completion of Section IX A Works (1340 days) - Bulkhead of Central - Wan Chai Bypass Tunnel & Demolition of Helipad Stru																																																																																																																																															
KD0170	Completion of Section IX B Works (2100 days) - Central - Wan Chai Bypass Tunnel Structure from CH3400 to Eastern Tunnel	0d		28-Oct-15	0d	◆ Completion of Section IX B Works (2100 days) - Central - Wan Chai Bypass Tunnel Structure from CH3400 to Eastern Tunnel																																																																																																																																															
KD0180	Completion of Section X Works (2190 days) - Central - Wan Chai Bypass Tunnel Structure from Western Tunnel to CH3400	0d		26-Jan-16	0d	◆ Completion of Section X Works (2190 days) - Central - Wan Chai Bypass Tunnel Structure from Western Tunnel to CH3400																																																																																																																																															
KD0190	Completion of Section XI Works (2400 days) - Remainder of Works, except Landscape Softworks and Establishment Works	0d		23-Aug-16	0d	◆ Completion of Section XI Works (2400 days) - Remainder of Works, except Landscape Softworks and Establishment Works																																																																																																																																															
KD0200	Completion of Section XI A Works (2430 days) - Remaining Landscape Landscape Softwo...	0d		22-Sep-16	0d	◆ Completion of Section XI A Works (2430 days) - Remaining Landscape Landscape Softwo...																																																																																																																																															
KD0210	Commencement of Section XI B Works with 365 days duration (2795 days) - Remaining Establishment Works	0d	23-Sep-16		0d	◆ Commencement of Section XI B Works with 365 days duration (2795 days) - Remaining Establishment Works																																																																																																																																															
KD0220	Completion of Section XII Works (2400 days) - Protection and Preservation of Existing Trees	0d		23-Aug-16	0d	◆ Completion of Section XII Works (2400 days) - Protection and Preservation of Existing Trees																																																																																																																																															
KD0230	Completion of Section XIII Works (2330 days) - Remaining Works in Area 10	0d		14-Jun-16	0d	◆ Completion of Section XIII Works (2330 days) - Remaining Works in Area 10																																																																																																																																															
<b>Possession of Site</b>																																																																																																																																																					
PS0010	Possession of Portion 1 - TKO Sorting	0d	28-Jan-10		3d	◆ Possession of Portion 1 - TKO Sorting																																																																																																																																															
PS0020	Possession of Portion 2 - Existing Helipad	0d	27-Feb-12		221d	◆ Possession of Portion 2 - Existing Helipad																																																																																																																																															
PS0030	Possession of Portion 3 - Existing Salt Water Pumping Station	0d	26-Jun-12		1260d	◆ Possession of Portion 3 - Existing Salt Water Pumping Station																																																																																																																																															
PS0040	Possession of Portion 4 - SHK Pumping Station	0d	21-Jul-12		1235d	◆ Possession of Portion 4 - SHK Pumping Station																																																																																																																																															
PS0050	Possession of Portion 5 - Existing Wan Chai Ferry Pier	0d	18-Mar-14		42d	◆ Possession of Portion 5 - Existing Wan Chai Ferry Pier																																																																																																																																															
PS0060	Possession of Portion 6 - Part of WCR3	0d	18-Mar-14		42d	◆ Possession of Portion 6 - Part of WCR3																																																																																																																																															
PS0070	Possession of Portion 7 - Eastern Bulkhead	0d	14-Sep-15		2d	◆ Possession of Portion 7 - Eastern Bulkhead																																																																																																																																															
PS0080	Possession of Portion 8 - Submarine Pipeline, WCR1 to WCR4, New WSD, Wanchai Promenade	0d	28-Jan-10		1d	◆ Possession of Portion 8 - Submarine Pipeline, WCR1 to WCR4, New WSD, Wanchai Promenade																																																																																																																																															
PS0090	Possession of Portion 9 - Western Bulkhead	0d	07-May-15		1d	◆ Possession of Portion 9 - Western Bulkhead																																																																																																																																															
<b>Preliminaries</b>																																																																																																																																																					
PRE0010	General Site Clearance	60d	03-Feb-10	19-Apr-10	23d	◆ General Site Clearance																																																																																																																																															
PRE0020	24-hr telephone line cum information centre	2400d	28-Jan-10	23-Aug-16	30d	◆ 24-hr telephone line cum information centre																																																																																																																																															
PRE0030	Site Management Plan for Trip Ticket System	2400d	28-Jan-10	23-Aug-16	30d	◆ Site Management Plan for Trip Ticket System																																																																																																																																															
PRE0040	Temporary Drainage Management Plan	2400d	28-Jan-10	23-Aug-16	30d	◆ Temporary Drainage Management Plan																																																																																																																																															
PRE0050	Security system for the Site	2400d	28-Jan-10	23-Aug-16	30d	◆ Security system for the Site																																																																																																																																															
PRE0060	Systematic Risk Management	2400d	28-Jan-10	23-Aug-16	30d	◆ Systematic Risk Management																																																																																																																																															
PRE0070	Interface Management Plan	2400d	28-Jan-10	23-Aug-16	30d	◆ Interface Management Plan																																																																																																																																															
PRE0080	Construction Design Management (Construction health & safety plan)	2400d	28-Jan-10	23-Aug-16	30d	◆ Construction Design Management (Construction health & safety plan)																																																																																																																																															
PRE0090	Set up Contractor site office	60d	26-Feb-10	11-May-10	19d	◆ Set up Contractor site office																																																																																																																																															
PRE0100	Submission & approval of proposed site staff	45d	04-Feb-10	10-Feb-10	38d	◆ Submission & approval of proposed site staff																																																																																																																																															
PRE0110	Submission & approval of proposed materials	2100d	04-Feb-10	04-Nov-15	104d	◆ Submission & approval of proposed materials																																																																																																																																															
PRE0120	Submission & approval of Initial Works Programme	28d	04-Feb-10	03-Mar-10	41d	◆ Submission & approval of Initial Works Programme																																																																																																																																															
PRE0130	Submission & approval of Method Statements	1200d	04-Feb-10	18-May-13	11d	◆ Submission & approval of Method Statements																																																																																																																																															
PRE0140	Submission & approval of Drainage Management Plan to DSD	1200d	11-Feb-10	25-May-13	17d	◆ Submission & approval of Drainage Management Plan to DSD																																																																																																																																															
PRE0150	Submission & approval of relevant permits	1200d	28-Jan-10	11-May-13	25d	◆ Submission & approval of relevant permits																																																																																																																																															
PRE0160	Submission & approval of TTA Scheme	120d	28-Jan-10	27-May-10	0d	◆ Submission & approval of TTA Scheme																																																																																																																																															
PRE0170	HyD Excavation Permit grant for Section II	0d		27-May-10	0d	◆ HyD Excavation Permit grant for Section II																																																																																																																																															
PRE0180	HyD Excavation Permit grant for Section III	0d		27-May-10	0d	◆ HyD Excavation Permit grant for Section III																																																																																																																																															
PRE0190	HyD Excavation Permit grant for Section IV	0d		27-May-10	0d	◆ HyD Excavation Permit grant for Section IV																																																																																																																																															
PRE0200	HyD Excavation Permit grant for Section V	0d		27-May-10	0d	◆ HyD Excavation Permit grant for Section V																																																																																																																																															
PRE0210	HyD Excavation Permit grant for Section VI	0d		27-May-10	0d	◆ HyD Excavation Permit grant for Section VI																																																																																																																																															

CONTRACT NO. HK/2009/02

Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East

INITIAL WORKS PROGRAMME



Date	Revision	Checked	Approved	PAGE
22-Jan-10	Initial Works Programme (Rev. 0)			1 of 5

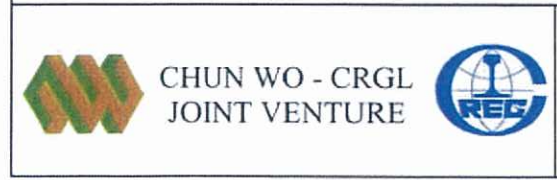








Activity ID	Activity Name	Duration	Start	Finish	Total Float	2010												2011												2012												2013												2014												2015												2016																													
						J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
S11-S2-0030	Drainage diversion of existing Bowrington Box Culvert O to basin of ex-PCWA	180d	27-Mar-10	03-Nov-10	445d	Drainage diversion of existing Bowrington Box Culvert O to basin of ex-PCWA																																																																																																					
S11-S2-0040	WCR4 seabed dredging	30d	28-Apr-12	04-Jun-12	0d	WCR4 seabed dredging																																																																																																					
S11-S2-0050	Commencement of TWCR4 temporary reclamation (with duration of 38 months)	0d	05-Jun-12	0d	0d	Commencement of TWCR4 temporary reclamation (with duration of 38 months)																																																																																																					
S11-S2-0060	TWCR4 seabed dredging & temporary seawall work	30d	04-Jun-12	11-Jul-12	0d	TWCR4 seabed dredging & temporary seawall work																																																																																																					
S11-S2-0070	TWCR4 bulk and temporary reclamation work	20d	11-Jul-12	03-Aug-12	0d	TWCR4 bulk and temporary reclamation work																																																																																																					
S11-S2-0080	WCR4 bulk and temporary reclamation work	20d	11-Jul-12	03-Aug-12	0d	WCR4 bulk and temporary reclamation work																																																																																																					
S11-S2-0090	Prepare temporary at-grade road access	60d	03-Aug-12	13-Oct-12	10d	Prepare temporary at-grade road access																																																																																																					
S11-S2-0100	Removal of portion 1 of box culvert O above tunnel portion 3 (area not at Hung Hing Road)	180d	03-Nov-10	09-Jun-11	457d	Removal of portion 1 of box culvert O above tunnel portion 3 (area not at Hung Hing Road)																																																																																																					
S11-S2-0110	Construct steel bridge no.1	30d	19-Sep-12	26-Oct-12	0d	Construct steel bridge no.1																																																																																																					
S11-S2-0120	Implement diversion of Hung Hing Road at-grade traffic	2d	26-Oct-12	29-Oct-12	0d	Implement diversion of Hung Hing Road at-grade traffic																																																																																																					
S11-S2-0130	Removal of portion 2 of box culvert O above tunnel portion 3 (area at Hung Hing Road)	40d	29-Oct-12	14-Dec-12	0d	Removal of portion 2 of box culvert O above tunnel portion 3 (area at Hung Hing Road)																																																																																																					
S11-S2-0140	Provision of new landing step on existing seawall (for area 9A handover)	210d	07-Dec-12	21-Aug-13	897d	Provision of new landing step on existing seawall (for area 9A handover)																																																																																																					
<b>Stage 3</b>																																																																																																											
S11-S3-0010	Reinstate box culvert O above tunnel portion 3	60d	13-Jun-13	23-Aug-13	0d	Reinstate box culvert O above tunnel portion 3																																																																																																					
S11-S3-0020	Reinstate temporary outfall of box culvert O and associated seawall etc. at ex-PCWA	30d	23-Aug-13	28-Sep-13	0d	Reinstate temporary outfall of box culvert O and associated seawall etc. at ex-PCWA																																																																																																					
S11-S3-0030	Widen temporary road to area above tunnel portion 3 & box culvert "O"	30d	23-Aug-13	28-Sep-13	890d	Widen temporary road to area above tunnel portion 3 & box culvert "O"																																																																																																					
S11-S3-0040	Implement diversion of at-grade traffic via new road above tunnel portion 3 & box culvert "O"	2d	23-Aug-13	26-Aug-13	28d	Implement diversion of at-grade traffic via new road above tunnel portion 3 & box culvert "O"																																																																																																					
S11-S3-0050	Handover of Area 9 to adjacent contractor HY/2009/15 at 1340 days (Section IXA)	0d	26-Sep-13	0d	0d	Handover of Area 9 to adjacent contractor HY/2009/15 at 1340 days (Section IXA)																																																																																																					
S11-S3-0060	Construct temporary steel bridge no. 2 above tunnel portion 3 & box culvert "O"	40d	28-Sep-13	15-Nov-13	5d	Construct temporary steel bridge no. 2 above tunnel portion 3 & box culvert "O"																																																																																																					
S11-S3-0070	Diversion of existing Hung Hing Road flyover traffic via temporary road & steel bridge no. 2	2d	15-Nov-13	18-Nov-13	5d	Diversion of existing Hung Hing Road flyover traffic via temporary road & steel bridge no. 2																																																																																																					
S11-S3-0080	Removal of approach ramp of existing Hung Hing Road flyover	30d	18-Nov-13	23-Dec-13	5d	Removal of approach ramp of existing Hung Hing Road flyover																																																																																																					
<b>Stage 4</b>																																																																																																											
S11-S4-0010	Reinstate original approach ramp of flyover and the associated road work of Hung Hing Road	75d	07-Nov-14	06-Feb-15	5d	Reinstate original approach ramp of flyover and the associated road work of Hung Hing Road																																																																																																					
S11-S4-0020	Diversion of Hung Hing Road flyover traffic back to original	2d	06-Feb-15	09-Feb-15	5d	Diversion of Hung Hing Road flyover traffic back to original																																																																																																					
S11-S4-0030	Remove temporary steel bridge no.2 and reinstate Hung Hing Road	45d	27-Dec-14	23-Feb-15	5d	Remove temporary steel bridge no.2 and reinstate Hung Hing Road																																																																																																					
S11-S4-0040	Diversion of Hung Hing Road at-grade traffic back to original	2d	23-Feb-15	25-Feb-15	5d	Diversion of Hung Hing Road at-grade traffic back to original																																																																																																					
S11-S4-0050	Excavate and remove top portion of diaphragm wall for permanent seawall work at WCR4	40d	25-Feb-15	15-Apr-15	5d	Excavate and remove top portion of diaphragm wall for permanent seawall work at WCR4																																																																																																					
S11-S4-0060	Remove temporary seawall & temporary reclamation at TWCR4	40d	15-Apr-15	03-Jun-15	5d	Remove temporary seawall & temporary reclamation at TWCR4																																																																																																					
S11-S4-0070	WCR4 permanent seawall work	45d	03-Jun-15	28-Jul-15	5d	WCR4 permanent seawall work																																																																																																					
S11-S4-0080	Completion of TWCR4 reinstatement (with duration of 38 months)	0d	28-Jul-15	345d	0d	Completion of TWCR4 reinstatement (with duration of 38 months)																																																																																																					
S11-S4-0090	Designated completion of TWCR4	0d	03-Aug-15	0d	0d	Designated completion of TWCR4																																																																																																					
S11-S4-0100	WCR4 backfilling behind permanent seawall	15d	28-Jul-15	14-Aug-15	305d	WCR4 backfilling behind permanent seawall																																																																																																					
S11-S4-0110	WCR3 seabed dredging for permanent seawall	90d	18-Mar-14	07-Jul-14	34d	WCR3 seabed dredging for permanent seawall																																																																																																					
S11-S4-0120	WCR3 backfilling and permanent seawall work	90d	08-Jul-14	23-Oct-14	34d	WCR3 backfilling and permanent seawall work																																																																																																					
S11-S4-0130	WCR3 bulk reclamation work	60d	24-Oct-14	05-Jan-15	34d	WCR3 bulk reclamation work																																																																																																					
S11-S4-0140	Carry out temporary drilling & grouting in sealing up the existing 2M pipe pile wall near Area 10	14d	07-May-15	22-May-15	32d	Carry out temporary drilling & grouting in sealing up the existing 2M pipe pile wall near Area 10																																																																																																					
<b>Section XI A Works - Remaining Landscape Softworks</b>																																																																																																											
S11A-0010	Remaining Landscape Softworks	180d	18-Jan-16	25-Aug-16	23d	Remaining Landscape Softworks																																																																																																					
S11A-0020	Completion of Section XI A Works (2430 days)	0d		22-Sep-16	0d	Completion of Section XI A Works (2430 days)																																																																																																					
<b>Section XI B Works - Remaining Establishment Works</b>																																																																																																											
S11B-0010	Commencement of Remaining Establishment Works (365 days)	0d	26-Aug-16		23d	Commencement of Remaining Establishment Works (365 days)																																																																																																					
S11B-0020	Completion of Section XI B Works (2795 days)	0d		22-Sep-16	0d	Completion of Section XI B Works (2795 days)																																																																																																					
<b>Section XII Works - Protection and Preservation of Existing Trees</b>																																																																																																											
S12-0010	Protection and preservation of existing trees	1800d	20-Mar-10	24-Mar-16	123d	Protection and preservation of existing trees																																																																																																					
S12-0020	Completion of Section XII Works (2400 days)	0d		23-Aug-16	0d	Completion of Section XII Works (2400 days)																																																																																																					
<b>Section XIII Works - Remaining Works in Area 10</b>																																																																																																											
S13-0010	Possession of Portion 9 (Area 10) from contract no. HK/2009/01 at 1925 days (Portion 9)	0d	07-May-15		1d	Possession of Portion 9 (Area 10) from contract no. HK/2009/01 at 1925 days (Portion 9)																																																																																																					
S13-0020	Remaining Works in Area 10 above tunnel structure at formation level	150d	08-Dec-15	13-Jun-16	1d	Remaining Works in Area 10 above tunnel structure at formation level																																																																																																					
S13-0030	Handover of Section X (Area 10) to adjacent contractor (HK/2009/01) at 2190 days	0d		14-Jun-16	1d	Handover of Section X (Area 10) to adjacent contractor (HK/2009/01) at 2190 days																																																																																																					
S13-0040	Completion of Section XIII Works (2190 days)	0d		14-Jun-16	0d	Completion of Section XIII Works (2190 days)																																																																																																					



**CONTRACT NO. HK/2009/02**  
Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East  
**INITIAL WORKS PROGRAMME**

Date	Revision	Checked	Approved	PAGE
22-Jan-10	Initial Works Programme (Rev. 0)			5 of 5



俊和 - 中國中鐵聯營

CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02

Wan Chai Development Phase II

Central - Wan Chai Bypass at Wan Chai East

Silt Curtain Deployment Plan

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## **7.3 Appendix C**

# **Technical details of the silt curtain**



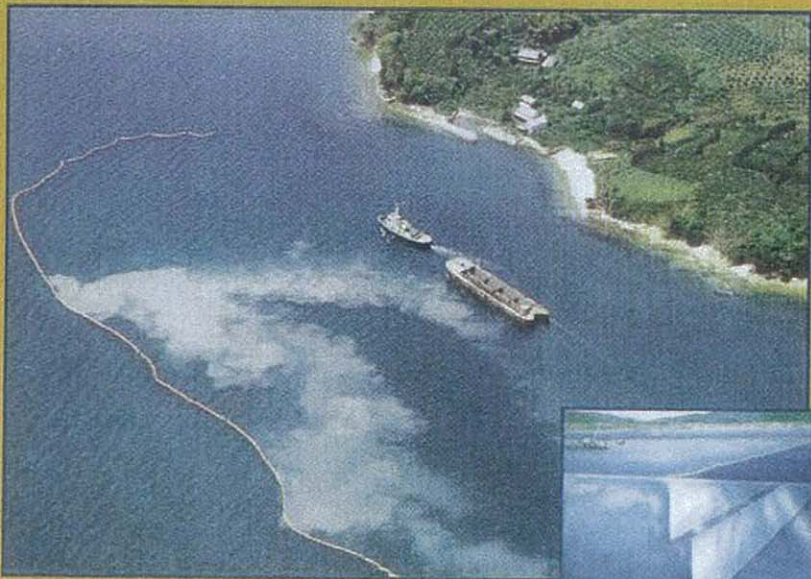
# PROTECTOR Contributes To Marine Projects Damaging Environment

## ●Function of Silt Protector

Silt Protector is a flexible membrane product that has been designed to physically prevent diffusion of pollution generated in dredging or reclamation works on the seas or rivers.

The pollution (fine particles) is said to badly affect the benthic organisms (marine life that live in the bottom) including making the breathing of fishes difficult and reducing underwater illuminance. The Silt Protector prevents diffusion of pollution safely because it uses a physical means without using chemicals that will be the cause of the secondary pollution.

The Silt Protector basically consists of the curtain section that is made of synthetic textile (mainly polyester), the float that hangs the curtain in the water, and the mooring section for fixing the unit at a specified location.



# Models and Features

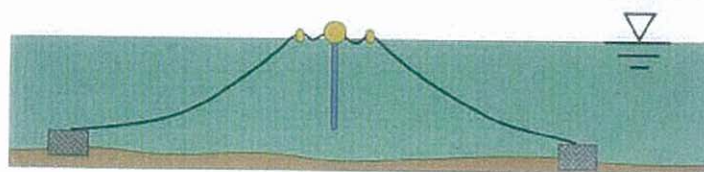
The Silt Protector consists of several types that are individually subdivided into some ranks so that the user is able to select units best suited to specific site conditions and work items. The Silt Protector can be used individually or separately, or by combining the units.

## → ● Fixed Hanging Type Silt Protector

This type is used the most frequently. It basically consists of floats on the surface and curtain and weight chain below the surface. One span of this product is 20m long. It is moored to the bottom through anchor ropes and anchors at every 19.5m point. The anchor ropes are steel wire type or synthetic fiber type, and anchors are concrete blocks, usually.

When this product is used under high wave conditions, the curtain with the vertical length of 10m or less is used and standing type is used together in many cases. When wave is low, the curtain of 20m long or more may be used.

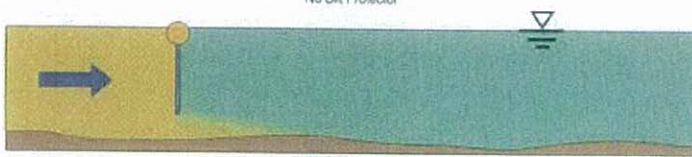
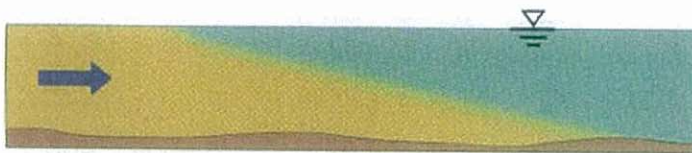
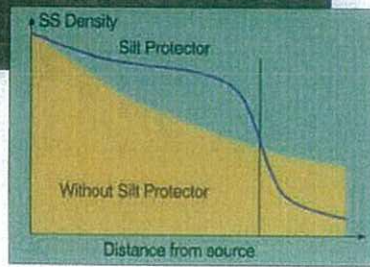
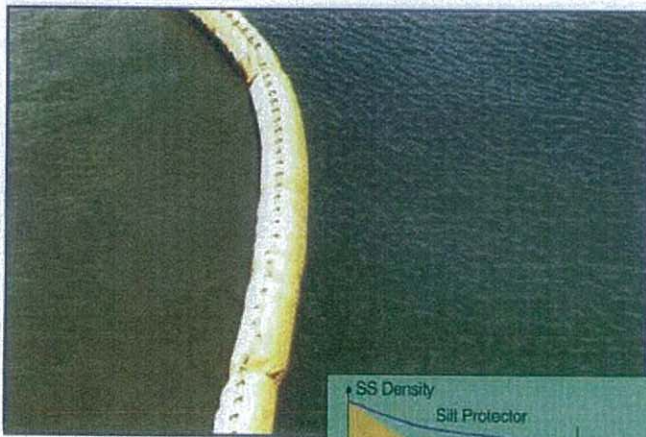
The fixed hanging type Silt Protector is classified into four ranks, A, B, C and D so that a type best suited to a specific application can be identified.



## ● General site condition for hanging fixed type

Rank	Suitable site conditions	Standard specifications			
		Float dia (mm)	Float type	Curtain tensile strength (kgf/3cm)	Chain weight (kg/m)
A	Area outside of breakwater ◆Wave height : 1.5m or less ◆Velocity of current : 0.5m/sec or less	600	Unspaced	800 or 500	10
B	Wide area inside of breakwater, or inside of inlet that is sheltered by the natural submarine topography ◆Wave height : 1.0m or less ◆Velocity of current : 0.2m/sec or less	400	Unspaced	500 or 300	5
C	Area with medium extent inside of breakwater ◆Wave height : 0.8m or less ◆Velocity of current : 0.1m/sec or less	300	Unspaced	500 or 300	5
D	Lakes, or well sheltered area as calm as lakes ◆Wave height : 0.5m or less ◆Velocity of current : 0.05m/sec or less	300	Spaced	300	3

- **Remarks**
- \*Standard unit length is 20m.
  - \*Anchor is not included in the unit.



## EFFECT

Silt Protector generally provides the following effects on prevention of diffusion of pollution in the sea.

### ● Acceleration of settlement of silt by interference of particles

Installation of the Silt Protector suppresses diffusion of the pollution and make the soil particles interfere with each other to accelerate their settlement.

### ● Reduction of distance required to settle the silt

Installation of the Silt Protector as shown narrows the settlement range, resulting in minimizing the diffusion of pollution after the unit.

# Installation

## → ● Installation works for Fixed Hanging Type Silt Protector

### Preparation

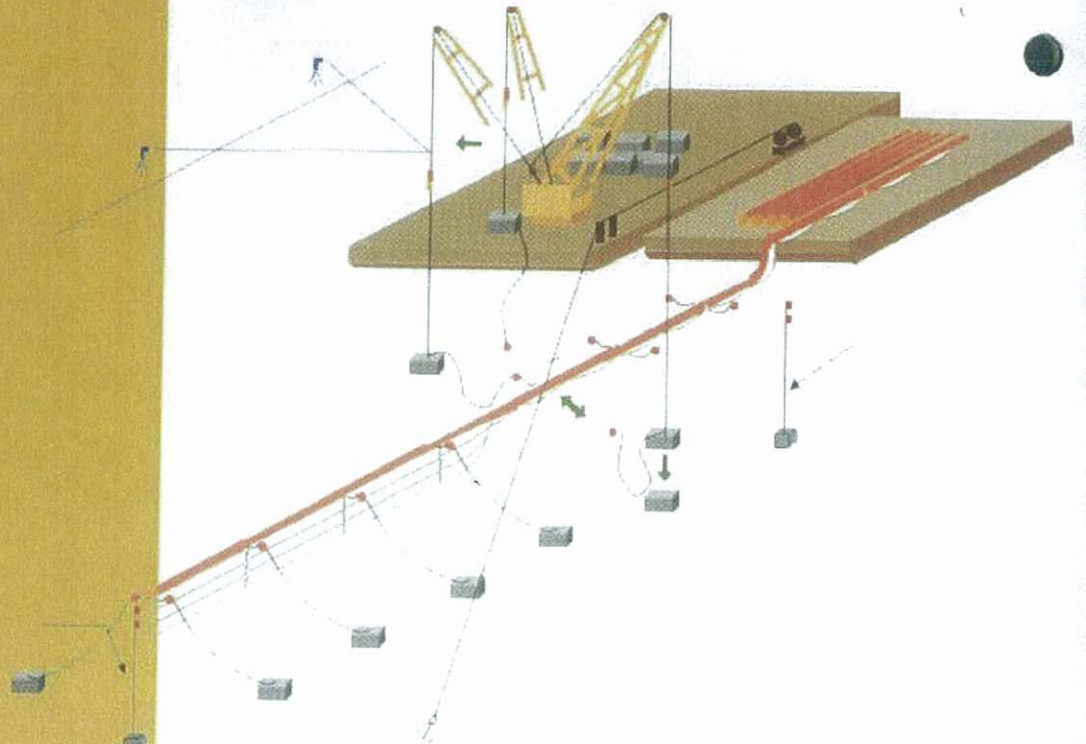
- ★ Preparation of working yard
- ★ Making anchor blocks
- ★ Bring materials to the site

### Assembling on the land

- ★ Inspection
- ★ Series connection of spans
- ★ Temporary tucking up of curtains

### Installation works on the sea

- ★ Loading on the barge
- ★ Towing barge
- ★ Placing anchor blocks
- ★ Installing Silt Protector



## ■ Specifications for the curtain material

SPO-#800

Tensile strength 800kgf/3cm



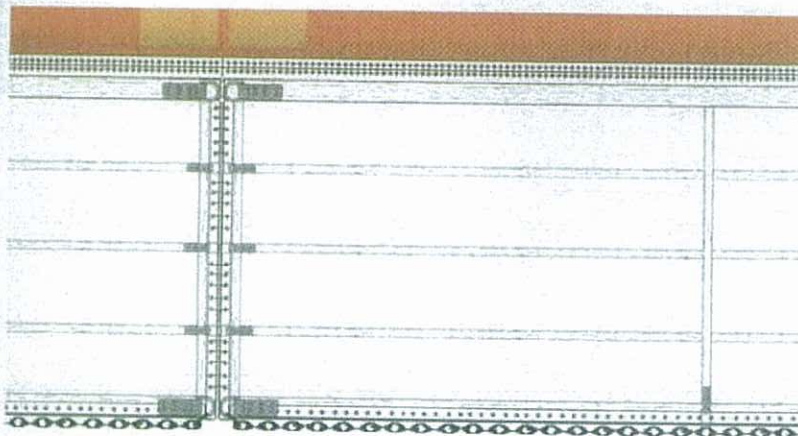
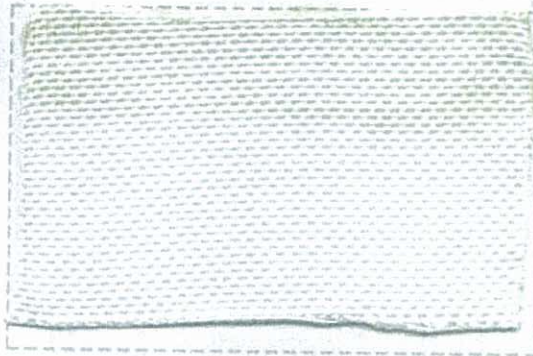
SPO-#500

Tensile strength 500kgf/3cm



SPO-#300

Tensile strength 300kgf/3cm



## ● Material for curtain and float components

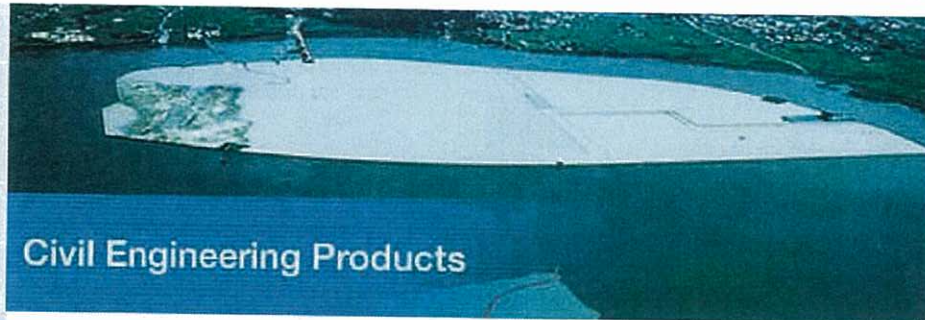
The curtain and inner cover for the float are made of high strength polyester synthetic fiber that has been studied and developed to give excellent durability, cold-resistance, chemical resistance and light resistance.

The float cover (outermost cover) is made of high strength polyester tarpaulin with superior UV (ultra violet ray) resistance in addition to the features of the polyester synthetic fiber.

The float is made of solid cylindrical styrene foam with high weather resistance. Since the material will not absorb water, the buoyancy of the float is not reduced. The float adapts to the wave well thanks to the advantage of the material.

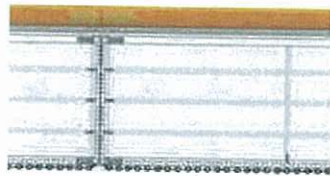
# Material

- ✦ Membrane Structures
- ✦ TM (Taiyo Multipurpose) Truss Space Frame Systems
- ✦ Civil Engineering Products
- ✦ Tent Warehouses
- ✦ Container Systems
- ✦ Engineering, Fabrication&Construction



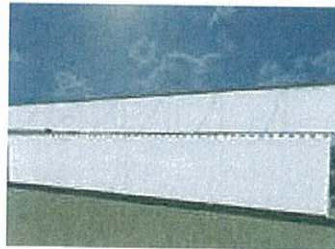
## Civil Engineering Products

[top](#) | [about us](#) | [design](#) | [products](#) | [effect](#) | [installations](#)  
[A type](#) | [B type](#) | [C type](#) | [D type](#) | [SD type](#)



### STANDARD PRODUCT

- A type for open sea
  - B type for semi-open sea
  - C type for sheltered sea
  - D type for calm sea
  - SD type for calm sea for short period
- specifications are linked from above navigation bar



### STANDING TYPE FOR DEEP SEA

For deep sea more than 10m, in many cases, it is effective to use 2 separate curtain systems. One curtain is hung down from sea surface and another curtain stand on sea bottom. By this combination of 2 curtains very deep sea like 20m depth can be covered and protected effectively.



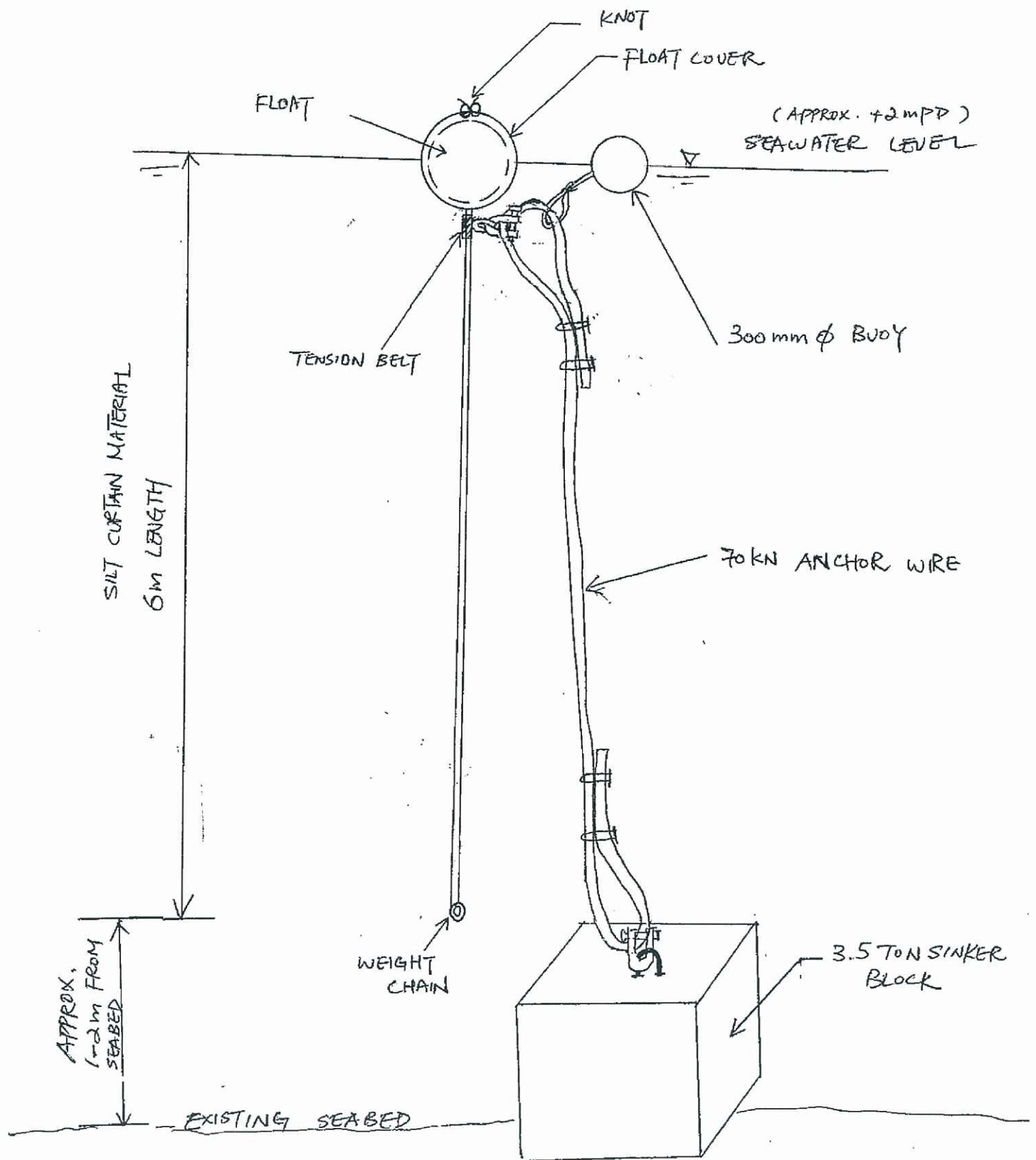
### FRAME TYPE FOR GRAB DREDGER

For local protection during grab dredging, silt curtains are hung down from square shape steel pipe frame in which grab works. When grab dredger moves, curtains are usually tucked up by winch.

[▲ ThisPage's Top](#)



Typical Drawing



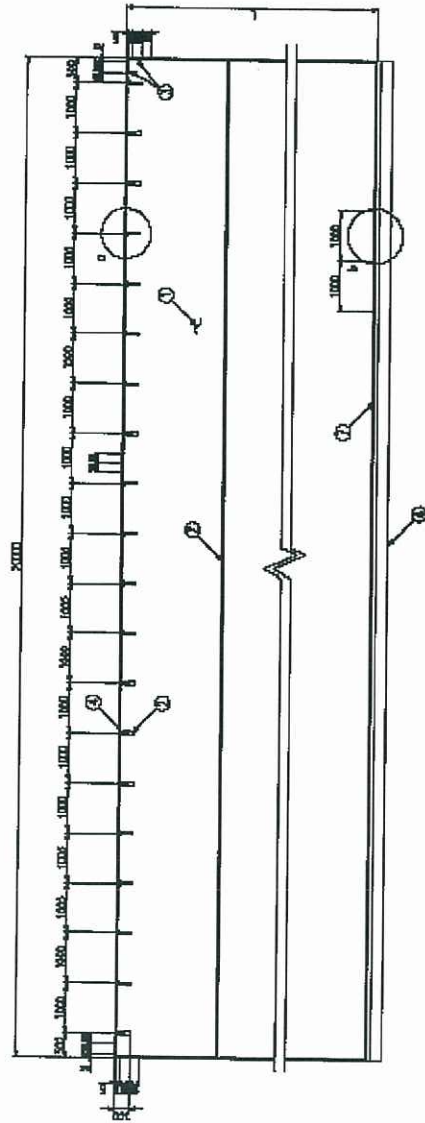
## SECTION VIEW OF SILT CURTAIN INSTALLATION DETAILS

01.06.2010

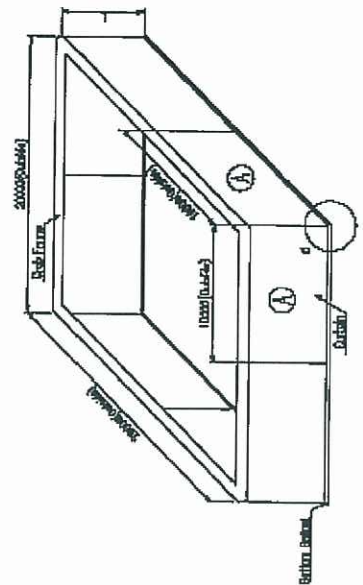
# Frame Type Silt Protector SD {Grab Frame (2.0m x 2.0m)}

Curtain (A) Side s = 1.75D  
14 Sheet / Grab Frame (2.0m x 2.0m)

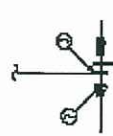
Curtain (A) Section s = 1.75D  
(4 Sheet / Grab Frame (2.0m x 2.0m))



General Construction of Frame Type Silt Curtains  
Hanging From Grab Frame s-Free



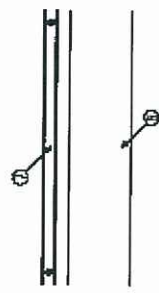
c detail



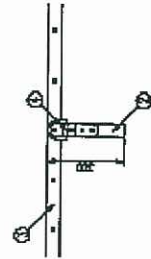
Curtain Joint detail



b detail

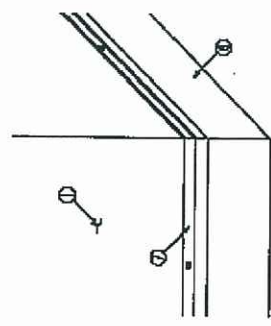


a detail



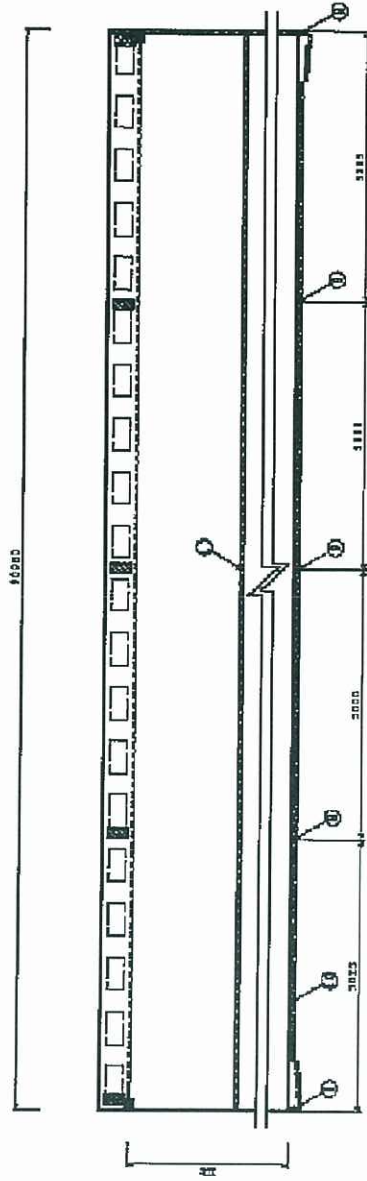
No.	Description
1	Curtain
2	Reinforcement Bar
3	Joint Bar
4	Reinforcement Plate
5	Joint Rope
6	Bottom Barfast
7	Flat Plate

d detail

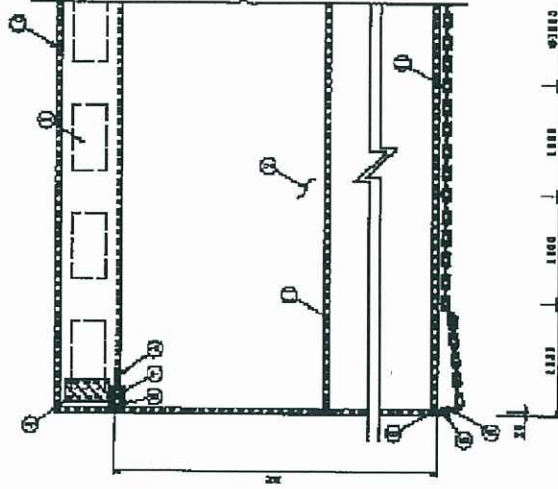


SILT PROTECTOR (SD TYPE)

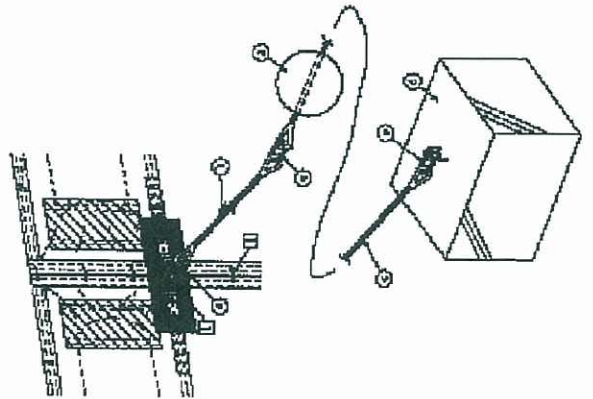
Side s=Free



detail s=Free



Span Joint detail s=Free



Parts - I

No.	Description
①	Plate
②	Rope
③	Chain
④	Steel Plate
⑤	Bracket
⑥	Chain
⑦	Joint Metal Plate
⑧	Joint Steel
⑨	Joint Rope
⑩	Reinforcement Belt

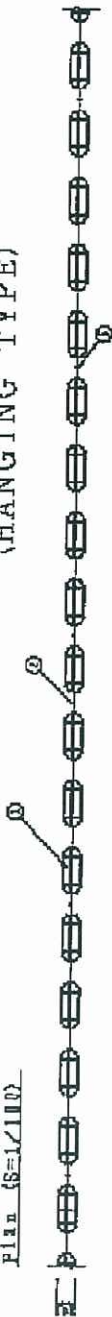
Parts - II (Installation)

No.	Description
①	Shackle
②	Joint Rope
③	Rope
④	Upper Anchor Bolt
⑤	Lower Anchor Bolt
⑥	Bracket
⑦	Shackle

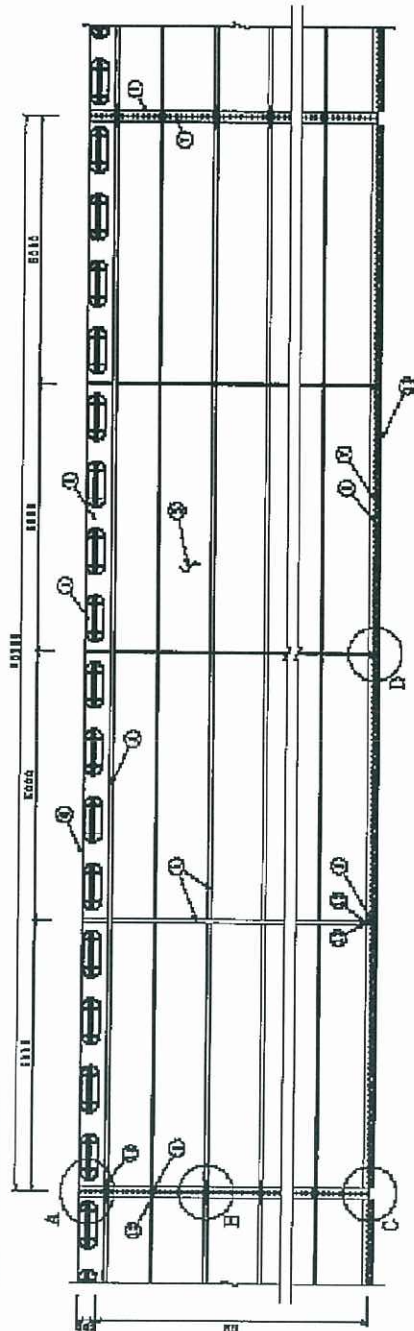


# Silt Protector Specification (HANGING TYPE)

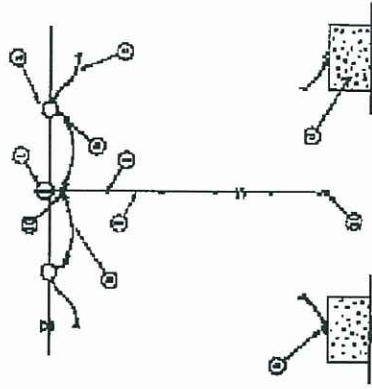
Plan (S=1/100)



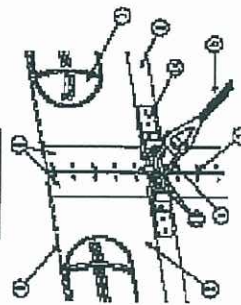
Side (S=1/100)



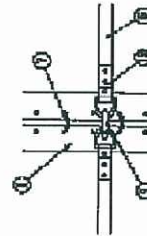
Section (S=1/100)



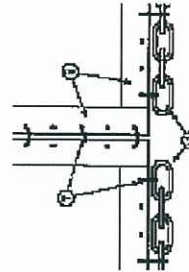
A detail



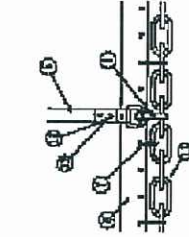
B detail



C detail



D detail



Parts-1

No.	Description
①	Plate
②	Silent Roller
③	Curtiler
④	Turntable Bolt
⑤	Inner Rope
⑥	Joint Rope

No.	Description
⑦	Joint Bolt
⑧	Shackle
⑨	Weight Chain
⑩	Joint Bolt
⑪	Turntable Bolt
⑫	Turntable Bolt
⑬	Turntable Bolt

Parts-2 (Installation)

No.	Description
⑭	Work
⑮	Open Joint Bolt
⑯	Open Joint Bolt
⑰	Anchor
⑱	Shackle



俊和 - 中國中鐵聯營

CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02

Wan Chai Development Phase II

Central - Wan Chai Bypass at Wan Chai East

Silt Curtain Deployment Plan

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## **7.4 Appendix D**

# **Daily Checklist Template**



俊和 - 中國中鐵聯營  
CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02

Contract Title Wan Chai Development Phase II - Central - Wan Chai By Pass at Wan Chai East

Silt Curtain 每日檢查表

說明：  
 ✓ = 滿意  
 ✗ = 不滿意，須改善  
 -- = 不適用

位置：\_\_\_\_\_ 編號：\_\_\_\_\_

日期：\_\_\_\_\_ 檢查員：\_\_\_\_\_

	星 期 一	星 期 二	星 期 三	星 期 四	星 期 五	星 期 六
<b>整潔</b>						
1. 沒有垃圾在浮架內						
2. 已清理架內垃圾						
其他問題(請註明):						
<b>浮架狀況</b>						
1. 浮架沒有損壞						
2. 浮架接口沒有損壞						
3. 繫緊螺絲及繩索沒有鬆脫						
其他問題(請註明):						
<b>隔泥布狀況</b>						
1. 隔泥布沒有損壞						
2. 隔泥布沒有鬆脫						
其他問題(請註明):						
簽署:						