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TEST REPORT

DRAINAGE SERVICES DEPARTMENT

**NGONG PING SEWAGE TREATMENT PLANT,
TRUNK SEWERS AND EFFLUENT EXPORT
PIPELINE
OPERATION PHASE**

**MONTHLY EM&A REPORT
FOR
GROUND WATER MONITORING
(MAY 2007)**

Prepared by:

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Checked and
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Our Ref.: DSDSTPOPEM0_0_0071

Date: 07 June 2007

Consultants Management Division
Drainage Services Department
42/F., Revenue Tower,
5 Gloucester Road, Wan Chai,
Hong Kong

By mail and by Fax (2827 8526)

Attention : Mr. Mok Wing Cheong, Ringo

FAXED

Dear Mr. Mok,

Re: Environmental Permit 157/2003/A
Contract No: DC/2003/01 Ngong Ping Sewage Treatment Plant, Truck Sewers and
Effluent Export Pipeline
Monthly EM&A Report of Ground Water Monitoring for May 2007

Reference is made to the monthly EM&A Report prepared by ETS for the captioned project (report no. ENA70368). We are pleased to verify that the captioned report complied with the conditions 5.4 and 6.1 of the Environmental Permit.

Thank you very much for your attention and please feel free to contact the undersigned or our Eva Ho if you have any queries.

Yours sincerely,

Billy Yu
Independent Environmental Checker

c.c. Mr. Edwin Lam CE/HKI, DSD
Mr. C L Lau ETS

By Fax: 2827 6657
By Fax: 2695 3944



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EXECUTIVE SUMMARY

This monthly EM&A report (No.14) has been prepared by the Environmental Team (ET) of ETS-Testconsult Ltd for groundwater monitoring under the operation phase of "Ngong Ping Sewage Treatment Plant, Trunk Sewers and Effluent Export Pipeline" (the Project) during the reporting period from 01 to 31 May 2007.

Under the requirements of Section 5 of "the Environmental Permit (No. EP-157/2003/A)" (the EP), EM&A programme as set out in the EM&A Manual and the EIA Report (Register No.: AEIAR-065/2002) is required to be implemented. In accordance with the EM&A manual and the EIA Report, groundwater monitoring is required for the Project.

Environmental Monitoring Progress

The summary of the monitoring activities in this monitoring month is listed below:

- *Groundwater Monitoring: 1 Occasion at 9 designated boreholes.*

Groundwater Monitoring

Groundwater monitoring was carried out on 10 May 2007. During this monitoring, ground water was found in Borehole WM3 and the other boreholes were dry. According to the results of all testing parameters, it was found that no contamination of groundwater due to the leakage from the NPSTP and Effluent Export Pipeline was detected.

Environmental Complaints

No complaints were received in this reporting month.

Notification of summons and successful prosecutions

There were no notification of summons and prosecutions with respect to environmental issues in this month.

Future Key Issues

Future Key issues to be considered for the prevention of contamination of the water gathering ground are as follows:

- The provision of leakage containment system for the section of pipeline in the close proximity of the reservoir;
- Removing waste in a timely manner and disposing of outside the water gathering ground;
- Locating the chemical storage area at a safe environment with adequate space; and
- Reminding the workers not to discharge any sewage or wastewater into the nearby environment.



1.0 INTRODUCTION

The construction works of Ngong Ping Sewage Treatment Works (NPSTW) was certificated completed on 09 March 2006 and the NPSTW was handed over to "Drainage Sewage Department" (DSD) for operation and maintenance from 10 March 2006. "ETS-Testconsult Limited" (ETL) has been commissioned as Environmental Team (ET) to carry out groundwater monitoring at Ngong Ping according to the EM&A Manual.

This monthly EM&A report presents the results of groundwater monitoring during the reporting period from 01 to 31 May 2007.

2.0 PROJECT INFORMATION

2.1 Background

Master Plan (OI SMP) Study in December 1994 and drew up a SMP for Lantau Island, Cheung Chau, Lamma Island, Peng Chau and other smaller and less populated islands. The SMP comprises provisions for upgrading and expanding the sewerage systems to cover unsewered areas.

This sewerage project is the Stage 1 works under the OI SMP and can be divided into 3 packages as follows:

Package 1 – Ngong Ping STW with tertiary treatment

Package 2 – Ngong Ping main trunk sewer and effluent export pipeline

Package 3 – Ngong Ping village sewerage system

This Project only covers the operation phase of Package 1 and Package 2. The general layout plan of the project is shown in Appendix D (Drawing No. 23400/EN/098).

The existing treatment facilities at Ngong Ping include grease traps and septic tanks, with discharge locally to soakaways. Following the opening of the Statue of Buddha in December 1993, the number of visitors to Ngong Ping increased significantly. Besides, the Cable Car system linking Tung Chung and Ngong Ping was being planned for commissioning in June 2006. It will certainly further increase the number of visitors in Ngong Ping. The existing treatment and disposal facilities were found to be inadequate, with significant quantities of sewage being directly discharged into the local stream. It was under this setting that the recommendation to provide a local sewerage system and a centralised treatment system for Ngong Ping was put forward in the OI SMP in 1994.

The Project was planned, designed, operated and maintained by the DSD. During the operation phase of NPSTW, DSD will follow the environmental monitoring recommendation stated at the M&A Manual that was prepared with reference to the EIA Report (Register No.: AEIAR-065/2002) to avoid the contamination of the water gathering ground.

2.2 Site Description

The general layout plan of the project is shown in Appendix D. The groundwater monitoring locations are also shown in the Drawing No. 23400/T/202, 23400/T/074, 23400/T/075 and 23400/T/076.

2.3 Project Organization and Management Structure

The line of communication of project organization with respect to the on-site environmental management and monitoring program are shown in Appendix A.

2.4 Contact Details of Key Personnel

The key personnel contact names and telephone numbers, and construction programme are shown in table 2.1.



Table 2.1 Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel. No.	Fax No.
Hong Kong & Islands Division, DSD	Contractor (responsible for Groundwater Monitoring)	Mr. Edwin Lam	2594 7208	2827 6657
Sewage Treatment Division 2, DSD	Contractor (responsible for Odour Control and Water Quality Control except Groundwater Monitoring)	Mr. Zenith Chan	2195 3458	2991 4233
CH2M HILL	Independent Environmental Checker	Mr. Billy Yu	2507 2203	2507 2293
ETL	Contractor's Environmental Team	Mr. C L Lau (ET Leader)	2946 7791	2695 3944

3.0 GROUNDWATER QUALITY MONITORING

3.1 Monitoring Locations

Groundwater quality monitoring was undertaken at nine designated boreholes shown in Table 3.1.

Table 3.1 Locations of Groundwater Quality Monitoring

Borehole No.	Depth from Ground Level to end of standpipe (m)	Location
WM1	3.58	Keung Shan Road (L/P FA0463)
WM2	4.24	Keung Shan Road (L/P FA0458)
WM3	3.57	Keung Shan Road (L/P FA0445)
WM4	2.77	Keung Shan Road (L/P FA0437)
WM5	4.63	Keung Shan Road (L/P FA0428)
WM6	10.46	STP (Ngong Ping)
WM7	96.8	STP (Ngong Ping)
WM8	9.99	STP (Ngong Ping)
WM9	10.69	STP (Ngong Ping)

3.2 Monitoring Parameters

Monitoring of the groundwater monitoring parameters are listed below:

- Biochemical Oxygen Demand (BOD₅), mg/L;
- Ammonia Nitrogen (NH₄⁺-N), mg/L;
- Nitrate + Nitrite Nitrogen (NO₂⁻+NO₃⁻), mg/L;
- pH value;
- Turbidity, NTU;
- Oil & Grease (O&G), mg/L;
- Total Phosphates (TP), mg/L;
- Synthetic detergents, mg/L;
- E-coli, cfu/100ml.



3.3 Monitoring Frequency

The monitoring frequency of the groundwater monitoring is summarized in Table 3.3.

Table 3.3 The frequency of the Groundwater Monitoring

Parameter	Frequency	No. of Boreholes
Biochemical Oxygen Demand	Once per month	9
Ammonia Nitrogen		
Nitrate + Nitrite		
pH value		
Turbidity		
Oil & Grease		
Total Phosphates		
Synthetic detergents		
E-coli		

3.4 Monitoring Methodology and Equipment Used

A water sampler comprising a transparent PVC cylinder, with a capacity of not less than 2 liters, was lowered into the water body at the predetermined depth. The opening ends of the sampler were then closed accordingly and water samples were collected.

The sample container, made by high-density polythene / glass, was rinsed with a portion of the water sample. The groundwater sample was then transferred to the container, labeled with a unique sample ID and sealed with a screw cap. The water samples were stored in a cool box maintained at 4°C. The groundwater samples were then delivered to a local HOKLAS-accredited laboratory (Environmental Laboratory, ETS-Testconsult Ltd, HOKLAS Registration No. 022) on the same day for analysis.

In accordance with the requirement of HOKLAS, the laboratory testing of the monitoring parameters were carried out with QA/QC results shown in Appendix E. The summary of testing methods of testing parameters as recommended by EIA or required by EPD were shown in Table 3.4.

Table 3.4 Summary of testing procedures

Laboratory Analysis	Testing Procedure	Detection Limit
Biochemical Oxygen Demand	In house method TPE/001/W or BS 6068 : Section 2.14 : 1990	2.0 mg/L
Ammoniacal Nitrogen	In house method TPE/016/W, refer to APHA 19ed 4500-NH ₃ F & G	0.13 mg/L
Nitrate + Nitrite	In house method TPE/023/W, refer to APHA 19ed 4500-NO ₃ B	0.004 mg/L
pH (at 25°C)	In house method TPE/003/W, refer to APHA 19ed APHA 4500-H ⁺ B	Detection range: 4.0-10.0
Turbidity	In house method TPE/005/W, refer to APHA 19ed 2130B	0.5 NTU
Oil & Grease	APHA 19ed 5520 B	5.0 m/L
Total Phosphate	In house method base on ASTM D 515-88	0.05 mg/L
Synthetic detergents	In house method based on APHA 19ed 5540 C & D	0.1 mg/L
E-coli	DoE Section 7.8 & 7.9 plus in-site urease test	<1 cfu/100ml



3.5 Groundwater Monitoring Results

In this reporting month, groundwater monitoring was carried out on 10 May 2007. During this monitoring, groundwater was found in Borehole No WM3 and the other boreholes were dry. The groundwater quality measurement results are detailed in Appendix B. Graphical presentation of the monitoring parameters for this reporting month is shown in Appendix C.

According to the results of all testing parameters, it was found that no contamination of groundwater due to the leakage from the NPSTP and Effluent Export Pipeline was detected.

4.0 ENVIRONMENTAL NON-CONFORMANCE

4.1 Summary of Groundwater Quality Monitoring

According to the results of all testing parameters, it was found that no contamination of groundwater due to the leakage from the NPSTP and Effluent Export Pipeline was detected.

4.2 Summary of Environmental Complaints

No complaints were received in this reporting month.

4.3 Summary of Notification of Summons and Prosecution

There was no notification of summons respect to environmental issues registered in this month.

5.0 IMPLEMENTATION STATUS

5.1 Implementation Status of Environmental Mitigation Measures

DSD has been implementing the required environmental mitigation measures indicating in Clause 4.5.20 of the EM&A manual.

5.2 Implementation Status of Environmental Complaint Handling

No complaints were received in this reporting month. The details of the complaint-log are presented in Table 5.1.

Table 5.1 Statistical Summary of Environmental Complaints

Reporting Month	Complaint Statistics			
	Frequency	Cumulative	Aspect	Investigation Results and Follow up Actions
April 06	0	0	---	---
May 06	0	0	---	---
June 06	0	0	---	---
July 06	0	0	---	---
Aug 06	0	0	---	---
Sept 06	0	0	---	---
Oct 06	0	0	---	---
Nov 06	0	0	---	---
Dec 06	0	0	---	---
Jan 07	0	0	---	---
Feb 07	0	0	---	---
Mar 07	0	0	---	---
April 07	0	0	---	---
May 07	0	0	---	---



5.3 Implementation Status of Notification of Summons and Prosecution

There were no notifications of summons respect to environmental issues registered in this reporting month.

6.0 CONCLUSION

In this reporting month, groundwater monitoring was carried out on 10 May 2007. During this monitoring, ground water was found in Borehole WM3 and the other boreholes were dry.

According to the results of all testing parameters, it was found that no contamination of groundwater due to the leakage from the NPSTP and Effluent Export Pipeline was detected.

7.0 FUTURE KEY ISSUES

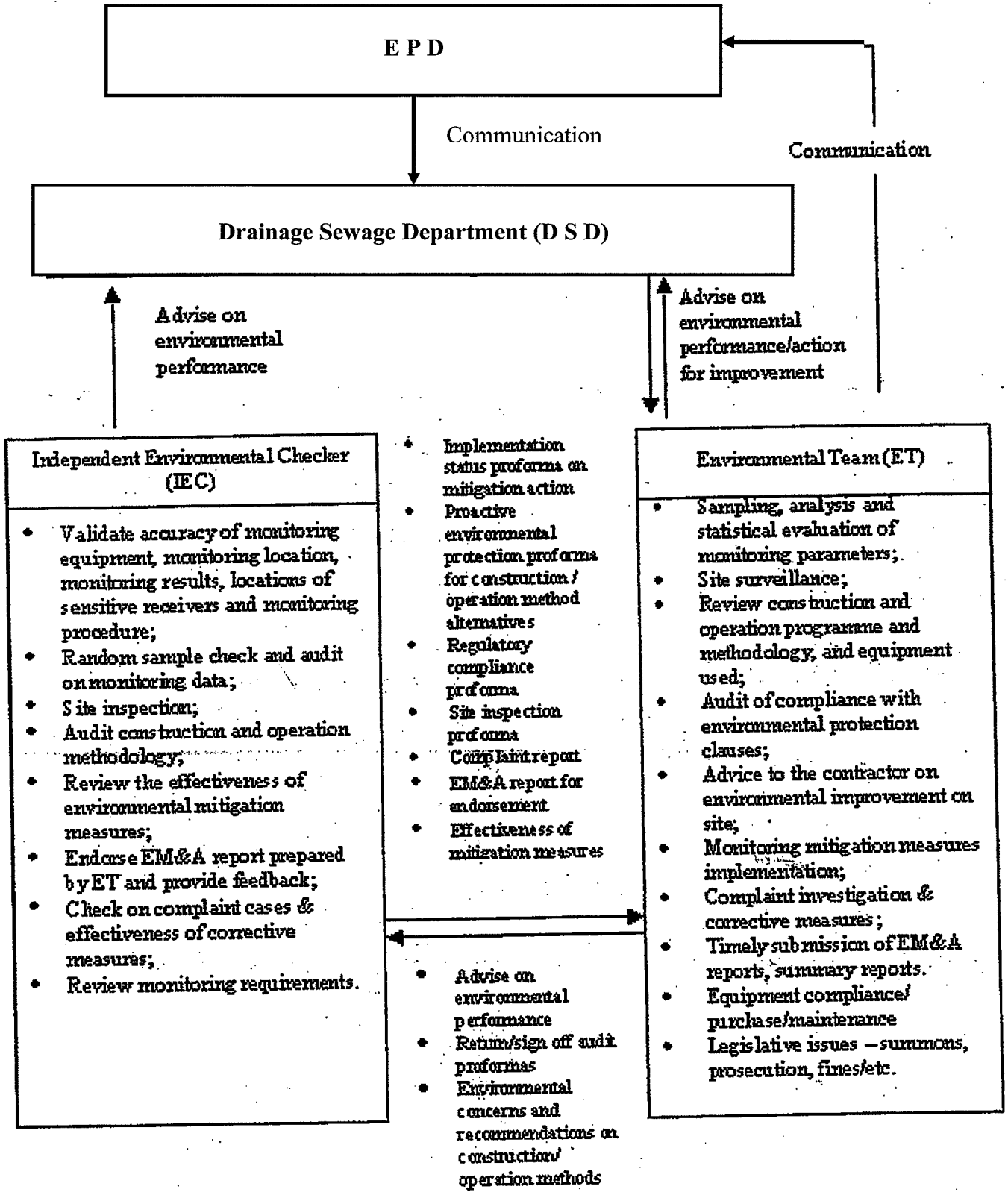
DSD will continue to carry out operation and maintenance works of NPSTW in the coming month. Future Key issues to be considered for the prevention of contamination of the water gathering ground are as follows:

- The provision of leakage containment system for the section of pipeline in the close proximity of the reservoir;
- Removing waste in a timely manner and disposing of outside the water gathering ground;
- Locating the chemical storage area at a safe environment with adequate space; and
- Reminding the workers not to discharge any sewage or wastewater into the nearby environment.



Appendix A

Lines of Communication



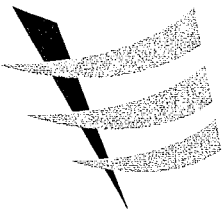


Appendix B

Groundwater Monitoring Results

and

Photos of Groundwater Monitoring at Boleholes



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TEST REPORT

Form : E/ENR/01/Issue 4 (1/1) [08/02]

Environmental Testing of Water & Wastewater

Report No. : ENA70362
Date of issue : 16 May 2007
Page No. : 1 of 1

Information provided by client

Client name : Paul Y Construction Co. Ltd
Client address : 31/F Paul Y Centre 51 Hung To Road Kwun Tong Kowloon HK
Sample Source : DC/2004/09 - Building and Civil Maintenance and Minor Works to DSD Plants and Facilities (2005-2007)
Sample Type : Groundwater
Date of sampling : 10 May 2007
Sample Description : The sample was collected in 100ml glass bottle (for Total Phosphates only), 500ml glass bottle (for Oil & Grease only), 100ml sterilized glass bottle (for E-coli only), 500ml and 1L plastic bottles (for other testing parameters). Sample for Ammonia and Nitrate + Nitrite Nitrogen was preserved by adding conc. H₂SO₄ to pH<2. Sample for Oil & Grease was preserved by adding conc. HCl to pH<2. All samples were chilled immediately after collection.

Laboratory information

Date Received : 10 May 2007

Result

Client Sample ID	Lab Ref No	Test	Method Used	Result	Date Tested
WM3	W21688 (01)	Biochemical Oxygen Demand (5-day)	In house method TPE/001/W	8.7 mg/L	10 May 2007 (18:00) to 15 May 2007 (18:00)
		pH Value	In house method TPE/003/W	6.1 (at 25°C)	10 May 2007
		Turbidity	In house method TPE/005/W	12 NTU	10 May 2007
	W21688 (02)	Nitrate & Nitrite Nitrogen	In house method TPE/023/W	0.46 mg/L	11 May 2007
		Ammonia	In house method TPE/016/W	0.087 mg/L	12 May 2007
	W21688 (03)	Total Phosphates	In house method TPE/019/W	0.03 mg/L	11 May 2007
	W21688 (04)	Oil & Grease	APHA 19ed 5520B	<5.0 mg/L	11 May 2007
	W21688 (05)	Synthetic Detergents	In house method based on APHA 19th ed 5540 C & D	<0.1 mg/L	11 May 2007
W21688 (06)	E-coli *	DoE (1983), section 7.8 & 7.9 plus in-situ urease test	<1 cfu/100ml	10 to 12 May 2007	

Remark (if any) : The tests marked with "*" indicated the tests were sub-contract to ALS Technichem (HK) Pty Ltd and HOKLAS accredited. Ground water monitoring was only carried out at Borehole WM3 only since other boreholes were observed to be dry during the monitoring.

Checked by : LAW, Sau Yee
Senior Chemist

Approved by : LAU, Chi Leung
Chief Chemist



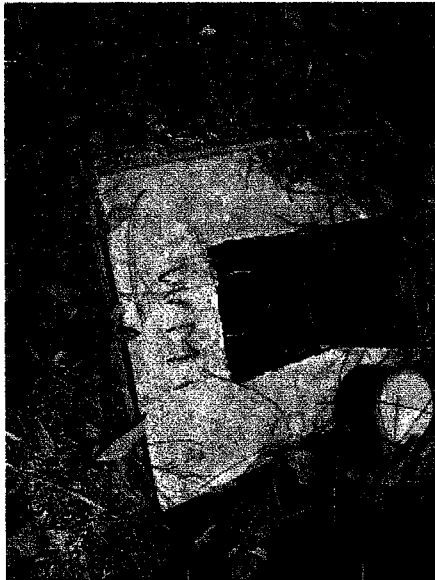
Project : DC/2004/09 - Building and Civil Maintenance and
Minor Works to DSD Plants and Facilities (2005-2007)

Date of sampling and photo taking : 10 May 2007

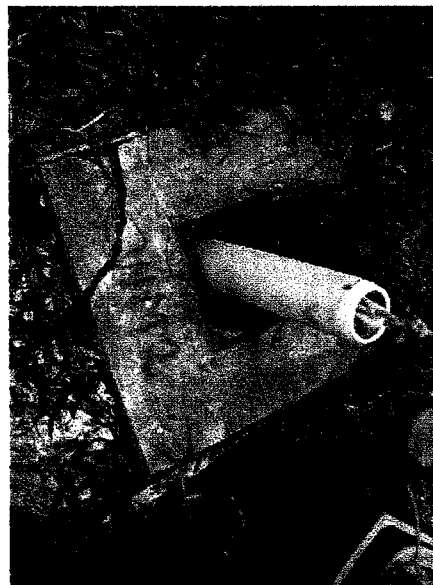
Report No. : ENA70362

Date of issue : 16 May 2007

WM1



WM2





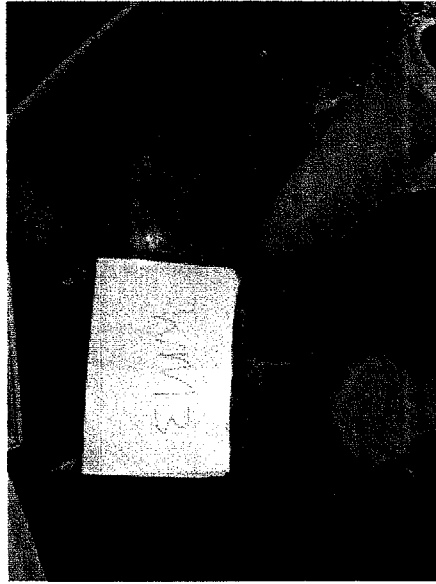
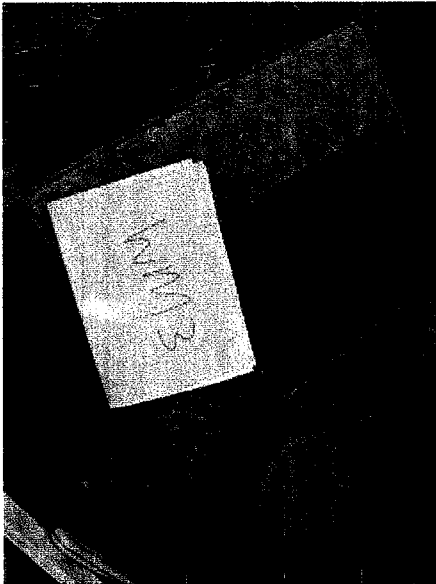
Project : DC/2004/09 - Building and Civil Maintenance and
Minor Works to DSD Plants and Facilities (2005-2007)

Date of sampling and photo taking : 10 May 2007

Report No. : ENA70362

Date of issue : 16 May 2007

WM3



WM4





Project : DC/2004/09 - Building and Civil Maintenance and
Minor Works to DSD Plants and Facilities (2005-2007)

Date of sampling and photo taking : 10 May 2007

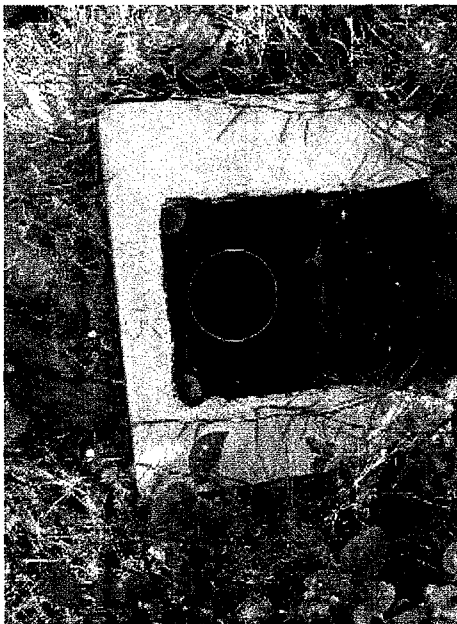
Report No. : ENA70362

Date of issue : 16 May 2007

WM5



WM6





Project : DC/2004/09 - Building and Civil Maintenance and
Minor Works to DSD Plants and Facilities (2005-2007)

Date of sampling and photo taking : 10 May 2007

Report No. : ENA70362

Date of issue : 16 May 2007

WM7



WM8





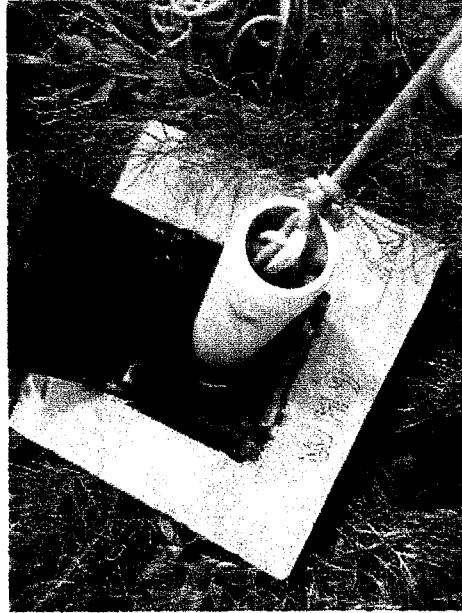
Project : DC/2004/09 - Building and Civil Maintenance and
Minor Works to DSD Plants and Facilities (2005-2007)

Date of sampling and photo taking : 10 May 2007

Report No. : ENA70362

Date of issue : 16 May 2007

WM9



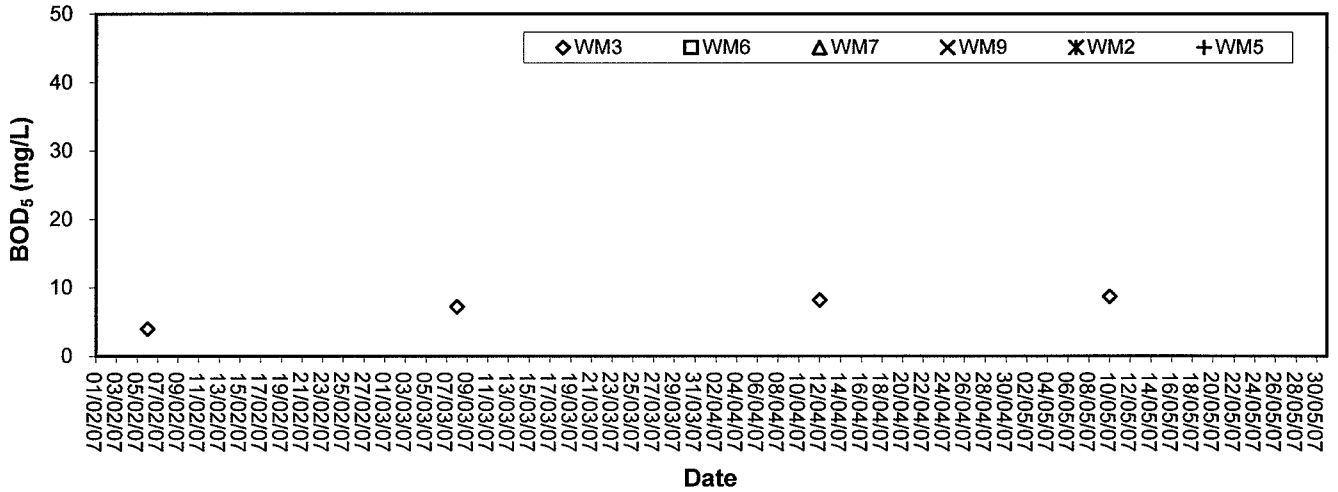


Appendix C

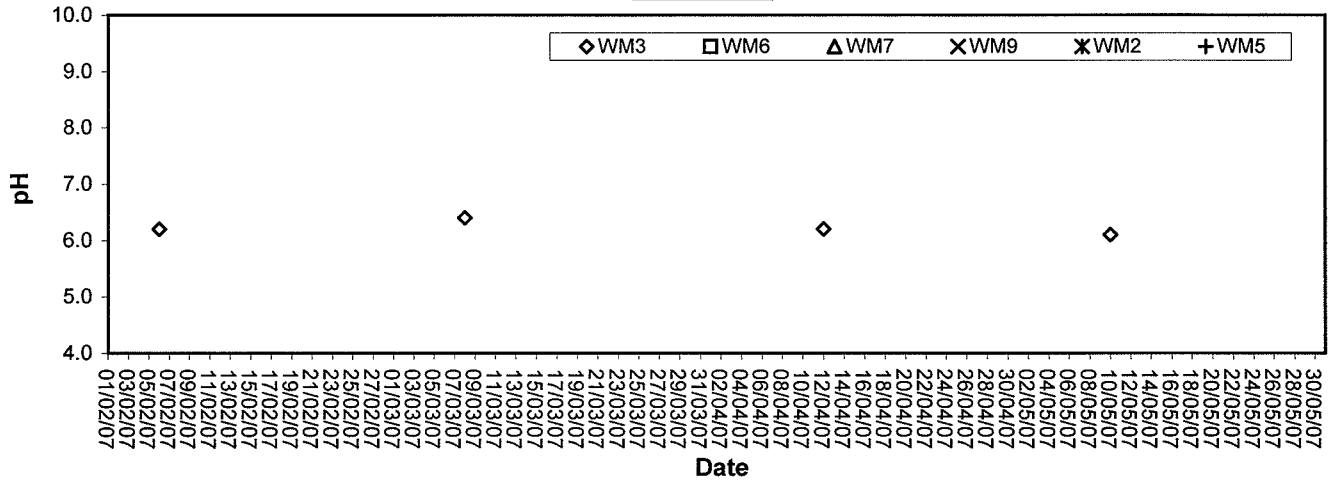
Graphical Plots of Groundwater Monitoring Data



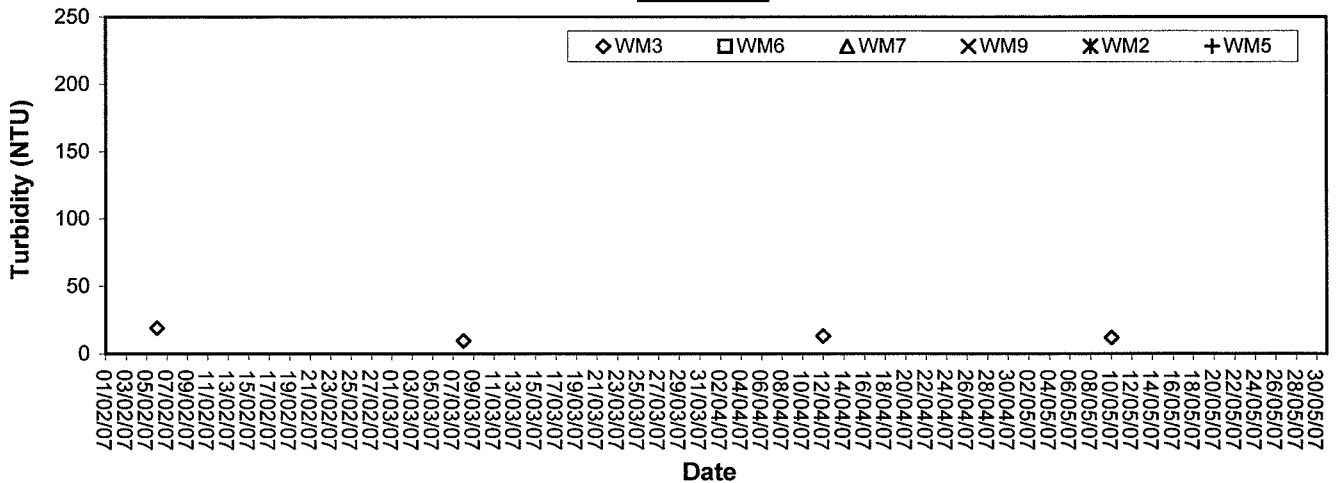
5-day Biochemical Oxygen Demand (BOD₅)



pH Value

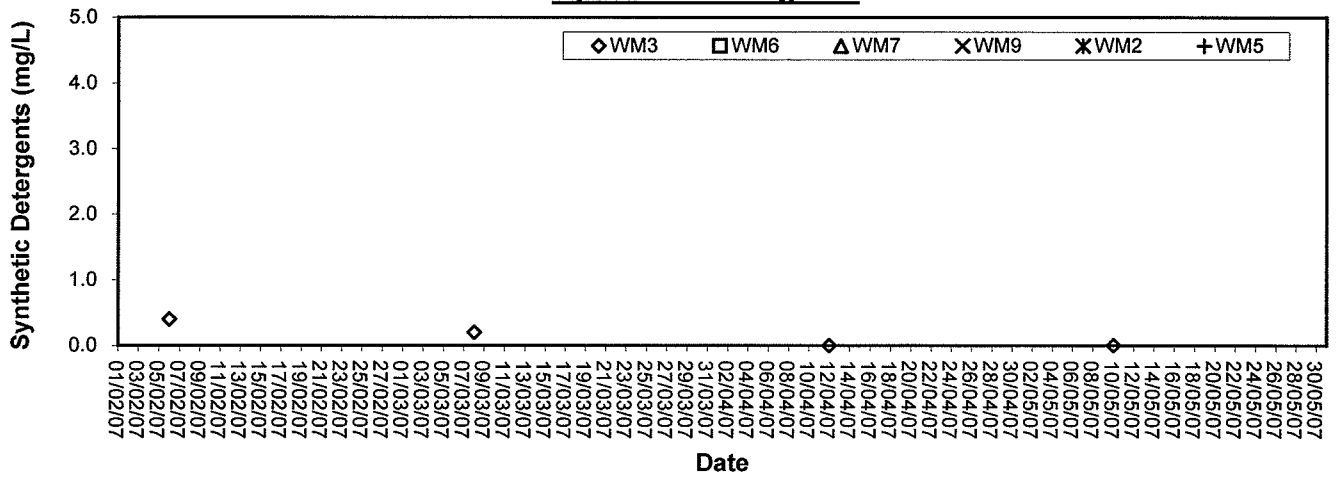


Turbidity

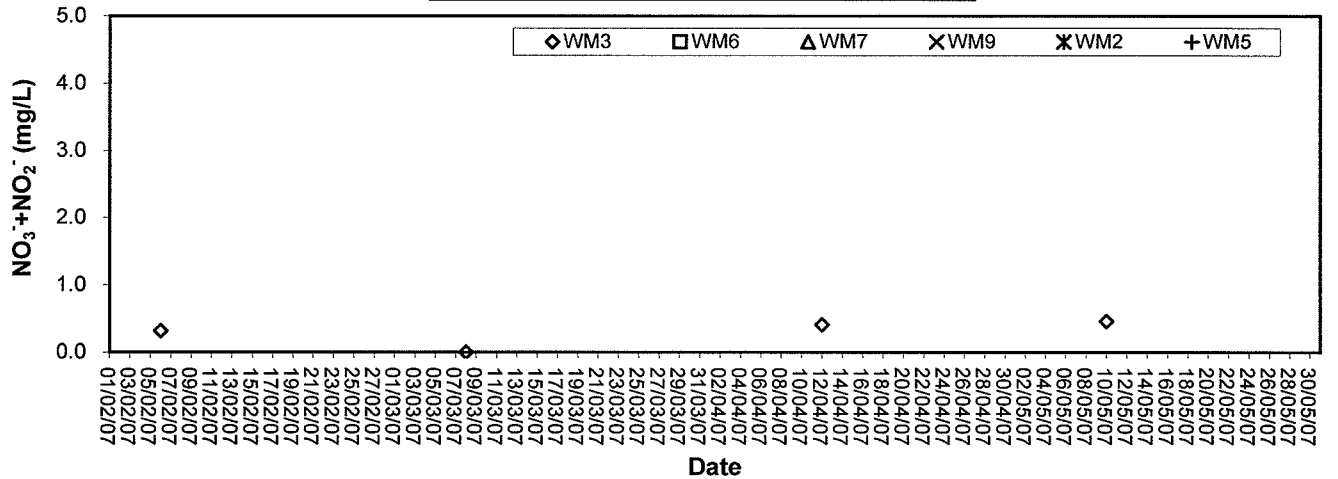




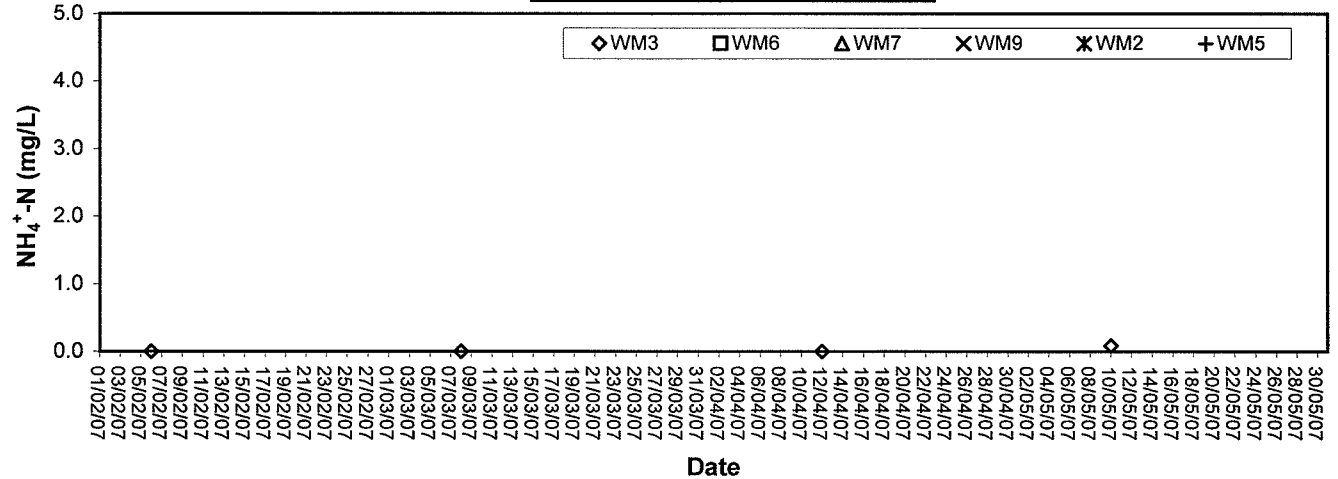
Synthetic Detergents



Nitrate & Nitrite Nitrogen (NO₃⁻+NO₂⁻)



Ammonia Nitrogen (NH₄⁺-N)





Appendix D

General Layout Plan

Legend:

- Proposed Effluent Export Pipeline
- Proposed Trunk Sewer of Ngong Ping Sewerage
- Ngong Ping Sewerage Catchment Area

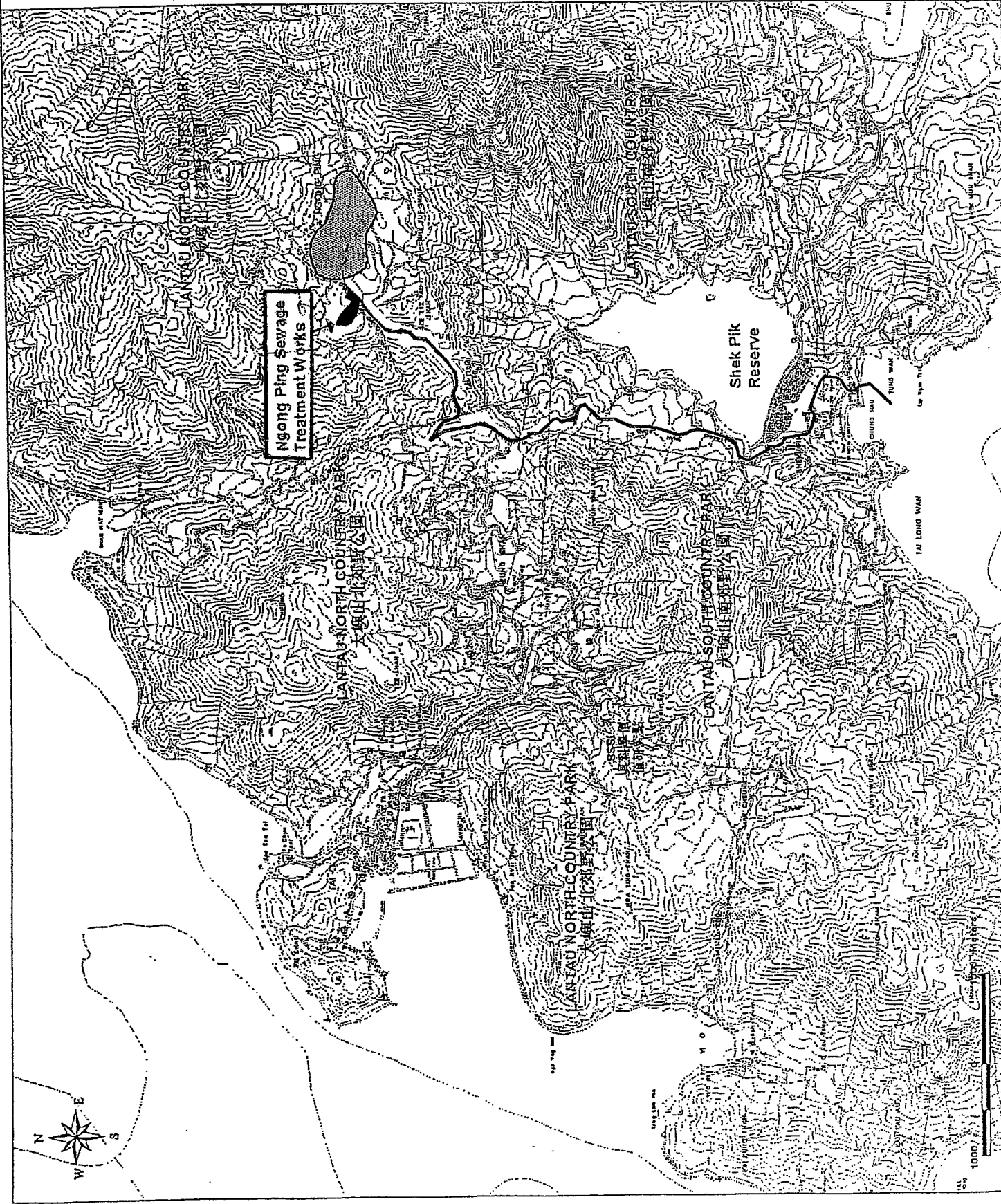
ARUP 23400/EN/098

AGREEMENT NO CE 2801
 OUTLING ISLANDS STAGE 1 PHASE 1
 NGONG PING SEWAGE TREATMENT WORKS AND SEWERAGE

Ngong Ping Sewerage Project
 Scheme - General Layout

KC Feb 03 AC AC
 1:2000@A3 Preliminary

香港特別行政區政府
 GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION





Appendix E

QA/QC Results



QA/QC Results of Laboratory Analysis of Testing Parameters

Testing Parameter	QC Sample Analysis	Sample Duplicate		Sample Spike	
	% Recovery *	Sample ID	% Error #	Sample ID	% Recovery @
Turbidity	98.8	WM3	2.4	---	---
Nitrate + Nitrite	102	---	---	---	---
Oil & Grease	99	---	---	---	---
Ammoniacal Nitrogen	106	---	---	---	---
Synthetic detergents	---	---	---	---	---
Biochemical Oxygen Demand (5-day)	100	WM3	1.1	---	---
Total Phosphates	107	---	---	---	---
Testing Parameter	QC Sample Analysis	Sample Duplicate		Sample Spike	
	% Recovery *	Sample ID	Difference between Duplicates +	Sample ID	% Recovery @
pH Value(at 25°C)	---	WM3	0.02 unit	---	---

Note: (*) % Recovery of QC sample should be between 80% to 120%.
 (#) % Error of Sample Duplicate should be between -10% to 10%.
 (@) % Recovery of Sample Spike should be between 80% to 120%.
 (+) Difference between Duplicates should be less than 0.1 unit for pH value.



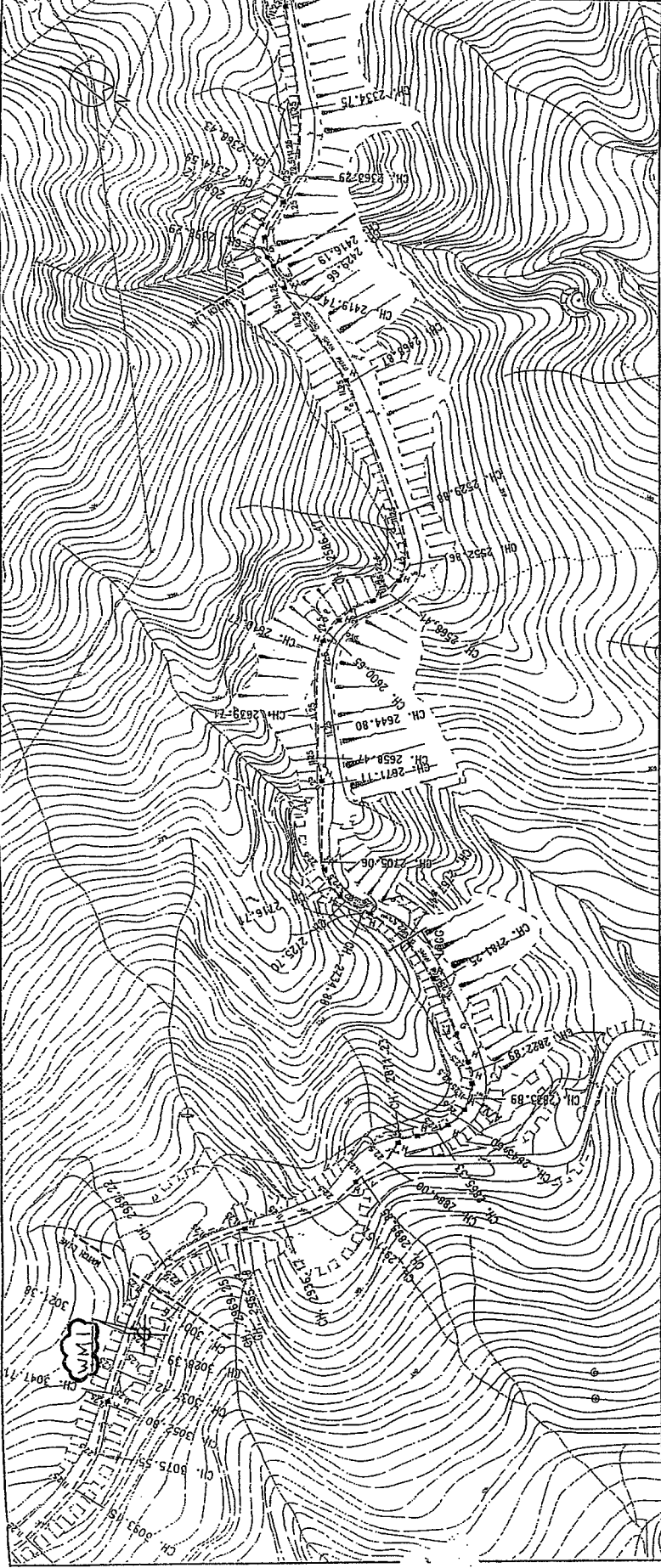
Figures

LEGENDS :

- - - EFFLUENT PIPELINE ALIGNMENT
- - - EXISTING GROUND LEVEL
- - - EFFLUENT PIPELINE PROFILE
- - - HATCHBOX CHAMBER
- - - GATE VALVES CHAMBER
- - - VENTILATION PIPE CHAMBER
- 1:2.5 BENDS

NOTE:

1. REFER TO DRAWING NO. 211071017A FOR GENERAL NOTES
2. SEE - EXISTING COLLECTION SYSTEM WORK - UNDER EXISTING GROUND
3. REFER DRAWING NO. 211071017A TO SEE FOR DETAILS OF HATCHBOX CHAMBER SPECIFIC NOT TO SCALE 1:25
4. REFER DRAWING NO. 211071017A FOR DETAILS OF GATE VALVE CHAMBER
5. HATCHBOX CHAMBER TO BE CONSTRUCTED TO MATCH AN EXISTING CHAMBER
6. EXISTING CHAMBER TO BE RECONSTRUCTED TO MATCH AN EXISTING CHAMBER
7. EXACT LOCATION OF BENDS AND CHAMBERS TO BE DETERMINED ON SITE
8. RETAINABLE COMPANY OR OTHER LOCAL AUTHORITY COMPANY SHALL BE PROVIDED WITH DRAWING NUMBER TO BE PROVIDED WITH DRAINAGE



ISSUE FOR CONSTRUCTION	SRV	DATE
Rev. Description	By	Date
Conditions		

ARUP On Behalf of Pwaniang Hong Kong Limited

Project title
CONTRACT NO. DG2009001
NGONG PING SEWAGE TREATMENT PLANT, TRUNK SEWERS AND EFFLUENT EXPORT PIPELINE

Drawing title
EFFLUENT EXPORT PIPELINE ALIGNMENT AND PROFILE
(SHEET 5 OF 10)

Drawing No. 2340071074

Scale: 1:2.5

Scale: 1:100 (FOR AT&T)

Scale: 1:25 (FOR WORKING)

Scale: 1:100 (FOR AT&T)

Scale: 1:25 (FOR WORKING)

Scale: 1:100 (FOR AT&T)

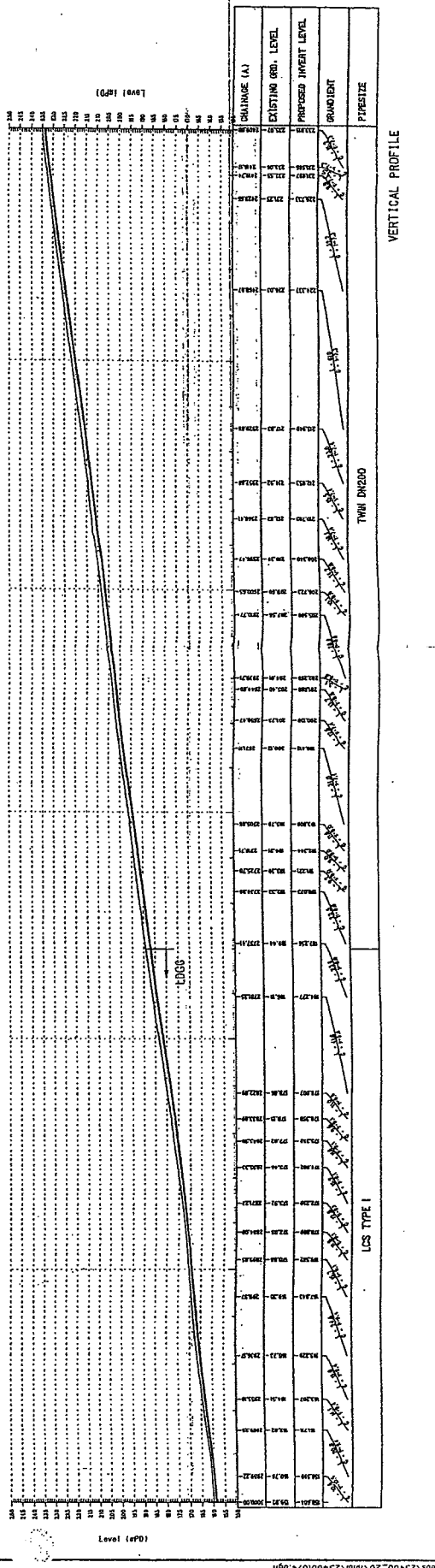
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Scale: 1:100 (FOR AT&T)

Scale: 1:25 (FOR WORKING)

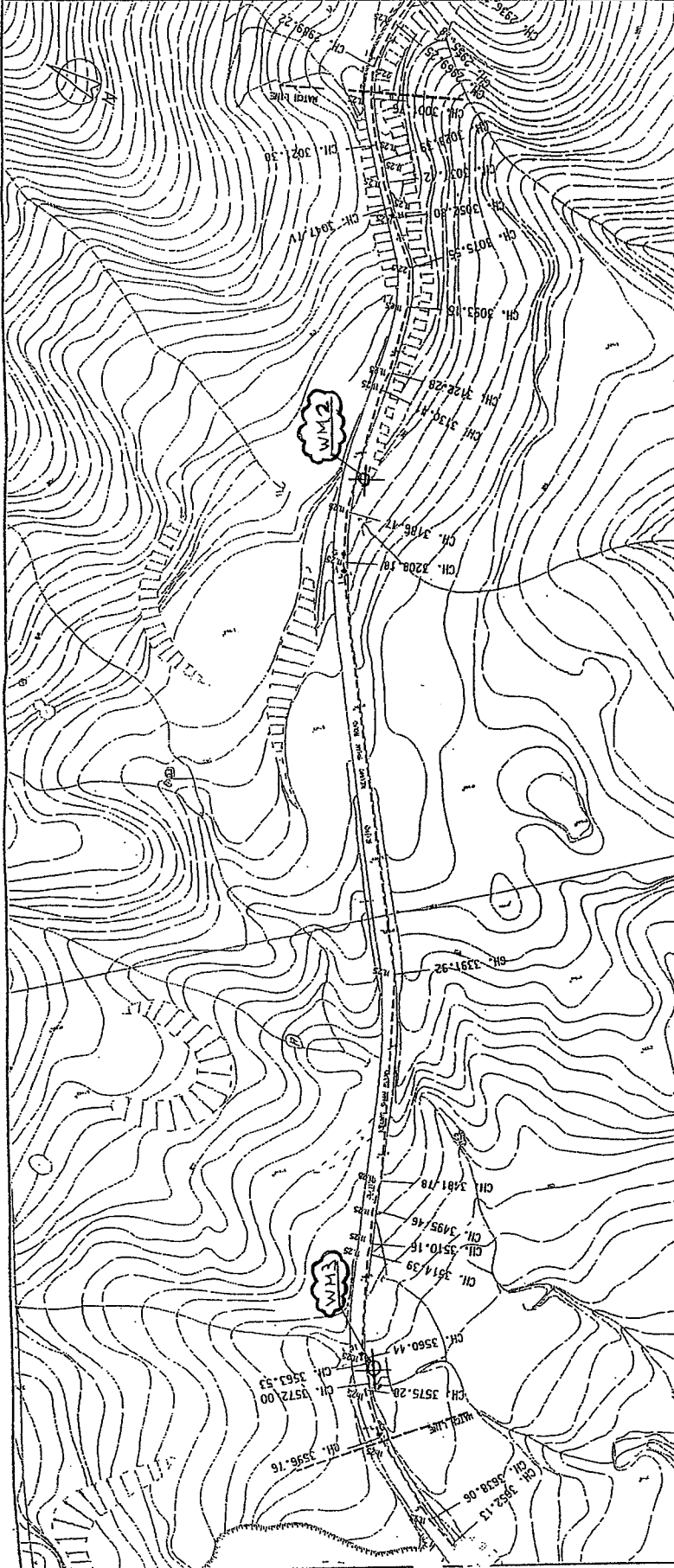


LEGENDS :

- EFFLUENT PIPELINE ALIGNMENT
- EXISTING GROUND LEVEL
- EFFLUENT PIPELINE PROFILE
- HATCHBOX CHAMBER
- GATE VALVES CHAMBER
- VENTILATION PIPE CHAMBER
- 1:25 BENDS

NOTE:

1. REFER TO DRAWING NO. 234007075 FOR GENERAL NOTES
2. L.S. - LEAKAGE COLLECTION SYSTEMS - LINED SHEET PILING DESIGN
3. SPECIAL NOTE: ALL STRUCTURES TO BE THE DESIGN OF HATCHBOX DESIGN
4. REFER DRAWING NO. 234007075 FOR ALL DETAILS OF GATE VALVE CHAMBER
5. REFER DRAWING NO. 234007075 FOR ALL DETAILS OF VENTILATION PIPE CHAMBER
6. REFER DRAWING NO. 234007075 FOR ALL DETAILS OF HATCHBOX CHAMBER
7. EXISTING GROUND LEVEL IS TO BE PROVIDED BY THE FIELD AND SURVEYOR'S WORK
8. EXISTING GROUND LEVEL IS TO BE PROVIDED BY THE FIELD AND SURVEYOR'S WORK
9. EXISTING GROUND LEVEL IS TO BE PROVIDED BY THE FIELD AND SURVEYOR'S WORK
10. EXISTING GROUND LEVEL IS TO BE PROVIDED BY THE FIELD AND SURVEYOR'S WORK
11. EXISTING GROUND LEVEL IS TO BE PROVIDED BY THE FIELD AND SURVEYOR'S WORK
12. EXISTING GROUND LEVEL IS TO BE PROVIDED BY THE FIELD AND SURVEYOR'S WORK



ISSUE FOR CONSTRUCTION	DATE	BY	DATE

Comments

ARUP Civ. Engrs. Patrick Hoang Hoang Limited

Project title
CONTRACT NO. DC20030101
NGONG PING SEWAGE TREATMENT
PLANT, TRUNK SEWERS AND
EFFLUENT EXPORT PIPELINE

Drawing title
EFFLUENT EXPORT PIPELINE:
ALIGNMENT AND PROFILE
(SHEET 6 OF 10)

Drawing no. 234007075

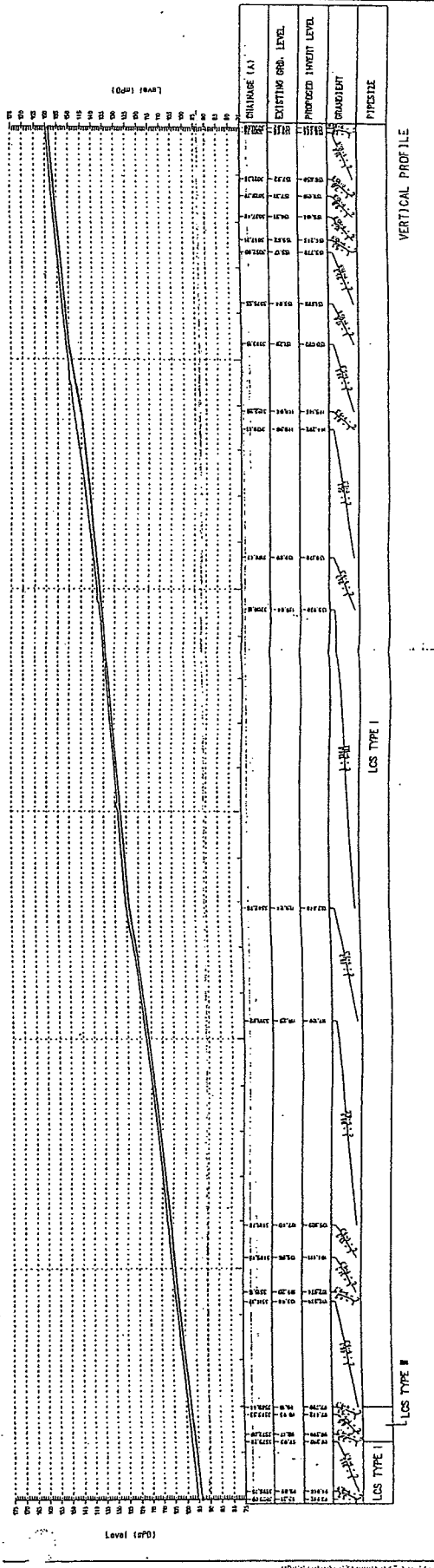
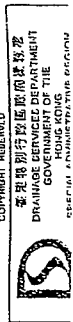
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Drawn by: [Name]

Checked by: [Name]

Approved by: [Name]

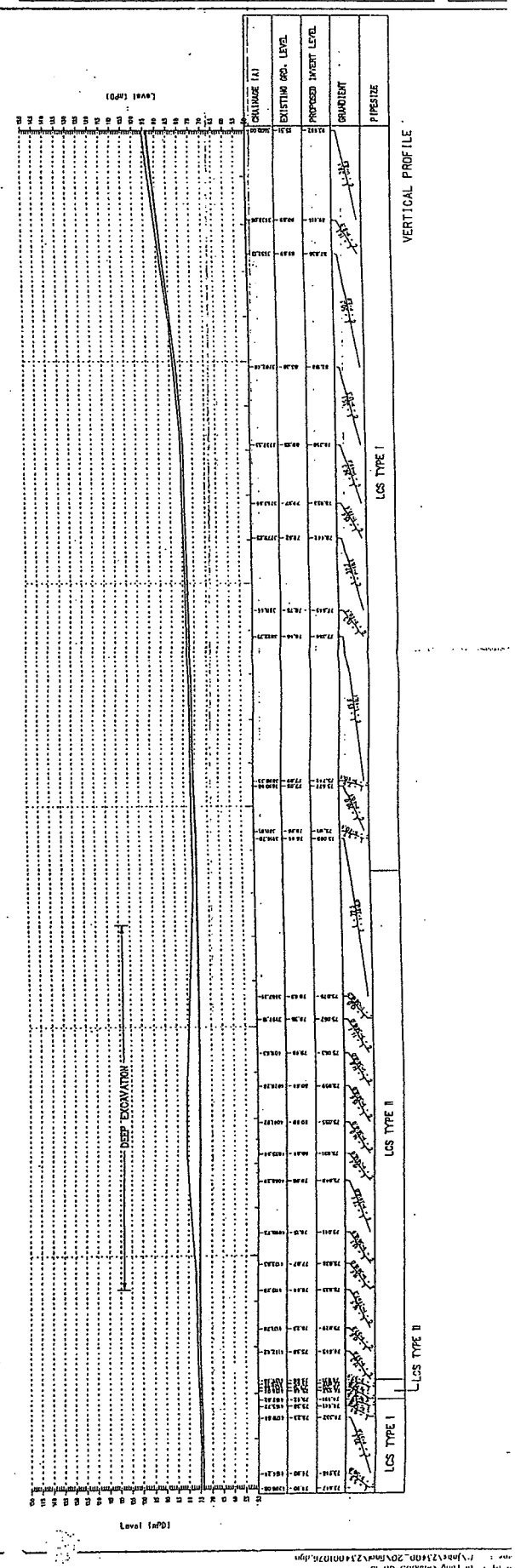
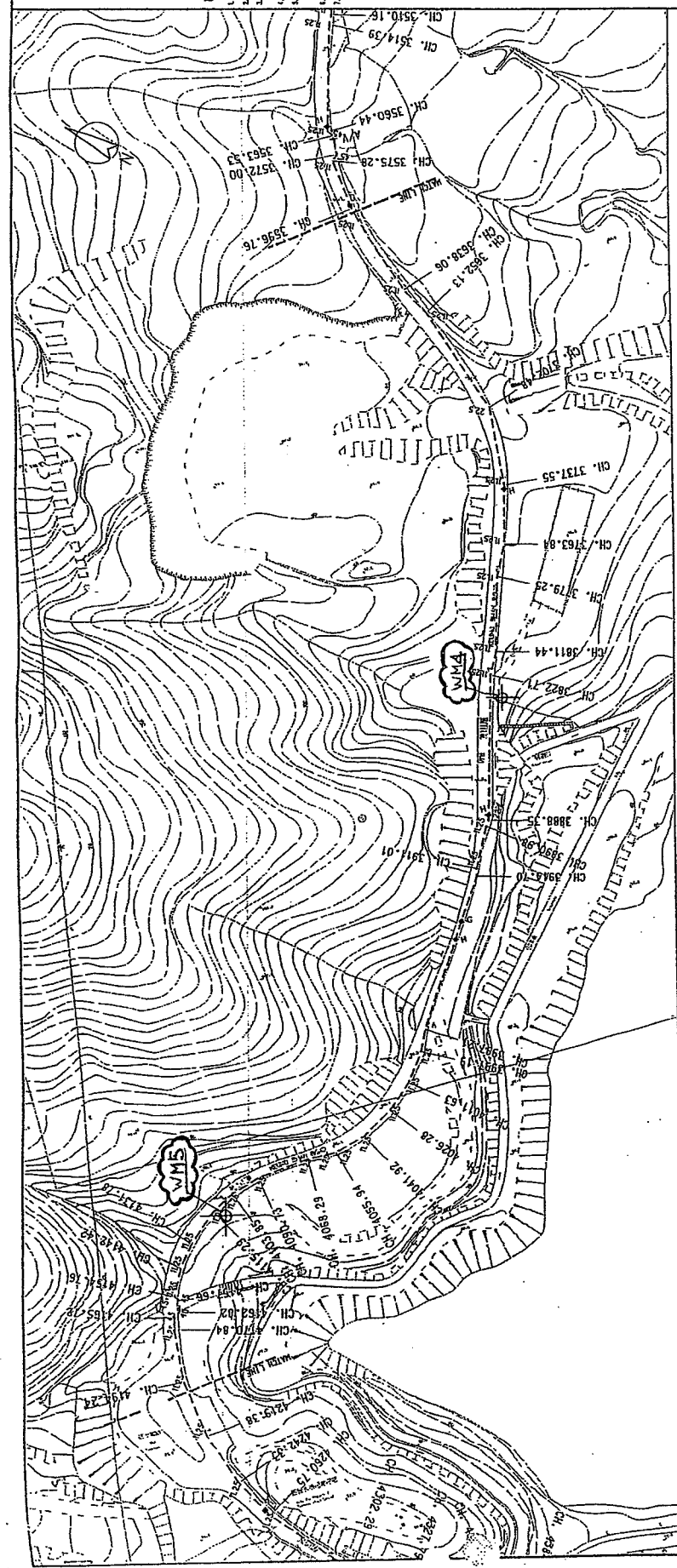
Date: [Date]



- LEGENDS :
- EFFLUENT PIPELINE ALIGNMENT
 - EXISTING GROUND LEVEL
 - EFFLUENT PIPELINE PROFILE
 - HATCHBOX CHAMBER
 - GATE VALVES CHAMBER
 - VENTILATION PIPE CHAMBER
 - 1:2.5 BENDS

NOTE:

- REFER TO DRAWING NO. 23400T1076 FOR GENERAL NOTES.
- USE LOCAL COLLECTION POINTS. CHECK WITH DISTRICT OFFICE.
- REFER TO THE DRAWING NO. 23400T1076 FOR DETAILS OF INTERSECTION CHAMBER.
- REFER DRAWING NO. 23400T1076 FOR DETAILS OF GATE VALVE CHAMBER.
- VENTILATION PIPE CHAMBER TO BE PROVIDED AT THE POINT OF DISCHARGE OF THE PIPE INTO THE RECEIVING PIPE.
- EXACT LOCATION OF CHAMBERS AND CHAMBERS TO BE INDICATED ON SITE.
- RETAINABLE CHANNEL OR OTHER SMALL LOCAL CHANNELS SHALL BE PROVIDED EVERY 50M ALONG THE PIPE.



ISSUE FOR CONSTRUCTION	DWG	09/03
Rev	Description	By
Contractor		
ARUP One Arg & Partners Hong Kong Limited		
Contract No. DC/2003/01		
NGONG PING SEWAGE TREATMENT PLANT, TRUNK SEWERS AND EFFLUENT EXPORT PIPELINE		
Drawing No. 23400T1076		
Sheet No. 7 OF 10		
EFFLUENT EXPORT PIPELINE: ALIGNMENT AND PROFILE (SHEET 7 OF 10)		
Drawn By	Checked By	Scale
1:1	1:1	1:1
Drawn Date	Checked Date	Scale
09/03	09/03	1:1
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香港特別行政區政府渠務處 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION		

100%
DATE: 1/10/02

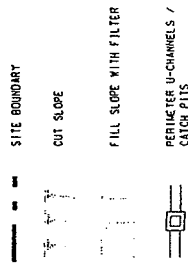


KEY PLAN

NOTE:

- COORDINATES SHOWN ON THIS TABLE ARE MEASURED AT THE OUTSIDE WALL AT 0.00.
- PLAN OF STRUCTURES ARE SHOWN AT +441.00 MPD.

LEGEND-



Rev	Description	By	Date
1	AS-CONTRACTED DRAWING		04/03

ARUP

the Asia Pacific's Best Eng. Global

Project Site

CONTRACT NO. 02/0010/01
RONG FING SEWAGE TREATMENT PLANT, TRUNK STUBS AND EFFLUENT RETURN PIPELINE

Drawing Title

污水處理廠擴建及回流管線
RONG FING SEWAGE TREATMENT PLANT
SETTING OUT PLAN FOR STRUCTURES

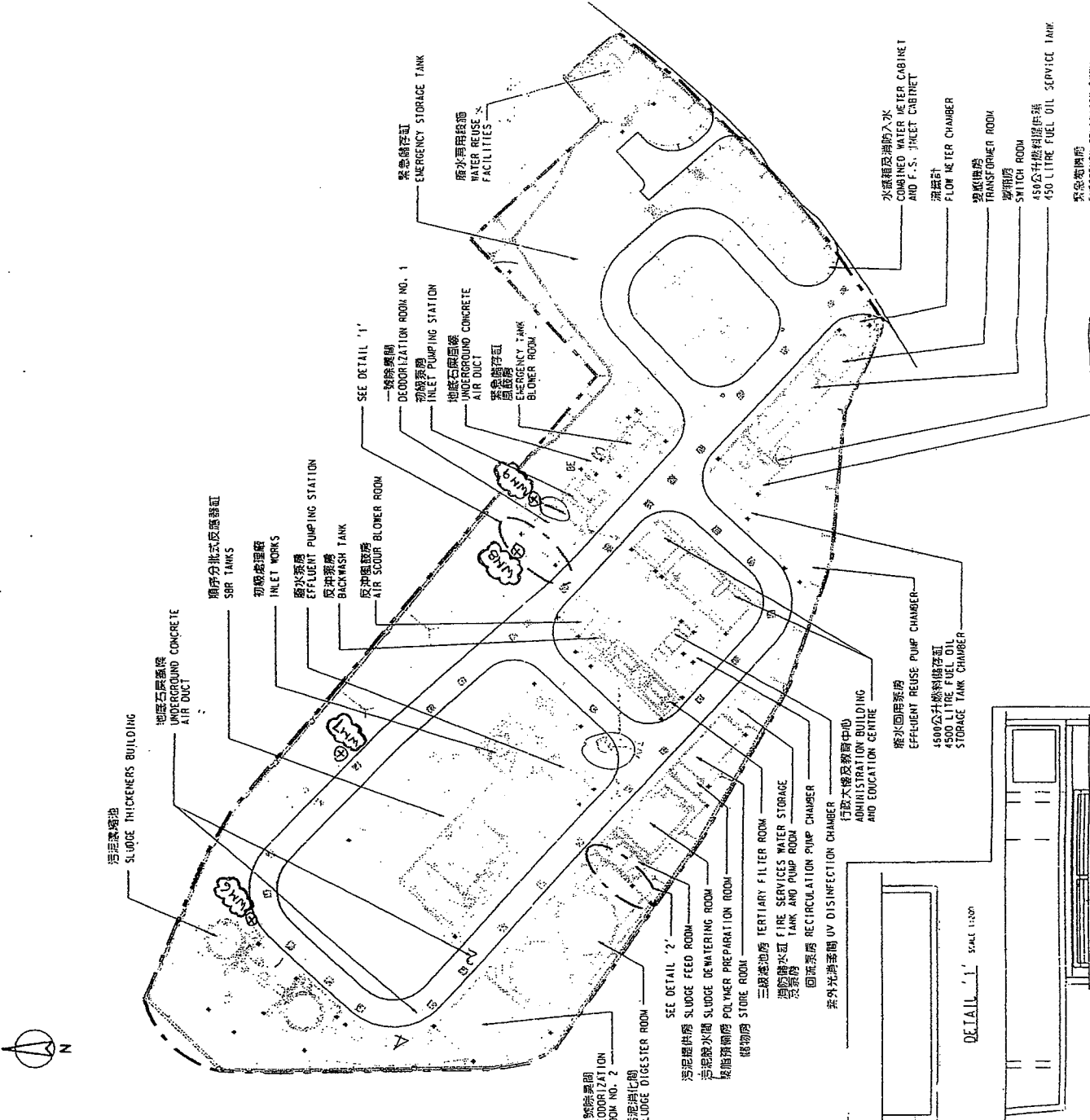
Drawing No.	22/0017/02	Scale	1:1
Drawn by	...	Checked by	...
Drawn by	...	Drawn	...
Drawn by	...	Drawn	...

COMMITMENT RECEIVED

香港特別行政區政府康樂事務署
RECREATION SERVICES DEPARTMENT
CONSTRUCTION DIVISION
SPECIAL INSTRUMENTATION DIVISION

SETTING OUT TABLE

LOCATION	COORDINATES	
	NORTHING	EASTING
A	01214.392	00762.022
B	01215.720	00775.145
C	01215.448	00760.348
D	01210.142	00777.802
E	01240.124	00768.174
F	01231.837	00782.387
G	01240.368	00777.574
H	01232.064	00783.467
I	01267.375	00755.043
J	01267.311	00760.953
K	01265.381	00756.058
L	01263.938	00759.584
M	01248.737	00747.158
N	01213.507	00758.053
O	01247.183	00754.053
P	01247.032	00785.107
Q	01210.870	00768.489
R	01210.332	00783.291
S	01202.951	00773.500
T	01251.184	00759.106
U	01247.005	00751.318
V	01217.252	00745.468
W	01217.251	00752.454
X	01238.687	00741.745
Y	01240.332	00745.125
Z	01241.624	00748.834
AA	01240.462	00753.323
AB	01216.301	00743.278
AC	01216.319	00743.118
AD	01216.235	00744.478
AE	01220.000	00745.785
AF	01217.181	00747.131
AG	01216.425	00747.135
AH	01216.118	00746.282
AI	01216.156	00747.710
AJ	01216.154	00751.432
AK	01221.252	00745.242
AL	01235.440	00737.804
AM	01235.440	00737.310
AN	01238.433	00748.145
AO	01211.993	00714.460
AP	01262.000	00736.460
AQ	01213.244	00743.332
AR	01213.274	00736.348
AS	01214.430	00742.338
AT	01216.728	00744.338
AU	01218.640	00761.751
AV	01249.233	00765.000
AW	01257.824	00765.076
AX	01258.320	00761.275
AY	01241.145	00748.835
AZ	01237.443	00747.448
BA	01217.132	00743.217
BB	01248.617	00734.348
BC	01243.664	00771.251
BD	01241.861	00743.188
BE	01266.230	00776.025
BF	01267.420	00747.793
BG	01247.518	00738.597
BH	01245.236	00758.720
BI	01247.275	00758.312
BJ	01213.338	00756.212



DETAIL '1' SCALE 1:200

DETAIL '2' SCALE 1:200