

MTR Corporation Limited

South Island Line (East)

Silt Curtain Plan for
Marine-based Decommissioning of Temporary Pier
at Telegraph Bay

December 2011

Verified by:



Thomas Chan

Independent Environmental Checker

Date:

9 Dec 2011

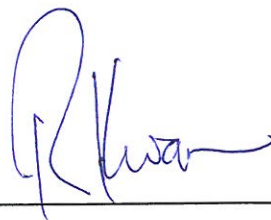
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Marine-based Decommissioning of Temporary Pier
at Telegraph Bay

December 2011

Certified by:



Richard Kwan

Environmental Team Leader

Date: - 9 DEC 2011

**Silt Curtain Proposal for
Marine-based Decommissioning of Temporary Pier
at Telegraph Bay**

1. Introduction

MTRCL proposes to take over the existing barging point for the DSD's HKWDT project and to use it for the SIL(E) project, as an improved alternative, as DSD will complete a majority of the construction works for the HKWDT project by the end of 2011. MTRCL will take up the responsibility to decommission and reinstate the proposed improved alternative barging point.

According to the HKWDT EIA Report, a silt curtain is required to be installed to enclose the marine-based works for demolishing the temporary pier to minimize the water quality impacts. The proposed silt curtain is only for the demolishing of the temporary pier and will be installed before the commencement of the marine-based decommissioning works. This proposal includes the location and alignment of silt curtain, the proposed materials to be used, inspection frequency and rectification requirement. Reference was made to the silt curtain proposal for the construction of the temporary pier for the DSD's HKWDT project.

2. The details of the proposed Silt Curtain

The proposed silt curtain is approximate 260m long. The general layout plan of silt curtain is shown in the **Drawing** HKWDT/DNJV/MD/2010/SI/026-E.

The silt curtain is composed of geotextile wrapped on and plastic buoy which chain together with PVC coating wire rope. Geotextile SG100/100 (detail specification please refers to attached catalog) or equivalent material will be stitched together forming in one piece of approximate 260m long and from 3 to 19m high.

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. Anchor blocks will also 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.

3. Water Quality Measures

There are 2 sections of the silt curtain (measuring approximately 40m each and illustrated in the **Drawing**, ref. HKWDT/DNJV/MD/2010/SI/026) that could be opened to allow marine traffic entering or leaving the site. The reason of providing two openings is that all vessels will leave the enclosed area through the section that is farthest away from the location of works. The opening of these sections is by means of tugboat and the silt curtain will be closed at all times during marine works within the enclosed area.

To further minimize the probability of murky water flowing out from the enclosed area, the marine works will be stopped prior to the opening of the silt curtain and, as far as reasonably practicable, the silt curtain will be opened inward. The entire operation will be stringently controlled by the site supervisors.

4. Inspection and Rectification

Visual inspection will be carried out on daily basis by the contractor 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. During undertaking of rectification for damaged silt curtain, the marine works will be suspended. Marine water quality monitoring locations and frequencies will be conducted according to following section.

5. Water Quality Monitoring Programme

Water quality monitoring will be carried out during the marine-based demolition works at the proposed improved alternative barging point at Telegraph Bay.

5.1 Water Quality Monitoring Location and Parameters

Marine water quality monitoring location is proposed as shown in **Table 1** and **Figure 1** according to the EM&A Manual of the HKWDT Project. Replicates in-situ measurements and sample collected from each independent sampling event are required for all parameters to ensure a robust statistically interpretable dataset. If alternative monitoring location is proposed, the ET should seek an agreement from EPD.

Other relevant data should also be recorded, including monitoring location / position, time, tidal stages, weather conditions and any special phenomena or work underway at the construction site.

Table 1 Proposed Marine Water Quality Monitoring Stations

Monitoring Station	Description	Easting	Northing	Monitoring Parameters
CE	Control station (Ebb)	830026	814956	Temperature, pH,
CF	Control station (Flood)	831778	812420	turbidity, water
I1	Impact station	831088	813654	depth, salinity,
I2	Impact station	831105	813582	dissolved oxygen
Intake A	Impact station (Cyberport intake)	831603	813044	(DO) and suspended solids (SS)
Intake B	Impact station (Queen Marry Hospital/Sha Wan Drive Intake)	830606	814583	

5.2 Baseline Monitoring

Baseline measurements will be taken at all designated monitoring stations, 3 days per week, at mid-flood and mid-ebb tides, for a period of 4 weeks prior to the commencement of marine-based demolition works. Measurements will be taken at 3 water depths, namely, 1m below water surface, mid-depth and 1m above sea bed, except where the water depth less than 6 m, the mid-depth station may be omitted. Should the water depth be less than 3m, only the mid-depth station will be

monitored. The interval between two sets of monitoring will not be less than 36 hours.

In exceptional cases, when insufficient baseline monitoring data or questionable results are obtained, the ET should liaise with EPD to agree on an appropriate set of data to be used as baseline reference.

The baseline conditions for water quality will be established and agreed with EPD prior to the commencement of marine-based works.

5.3 Impact Monitoring

The ET is responsible for conducting the impact monitoring during the marine-based demolition works of the Telegraph Bay Barging Point. According to the EM&A Manual of the HKWDT project, during the course of the marine-based works, monitoring will be at the designated monitoring stations in the frequency of three days per week, at mid-flood and mid-ebb tides. The interval between two sets of monitoring will not be less than 36 hours except where there are exceedances of Action and/or Limit levels, in which case the monitoring will be increased.

Upon completion of marine-based demolition works, a post project monitoring will be carried out for four weeks in the same manner as the impact monitoring.

In case of non-compliance with the water quality criteria, repeat measurement on the next day of exceedance, as specified in the Event and Action Plan in the EM&A Manual of the HKWDT project, should be conducted. If there is exceedance of limit level by more than one consecutive sampling days, a more frequent monitoring to daily should be carried out until no exceedance of limit level for two consecutive days.

5.4 Event and Action Plan

The baseline monitoring results will form the basis for determining the marine water quality criteria for the impact monitoring. The Action and Limit levels are defined in **Table 2**. The Action and Limit levels will be agreed with EPD following the completion of the baseline monitoring. The ET should compare the impact monitoring results with water quality criteria for parameters.

Table 2 Action and Limit levels for Water Quality

Parameter		Action Level ^(a)	Limit Level ^(a)
DO, mg/L	Surface and Middle	5%-ile of baseline for surface and middle layers	4 mg/L or 1%-ile of baseline for surface and middle layers
	Bottom	5%-ile of baseline for bottom layer	2 mg/L or 1%-ile of baseline for bottom layer

Parameter	Action Level ^(a)	Limit Level ^(a)
SS, mg/L (depth average)	95%-ile of baseline data or 120% of upstream control station's SS at the same tide of the same day	99%-ile of baseline data or 130% of SS readings at the upstream control station at the same tide of the same day and specific sensitive receiver water quality requirements
Turbidity, NTU (depth average)	95%-ile of baseline data or 120% of upstream control station's turbidity at the same tide of the same day	99%-ile of baseline data or 130% of turbidity at the upstream control station at the same tide of the same day

Note:

Refer to EM&A Manual of the DSD's HKWDT project.

Should non-compliance of the water quality criteria occurs, actions in accordance with the Event and Action Plan in the EM&A Manual of the HKWDT project should be carried out.

SPECIFICATIONS

Bontec® Woven Geotextiles

Physical Properties	Test Method	Units	SG 18/18	SG 20/20	SG 36/36	SG 40/40	SG 60/60	SG 80/80	SG 100/100
Mass per Unit Area	AS3706.1	g/m ²	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 20/20	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	Austrroads-90		2495	3179	3464	4304	6281	7912	8937

Hydraulic Properties	Test Method	Units	SG 18/18	SG 20/20	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/m ² .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 above 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 their performance of these products as the conditions of use are beyond our control.
5. Bontec is a trademark of Bonar Technical Fabrics.

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Fax: (07) 3279 1589

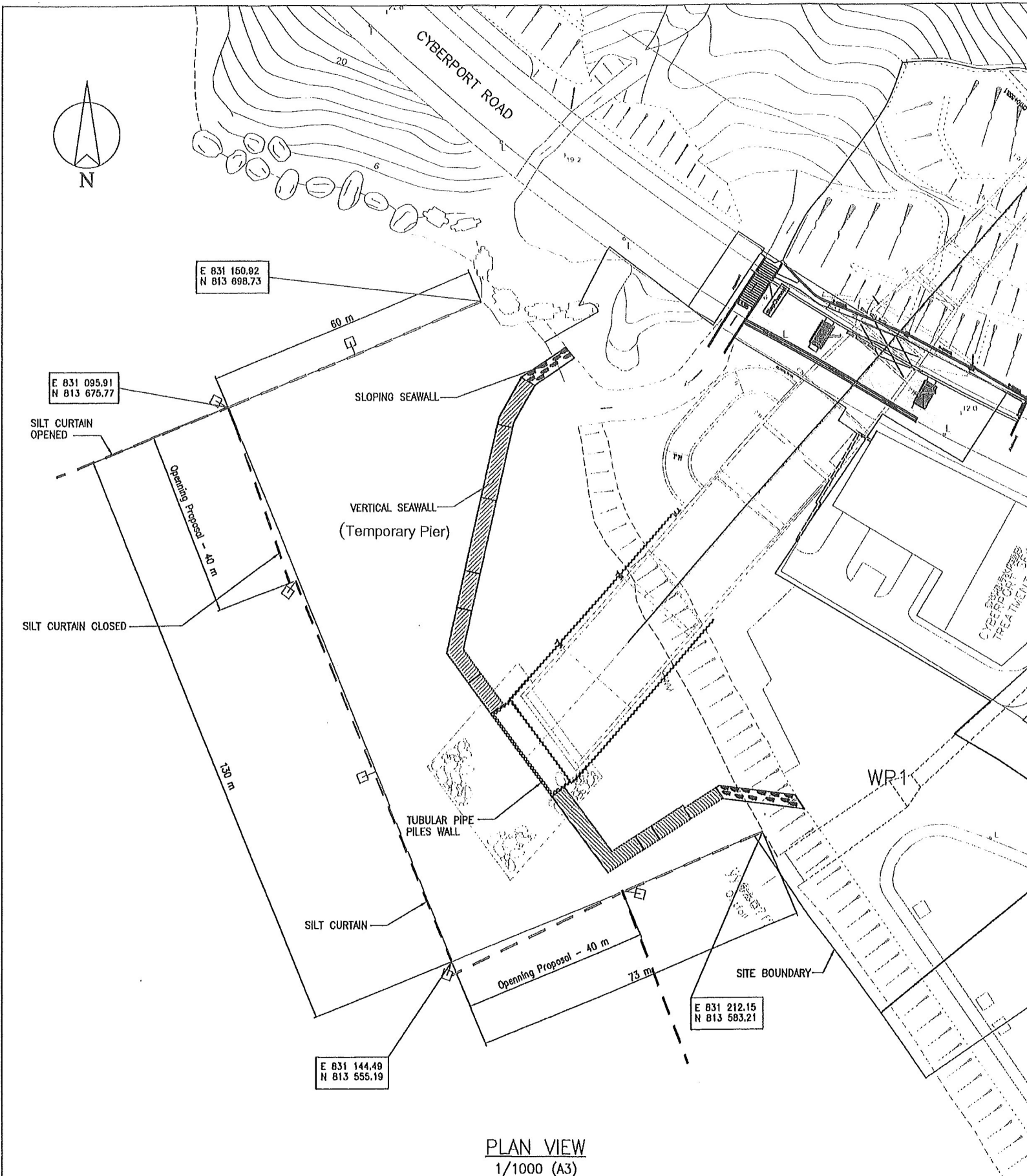
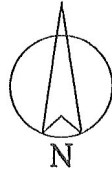
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Fax: (03) 6273 0686

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(07) 4774 8222
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PLAN VIEW
1/1000 (A3)

REV	DATE	BY	DESCRIPTION
E	30/04/08	GG	REVISED AS SLO-DOM'S COMMENT
D	23/04/08	GG	REVISED SILT CURTAIN OPENING
C	21/04/08	PCA	GENERAL REVISION
B	17/03/08	PCA	ADD SILT CURTAIN DETAILS
A	29/02/08	PCA	FIRST ISSUE

DESIGNED BY: GG
 DRAWN BY: GG
 CHECKED BY: BKI
 IN CHARGE: PCA
 DATE: 21APR08

MAIN CONTRACTOR:

 Dragages-Nishimatsu Joint Venture

CONTRACTOR'S DESIGNER:

 MAUNSELL | AECOM
 Drainage Services Department

CLIENT:

 ARUP
 Ove Arup & Partners
 Hong Kong Limited

PROJECT TITLE:
 Contract no.DC/2007/10
 Design and Construction
 of
 Hong Kong West Drainage Tunnel

DRAWING TITLE:
 WESTERN PORTAL
 SEAWALL & SILT CURTAIN LAYOUT

DRAWING REFERENCE NUMBER: HKWDT/DNJV/MD/2010/SI/026	REV: E
DRAWING STATUS: FOR APPROVAL	SCALE: AS SHOWN
CADD FILENAME: HKWDT-DNJV-10-2010-SI-026E	SHEET No. 1 OF 1

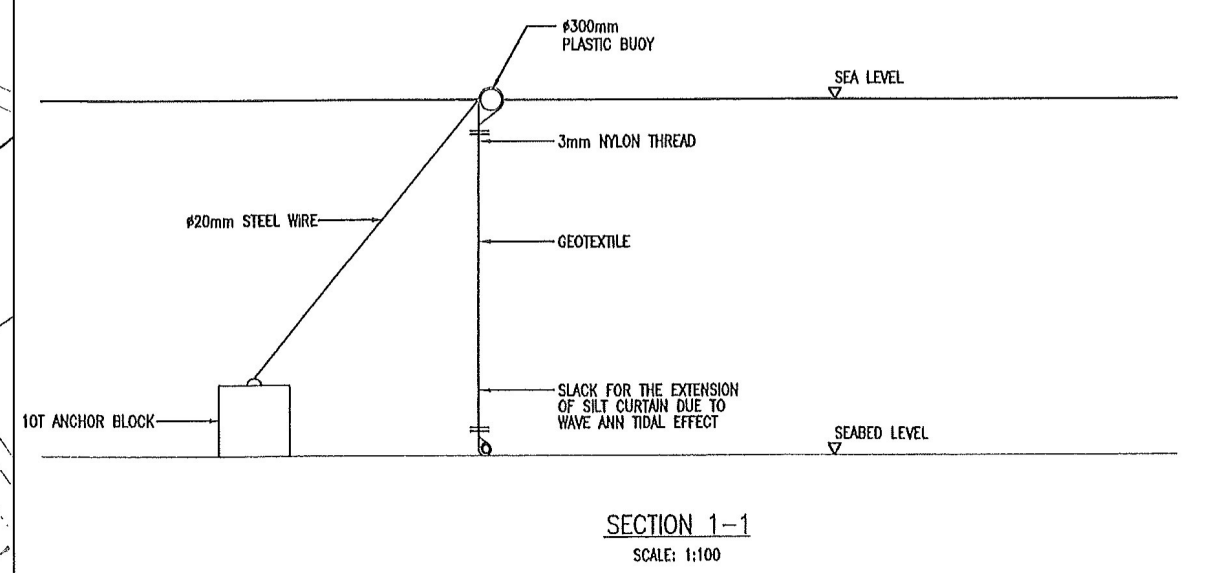
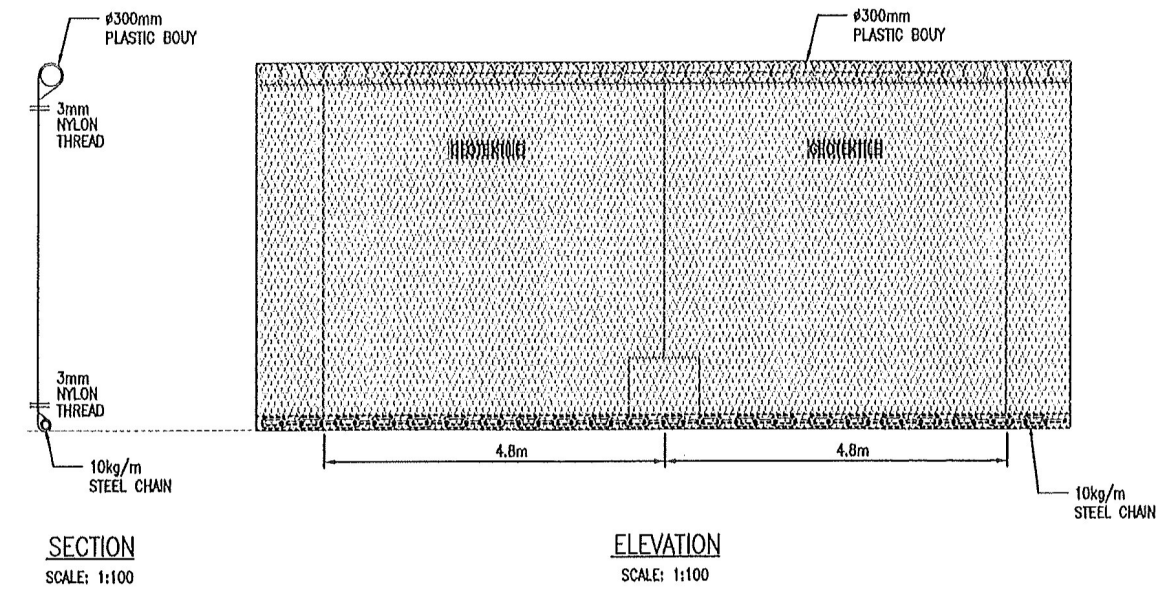
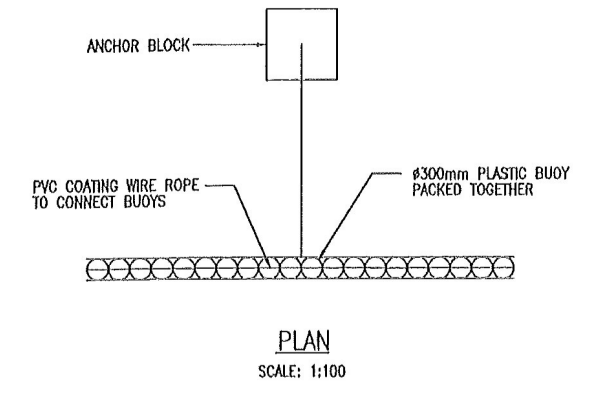
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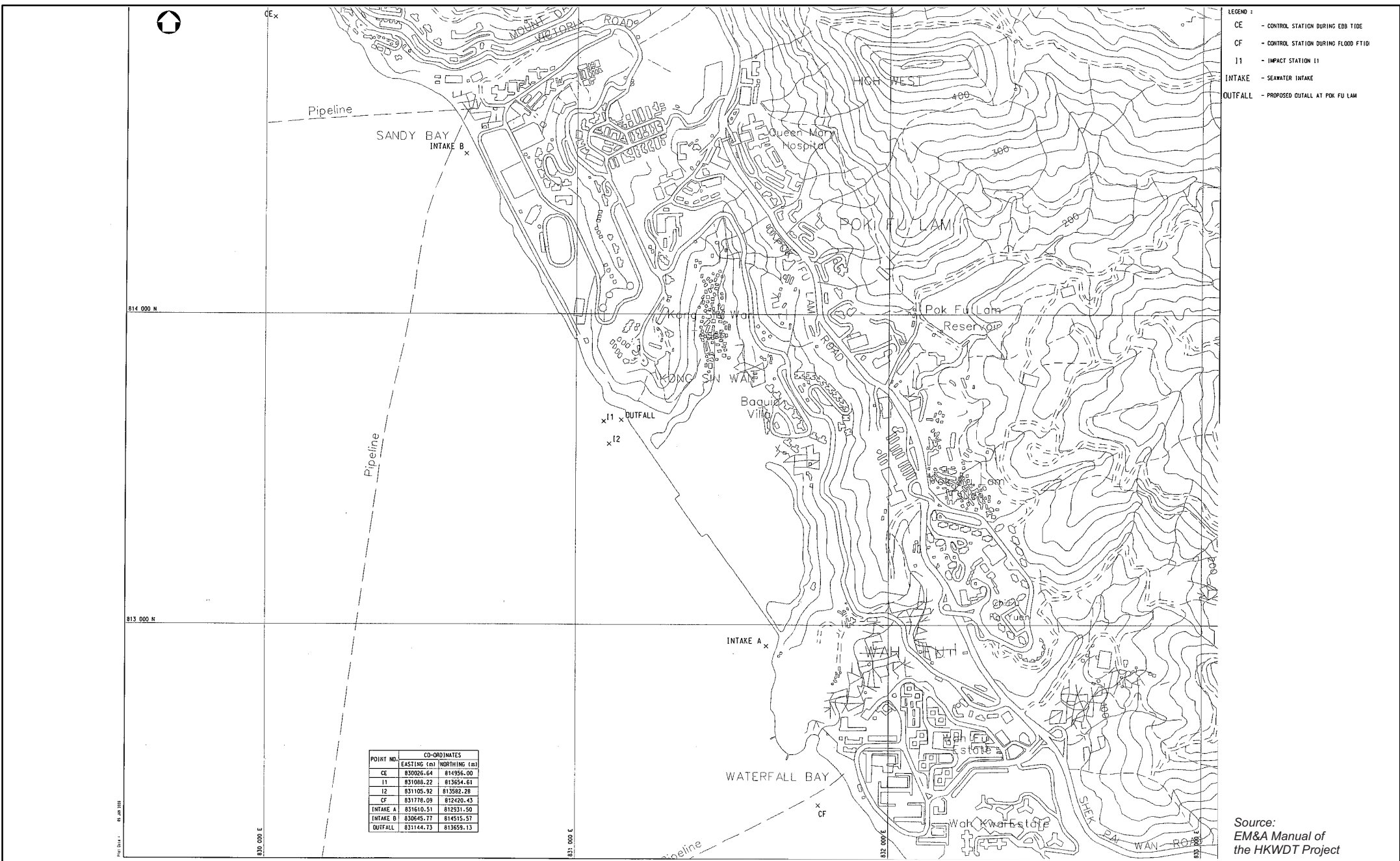


Figure 1

Locations of Water Quality Monitoring Stations



Source:
EM&A Manual of
the HKWDT Project