



金門 - 利達聯營
Gammon - Leader Joint Venture



Your Ref : (11)inEP2/H4/S3/15Pt.23
Our Ref. : 1101/03.09.00.00/1483L
Date : 28 January 2013

The EIA Ordinance Register Office
27th floor, Southern Centre,
130 Hennessy Road
Wan Chai, Hong Kong

Gammon – Leader Joint Venture
28/F Devon House
TaiKoo Place, 979 King's Road
PO Box 9711 GPO Hong Kong

Tel (852) 2516 8823
Fax (852) 2516 6260

Site Tel (852) 2529 2068
Site Fax (852) 2529 2880

Dear Sir / Madam,

By Hand

Contract No. HK/2010/06
Wan Chai Development Phase II-
Central- Wan Chai Bypass over MTR Tsuen Wan Line
Silt Curtain Deployment Plan for FEP-05/356/2009

The captioned referenced letter refers.

Pursuant to Condition 2.8 of Part C of captioned FEP, we herewith enclose the 4 copies plus one electronic copy of the revised Silt Curtain Deployment Plan, which is certified by ET and verified by IEC, for your record.

Should you have any queries regarding this issue, please feel free to contact our Environmental Officer Mr. W. M. Lee at 9481 6024 or our Environmental Supervisor Clement Pang at 9735 9200.

Thank you for your kind attention.

Yours faithfully,
For and on behalf of
Gammon-Leader Joint Venture

Keith Tse
Site Agent

KT/WML

Encl

cc AECOM (Site Office & Head Office)
CEDD - Attn: Mr. Patrick S.K. Keung, Senior Engineer
Gammon - Site Office- Attn: C.L. Lee

Lam (ET)- Mr. Raymond Dai
Environ (IEC)- Mr. David Yeung

by hand
by email pkeung@cedd.gov.hk
by email
Chileung.lee@gammonconstruction.com
by email: raymond dai@lamenviro.com
by email scflam@environcorp.com

Ref.: AACWBIECEM00_0_3574L.13

21 January 2013

Gammon – Leader Joint Venture
28/F, Devon House
Taikoo Place
979 King's Road
Hong Kong

By Fax (2516 6260) & Post

Attention: Mr. Keith Tse

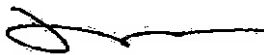
Dear Sir,

Re: FEP-05/356/2009
Contract No. HK/2010/06
Wan Chai Development Phase II – Central-Wan Chai Bypass over MTR
Tsuen Wan Line
Silt Curtain Deployment Plan (Rev. 7)

Reference is made to Gammon-Leader Joint Venture's submission of Silt Curtain Deployment Plan (Rev. 7) for the captioned through letter (letter ref. 1101/03.09.00.00/1464L dated 18 January 2013) for our review and comment.

Please be informed that we have no adverse comment on the captioned submission. We write to verify the captioned submission in accordance with Condition 2.8 of FEP-05/356/2009.

Yours sincerely,



David Yeung
Independent Environmental Checker

c.c.	CEDD	Mr. Patrick Keung	by fax: 2577 5040
	AECOM	Mr. Frankie Fan (PRE)	by fax: 2587 1877
	AECOM	Mr. Kelvin Cheng	by fax: 2691 2649
	LAM	Mr. Raymond Dai	by fax: 2882 3331

Q:\Projects\AACWBIECEM00\Corr\AACWBIECEM00_0_3574L.13.doc



Lam Geotechnics Limited

Ground Investigation & Instrumentation Professionals

Ref : G1120/CS/L365/FEP-05/356/2009
Date : 23 January 2013

Gammon Leader Joint Venture
28/F Devon House Taikoo Place,
979 King's Road,
Quarry Bay,
Hong Kong

Attn: Mr. Keith Tse, Site Agent

Dear Sir,

Contract No. HK/2010/06
Wanchai Development Phase II – Central –Wan Chai Bypass over MTR Tsuen Wan Line

Silt Curtain Deployment Plan (Rev. 7)

Referring to the captioned submission dated on 18 January 2013 received by mail on 21 Jan 2013, we have reviewed your submitted details and hereby certified this submission in accordance with Condition 2.8 of FEP-05/356/2009.

Should you have any enquiry, please feel free to contact the undersigned at 2839 5666.

Yours faithfully,

Raymond Dai
Environmental Team Leader

C.C.

CEDD	- Mr. Patrick Keung	(By Fax: 2577 5040)
AECOM	- Mr. Frankie Fan	(By Fax: 2587 1877)
ENVIRON	- Mr. David Yeung	(By Fax: 3548 6988)





金門 - 利達聯營
Gammon – Leader Joint Venture



**Wan Chai Development Phase II –
Central-Wan Chai Bypass over MTR Tsuen Wan Line
Contract No.: HK/2010/06**

Silt Curtain Deployment Plan

Rev.	Date of Issue	Remarks	Author	Approved
0	28 FEB 11	Initial issue	JY	KMB
1	08 Mar 11	Amendment for ET IEC comments	WML	KMB
2	10 Mar 11	General Amendment	WML	KMB
3	30 Mar 11	Revision in Sec.2, 6 & Appendix A	WML	KMB
4	4 Aug 11	Revision in Sec 6b	WML	KMB
5	20 Sept 12	Revision in Sec. 2, Sec 4.2 and 6c Revision in TWK/SK/M051 & M072	CP/WML	KT
6	18 Oct 12	For ET, IEC Approval	CP/WML	KT
7	18 Jan 13	Revision in Sec 1, Appendix A, C	CP/WML	KT



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C	Programme for the Deployment of the Silt Curtain



1. Introduction

This submission outline the method and the layout to deploy silt curtain for the Marine Works of HK/2010/06 Wan Chai Development Phase II – Central-Wan Chai Bypass over MTR Tsuen Wan Line.

With reference to the Condition 2.8 of Part C of FEP-05/356/2009, silt curtains shall be deployed around seawall dredging and seawall trench filling in reclamation shorelines zones. A Silt Curtain Deployment Plan shall be submitted to the Director of the Environmental Protection at least two weeks prior to the commencement of marine works showing the detail on the design, operation and maintenance requirements.

The installation, maintenance, repairing (in case of damage) and removal of silt curtain shall be responsible by FEP –05/356/2009 holder, Gammon Leader Joint Venture.

2. Area of Application

Silt curtain shall be provided during the dredging work and excavation for bored pile which may affect the water quality within the site. To limit pollution of water, woven geotextile shall be used as silt curtain system that is sustained by floating foam and in such a way that tidal rise and fall is accommodated.

Two types of silt curtain will be deployed:

1. Frame type silt curtain for to closely protect closed grab dredging
2. General type silt curtain to surround the dredging area, bored pile excavation area and silt screen for water intakes.

In dredging stage, one frame type silt curtain will be deployed to closely protect the closed grab dredging.

One general type silt curtain will be deployed to enclose the dredging area for protection of the transfer route between the grab frame and pontoon. The pontoon with bunker will be moored along the dredger and the silt curtains. Part of the silt curtain may be installed in site area of contract HK/2009/01, so liaison will be made with the contractor of HK/2009/01 for the implementation of silt curtains. Dredged materials in the bunker will then be transferred to the hopper



barge via the crane of a derrick lighter. Tarpaulin sheeting will be installed when necessary between the hopper barge, derrick barge and pontoon to prevent marine deposit from dropping into the sea.

In bored pile stage, the excavation will be carried out inside steel permanent casing. In addition, one general type silt curtain will be deployed to enclose the excavation area to protect the transfer of sediment from the grab to the hopper barge.

The layout plans and details for deployment for silt curtains during different stages and its general arrangement is attached in Appendix A. To suit the site condition with reference to the tidal range, the silt curtain would be extended to as close to the seabed level as practicable.

3. Use of Material

Bonar SG110/110 woven geotextile, manufactured by BONTEC, is proposed as the silt curtain system for this project. Catalogue of the material is attached in Appendix B. BONTEC is operated in accordance with an ISO 9001:2000 quality assurance system and ISO 14001 environmental management system to provide a good quality product. The Bonar geotextile is widely used in recent port works construction such as CV/2003/06 – Stanley waterfront improvement project, CV/2004/02 – Reconstruction of Wong Shek and Ko Lau Wan public pier project, CV/2002/04 – Penny’s Bay Reclamation Stage 2 and HK12/02 – CED, Central Reclamation Phase III, Engineering Works (Please refer to Appendix B). The properties of Bonar geotextile are satisfactory and fulfill the requirement as stipulated in particular specification. Visual inspection of the silt screen shall be carried in a daily basis.

According to the “Assessment and Remediation of Contaminated Sediments Program” of United States Environmental Protection Agency, silt curtain have been used at many locations with varying degrees of success. For example, silt curtain with impervious materials were found to be ineffective during a demonstration in other project primarily as a result of wind, current and tidal fluctuation. Moreover, we have demonstrated in many projects as listed above, the successful conclusion in the deployment of the material “Bonar SG110/110” woven geotextile.

According to the Environmental Monitoring and Auditing Manual, regularly water monitoring of water quality shall be carried out by Environmental Team in



order to complies statutory regulation and maintain quality of water during the construction activities being undertaken.

4. Silt Curtain Installation Methodology

4.1 General Type Silt Curtain

- a. Link up 300mm buoys together by a net
- b. Tie the top end of the geotextile to the buoys net and the bottom end with steel chain ballast before transportation
- c. Transport the silt curtain to the location for fixing via a marine pontoon.
- d. Workers tie the buoy to nearby existing structures with nylon ropes.
- e. Put the buoys to the water and then slowly put the geotextile with the steel chain ballast into sea.
- f. In order to maintain the position of the silt curtain especially at the locations with strong current, place concrete sinkers to the seabed if required and tie the silt curtain to the sinkers with nylons strings by divers.

4.2 Frame Type Silt Curtain

- a. Prefabricate a 15m x 12m rectangular shape floating steel frame using 400mm diameter x 8mm thick steel circular hollow sections. Details as per drawing TWK/SK/M010 (A).
- b. Tie the top end of the geotextile to the steel frame by nylon strings/ steel wires.
- c. Tie the bottom end of the geotextile with ballast steel chain. This arrangement shall maintain the geotextile in vertical position during the course of the dredging.
- d. Place and unfold the silt curtain to the sea by grab dredger. Fix the floating steel frame alongside the grab dredger with a movement joint. Slowly put the geotextile together with the ballast steel chain to the sea.
- e. The frame shall enclose the dredged area to ensure water quality impact is minimized.
- f. Prepare different length of the geotextile for replacement in order to suit the various existing seabed level.

5. Silt Curtain Removal

After completion of the marine works, the silt curtain shall be removed as elaborated as follows:



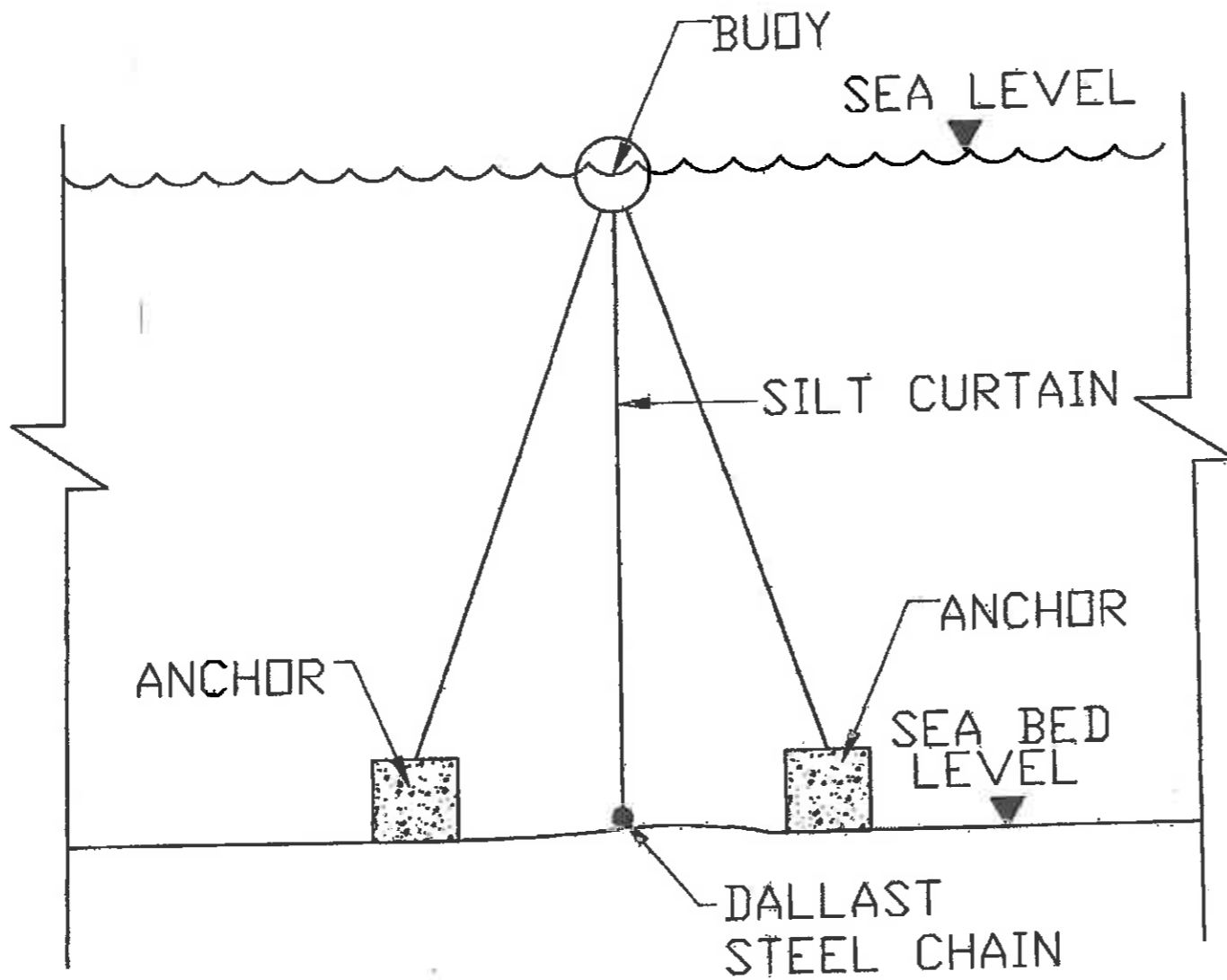
- a. Prior to decommission of silt curtain, make sure all marine works or works affecting the seawall shall be completed, and also the water quality shall be checked to ensure no dispersion of muddy water outside the works area.
- b. Loosen the fixing wire of the silt curtain from the concrete block and remove the silt curtain by motor boat for general type silt curtain or crane for frame type silt curtain.
- c. Lifting the concrete block slightly by diver team and crane boat in order to minimize the disturbance of seabed causing mud wave.




6. Inspection and Rectification Works

- a. Diver inspection shall be carried out to inspect the installation and decommissioning of silt curtain to ensure proper installation and functioning of the silt curtain according to the design drawing.
- b. During the entire construction period, visual inspection and regular diver inspection shall be carried out to ensure no muddy water passing through the silt curtain system and maintain proper functioning of the silt curtain. Visual inspection for the silt curtain shall be carried out daily. When damaging is suspected in daily inspection, diver inspection would be undertaken in order to ensure the performance of the silt curtain is effective and efficient. If the silt curtain is damaged and repairing works are identified, the dredging work within 50m from the location of damage will be temporarily suspended. The silt curtain will then be lift up by grab dredger/ derrick barge. A new piece of geotextile with sufficient overlapping length (1m) will be attached to the existing silt curtain. If the extent of the damaged is large and silt curtain cannot be lifted up without causing further damage, a new layer of silt curtain will be installed from sea level to seabed and covered the damaged location on two sides for minimum 5m. The dredging works will resume after repairing of the damaged silt curtains.
- c. The Environmental Officer or Environmental Supervisor shall supervise the entire installation and decommissioning processes. He shall also closely monitor the effectiveness of the silt curtain and report any irregularities which may affect its proper functioning so as to trigger early rectification by the Contractor.
- d. In case of any malfunction of the silt curtain, diver inspection shall be carried out to check whether there is any damage or defect of the silt curtain and the situation will be immediately reported to the Environmental Team. Once the damage or defect is found, the rectification works shall be carried out to maintain well-function of silt curtain under the supervision of Environmental Officer or Environmental Supervisor.
- e. 20 linear meter additional geotextile will be ready for use and keep on site for emergency replacement in case damage or defect is observed of the silt curtain.

Appendix A
Details of Silt Curtain System

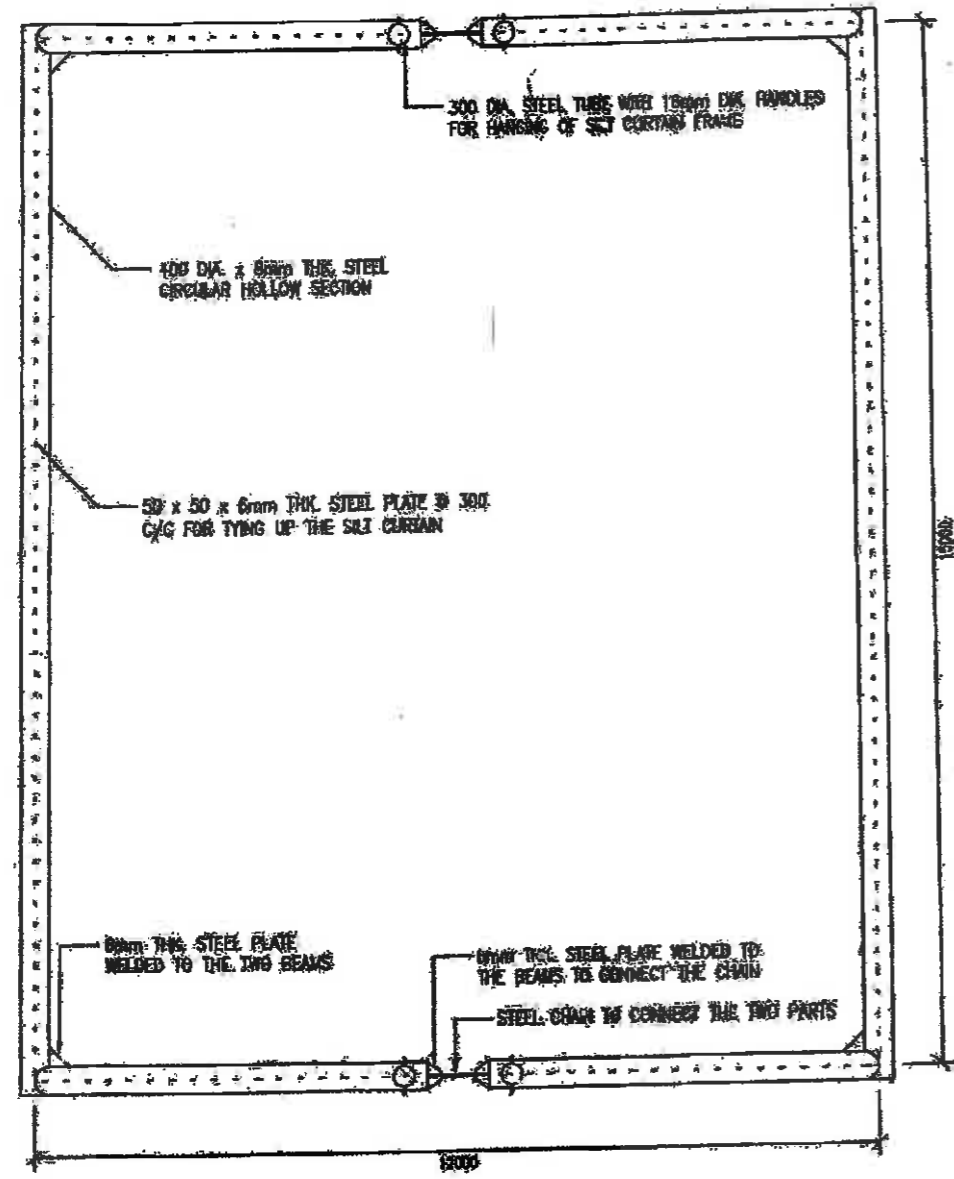


TYPICAL DETAILS FOR SILT CURTAIN DEPLOYMENT

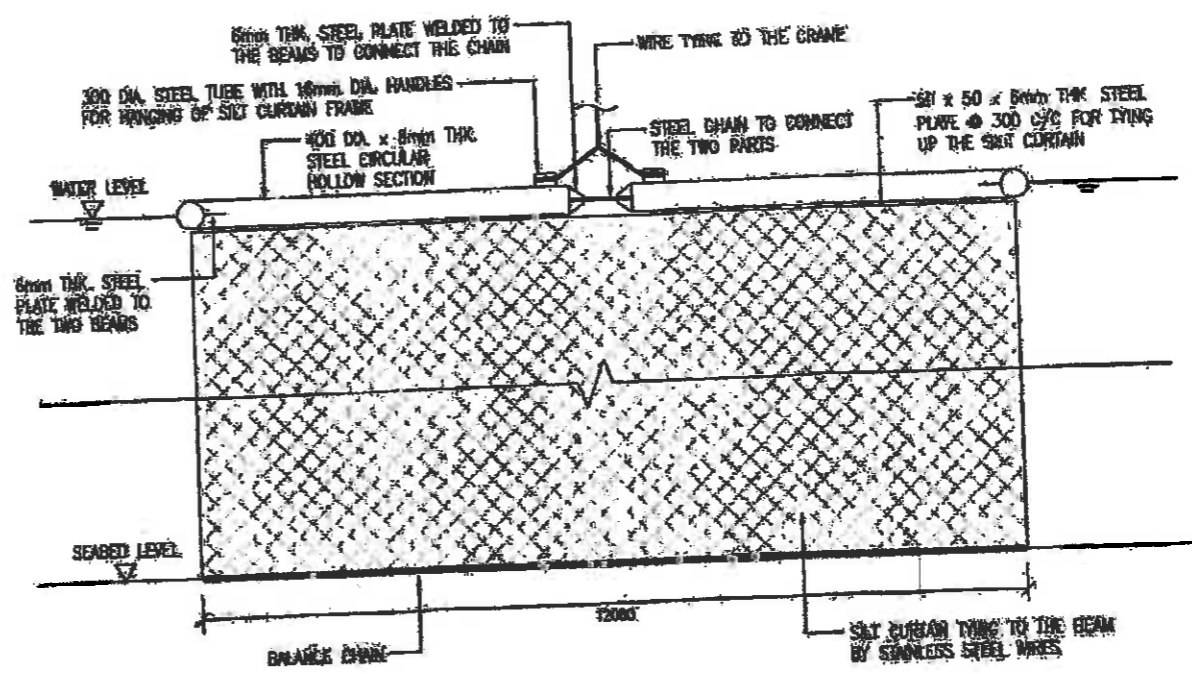
Rev	Description	Date	By	CHK	APP
WAN CHAI DEVELOPMENT PHASE II WAN CHAI DEVELOPMENT PHASE II - GENERAL-WAN CHAI BYPASS OVER MTR TSUEN WAN LINE Contractor  Hochtief - Geoscon - Leader Joint Venture Drawing Title DETAILS OF SILT CURTAIN (GENERAL TYPE)					
Drawn	Scale				
Designed	Status				
Checked					
Approved	Drawing No.				Rev

Drawing No. TWK/SK/MO10

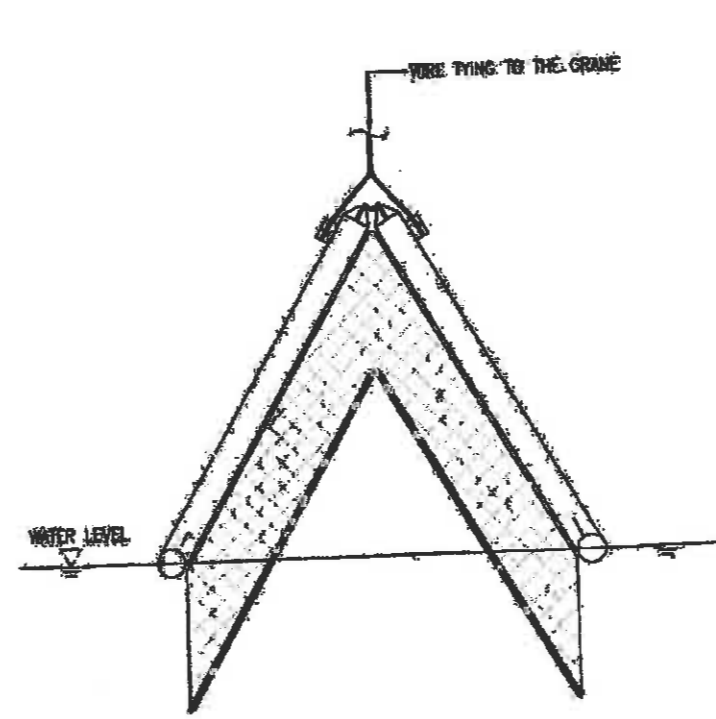
NOTE:
1. ALL CONNECTION ARE FROM FILLET WELD, UNLESS OTHERWISE SPECIFIED.



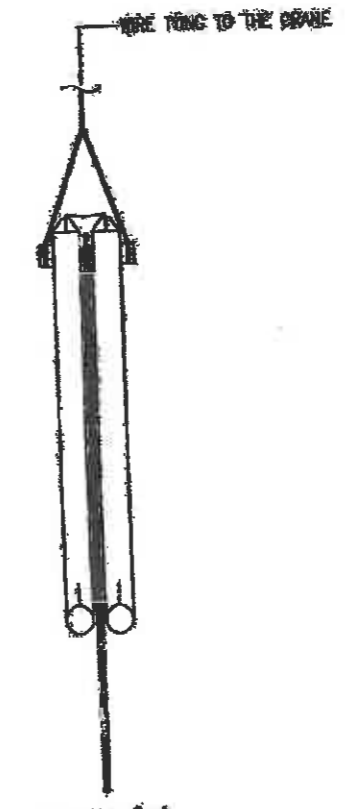
PLAN



VIEW '1'
(WORKING CONDITION)



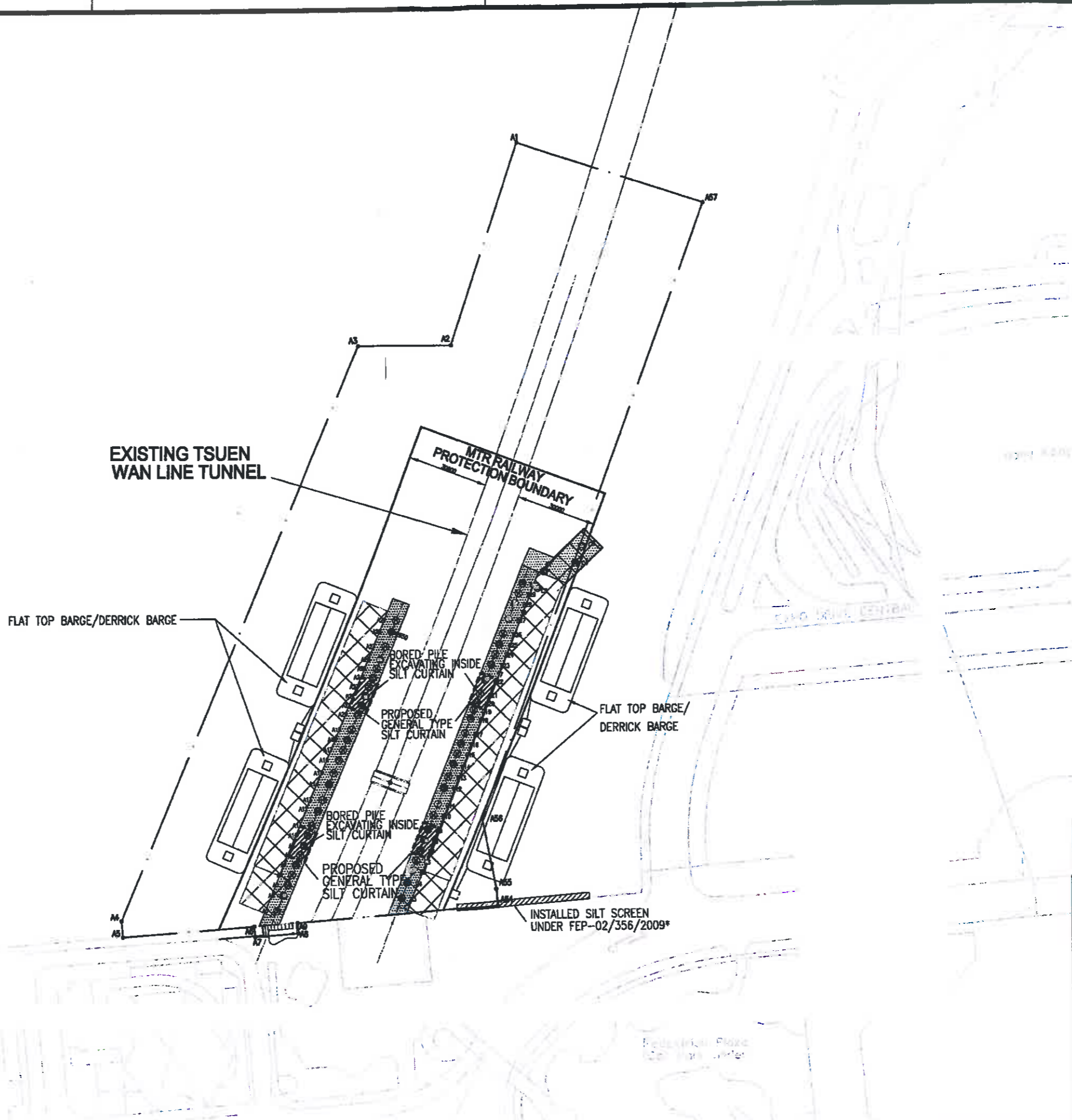
VIEW '1'
(HANGING UP BY CRANE)



VIEW '1'
(FINISH)

NO.	REVISION	DATE	BY	CHK.	APP.
WAN CHAI DEVELOPMENT PHASE II					
WAN CHAI DEVELOPMENT PHASE II -					
CENTRAL-WAN CHAI BRIDGE OVER NTR TSDEN HWY LANE					
Drawing No.					
DETAILS OF SILT CURTAIN					
Scale	AS SHOWN	DATE	1/20/2010		
Drawn by	ASL	Checked by	ASL	FOR SUBMISSION	
Approved by	ASL	Approved by	ASL		
Drawn by	ASL	Drawn by	ASL	TWK/SK/MO10	

100mm



- LEGEND:**
- AREA FOR DEPLOYMENT OF SILT CURTAIN
 - SILT CURTAIN
 - SILT SCREEN
 - TEMPORARY STAGING PLATFORM
 - A14 Proposed Bored Pile (2.5m dia)

NOTES:

- REMAIN UPON REMOVAL BY HK/2009/01 CONTRACTOR. REINSTALL IMMEDIATELY BY HK/2010/06 CONTRACTOR.

Rev	Description	Date	Dgn	Chk	App
WAN CHAI DEVELOPMENT PHASE II					
WAN CHAI DEVELOPMENT PHASE II - CENTRAL-WAN CHAI BYPASS OVER MTR TSUEN WAN LINE					
Contractor					
金門 - 利達聯營 利達 LEADER Gammon - Leader Joint Ventures					
Drawing Title					
LOCATION PLAN FOR DEPLOYMENT OF SILT CURTAIN AND SILT SCREEN FOR MARINE BORED PILING WORKS					
Drawn	S.L.	Scale	1:1500 @ A3		
Designed	Status				
Checked	J.Y.	FOR SUBMISSION			
Approved	H.Y.	Drawing No.	Rev		
CID Ref	TWK/SK/M052		A		

Drawing No. TWK/SK/M072_C



VICTORIA HARBOUR

2 NOS. OF 1000 DN SUBMARINE PIPELINE

EXISTING TUSHI WAI LINE TUNNEL

50m PIPELINE RESERVE 50m PIPELINE RESERVE

SUBMARINE PIPELINE RESERVE

EXISTING SUBMARINE SEWAGE OUTFALL PIPELINES TO BE DECOMMISSIONED (BY OTHERS)

SEAWALL COPELINE

CENTRAL RECLAMATION PHASE 3

EXISTING SEAWALL COPELINE

30m 30m
MTR RAILWAY PROTECTION BOUNDARY

PROPOSED SILT CURTAIN (GENERAL TYPE)

PROPOSED SILT CURTAIN (FRAME TYPE)

INSTALLED SILT SCREEN BY HK/2009/01 CONTRACTOR UNDER FEP-02/356/2009*

WAN CHAI (WEST) SEWAGE SCREENING PLANT

FLEET ARCADE

LEGEND:



RANGE OF DEPLOYMENT OF FRAME TYPE SILT CURTAIN (DREDGING AREA)



SILT SCREEN



REMAIN UPON REMOVAL BY HK/2009/01 CONTRACTOR. REINSTALL IMMEDIATELY BY HK/2010/06 CONTRACTOR.

C	GENERAL REVISED	20SEP2012	S.L.	A.L.	K.T.
B	GENERAL REVISED	29MAR2011	S.L.	J.Y.	H.Y.
A	GENERAL REVISED	21MAR2011	S.L.	J.Y.	H.Y.
-	-	16MAR2011	S.L.	J.Y.	H.Y.
Rev	Description	Date	By	Chk	App

WAN CHAI DEVELOPMENT PHASE II

WAN CHAI DEVELOPMENT PHASE II - CENTRAL-WAN CHAI BYPASS OVER MTR TUSHI WAI LINE

Contractor



Drawing Title

LOCATION PLAN FOR DEPLOYMENT OF SILT CURTAIN AND SILT SCREEN FOR DREDGING WORKS (STAGE 2)

Drawn S.L. Date 1:1500 @ A3

Designed Status

Checked A.L. FOR SUBMISSION

Approved K.T. Drawing No.

CHK No. TWK/SK/M072 Rev C

Drawing No. TWK/SK/MOS1_D



VICTORIA HARBOUR

2 NOS. OF 1000 DN SUBMARINE PIPELINE

EXISTING TSUEN WAN LINE TUNNEL

50m PIPELINE RESERVE 50m PIPELINE RESERVE

30m 30m
MTR RAILWAY PROTECTION BOUNDARY

SUBMARINE PIPELINE RESERVE

EXISTING SUBMARINE SEWAGE OUTFALL PIPELINES TO BE DECOMMISSIONED (BY OTHERS)

SEAWALL COPELINE

CENTRAL RECLAMATION PHASE 3

EXISTING SEAWALL COPELINE

PROPOSED SILT CURTAIN (GENERAL TYPE)

INSTALLED SILT SCREEN BY HK/2009/03 CONTRACTOR UNDER FEP-02/358/2009*

PROPOSED SILT CURTAIN (FRAME TYPE)

FLEET ARCADE

WAN CHAI (WEST) SEWAGE SCREENING PLANT

LEGEND:



RANGE OF DEPLOYMENT OF FRAME TYPE SILT CURTAIN (DREDGING AREA)



SILT SCREEN



REMAIN UPON REMOVAL BY HK/2009/01 CONTRACTOR. REINSTALL IMMEDIATELY BY HK/2010/06 CONTRACTOR.

D	GENERAL REVISED	20SEP2010	S.L.	A.L.	K.T.
C	GENERAL REVISED	28MAR2011	S.L.	J.Y.	H.Y.
B	GENERAL REVISED	21MAR2011	S.L.	J.Y.	H.Y.
A	GENERAL REVISED	18MAR2011	S.L.	J.Y.	H.Y.
-	-	3JAN2011	S.L.	J.Y.	H.Y.
Rev	Description	Date	By	Chk	App

WAN CHAI DEVELOPMENT PHASE II

WAN CHAI DEVELOPMENT PHASE II - CENTRAL-WAN CHAI BYPASS OVER MIN TSUEN WAN LINE

Contractor



Drawing Title
LOCATION PLAN FOR DEPLOYMENT OF SILT CURTAIN AND SILT SCREEN FOR DREDGING WORKS (STAGE 1)

Drawn	S.L.	Scale	1:1500 @ A3
Designed		Status	FOR SUBMISSION
Checked	A.L.		
Approved	K.T.	Drawing No.	TWK/SK/MOS1
CD No.		Rev	D

Appendix B
Material Catalogue of Silt Curtain

bontec

a bonar technical fabrics product



SG 110/110

Woven polypropylene geotextile made of slit film tapes

Technical data sheet according to internal specifications Bonar TF: version 06 dd. 05/01/10
 Accompanying documents CE marking: version 04 dd. 05/01/10



1137-CPD-616

10

separation	filtration	reinforcement	protection	drainage

	test method	value	tolerance
Mechanical properties			
Tensile strength MD	EN ISO 10319	110,0 kN/m	-0,9 kN/m
Tensile strength CD		110,0 kN/m	-0,9 kN/m
Elongation MD	EN ISO 10319	12,0 %	+12,5 %
Elongation CD		8,0 %	+1,5 %
Static puncture resistance - CBR	EN ISO 12238	12,50 kN	-2,50 kN
Dynamic perforation resistance - cone drop	EN ISO 13433	10,0 mm	+2,0 mm
Hydraulic properties			
Water permeability normal to the plane	EN ISO 11068	25x10 ⁻³ m/s	-6x10 ⁻³ m/s
Water flow normal to the plane (*)		25 l/m ² .s	-6 l/m ² .s
Characteristic opening size (AOS)	EN ISO 12858	230,0 µm	+100,0 µm
Physical properties			
Thickness under 2 kPa (*)	EN ISO 9863-1	1,53 mm	+/-0,31 mm
Weight (*)	EN ISO 9864	464,0 g/m ²	+/-46,4 g/m ²
Composition	100 % polypropylene woven geotextile		
Durability	predicted to be durable for a minimum of 25 years in natural soil with 4 < pH < 9 and soil temperature < 25° C		

roads	railways	foundations & retaining walls	drainage systems	erosion control systems
EN 13242:2000	EN 13260:2000	EN 13251:2000	EN 13262:2000	EN 13253:2000
reservoirs & dams	canals	tunnels & underground structures	solid waste	liquid waste
EN 13254:2000	EN 13265:2000	EN 13266:2000	EN 13267:2000	EN 13268:2000

- This certificate is intended for use in both American & applications highlighted with a bold border.
 - It is the responsibility of all users to satisfy themselves that the above data is correct.
 - Roll dimensions are 5,25 m x 100 m. Other dimensions on demand.
 - Bonar Technical Fabrics reserves the right to alter product specifications without prior notice.
 - Although not guaranteed, these results do to the best of our knowledge offer a true and accurate record of the product's performance.
 - Bonar Technical Fabrics cannot accept responsibility for the performance of these products in the conditions of use are beyond our control.
 - Geotextiles has to be covered within 2 weeks after installation
- (*) Not mandated characteristics for CE marking.



BONAR Technical Fabrics nv/na, Industriestraat 26, 9240 Zate, BELGIUM - ☎ +32(0)52 457411 - ☎ +32(0)52 457405
 BONAR Yarns & Fabrics Ltd, St. Salvador Street, Dundee DD5 7EU, UK - ☎ +44(0)1382 346102 - ☎ +44(0)1382 202378

investing goes



G AND E COMPANY LIMITED

Room B, 13/F Cheung Lee Industrial Bldg.
9 Cheung Lee Street
Chai Wan, Hong Kong
Tel: 2508 0058 Fax: 2570 0089

website: www.g-and-e.com

July 9, 2010

OFFICIAL ANNOUNCEMENT

I would like to inform you that geotextile Bontec SG100/100 is upgraded to SG110/110 effective immediately, and that SG100/100 has become obsolete. The performance of SG110/110 is superior to that of SG100/100.

No adjustment and adaptation are necessary to the current application, installation method, packaging and quality control assurance program with the improved properties of SG110/110.

Bonar Technical Fabrics is Europe's premier manufacturer of woven and non-woven geotextile products, with continuous commitment to quality, product development and production improvement. One of Bonar's many advantages is that they are vertically integrated. This means they have their own fiber production which helps ensure consistent product performance. Bonar also has a high production capacity with the facility located in close proximity to the Antwerp port. These translate into more efficient supply.

I have attached the manufacturer's letter here about the change for your reference. We would be happy to answer any questions that you may have.

Thank you for your kind attention.

Best regards

Gary Ng

Gary Ng
General Manager

bontec

a bonar technical fabrics product

Date: 5-Jul-10	
To: G and E – Hong Kong Gary	From: Isabelle Ruyffelaere – 0032 52 457 487 Philippe Grimmelpez – 0032 52 457 486
E mail: nannette@g-and-e.com	Pages: 1 +
Your reference: Bontec® SG 110/110	Our reference: G&E07052010.doc

Dear Gary,

We are pleased to confirm that the old name of the Bontec® SG100/100 has been replaced with the Bontec® SG 110/110.

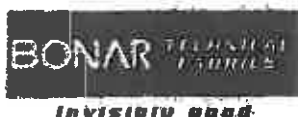
Bonar constantly strives to increase the performance of the products over time. Thanks to improved polymers, extrusion and weaving techniques we managed to produce stronger geotextiles with the same unit weight. Hydraulic characteristics were not affected either.

Bonar uses very strict -in house- and ISO 9001:2000 quality and ISO 14001 environmental standards (in annex) and is using electricity generated from 100 % renewable sources.

We send hereby the newest datasheet as well for your information.

Should you require any further information, please do not hesitate to contact us.
Best regards

Philippe Grimmelpez
Global Sales & Marketing Manager



BONAR Technical Fabrics nv/sa
Industrieweg 39 • B-9240 Zele • Belgium
Tel: +32 (0)52 457 411 • Fax: +32 (0)52 457 495
E-mail: productinfo@bonar.com

BONAR Yarns & Fabrics Ltd
4, Salisbury Street • Dundee DD2 7FU • United Kingdom
Tel: +44 (0)1382 346102 • Fax: +44 (0)1382 202375
E-mail: sguidd@bonaryarns.com



Bontec SG110/110
Woven Polypropylene Geotextile

Certification

QUALITY MANAGEMENT SYSTEM CERTIFICATE

ISO 9001 : 2000

The BQA, on hereby declares that the quality management system of
Bonar Technical Fabrics NV - Site in Zele en Lokeren



located at Industriestreet 39 - 9240 Zele - Belgium, has been examined on 05-05-2008
and found in conformity with the ISO 9001, edition 2000, standard for the following application field:

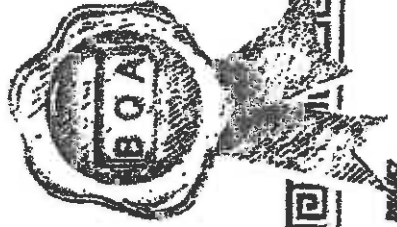
Development, manufacture and sales of a standard range of fibres and textiles such as agrotexiles, building textiles and geosynthetics, as well as similar products especially designed to customer specifications

This certificate has been issued by the BQA, in accordance to its quality manual concerning the certification of quality systems, and after concluding the contract of certification N° DSA/PCER/05-05-2008/301, under which the company accepts a regular control of its quality management system.

Certificate N° BQA_QMS019_C_2004301
Valid until 04-05-2011



BQA N° 019-QMS



D. SIMOENS
Director

CERTIFICATE OF ENVIRONNEMENTAL MANAGEMENT SYSTEM

ISO 14001 : 2004

The BQA, in here by declares that the environmental management system of the company
Bonar Technical Fabrics NV - Site in Zela en Loharen



located at Industriestraat 39 - 9240 Zela - Belgium, has been examined on 05-05-2008
and found in conformity with the ISO 14001, edition 2004, standard for the following application field:

Development, manufacture and sales of a standard range of fibres and textiles such as agrotextiles, building
textiles and geosynthetics, as well as similar products especially designed to customer specifications.

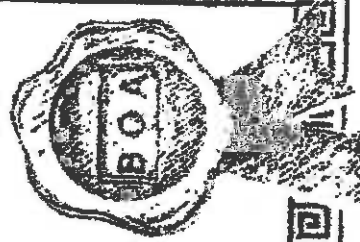
This certificate has been issued by BQA, in accordance to its quality manual EMS concerning the certification of environmental
management systems, and after the contract of certification N° DSA/CER-EMSV05-05-2008/84
under which the company accepts a regular control of its environmental management system.

Certificate N° BQA_EMS019_C_200484
Valid until 04-05-2011



BQA N° 019-EMS

D. SIMOENS
Director



Any person aware of violation of this certificate may address himself to the BQA. This certificate may only be obtained in its entirety.
BQA, in - rue du Commerce 24, 1050 - 1050 Brussels

ISO/CEC/07-01-2004

bontec

a bonar technical fabrics product

woven and non woven geotextiles

24.05.10.09

CERTIFICATION OF CONFORMANCE

The undersigned supplier BONAR TECHNICAL FABRICS, hereby states under his responsibility that the following product complies with the indicated technical properties :

Invoice F0918342

Type	NW 9 S25 : 10500 m ²
Type	NW 10 S25 : 18376 m ²
Type	NW 20 S250 : 10300 m ²
Type	SG 100/100 : 5250 m ²
Delivery docs :	Packing list N. T0908524 and T0908557

Manufacturer : Bonar Technical Fabrics N.V.

BONAR TECHNICAL FABRICS N.V.

BONAR TECHNICAL FABRICS N.V.
p/o Industriepark 30
20120 Zalt



Intelligible good

BONAR TECHNICAL FABRICS n/v
Industriepark 30 • B-20120 Zalt • Belgium
Tel +32 (0) 32 457 874 • Fax +32 (0) 32 457 492
E-mail geotextiles@bonar.com

BONAR Yarns & Fabrics Ltd
St. Scholastri Street • Dundee DD2 7EU • United Kingdom
Tel +44 (0) 1382 346402 • Fax +44 (0) 1382 302230
E-mail geotextiles@bonaryarns.com

G & E Company Limited

FROM : G AND E COMPANY LIMITED

PHONE NO. : + 852 2578 8889

Apr. 28 2005 12:00PM P1

12:00 2004 10:43 FAX 52 52 457405

BONAR TF 050

@001/001

bontec

a better technical fabrics product.

Fax

Date: 11-Aug-04	
To: G and E - Hong Kong Mr. Gary NG	From: Isabelle Pignatelli - 0035 52 457 407 Isabelle Pignatelli - 0035 52 457 405
Pages: 1/2	
Your reference: Bonar TF acquisition of UCO Technical Fabrics	Our reference: G2E17082004fax

To Whom it may concern

We hereby confirm that Bonar acquired the company UCO Technical Fabrics in October 1996 and all activities of the manufacturing and sales of Woven and Non woven geotextiles.

The Company changed name to BONAR TECHNICAL FABRICS.

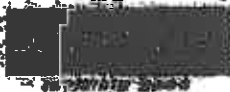
Its headquarters are moved to Industriestraat 30, 6240 Zele, Belgium. At the same location it is a new manufacturing plant of non woven geotextiles based.

The plant where woven geotextiles are produced is based on the old UCO location: weversteen 18, Lokeren, Belgium.

Should you require any further information, please do not hesitate to contact us.

Best regards

Isabelle Pignatelli
Sales & Marketing Manager geotextiles



BONAR Technical Fabrics n.v.
Industriestraat 30 - Zele
30 6240 Zele (BE) - Tel: +32 52 457 407
Fax: +32 52 457 405

BONAR Textile & Fabrics Ltd.
B. House 2/F - 2/F - 2/F - 2/F - 2/F
2/F - 2/F - 2/F - 2/F - 2/F
2/F - 2/F - 2/F - 2/F - 2/F



Bontec SG110/110
Woven Polypropylene Geotextile

Installation Guideline

BONTEC: Woven and Non Woven Geotextiles manufactured by Bonar Technical Fabrics - Belgium.



RECOMMENDATION FOR THE INSTALLATION OF GEOTEXTILES

- The BONTEC geotextiles shall be kept in its original packaging in order to protect it from damaging UV-rays and high temperatures.
- The BONTEC geotextiles shall be stored protected from wind, rain, excess moisture or sunlight.
- The BONTEC geotextiles shall only be unpacked just before use. The material shall be covered within 1 week
- The BONTEC geotextiles shall be labelled and show the following data :
 - roll number
 - quality
 - name of the manufacturer
 - roll length & width
 - roll weight
- The BONTEC geotextiles shall be laid with the longitudinal axis down slopes
- A minimum overlap of 500 mm between the different sheets shall be respected. Sewing of the different fabrics shall be done with a double prayer stitching technique with non deteriorating thread.
- Wherever visibility or installation of the BONTEC geotextile is poor an extra safety overlap of +/- 1 m shall be respected
- The surfaces to be covered with BONTEC geotextiles shall be smooth and free of sticks, roots, sharp objects, and all debris that may damage the fabric. The surface to be covered shall be firm and unyielding, with no sudden changes or breaks in grade.
- The compacted sub-base shall be maintained in a smooth, uniform and compacted condition during installation of the fabric.
- In area's where wind is prevalent, fabric installation shall be started at the upwind side of the project and proceed downwind. The leading edge of the fabric shall be secured at all times with sandbags or other means sufficient to hold it down during high winds. Sandbags or rubber tires may be used as required to hold the fabric in position during installation. Tires shall not have exposed steel cords or other sharp edges which may snag or cut the fabric. Materials, equipment or other items shall not be dragged across the fabric or be allowed to slide down slopes on the fabric.
- Should the fabric be damaged during any step of the installation, the damaged section shall be repaired by covering it with a piece of fabric which extends at least 0,6 meter in all directions beyond the damaged area. The fabric shall be secured as directed by the engineer.
- Smoking shall not be permitted by personnel working on the fabric.

P.geodiversen/installationgeot.doc



Bontec SG110/110
Woven Polypropylene Geotextile

List of Project Reference

Bonar

Feb-05	CV/2003/06 Stanley Waterfront Improvement Project - Construction Pier and Boardwalk	Sun Fook Kong (Civil) Ltd	Civil Engineering and Development Department	SG100/100 NW10
Feb-05	04/0028 Lamma Power Station	Wai Kee (Zens) Construction & Transportation Co Ltd	Maunsell Geotechnical Services Ltd	SG100/100
Feb-05	CV/2004/02 Reconst. of Wong Shek & Ko-Lau Wan Public Piers	Kin Shing Construction Co Ltd	Civil Engineering and Development Department	SG100/100
Apr-05	CV/2002/04 Penny's Bay Reclamation Stage 2	Gammon Skanska Ltd Shun Tat Construction Engineering Ltd	Scott Wilson Ltd	SG100/100 SG100/100
Apr-05	HK/1202 CED, Central Reclamation Phase III, Engineering Works	Best Leader Engineering Ltd Leighton - China State - Van Oord Joint Venture	Atkins China Ltd	SG100/100 SG100/100
May-05	03/8013 Lamma Island to Cyberport	Leader Marine Contractors Ltd Horwin Engineering Ltd	Maunsell Geotechnical Services Ltd	SG100/100 SG100/100
Jul-05	Shenzhen to Tai Po Twin Submarine Gas Pipeline Project	Horwin Engineering Ltd		SG100/100
Sep-05	TP37/03 Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A	Leader - Wai Kee (C&T) Joint Venture	Hyder Consulting Ltd	SG100/100
Nov-05	HY/2002/26 Stone Cutler's Bridge	Hong Kong River Engineering Co Ltd	Ove Arup & Partners HK Ltd	SG100/100
Feb-06	CV/2005/12 Fill Reception Facilities at Tsung Kwan O Area 137 Quarry Bay and Mui Wo	Penta-Ocean Construction Co Ltd	Civil Engineering and Development Department	SG100/100
Mar-06	Maintenance Dredging at Castle Peak Power Station (CPPS) Jetty	New Concepts Engineering Development Ltd	Civil Engineering and Development Department	SG100/100
Mar-06	CV/2004/04 Maintenance and Repairs to Government / Public Piers and Immersed Tubes of Hung Hom Cross-Harbor Tunnel	China Harbour Engineering Co (Group)	Civil Engineering and Development Department	SG100/100
Mar-06	HY/2005/06 Castle Peak Road Improvement West of Tsing Lung Tau	Shun Tat Construction Engineering Limited Chun Wo Construction & Engineering Co Ltd	Mouchel Halcrow JV	SG100/100 SG100/100

May-06	212 Main Works for the Proposed Third Golf Course Development at Kau Sai Chau, Sai Kung	China Harbour Engineering Co (Group)	Ove Arup & Partners HK Ltd	SG100/100
Jun-06	Hong Kong Convention and Exhibition Centre Project - Silt Screening for Intake Pipe	Wai Kee (Zens) Construction & Transportation Co Ltd Kaden - Wai Kee (C&T) Joint Venture	NA	SG100/100 SG100/100
Aug-06	EP/SP/52/06 Development of EcoPark in Tuen Mun Area 38	Kaden Construction Limited	Scott Wilson Ltd	SG100/100
Sep-06	CV/2004/06 Management and Capping of Contaminated Mud Pit IV at East of Sha Chau - Phase III	Kaden - Wai Kee (C&T) Joint Venture	Civil Engineering and Development Department	SG100/100
Oct-06	Larima Island Cable Landing	United Marine Co Ltd	Hong Kong Electric Co Ltd	SG100/100
Nov-06	CV/2004/01 Maintenance and Repairs to Seawalls, Piers and Other Port Works	Kin Shing Construction Co Ltd	Civil Engineering and Development Department	SG100/100
Dec-06	Private project	Friendly Benefit Engineering Ltd		SG100/100
Feb-07	Prebored Socketted H-Piles at Hong Kong Convention & Exhibition Centre	Yee Hop Engineering Co Ltd	NA	SG100/100
May-07	HY/2005/06 Castle Peak Road Improvement - West of Tai Ng Lung Tau	Chun Wo Construction & Engineering Co Ltd	Mouchel Harlow JV	SG100/100
May-07	CV/2004/05 Dredging Maintenance	China Harbour Engineering Co Ltd	Civil Engineering and Development Department	SG100/100
Aug-07	Dredging Project in Lal Chi Kok Shipyard	Maritime Mechanic Ltd	NA	SG100/100
Aug-07	8/WSD/06 Construction of Salt Water Supply System for Penny's Bay	Univac Engineering Ltd	Water Supplies Department	SG100/100
Nov-07	Permanent Aviation Fuel Facility Hong Kong International Airport (Contract No. H2104)	UDL Dredging Ltd	Balfour Beatty Asia Ltd	SG100/100
Dec-07	Seawall Modify, Tuen Mun Area 88	Cheer Engineering Ltd	Scott Wilson Ltd	SG100/100
May-08	DC/2007/10 Design and Construction of HK West Drainage Tunnel	Tapco Civil Engineering Co Ltd	Ove Arup & Partners HK Ltd	SG100/100
Sep-08	CV/2006/05 Maintenance of Seawalls and Navigation Channels	China Harbour Engineering Co Ltd	Civil Engineering and Development Department	SG100/100

Sep-08	Marine Works at Maldives	Kwan Sing Engineering & Construction Co Ltd		SG100/100
Nov-08	DC/2007/06 River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River	Kwan Lee Construction Co Ltd	Matsueell Consultants Asia Ltd	SG100/100
Mar-09	DC/2007/01 Drainage Improvement Works in Ki Lun Tsuen, Kwu Tung, Ma Tso Lung and Sha Ling	Shanghai Urban Construction Group Corp	Mott Corinell Ltd	SG100/100 SG40/40
Jun-09	CHEC247 Lamma Power Station - Navigation Channel Improvement	China Harbour Engineering Co Ltd		SG100/100

Updated November 26, 2009



Bontec SG110/110
Woven Polypropylene Geotextile

Photo References



G AND E COMPANY LIMITED

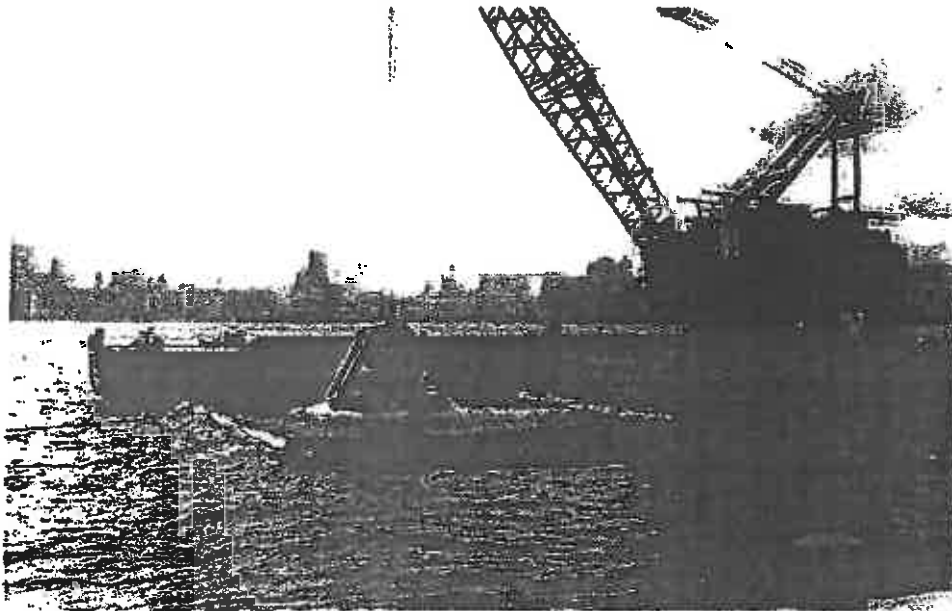
Room B, 13/F Cheung Lee Industrial Building

9 Cheung Lee Street,

Chei Wan, Hong Kong

Tel: 852-2508 0058 Fax: 852-2570 0089

website: www.g-and-e.com



Date	Feb-10
Project	Contract No. HY/2009/11 Central - Wanchai Bypass - North Point Reclamation
Client	Highways Department
Consultant	AECOM
Main Contractor	China Harbour Engineering Company
Works	Silt Curtain
Materials	Woven Geotextile SG100/100
Size	3,675 sqm



**Bontec SG110/110
Woven Polypropylene Geotextile**

Approval Letters


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

RECEIVED

土木工程處
G&E Engineering Office

Web site 網址 : <http://www.cedd.gov.hk>
 E-mail 電子郵件 : cedd@cedd.gov.hk
 Telephone 電話 : (852) 2788 5237
 Facsimile 傳真 : (852) 2714 3854
 Our reference 本署編號 : () in P/P W/CV9402/03/048 P.1
 Your reference 來函編號 : KS3302005

香港九龍彌敦道101號
 土木工程拓展署大樓4/F
 4/F, Civil Engineering and Development Building,
 101弥敦道
 Kowloon, Hong Kong

Kin Shing Construction Company Limited
 1/F,
 27 Yin Chong Street,
 Mong Kok,
 Kowloon
 (Attn.: Mr. Patrick P K Chen - Site Agent)

24 January 2005

BY MAIL & FAX No. 2788 2095

Dear Sirs,

Contract No. CV2004/02
Reconstruction of Wong Shek and Ko Lai Wan Public Piers

Material Submission - Geotextile for Silt Curtain

I refer to your letter of 14.1.2005 enclosing the particulars of the geotextile for fabrication of silt curtain.

In accordance with PS Clause 26.08(2), the proposed "SG 100/100" woven geotextile manufactured by Domet Technical Fabrics is approved to be used under the captioned Contract.

Pursuant to PS Clause 26.09(1), you are required to submit details of the silt curtain 3 weeks before their deployment.

TOILEY	
Item	Remarks
1	SG 100/100 Woven Geotextile
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3	SG 100/100 Woven Geotextile
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49	SG 100/100 Woven Geotextile
50	SG 100/100 Woven Geotextile

Your Sincerely,



(W H LEE)

Engineer's Representative
 Port Works Division

Civil Engineering and Development Department

C.C.
 SLOW/PZB - Site Copy

FROM : G AND E COMPANY LIMITED

PHONE NO. : + 852 2576 8889

Apr. 28 2005 12:23PM P7

24-FEB-2005 10:57 FROM SPK
18 v 78101

TO 25768889

P.01/01

CEED 土木工程師學會
Civil Engineering and
Development Department

Website: <http://www.ceed.gov.hk>
E-mail: ceed@ced.gov.hk
Telephone: (852) 2774 2222
Facsimile: (852) 2774 2224
Committee: 20020021 (15) 15 PW WCCV00000010/000
Your address: 15/F, 15 WING LUN BUILDING, 15 WING LUN STREET, HONG KONG

土木工程處
Civil Engineering Office

112

15/F, 15 WING LUN BUILDING,
15 WING LUN STREET, HONG KONG
15/F, Civil Engineering and
Development Building,
151 Fung Wo Avenue East,
Kowloon, Hong Kong

18 February 2005

Sam Fook King (Civil) Limited
Room 2007-10
Golden Eagle Centre,
21 Hing Fong Street,
Wing Lok
Hong Kong
(Attn: Mr. Edward KONG - Fax No. 2327 6275)

Dear Sir,

Contract No. CV/2004/06

Energy Technical Improvement Project -
Construction of 2007-10

Fabric for Air Curtains

I refer to your above letters dated 21.1.2005 and 15.2.2005 proposing the SG100/100 fabric supplied by "Door Technical Fabrics" for air curtains.

I have no objection to your proposed material for air curtains.

Yours faithfully,

Paul Y. K. Ma
(Paul Y. K. Ma)

Engineering Representative
For Works Director

Civil Engineering and Development Department

C.A.
Site Office (Attn: EDW/PLA) :
CEOP/1A

File PW WCCV00000010/000

YK:mlh

SEARCHED	INDEXED
SERIALIZED	FILED
FEB 28 2005	
HONG KONG	

TOTAL P.01

Maunsel| Consultants Asia Ltd
8/F Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road Shatin, N.T., Hong Kong
茂業(亞洲)工程顧問有限公司
香港新界沙田鄉事會路 138 號新城市中央廣場 2 座 8 樓
T +852 2605 0262 F +852 2891 2649 www.maunsel|aecom.com
SRE - Office T +852 2668 0788 F +852 2831 2889 E esr@maunsel.com.hk

Your Ref. : DC0708M1.21512 & 1529
Our Ref. : (DC/2007/06)/R20/108(0023)

RECEIVED
13 NOV 2008
BY: _____

Chiu Hing Construction & Transportation Co. Ltd.
Room 201, 2/F Fuk Shing Commercial Building
28 On Lok Mun Street
On Lok Tuen, Fanling
New Territories, Hong Kong

Attn : Mr. Roger Lau (Site Agent)

18 November 2008

Dear Sir,

Contract No. DC/2007/06
River Improvement Works in Upper Lam Tuen River,
She Shan River and Upper Tai Po River

Proposed Geotextile at Gabion Wall in She Shan River and Upper Tai Po River

I refer to your letter dated 7 November 2008 and 12 November 2008 respectively.

Please be advised that since the water flow rate of the proposed geotextile model Bontec SG100/100 meets the requirements in accordance with P.S. Clause 7.160, I have no further objections to your proposed use of woven geotextile model Bontec SG100/100, supplied by "G and E Company Ltd," at gabion wall in She Shan River and Tai Po River, subject to its satisfactory performance on site.

Yours faithfully,


Adrian Ng
Resident Engineer

cc MCAL - Attn : Mr. Conder Yau
Chiu Hing H.O.

AN/CLK

Appendix C
Programme for the Deployment of the Silt Curtain

