ENVIRON

Ref.: AACWBIECEM00_0_1765L.11 31 August 2011

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

By Fax (2516 6260) & Post

Attention: Mr. Book Kin Man

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. 4)

Reference is made to Gammon-Leader Joint Venture's submission of Silt Curtain Deployment Plan (Rev. 4) for the captioned through letter (letter ref. 1101/05.03.00.00/0494L dated 31 August 2011) for our review and comment.

Please be informed that we have no adverse comments 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_1765L.11.doc

Lam Geotechnics Limited
Ground Investigation & Instrumentation Professionals

華益土力有限公司

Ref : G1001/CS/L435/FEP-05/356/2009
Date : 31 August 2011

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

Attn: Mr. Simon Tong

Dear Sir,

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

Referring to your letter ref no. 1101/05.03.00.00/0494L dated 31 August 2011, we have reviewed your submitted details of the captioned plan and hereby certify this submission in accordance with Condition 2.8 of Further Environmental Permit no. 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 WDII - *Mr. Frankie Fan* *(By Fax: 2587 1877)*
ENVIRON - *Mr. David Yeung* *(By Fax: 3548 6988)*

11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong
Tel: (852) 2882-3939 Fax: (852) 2882-3331
Website: www.lamgeo.com Email: info@lamgeo.com

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

Table of Content

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.

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 further enclose the dredging area including the hopper barge of protection for the movement of the grab between the grab frame and hopper barge. Part of the silt curtain will be installed in site area of contract HK/2009/01, we will liaise and co-ordinate with the contractor of HK/2009/01 in the implementation.

The hopper barge will be stationed closely to the grab frame silt curtain as practical as possible. In additional, tarpaulins sheeting will be ready for installation when necessary between the hopper barge and grab frame to prevent marine sediment from dropping into the sea.

In bored pile stage, the excavation will be carried out inside steel permanent casing. In additional, 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/ derrick barge. Fix the floating steel frame alongside the grab dredger/ derrick barge with a movement joint. Slowly put the geotextile together with the ballast steel chain to the sea.
e. The frame shall be placed as close to the hopper barge as practical to protect the transfer of sediment from the grab frame to the hopper barge.
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 decommission 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, water monitoring 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. Accordingly to the Environmental and Monitoring Audit Manual, a regular water monitoring shall be carried out in order to complies the statutory regulations and maintain the quality of water during operation of construction activities. 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 Team shall supervise the entire installation and decommissioning processes. The Environmental Team 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.

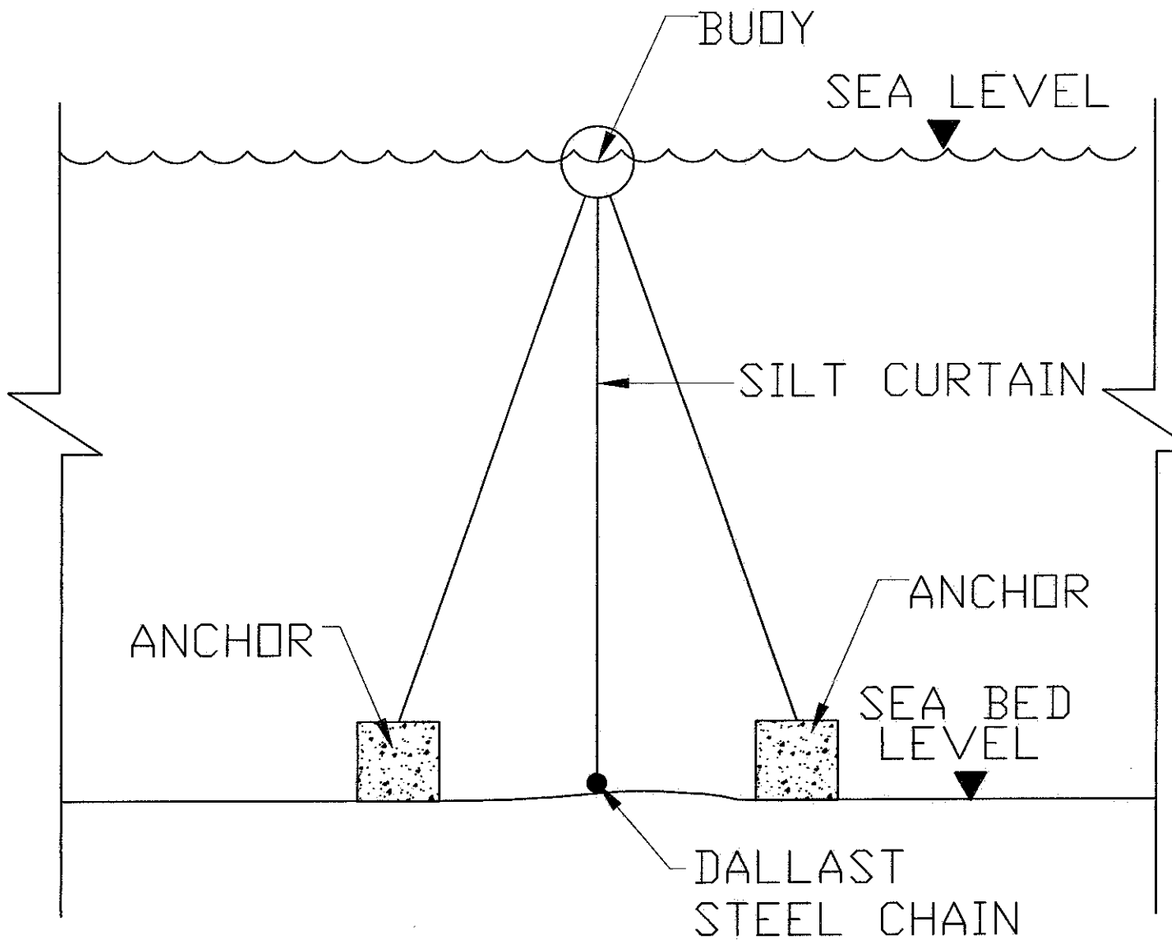
d. In case of any malfunction of the silt curtain, diver inspection shall be carried out to check whether there is any damage or defect of the silt curtain and the situation will be immediately reported to the Environmental Team. Once the damage or defect is found, the rectification works shall be carried out to maintain well-function of silt curtain after the Environmental Team Leader agrees on the rectification methods.

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

Drawing No.



TYPICAL DETAILS FOR SILT CURTAIN DEPLOYMENT

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 Gammon – Leader Joint Venture

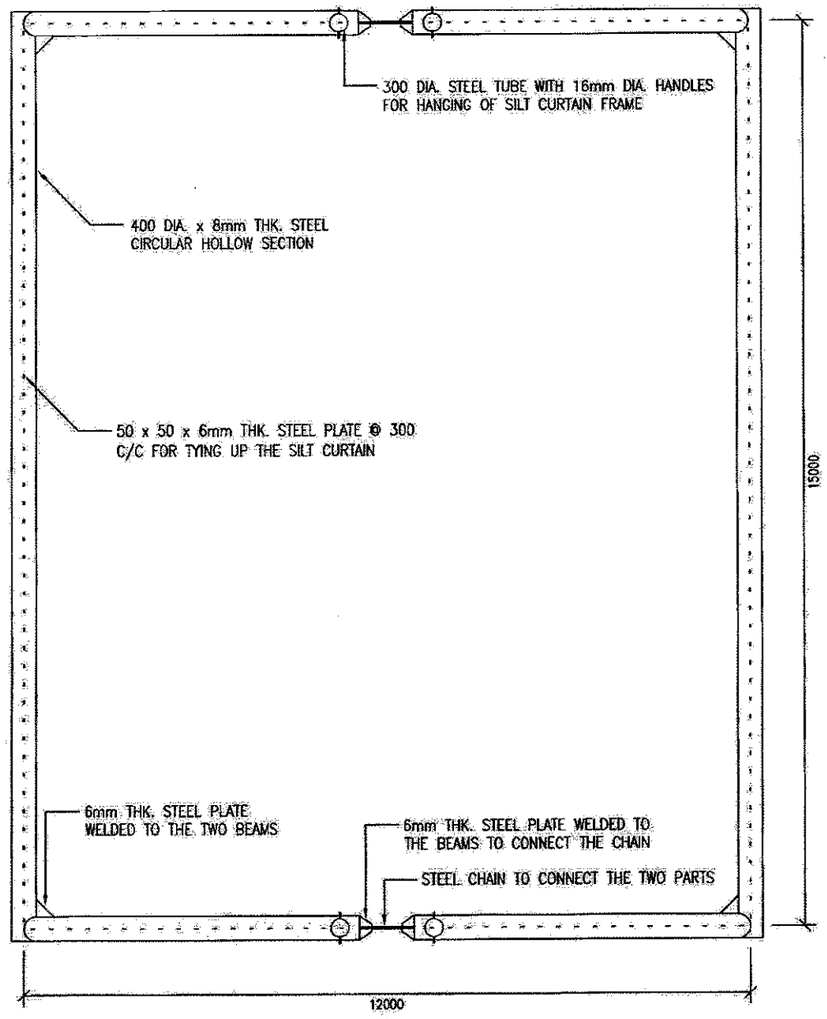
Drawing Title

DETAILS OF SILT CURTAIN
(GENERAL TYPE)

Drawn	Scale
Designed	Status
Checked	
Approved	Drawing No. / Rev
CAD Ref	

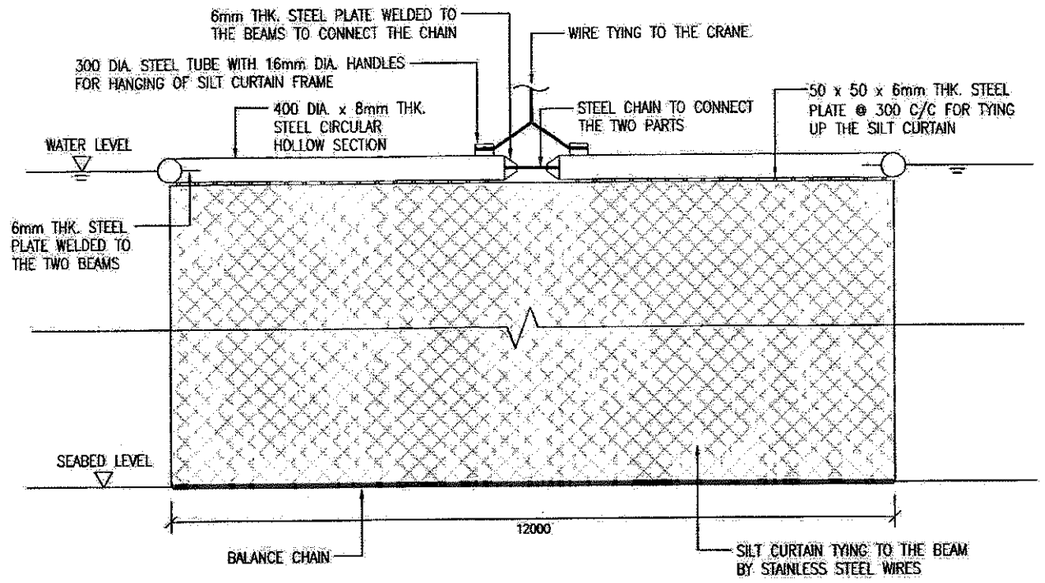
Drawing No. TWK/SK/M010

NOTE :
1. ALL CONNECTION ARE 8mm FILLET WELD, UNLESS OTHERWISE SPECIFIED.

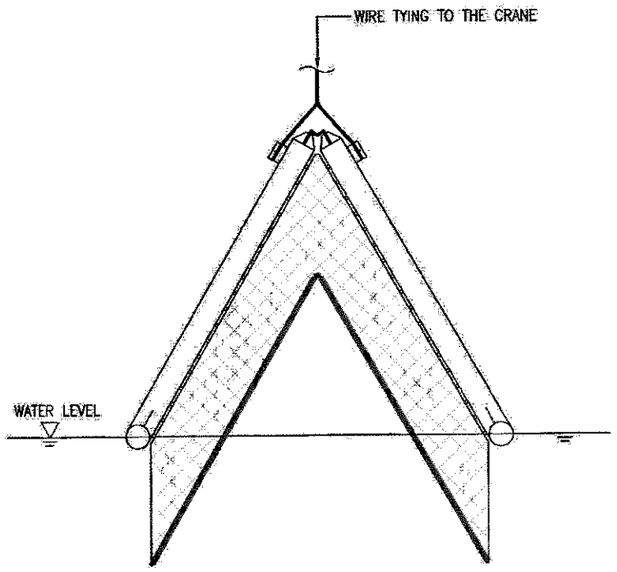


'1'

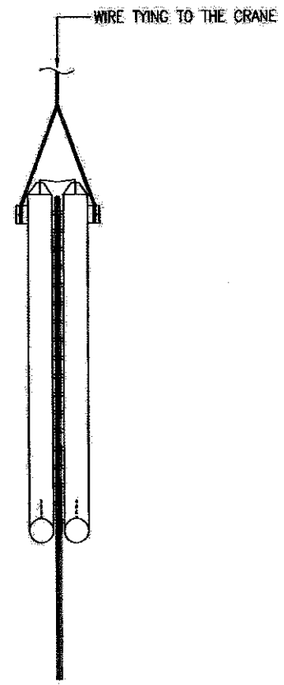
PLAN



VIEW '1'
(WORKING CONDITION)



VIEW '1'
(HANGING UP BY CRANE)



VIEW '1'
(FINISH)

Rev	Description	Date	Dsn	Chk	App

WAN CHAI DEVELOPMENT PHASE II

WAN CHAI DEVELOPMENT PHASE II – CENTRAL–WAN CHAI BYPASS OVER MTR TSUEN WAN LINE

Contractor: 金門 - 利進聯營 Gammon – Leader Joint Venture

Drawing Title: DETAILS OF SILT CURTAIN

Drawn	S.L.	Scale	1:100 @ A3
Designed		Status	FOR SUBMISSION
Checked	A.L.		
Approved	H.Y.	Drawing No.	TWK/SK/M010
CAD Ref		Rev.	

Drawing No. TWK/SK/M051

N

VICTORIA HARBOUR

2 NOS. OF 1000 DN SUBMARINE PIPELINE

EXISTING TSUEN WAN LINE TUNNEL

50m PIPELINE RESERVE

50m PIPELINE RESERVE

UNIT 4

30m

30m

MTR RAILWAY PROTECTION BOUNDARY

SUBMARINE PIPLINE RESERVE

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

TEMPORARY OPENING FOR MARINE ACCESS

SITE BOUNDARY

ANCHOR BUOY No. AB2

UNIT 3

SEAWALL COPELINE

ANCHOR BUOY No. AB3

CENTRAL RECLAMATION PHASE 3

PROPOSED SILT CURTAIN (GENERAL TYPE)

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

ANCHOR BUOY No. AB1

HKCEC WEST BRIDGE

EXISTING SEAWALL COPELINE

ANCHOR BUOY No. AB4

PROPOSED SILT CURTAIN (FRAME TYPE)

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

FLEET ARCADE

WAN CHAI (WEST) SEWAGE SCREENING PLANT

EXISTING MTR TSUEN WAN LINE SOUTH VENTILATION BUILDING

EXISTING MTR SOUTH INTAKE STRUCTURE AND ASSOCIATED MTR PUMPING FACILITIES

HONG KOI
EXH

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.

Rev	Description	Date	Dgn	Chk	App
C	GENERAL REVISED	29MAR2011	S.L.	J.Y.	H.Y.
B	GENERAL REVISED	21MAR2011	S.L.	J.Y.	H.Y.
A	GENERAL REVISED	16MAR2011	S.L.	J.Y.	H.Y.
–	–	03MAR2011	S.L.	J.Y.	H.Y.

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 Gammon – Leader Joint Venture

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	J.Y.		
Approved	H.Y.	Drawing No.	TWK/SK/M051
CAD Ref		Rev	C

Drawing No. TWK/SK/M072

N

VICTORIA HARBOUR

2 NOS. OF 1000 DN SUBMARINE PIPELINE

EXISTING TSUEN WAN LINE TUNNEL

50m PIPELINE RESERVE

50m PIPELINE RESERVE

UNIT 4

30m

30m

MTR RAILWAY PROTECTION BOUNDARY

SUBMARINE PIPLINE RESERVE

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

TEMPORARY OPENING FOR MARINE ACCESS

ANCHOR BUOY No. AB7

SITE BOUNDARY

ANCHOR BUOY No. AB6

UNIT 3

SEAWALL COPELINE

CENTRAL RECLAMATION PHASE 3

ANCHOR BUOY No. AB5

PROPOSED SILT CURTAIN (GENERAL TYPE)

PROPOSED SILT CURTAIN (FRAME TYPE)

ANCHOR BUOY No. AB8

HKCEC WEST BRIDGE

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

EXISTING SEAWALL COPELINE

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

HONG KOI
EXH

FLEET ARCADE

WAN CHAI (WEST) SEWAGE SCREENING PLANT

EXISTING MTR TSUEN WAN LINE SOUTH VENTILATION BUILDING

EXISTING MTR SOUTH INTAKE STRUCTURE AND ASSOCIATED MTR PUMPING FACILITIES

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.

Rev	Description	Date	Dgn	Chk	App
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.

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 Gammon – Leader Joint Venture

Drawing Title

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

Drawn	S.L.	Scale	1:1500 @ A3
Designed		Status	FOR SUBMISSION
Checked	J.Y.		
Approved	H.Y.	Drawing No.	TWK/SK/M072
CAD Ref		Rev	B

Drawing No. TWK/SK/M052

N

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.

EXISTING TSUEN WAN LINE TUNNEL

MTR RAILWAY PROTECTION BOUNDARY

30000 30000

A1 A57 A3 A2

FLAT TOP BARGE/DERRICK BARGE

BORED PILE EXCAVATING INSIDE SILT CURTAIN

PROPOSED GENERAL TYPE SILT CURTAIN

BORED PILE EXCAVATING INSIDE SILT CURTAIN

PROPOSED GENERAL TYPE SILT CURTAIN

FLAT TOP BARGE/ DERRICK BARGE

EXPO DRIVE CENTRAL

EXPO DRIVE

A56 A55 A54

INSTALLED SILT SCREEN UNDER FEP-02/356/2009*

A4 A5 A6 A7 A9 A8

Lung King Street

Wan chai (West) Sewage Screening Plant

Pedestrian Plaza (Car Park under)

Hong Kong

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 - 利建聯營 Gammon – Leader Joint Venture

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	FOR SUBMISSION
Checked	J.Y.		
Approved	H.Y.	Drawing No.	TWK/SK/M052
CAD Ref		Rev	A

Appendix B

Material Catalogue of Silt Curtain

bontec

a bonar technical fabrics product

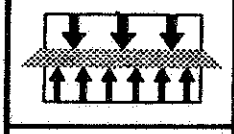
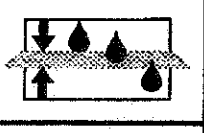
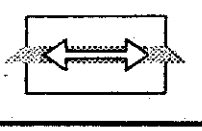
SG 110/110

Woven polypropylene geotextile made of slit film tapes

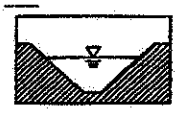
Technical data sheet according to internal specifications Bonar TF: version 06 dd. 05/01/10
Accompanying documents CE marking: version 04 dd. 05/01/10

CE

1137-CPD-615
10

				
separation	**filtration**	**reinforcement**	**protection**	**drainage**

	test method	value	tolerance
Mechanical properties			
Tensile strength MD	EN ISO 10319	**110,0 kN/m**	-9,9 kN/m
Tensile strength CD		**110,0 kN/m**	-9,9 kN/m
Elongation MD	EN ISO 10319	**12,0 %**	+/-2,8 %
Elongation CD		**8,0 %**	+/-1,8 %
Static puncture resistance – CBR	EN ISO 12236	**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 11058	**25x10-3 m/s**	-8x10-3 m/s
Water flow normal to the plane (*)		**25 l/m².s**	-8 l/m².s
Characteristic opening size (AOS)	EN ISO 12956	**230,0 µm**	+/-69,0 µm
Physical properties			
Thickness under 2 kPa (*)	EN ISO 9863-1	**1,53 mm**	+/-0,31 mm
Weight (*)	EN ISO 9864	**464,0 g/m²**	+/-46,4 g/m²
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 temperatures < 25° C		

				
roads	**railways**	**foundations & retaining walls**	**drainage systems**	**erosion control systems**
EN 13249:2000	EN 13250:2000	EN 13251:2000	EN 13252:2000	EN 13253:2000
				
reservoirs & dams	**canals**	**Tunnels & under-ground structures**	**solid waste**	**liquid waste**
EN 13254:2000	EN 13255:2000	EN 13256:2000	EN 13257:2000	EN 13265:2000

1. This geotextile is intended for use in both functions & applications highlighted with a bold border.
2. It is the responsibility of all users to satisfy themselves that the above data is current.
3. Roll dimensions are 5,25 m x 100 m. Other dimensions on demand.
4. Bonar Technical Fabrics reserves the right to alter product specifications without prior notice.
5. Although not guaranteed, these results do to the best of our knowledge offer a true and accurate record of the product's performance.
6. Bonar Technical Fabrics cannot accept responsibility for the performance of these products as the conditions of use are beyond our control.
7. Geotextile has to be covered within 2 weeks after installation

(*) Not mandated characteristics for CE marking.

BONAR TECHNICAL FABRICS
invisibly good

BONAR Technical Fabrics nv/sa, Industriestraat 39, 9240 Zele, BELGIUM - ☎ +32(0)52 457411 - 🖷 +32(0)52 457495
BONAR Yarns & Fabrics Ltd, St. Salvador Street, Dundee DD3 7EU, UK - ☎ +44(0)1382 346102 - 🖷 +44(0)1382 202378

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 locates 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 Grimmelprez – 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 Grimmelprez
Global Sales & Marketing Manager

BONAR TECHNICAL FABRICS
invisibly good

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

BONAR Yarns & Fabrics ltd
St. Salvador Street • Dundee DD3 7EU • United Kingdom
Tel +44 (0)1382 346102 • Fax +44 (0)1382 202375
E mail sguild@bonaryarns.com

G&E
ENGINEERING

Bontec SG110/110
Woven Polypropylene Geotextile

Certification

QUALITY MANAGEMENT SYSTEM CERTIFICATE

ISO 9001 : 2000

The BQA, sa hereby declares that the quality management system of

Bonar Technical Fabrics NV – Site in Zele en Lokeren

located at Industriestraat 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 agrotextiles, building textiles and geosynthetics, as well as similar products especially designed to customer specifications

This certificate has been issued by the BQA, sa according to its quality manual concerning the certification of quality systems, and after concluding the contract of certification N° DS/AJ/CER/ 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
Directeur

DS/AJ/CI

CERTIFICATE OF ENVIRONNEMENTAL MANAGEMENT SYSTEM

ISO 14001 : 2004

The BQA, nv hereby declares that the environmental management system of the company
Bonar Technical Fabrics NV – Site in Zele en Lokeren

located at Industriestraat 39 – 9240 Zele - 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, nv according to its quality manual EMS concerning the certification of environmental management systems, and after the contract of certification N° DS/AJ/CER-EMS/05-05-2008/84 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
Directeur

BQA, nv - rue Montoyer 24 (b9) - 1000 Brussels

bontec

a bonar technical fabrics product — *woven and non woven geotextiles*

Zele,05.10.09

CERTIFICATION OF COMFORMANCE

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 9 525 : 10500 m²
Type	NW 10 525 :18375 m²
Type	NW 20 5250 : 10500 m²
Type	SG 100/100 : 5250 m²
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/a Industrielaan 39
B-9240 Zele

bontec

A bonar technical fabrics product

Fax

Date: 11-Aug-04	
To: G and E – Hong Kong Mr. Gary NG	From: Isabelle Ruyffelaere – 0032 52 457 487 Philippe Grimmelprez – 0032 52 457 486
Fax:	Pages: 1 +
Your reference: Bonar TF acquisition of Uco Technical Fabrics	
	Our reference: G&E11082004.fax

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 headquaters are moved to Industrielaan 39, 9240 Zele, Belgium. At the same location is a new manufacturing plant of non woven geotextiles based.

The plant where woven geotextiles are produced is based on the old UCO location: weverslaan 15, Lokeren, Belgium.

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

Best regards

Philippe Grimmelprez
Sales & Marketing Manager geotextiles.

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

BONAR Yarns & Fabrics Ltd.
St. Salvador Street • Dundee DD3 7EJ • United Kingdom
Tel: +44 (0)1382 200100 • Fax: +44 (0)1382 202178
E-mail mail@bonaryarns.com

G&E
ENGINEERING

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 longitudenal ascis 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 brakes 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 edgeof 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 exposedsteel 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.

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Bontec SG110/110
Woven Polypropylene Geotextile

List of Project Reference

Bonar

Date	Project	Client	Consultant	Style
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	99/9028 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/12/02 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 Honwin Engineering Ltd	Maunsell Geotechnical Services Ltd	SG100/100 SG100/100
Jul-05	Shenzhen to Tai Po Twin Submarine Gas Pipeline Project	Honwin 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 Cutter's Bridge	Hong Kong River Engineering Co Ltd	Ove Arup & Partners HK Ltd	SG100/100
Feb-06	CV/2005/12 Fill Reception Facilities at Tseung 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	Lamma 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 Tsing Lung Tau	Chun Wo Construction & Engineering Co Ltd	Mouchel Halcrow 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 Lai Chi Kok Shipyard	Maritime Mechanic Ltd	NA	SG100/100
Aug-07	6/WSD/06 Construction of Salt Water Supply System for Penny's Bay	Univic Engineering Ltd	Water Supplies Department	SG100/100
Nov-07	Permanent Aviation Fuel Facility Hong Kong International Airport (Contract No. H2104)	UDL Dredging Ltd	Babtie Asia Ltd	SG100/100
Dec-07	Seawall Modify, Tuen Mun Area 38	Cheer Engineering Ltd	Scott Wilson Ltd	SG100/100
May-08	DC/2007/10 Design and Construction of HK West Drainage Tunnel	Tapbo 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	Maunsell 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 Connell Ltd	SG100/100 SG40/40
Jun-09	CHEC247 Lamma Power Station - Navigation Channel Improvement	China Harbour Engineering Co Ltd		SG100/100

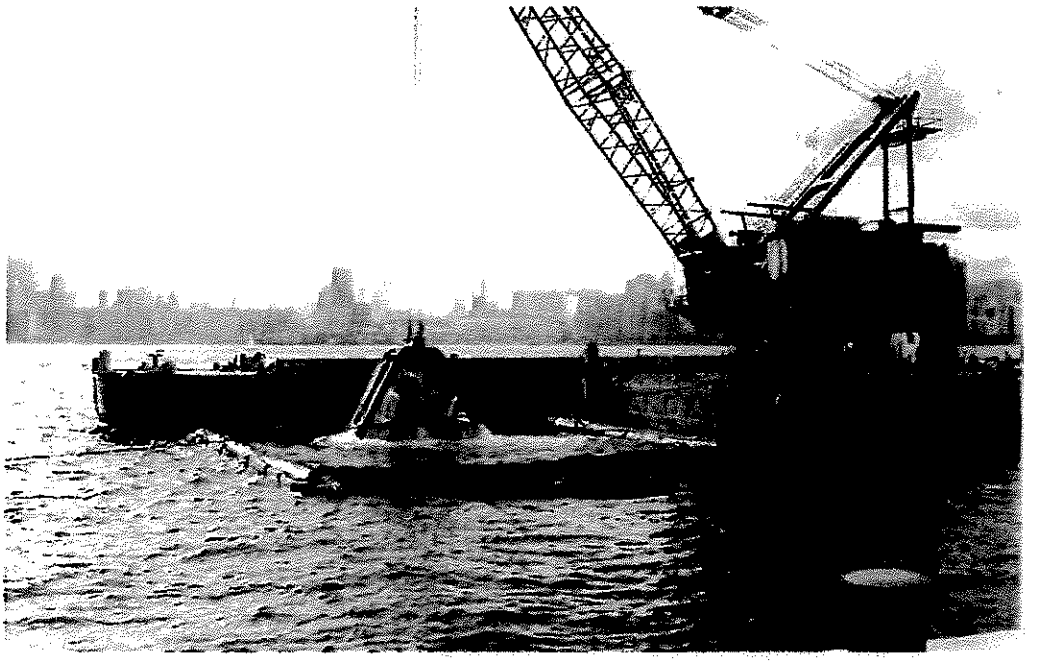
Updated November 26, 2009

G & E
ENGINEERING

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,
Chai 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 Habour Engineering Company
Works	Silt Curtain
Materials	Woven Geotextile SG100/100
Size	3,675 sqm

G&E
ENGINEERING

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
Civil Engineering Office

Web site 網址 : http://www.cedd.gov.hk
E-mail 電子郵件 :
Telephone 電話 : (852) 2760 5737
Facsimile 傳真 : (852) 2714 2054
Our reference 本署檔號 : ( ) in PW WC/CV0402/R20/340 Pt.I
Your reference 來函檔號 : KS330/2005

香港九龍公主道101號
土木工程拓展署大樓四樓
4/F, Civil Engineering and Development Building,
101 Princess Margaret Road,
Kowloon, Hong Kong

24 January 2005

BY MAIL & FAX No. 2780 2085

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

Dear Sirs,

Contract No. CV/2004/02
Reconstruction of Wong Shek and Ko Lau 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 Bonar Technical Fabrics is approved to be used under the captioned Contract.

Pursuant to PS Clause 26.08(1), you are required to submit details of the silt curtains 3 weeks before their deployment.

Contract No. [illegible]			
Post	Initials	Copy	Action
CM	[illegible]		
PM	[illegible]		
SA			
Sub-A	[illegible]		
Eng.(I)	[illegible]		
Eng.(II)			
GF			
Foreman			
QS	[illegible]		
Safety	[illegible]		
Material	[illegible]		
Survey			

Yours faithfully,

(W H LEE)
Engineer's Representative
Port Works Division
Civil Engineering and Development Department

c.c.
SIOW/P2B – Site Copy

cls

#2360 P.001 /001

FROM : G AND E COMPANY LIMITED PHONE NO. : + 852 2570 0089 Apr. 28 2005 12:02PM P7

24-FEB-2005 10:57 FROM SFK TO 25700089 P.01/01

TOTAL P.01

112

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

Web site 網址 : http://www.cedd.gov.hk
E-mail 電子郵件 :
Telephone 電話 : (852) 2762 5035
Facsimile 傳真 : (852) 2714 2054
Our reference 本署檔號 : (15) in PW WC/CV0306/R20/240 Pt.01
Your reference 來函檔號 : CIV:002091/1.2/HW/SY/CC/mc(S0087), CIV:002091/1.2/HW/SY/CC/mc(S0118)

土木工程處
Civil Engineering Office

香港九龍公主道101號
土木工程拓展署大樓4樓
4/F, Civil Engineering and Development Building,
101 Princess Margaret Road,
Kowloon, Hong Kong

18 February 2005

Sun Fook Kong (Civil) Limited
Rms. 3207-10,
Great Eagle Centre,
23 Harbour Road,
Wan Chai,
Hong Kong
(Attn: Mr. Howard KONG - Fax No.2827 6275)

Dear Sirs,

Contract No. CV/2003/06

Stanley Waterfront Improvement Project – Construction of Pier and Boardwalk

Fabric for Silt Curtain

I refer to your above letters dated 21.1.2005 and 15.2.2005 proposing the SG100/100 fabric supplied by "Bonar Technical Fabrics" for silt curtain.

I have no objection to your proposed material for silt curtain.

Yours faithfully,

(Paul Y K MA)
Engineer's Representative
Port Works Division
Civil Engineering and Development Department

c.c.
Site Office (Attn: SIOW/P1A)
CEG/P1A

File PW WC/CV0306/M10/300

YKM/dm

Post-it® Fax Note 7671 | Date 24/2/05 | # of pages 1
To MR. STANLEY WAN | From CRAIG CHE...
Co./Dept. G&E | Co. SFK
Phone # 25080028 | Phone # 68471709
Fax # 25700089 | Fax #

TOTAL P.01

Mott MacDonald Hong Kong Limited

Consulting Engineers

Chief Resident Engineer's Office
North Lantau Development - Tung Chung
for Territories Development Department

Our Ref : S287/NL1/25.7/283/JY 30 June 1992

China Harbour Engineering Company
19/F, China Harbour Building
370-374 King's Road
North Point
Hong Kong.

Attn : Mr. S. Y. Yu

T.D.D. CONTRACT NO. NL 1/91
C. E. Dept.

DATE	ACTION	INFORM
RA		
DRA		
QS		
SRG		
SUR		
FOREMAN		
FILE		

Dear Sirs,

North Lantau Development
Contract No. NL1/91
Tung Chung Development Phase I - Site Formation
Materials for Subsoil Drains

I refer to your letter ref. NL1/C/0097/008/MM/145 of 10/6/92 submitting materials for subsoil drains for our approval.

I have the following comments :

1) The proposed subsoil drain material - i.e. 300mm diameter ADS corrugated polyethylene subsoil drain pipes from Benpak Waterwise company is acceptable.

2) The proposed Geotextile SG17/15 from UCO (2 layers) as protection for subsoil drainage is acceptable in principal. Please submit further technical specification such as lapping and site storage requirements recommended by the manufacturer.

3) The proposed Greenfix Eromat Special type 5 from CCL is still under review. You will be notified of the outcome if a decision is made.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

Luke Chi
Engineer's Representative

LC/JY/ak

MAUNSELL | AECOM

Maunsell Consultants Asia Ltd
8/F Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road Shatin, N.T., Hong Kong
茂盛(亞洲)工程顧問有限公司
香港新界沙田鄉事會路 138 號新城市中央廣場第 2 座 8 樓
T +852 2605 6282 F +852 2691 2649 www.maunsell.aecom.com
SRE's Office T +852 2669 0706 F +852 2631 2889 E sre@ltriw.com.hk

Your Ref. : DC0706/M1.2/1512 & 1529
Our Ref. : (DC/2007/06)/R20/106(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 Tsuen, Fanling
New Territories, Hong Kong

Attn : Mr. Roger Lau (Site Agent)

13 November 2008

Dear Sir,

Contract No. DC/2007/06
River Improvement Works in Upper Lam Tsuen 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 7.150, 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 Yan
Chiu Hing H.O.

AN/[redacted]/ek