Ocean Park Master Redevelopment Project

Contract No. CI 05

Silt Curtain Proposal (Rev. B)

Submitted by DBJV on 30-Jan-07

Certified by _____ **on** 2-Feb-07

Terence Kong

Project Environmental Team Leader

Verified by Independent Environmental Checker **on** 2-Feb-07

IEC Letter attached in the submission? Yes

Submitted to Ocean Park on 2-Feb-07

Ocean Park Master Redevelopment Project

Environmental Permit No. EP-249/2006/A - Condition 2.14

Silt Curtain Proposal (Revision B)

Submitted by Dragages-Bouygues JV on 30-01-2007

This is to verify that

Silt Curtain Proposal (Revision B)

Submitted by Dragages-Bouygues JV

On 30-01-2007

Has been verified by the undersigned.

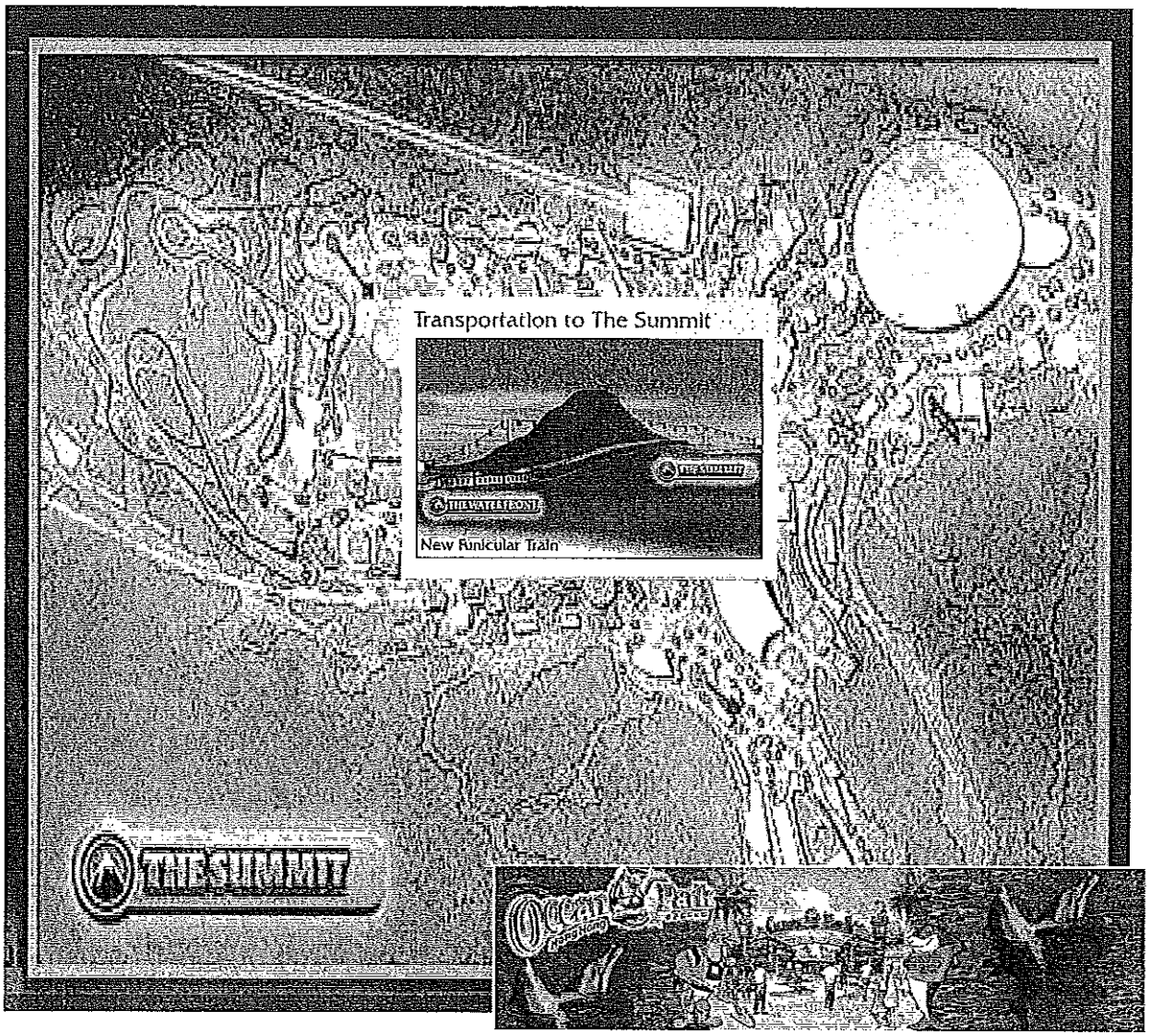
Signed

Dr Anne F Kerr
Independent Environmental Checker (IEC)
Retained by Ocean Park Corporation
pursuant to Environmental Permit No. EP-249/2006/A

Date 2 February 2007

Dragages-Bouygues JV 資嘉–布依格聯營

Ocean Park Master Redevelopment Project
Contract No. CI05



Method Statement for Silt Curtain Installation at Tai Shue Wan

Rev.	Date	Prepared	Reviewed	Approved	Comments
B	30 Jan 07	CCH/STA/SFH	ING/JRi/YTS/Plp	DAL	
A	13 Jan 07	CCH/STA/SFH	ING/JRi/YTS/Plp	DAL	

To be checked by the IDC	~~YES~~ / NO	OPE-DBJV-SUM-MS-0019 Rev B
		Doc. number

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-	DBJV Project Staff	Soft	Via server
4	Project Manager's Representative	Hard	
5	Project Manager's Representative	Hard	
6	Project Manager's Representative	Hard	

Revision History

Revision	Revisions	Date
A	First Issue	13 Jan 2007
B	Second Issue	30 Jan 2007

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LIST OF APPENDICES

1. INTRODUCTION

In accordance with the Environment Permit No. EP-249/2006/A a silt curtain is required to install around the approved discharge outfall, Our proposed silt curtain is approximate 110m long with radius 30m from the outfall. The general layout plan of silt curtain is shown in the Appendix 3.

This method statement includes the setup details of the proposed silt curtain, the construction method, sequence of works and risk assessment in related to the works.

This statement will be revised and further developed as necessary to suit the actual site conditions and situation.

2. ORGANIZATION CHART AND RESPONSIBILITIES

Refer to Organization Chart and Responsibilities in Appendix 1.

3. MATERIALS

Materials	QAM Rating
Geotextile	QAM 3
Plastic buoy	QAM 3
Anchor block	QAM 3

QAM 1 Materials that must be submitted to ER for review
QAM 3 Temporary works materials that do not need to be submitted to ER

4. SUBCONTRACTORS

Sub-contractor	QAS Rating
Shun Tat Construction Engineering Ltd.	QAS 3

QAS 1 Subcontractor with a certified management system. Required to produce a quality plan.
QAS 2 Subcontractor with a certified management system who is responsible for the purchase of permanent works materials.
QAS 3 Subcontractor required to implement DBJV management system, no purchase of permanent works materials.

The subcontractor to be used for installation shall have marine works experience.

5. RISK ASSESSMENT

Refer to Safety Risk Assessment in Appendix 2.

6. METHOD

6.1 GENERAL

The detailed setup of the silt curtain and the installation sequence are provided on the sketch in Appendix 3.

6.2 SEQUENCE OF WORKS

The silt curtain is composed of geotextile wrapped on and plastic buoy which chain together with PVC coating wire rope.

The part of the silt curtain will be manufactured in off-site factory, and final assembling work will be carried out along the top of existing sloping seawall in Tai Shue Wan, so that the curtain will be easily taken up and handled by derrick barge for installation.

Geotextile SG100/100 (data sheet is attached in Appendix 4) is 5m x 100m in roll and will be stitched together forming in one piece of about 110m x 7m. All sewing will be undertaken on the shore. Meanwhile the geotextile will be strengthen by adding reinforcement belt.

The plastic ball will be chained together by PVC coating wire and then wrapped up in the geotextile with double stitches. The steel chain or steel wire will act as weight in the other end of geotextile.

Once the assembly of silt curtain is finished, the silt curtain will be taken up by derrick barge and installed by tugboat. The operator of the barge will lower down one end of the silt curtain carefully into the sea. The silt curtain will float on the water and the wire of silt curtain will fix to the land, and then fixing the other end.

Anchor blocks will be lowered to the seabed, each anchor blocks will keep about 25m apart connect with a plastic buoy. The steel wire of anchor blocks will fix to the silt curtain, so that the curtain will be secured in position.

After installation, the foreman will check the condition of silt curtain to ensure the work in order, if necessary; the diver (optional) will engage the work.

Inspection and rectification

Visual inspection will be carried out in weekly basis by Contractor's production team or environmental team.

Rectification will be carried out by patched up method immediately if damage was found. Spare Geotextile will be stored on site for patching up in case of damages.

6.3 ENVIRONMENTAL PROTECTION

The Site Engineer will be responsible for implementing environmental protection measures describe in the following paragraphs.

General
The work shall be carried out in compliance to the conditions stipulated in the Environmental Permit and Contract's Requirement.

Noise
Normal working hour is 07:00 to 19:00.
No work will be carried out outside normal working hour, Sunday and Public Holiday.

6.4 PLANT

All plant and equipment used during the installation work shall generally be controlled in accordance with the Company System Procedure for Plant & Equipment. These controls apply to the following equipment:

Derrick barge	1 nr.
Speed boat	1 nr.
Tug boat	1 nr.
Protable tools	

7. CONTROL OF NONCONFORMING PRODUCT

Person responsible for identifying and report nonconforming workmanship	e.g. Foreman
Person responsible for identifying and reporting nonconforming materials	e.g. Site engineer
Person responsible for deciding how to deal with nonconforming product	e.g. Construction Manager

8. TRAINING REQUIREMENTS

Subject	*Attendees*	*Training given by*
Method Statement	All, including subcontractors	e.g Construction Manager at task launch meeting
General Safety	All	QSE Manager
General Marine Works	All	QSE Manager

9. SAFETY

For general safety requirements, refer to Project Safety Manual and Project QSE Plan.
For risk assessment, refer to Appendix 2.

9.1 SAFETY AND SUPERVISION

- The sub-contractor shall provide and maintain adequate safety equipment, including safety helmets, safety boots, high visibility vests, safety belts, lift jacket appropriate to the work.
- Safety equipment shall be inspected and maintained regularly. Equipment incorrectly positioned or not in working order shall be replaced immediately by the contractor.
- Unauthorised persons shall be denied access to the site.

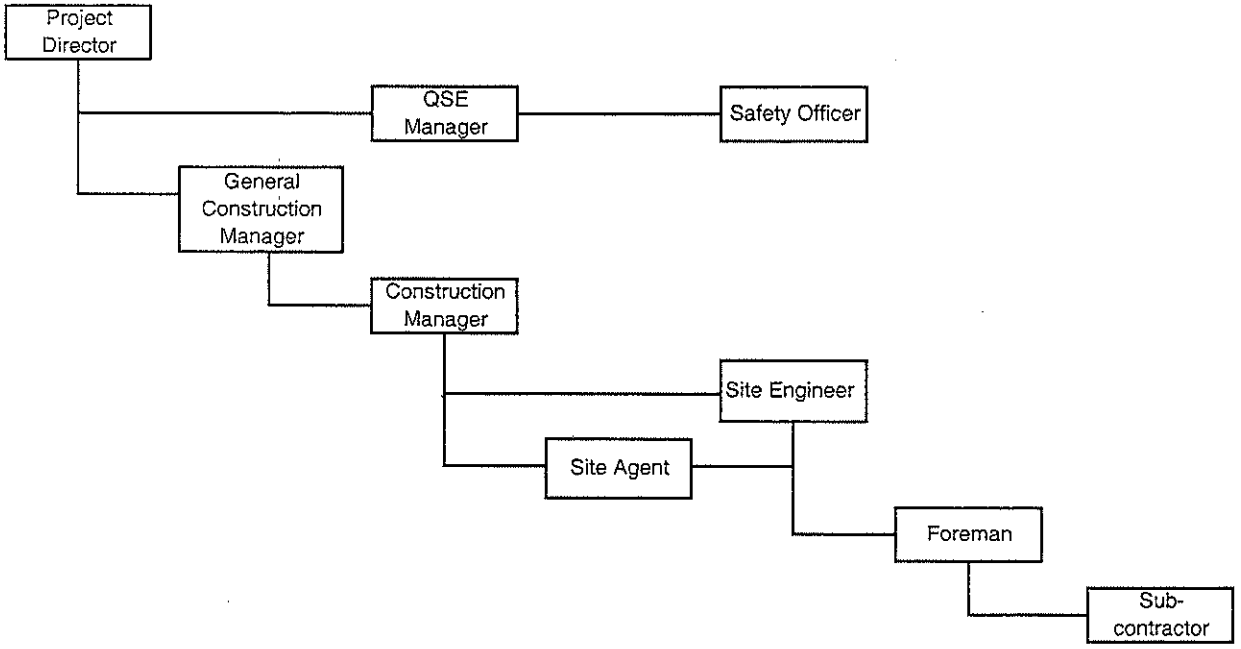
APPENDIX 1

ORGANISATION CHART

AND

RESPONSIBILITIES

Organization Chart for Silt Curtain Installation



Responsibilities

Project Director	Overall responsibility of constrction works
QSE Manager	Establishment of Safety Policy, Safety Trainings & Safety Advice together with Sub-contractor's Safety Advisor.
General Construction Manager	Overall management and coordination of the works.
Construction Manager	General programming, methods, and site management of clearance works.
Site Engineer	Site coordination and daily record of works
Site Agent	Overall site supervision of the works.
Foreman	Site supervision and daily record of works.
Sub-contractor	Carrying out the works.

APPENDIX 2

SAFETY RISK ASSESSMENT

DRAGAGES -BOUYGUES JOINT VENTURE - CONTRACT NO. CI05		
Document No.: OPE-DBJV-SUM-MS-0019 Rev.A Status of Document: For approval	HAZARD / RISK ASSESSMENT REVIEW	
Title of Work: **Silt Curtain Installation at Tai Shue Wan**	**Location:** **Tai Shue Wan**	**Page:** 1 of 2

ACTIVITY / MATERIALS	HAZARD / RISK	ELIMINATION/MITIGATION MEASURES	LH	S	RR	PRIORITY	ACTION PARTY
Derrick Barge	Fire Hazards	• Ensure proper type and adequate fire extinguishers on the barge • Display notice for location of fire extinguishers • Connection of electrical apparatus conducted by registered electrician • Maintain barge without fuel and oil split out • Keep good house keeping	1	2	2	Low	Ship master / Plant Operator
Lifting of silt curtains	Failure of lifting appliances	• Full set of lifting appliance should be examined and test by Competent Examiner regularly or after repair or major part changed and hold a valid certificate • To arrange regular inspection by a competent person • To keep regular and good maintenance • Safe working load should be marked on the body of lifting appliance to prevent over loading • To provide training to workers	2	1	2	Low	Ship master / Plant Operator / Foreman
Lifting of silt curtains	Falling Object	• Lifting gear should be checked by competent person before use • Ensure lifting object should secured by lifting gear and lifting gear should be anchored properly to the lifting appliance • Ensure that load is not being slewed over person • Beware of strong wind during lifting in process • Taglines are to be used if necessary	2	1	2	Low	Ship master / Plant Operator / Banksman / Foreman

LH = Likelihood		S = Severity	
1	Low (seldom)	1	Slight
2	Medium (frequent)	2	Serious
3	High (certain or near certain)	3	Major

RR = Risk Rating	Priority
1	No action
2	Low priority action
3 or 4	Medium priority action
6	High priority action
9	Urgent action

DRAGAGES -BOUYGUES JOINT VENTURE - CONTRACT NO. CI05							
Document No.: OPE-DBJV-SUM-MS-0019 Rev.A Status of Document: For approval	HAZARD / RISK ASSESSMENT REVIEW						
Title of Work: Silt Curtain Installation at Tai Shue Wan		Location: Tai Shue Wan					Page: 2 of 2
ACTIVITY / MATERIALS	HAZARD / RISK	ELIMINATION/MITIGATION MEASURES	LH	S	RR	PRIORITY	ACTION PARTY
Diving and Working Over Water	Drowning	• To be provide qualified diver, standby diver and diving supervisor • Divers should hold valid fitness test certificate • To ensure diving equipment is maintained in good condition • To place life-buoys along edge of the barge • To keep access free from grease and obstruction • Drugs and Alcohol is prohibited to diver or other workers • To ensure life jacket helmet are worn by worker working above water • Diving supervisor should keep good communication with diver and other working parties • Diving works area should be demarcated by sampan	1	2	2	Low	Ship master / Foreman

LH = Likelihood		S = Severity	
1	Low (seldom)	1	Slight
2	Medium (frequent)	2	Serious
3	High (certain or near certain)	3	Major

RR = Risk Rating	Priority
1	No action
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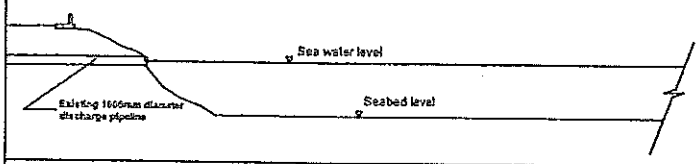
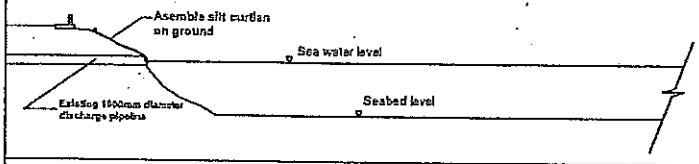
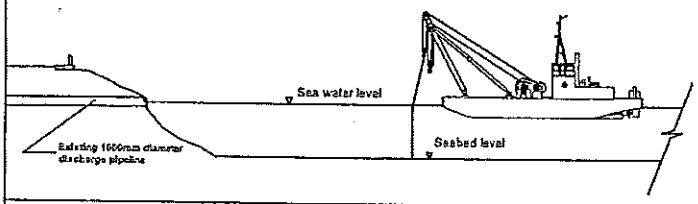
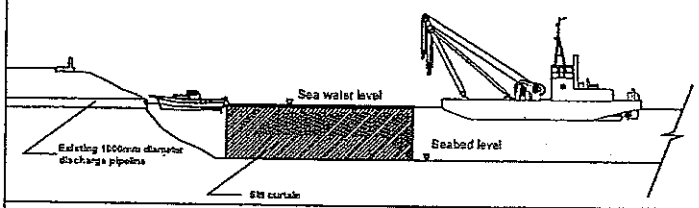
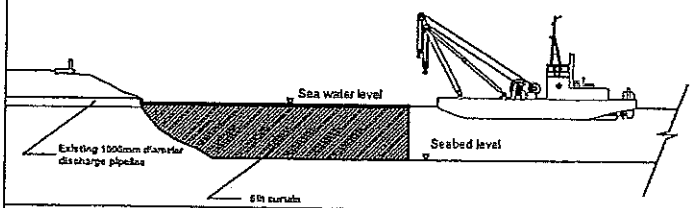
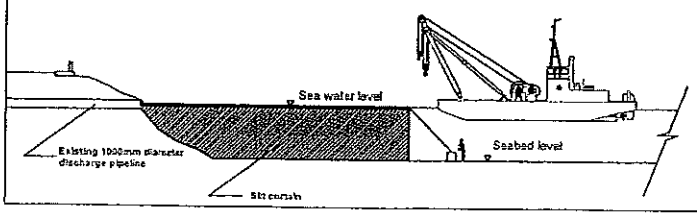
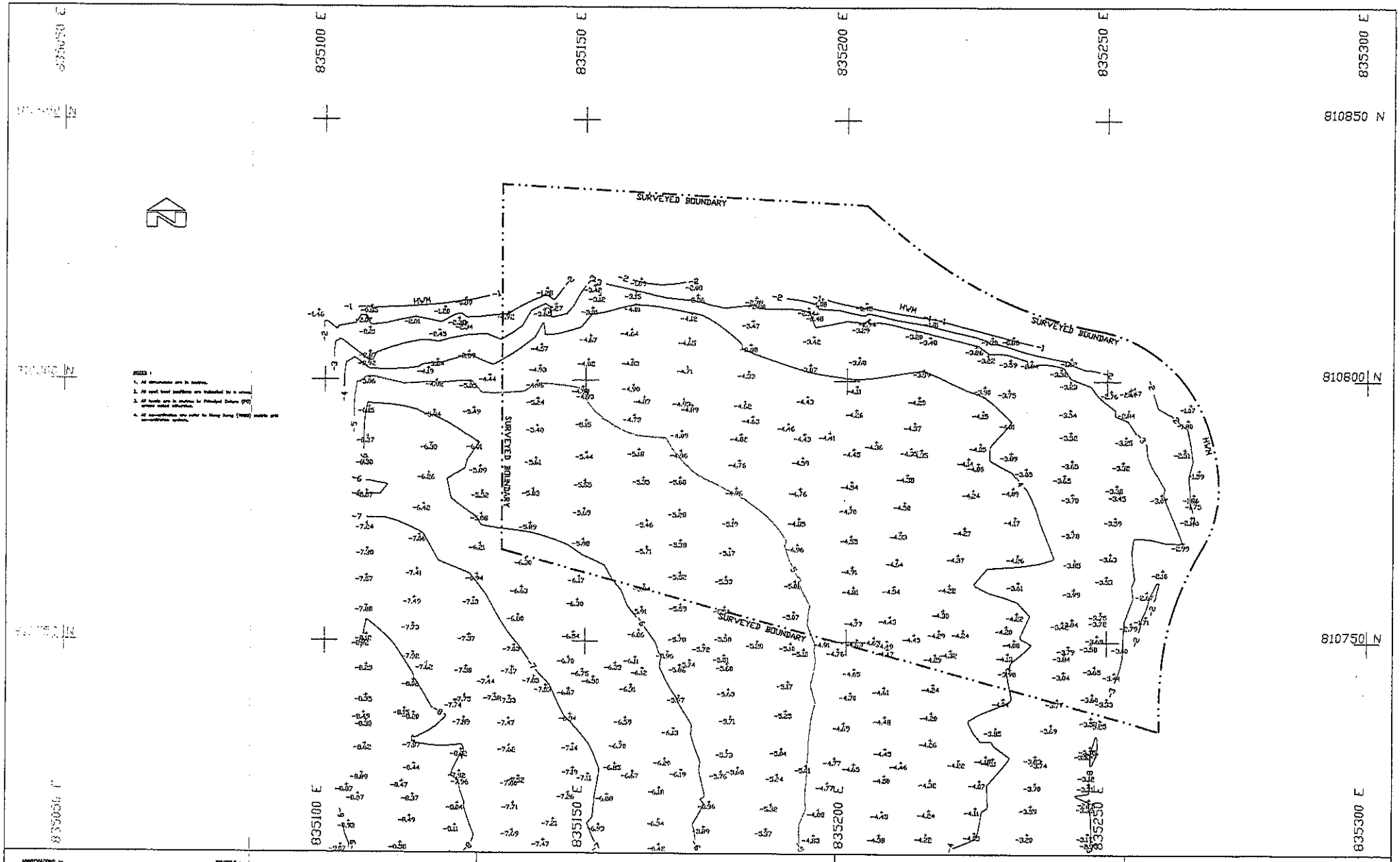
APPENDIX 3

DRAWINGS AND SKETCHES

Silt curtain installation at Tai Shue Wan

	Stage 1: Manufacture silt curtain in off-site factory
	Stage 2: Assemble silt curtain on the ground
	Stage 3: Lift the assembled silt curtain and transport to proposed location
	Stage 4: Install the silt curtain by tugboat
	Stage 5: Fix both ends of the silt curtain onto the seawall.
	Stage 6: Position the anchor block on the seabed and chain the achor onto the silt curtain prior to final inspection



SCALE 1 : 500

20 16 12 8 4 0 metre 20 40

DATE OF SURVEY : JANUARY 2007

BOUYGUES DTP (HK) LTD.

INITIAL HYDROGRAPHIC SURVEY RECORD OF SLOPING SEABED AT OCEAN PARK

HYDROGRAPHICAL SURVEY

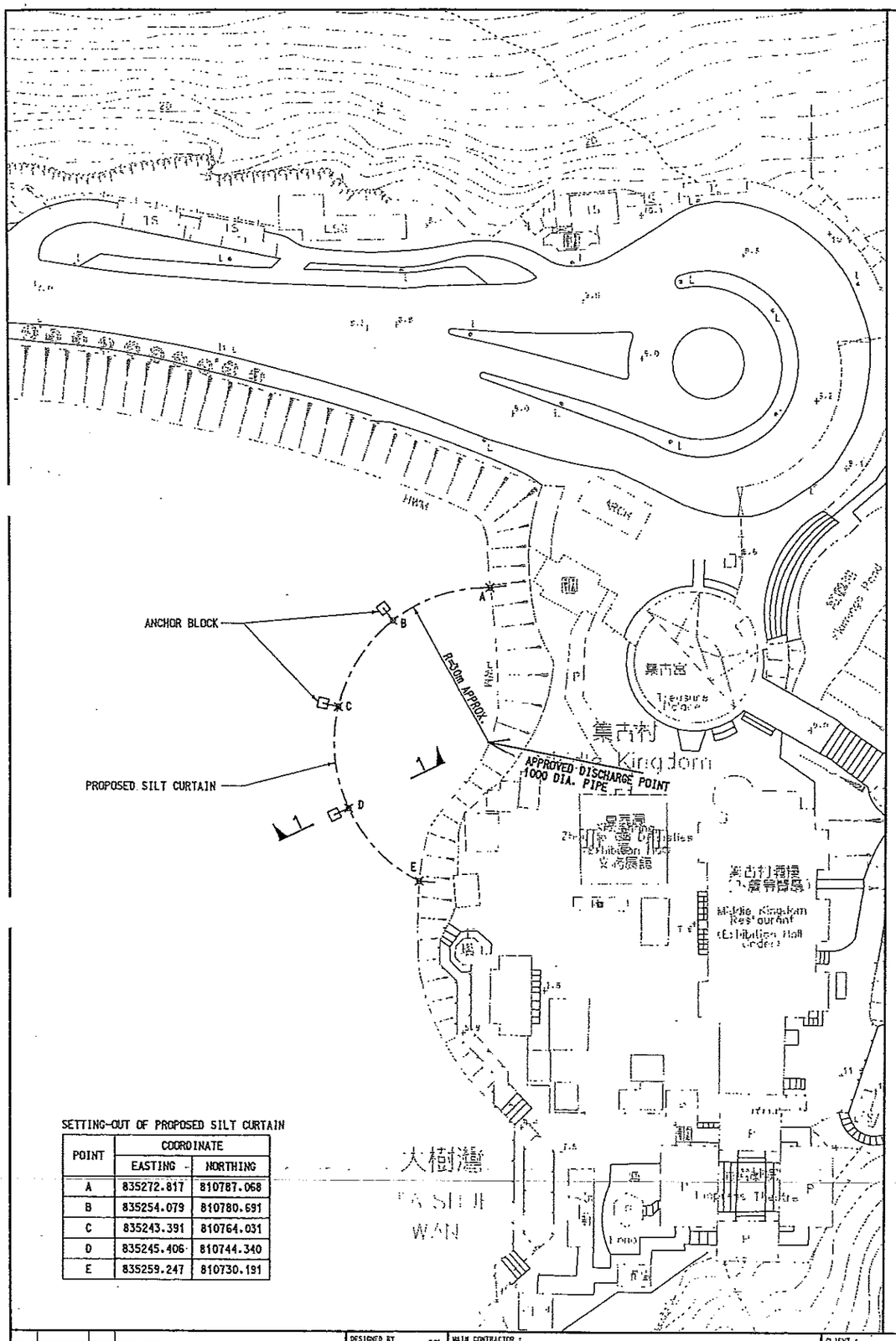
LAND MARKER (1980) H.K. CO., LTD.
SHOP 201, BEAUTIFUL GARDEN, 11 CHUI LOK STREET, TAI PO, N.T.
TEL: 2683 9138 FAX: 2666 9021
E-MAIL ADDRESS: general@landmarker.com

PLAN NO. 9653/01

REVISION NO.	DESCRIPTIONS	DATE
0		5-MAR-2007

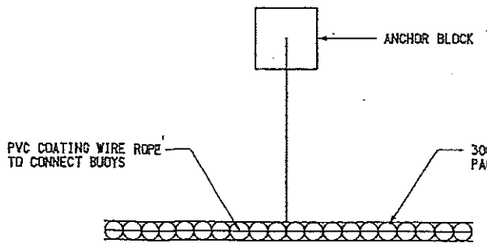
DRAWN BY: P.M. WONG
SURVEYED BY: AL
APPROVED BY:

JOSEPH Y C WONG ALS LOWER MRICS RPS(LS)

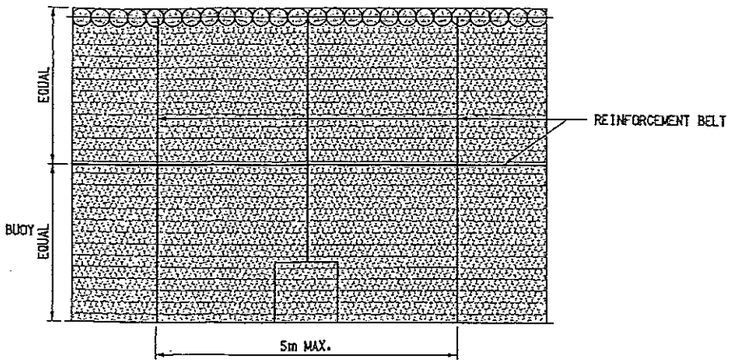


SETTING-OUT OF PROPOSED SILT CURTAIN

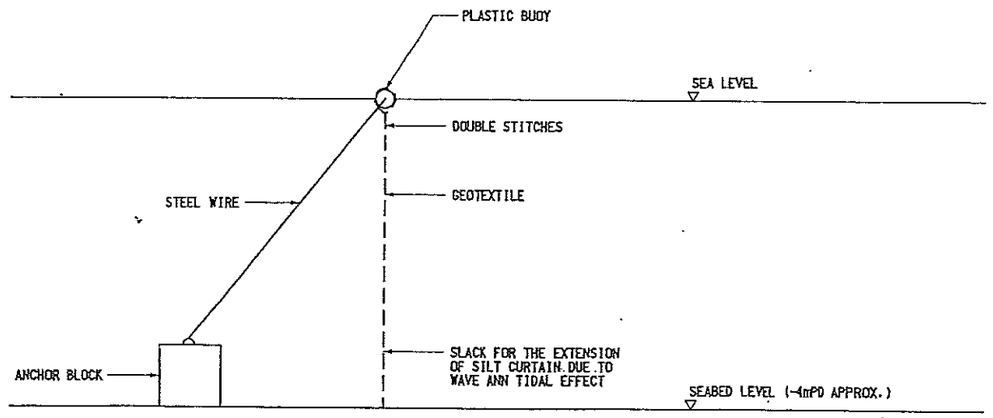
POINT	COORDINATE	
	EASTING	NORTHING
A	835272.817	810787.068
B	835254.079	810780.691
C	835243.391	810764.031
D	835245.406	810744.340
E	835259.247	810730.191



PLAN
N.T.S.



ELEVATION
N.T.S.



SECTION 1-1
N.T.S.

REV.	DATE	BY	DESCRIPTION
A	05JAN2007	CCh	FIRST ISSUE

DESIGNED BY CCh
DRAWN BY BLo
CHECKED BY CCh
IN CHARGE CCh
DATE 05JAN2007

MAIN CONTRACTOR : Dragages-Bouygues JV 貴寧-布依格聯營

CLIENT : 香港海洋公園 OCEAN PARK HONG KONG

PROJECT TITLE :
OCEAN PARK REDEVELOPMENT
Contract No. CI05
Site Formation, Funicular Tunnel and Miscellaneous Works

DRAWING TITLE :
PROPOSED SILT CURTAIN FOR STORM WATER DISCHARGE AT TAI SHUE WAN

CADD FILENAME : 01ENV001A.DGN
DATE : 05JAN2007
SCALE : 1 : 1000 @ A3
DRAWING NUMBER : DBJV/CI05/01/ENV/0001
REV. A

APPENDIX 4

DATA SHEET OF GEOTEXTILE SG 100/100

SPECIFICATIONS

Bontec® Woven Geotextiles

Physical Properties	Test Method	Units	SG 18/18	SG 28/28	SG 36/36	SG 40/40	SG 60/60	SG 80/80	SG 100/100
Mass per Unit Area	AS3706.1	g/m2	102	126	153	186	277	351	451
Thickness	AS3706.1	mm	0.56	0.88	0.88	0.74	1.05	1.44	1.51
Roll width		m	5 15	5.15	5.15	5.15	5.15	5.15	5.15
Roll Length		m	100	100	100	100	100	100	100

Mechanical Properties	Test Method	Units	SG 18/18	SG 28/28	SG 36/36	SG 40/40	SG 60/60	SG 80/80	SG 100/100
Tensile Strength - Wide Strip MD	AS3706.2	kN/m	18	28	36	40	64	82	110
Tensile Strength - Wide Strip XD	AS3706.2	kN/m	18	28	37	40	60	86	110
Elongation - Wide Strip MD	AS3706.2	%	26	17	18	15	21	20	20
Elongation - Wide Strip XD	AS3706.2	%	26	13	10	8	10	11	11
Tearing Strength - Trapezoidal MD	AS3706.3	N	251	380	477	400	721	1127	2154
Tearing Strength - Trapezoidal XD	AS3706.3	N	316	396	445	676	1467	1831	1864
Burst Strength - CBR Plunger	AS3706.4	N	2500	3100	3500	4800	7200	9500	12500
Puncture Resistance - Dropcone	AS3706.5	mm	17	14	14	13	10	9	9
G Rating	Austroads-90		2495	3179	3464	4304	6281	7912	8937

Hydraulic Properties	Test Method	Units	SG 18/18	SG 28/28	SG 36/36	SG 40/40	SG 60/60	SG 80/80	SG 100/100
Pore Size - Dry Sieving Method	AS3706.7	um	330	820	600	240	300	420	320
Permittivity - 100mm head	AS3706.9	l/m².s	71	123	94	35	44	46	49

Notes relating to the use of Bontec geotextile products

1. Geofabrics Australasia reserves the right to alter product specifications without prior notice. It is the responsibility of all users to satisfy themselves that the avove data is current.
2. The above figures are average values obtained from testing to current EN and AS geotextile test standards. Although not guaranteed, these results do to the best of our knowledge, offer a true and accurate record of the products performance
3. Polypropylene is the constituent polymer used in the production of these geotextiles.
4. Geofabrics Australasia cannot accept responsibility for ther performance of these products as the conditions of use are beyond our control.
5. Bontec is a trademark of Bonar Technical Fabrics.

www.geofabrics.com.au

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Technical Enquiries: 1800 4 bidim (1800 424 346)