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TEST REPORT

DRAINAGE SERVICES DEPARTMENT

**CONTRACT NO. DC/2006/15 BUILDING AND
CIVIL MAINTENANCE AND MINOR WORKS OF
DSD PLANTS AND FACILITIES (2007-2009)**

**GROUNDWATER MONITORING AT
NGONG PING STW AND EFFLUENT EXPORT
PIPE**

MONTHLY EM&A REPORT

(OCTOBER 2007)

Prepared by:

LAW, Sau Yee
Senior Environmental Officer

Checked and
Approved by:

LAU, Chi Leung
Environmental Team Leader

**CH2MHILL**

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Our Ref.: DSDSTPOPEM00_0_0099

Date: 16 November 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

Dear Mr. Mok,

Re: Environmental Permit 157/2003/A
Contract No: DC/2006/15 Building and Civil Maintenance and Minor Works of DSD
Plants and Facilities
Monthly EM&A Report of Ground Water Monitoring for October 2007

Reference is made to the monthly EM&A Report prepared by ETS for the captioned project (report no. ENA71241). 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 Mr. Roy Leung if you have any queries.

Yours sincerely,

Connie Wong
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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東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

*Contract No. DC/2006/15 Building and Civil Maintenance and
Minor Works to DSD Plants and Facilities (2007-2009)
Groundwater Monitoring at Ngong Ping STW and Effluent Export Pipe*

*ENA71240
Monthly EM&A Report No.3*



EXECUTIVE SUMMARY

This monthly EM&A report (No.3) has been prepared by the Environmental Team (ET) of ETS-Testconsult Ltd for groundwater monitoring under "Contract No. DC/2006/15 Building and Civil Maintenance and Minor Works to DSD Plants and Facilities (2007-2009) – Groundwater Monitoring at Ngong Ping STW and Effluent Export Pipeline" (the Project) during the operation period from 01 to 31 October 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 during operation phase

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 25 October 2007. During this monitoring, ground water was found in Borehole WM3 and the other boreholes were dry.

Test results of the groundwater during this monitoring show no contamination of ground water by any treated effluent. In other words, it is evident that there was no leakage of treated effluent from the Ngong Ping Sewage Treatment Works or its effluent export pipeline into the water gathering ground.

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 October 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.
DSD	Contractor	Mr. P C Wu	2594 7199	2827 6657
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	9.68	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 25 October 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.

Test results of the groundwater during this monitoring show no contamination of ground water by any treated effluent. In other words, it is evident that there was no leakage of treated effluent from the Ngong Ping Sewage Treatment Works or its effluent export pipeline into the water gathering ground.

4.0 ENVIRONMENTAL NON-CONFORMANCE

4.1 Summary of Groundwater Quality Monitoring

According to the results of all testing parameters, they show no contamination of ground water by any treated effluent. In other words, it is evident that there was no leakage of treated effluent from the Ngong Ping Sewage Treatment Works or its effluent export pipeline into the water gathering ground.

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
August 07	0	0	---	---
September 07	0	0	---	---
October 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 25 October 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, they show no contamination of ground water by any treated effluent. In other words, it is evident that there was no leakage of treated effluent from the Ngong Ping Sewage Treatment Works or its effluent export pipeline into the water gathering ground.

7.0 FUTURE KEY ISSUES

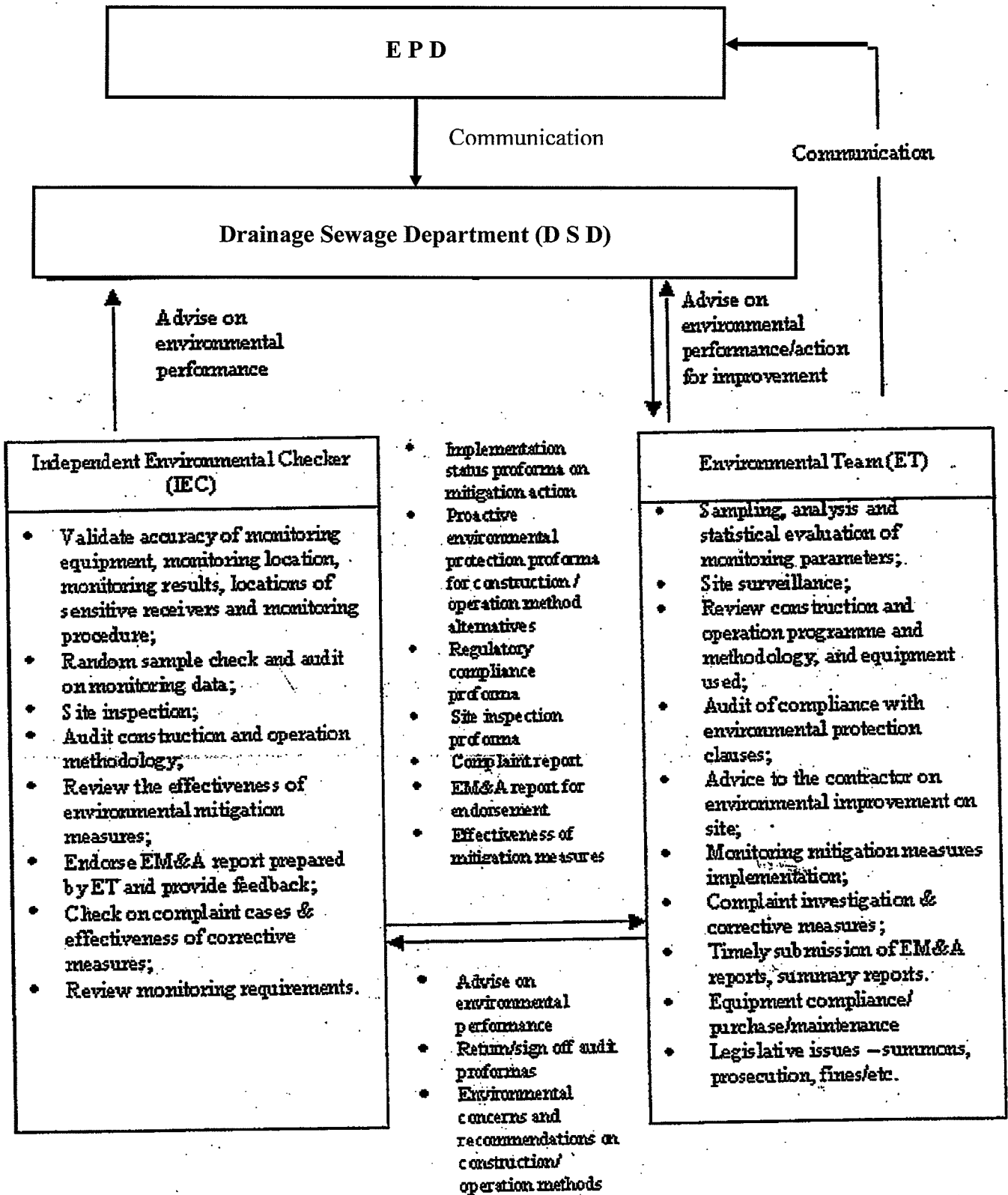
DSD will continue to carry out operation and maintenance works of NPSTW in the coming month. Future Key issues to be considered for the prevention of contamination of the water gathering ground are as follows:

- 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



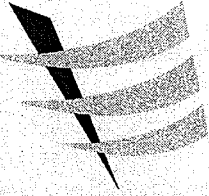


Appendix B

Groundwater Monitoring Results

and

Photos of Groundwater Monitoring at Boleholes



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Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

Environmental Testing of Water & Wastewater

Report No. : ENA71239
Date of issue : 31 October 2007
Page No. : 1 of 1

Information provided by client

Client Name : Welcome Construction Co Ltd
Client Address : Flat 01, 19/F, Westley Square, 48 Hoi Yuen Road, Kwun Tong, Kowloon
Sample Source : DC/2006/15 - Building and Civil Maintenance and Minor Works to DSD Plants and Facilities (2007-2009)
Sample Type : Groundwater
Date of Sampling : 25 October 2007
Sample Description : The sample was collected in 200ml glass bottle (for Total Phosphates only), 500ml glass bottle (for Oil & Grease only), 200ml 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 : 25 October 2007

Result

Client Sample ID	Lab Ref No	Test	Method Used	Result	Date Tested
WM3	W22403 (01)	pH Value	In house method TPE/003/W	6.0 (at 25°C)	25 October 2007
		Turbidity	In house method TPE/005/W	2.5 NTU	25 October 2007
		Biochemical Oxygen Demand (5-day)	In house method TPE/001/W	<2.0 mg/L	25 October 2007 (17:00) to 30 October 2007 (17:00)
	W22403 (02)	Nitrate & Nitrite Nitrogen	In house method TPE/023/W	0.23 mg/L	30 October 2007
		Ammonia	In house method TPE/016/W	0.20 mg/L	27 October 2007
	W22403 (04)	Total Phosphates	In house method TPE/019/W	<0.1 mg/L	26 October 2007
	W22403 (05)	Oil & Grease	APHA 19ed 5520B	<5.0 mg/L	26 October 2007
	W22403 (03)	Synthetic Detergents	In house method refer to APHA 19th ed 5540 C & D	<0.1 mg/L	26 October 2007
W22403 (06)	E-coli *	DoE (1983), section 7.8 & 7.9 plus in-situ urease test	1 cfu/100ml	25 to 27 October 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



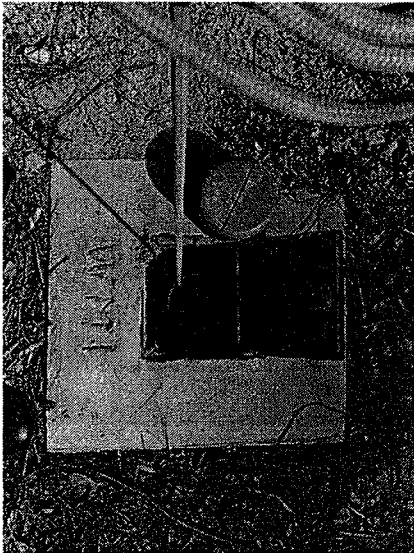
Project : DC/2006/15 - Building and Civil Maintenance and
Minor Works to DSD Plants and Facilities (2007-2009)

Date of sampling and photo taking : 25 October 2007

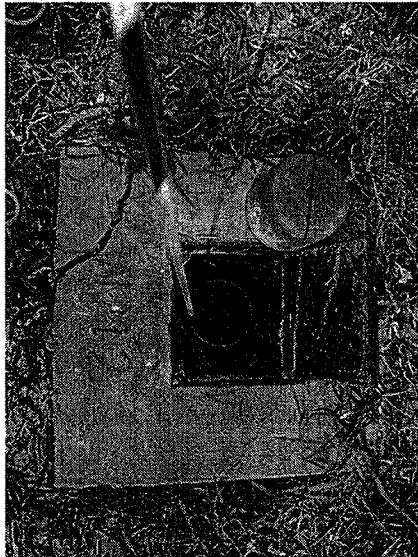
Report No. : ENA71239

Date of issue : 31 October 2007

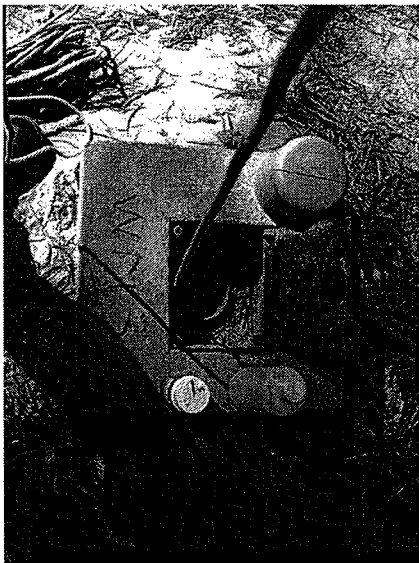
WM1



WM2



WM3



WM4





Project : DC/2006/15 - Building and Civil Maintenance and
Minor Works to DSD Plants and Facilities (2007-2009)

Date of sampling and photo taking : 25 October 2007

Report No. : ENA71239

Date of issue : 31 October 2007

WM5



WM6



WM7



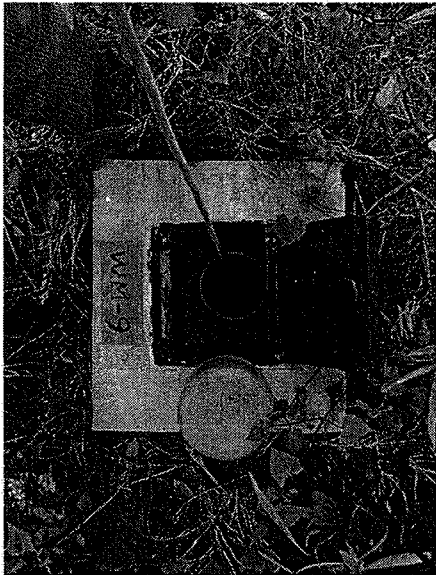
WM8





Project : DC/2006/15 - Building and Civil Maintenance and
Minor Works to DSD Plants and Facilities (2007-2009)
Date of sampling and photo taking : 25 October 2007
Report No. : ENA71239
Date of issue : 31 October 2007

WM9



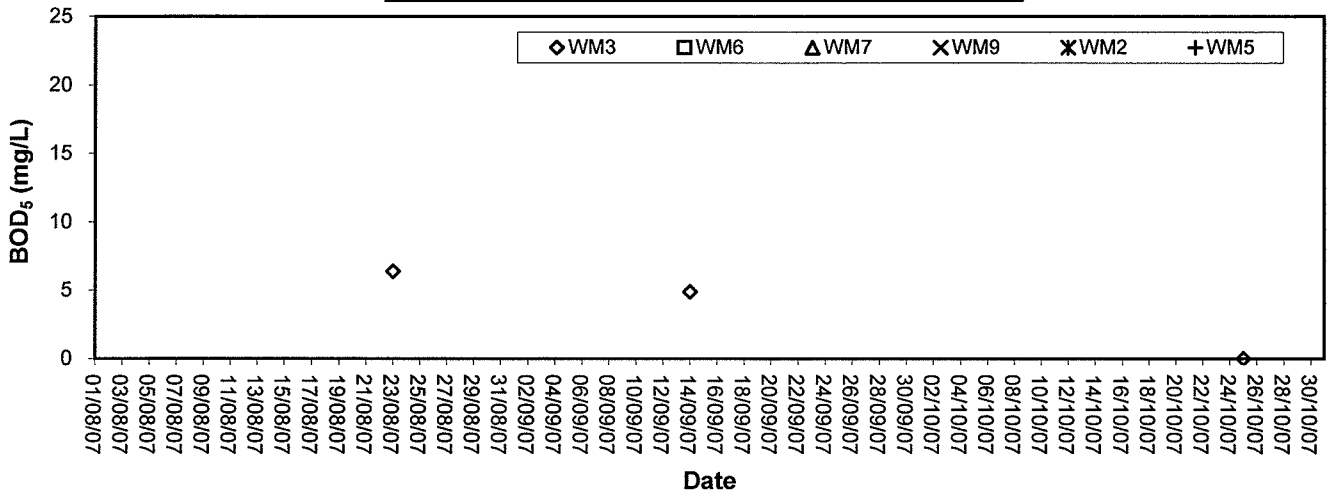


Appendix C

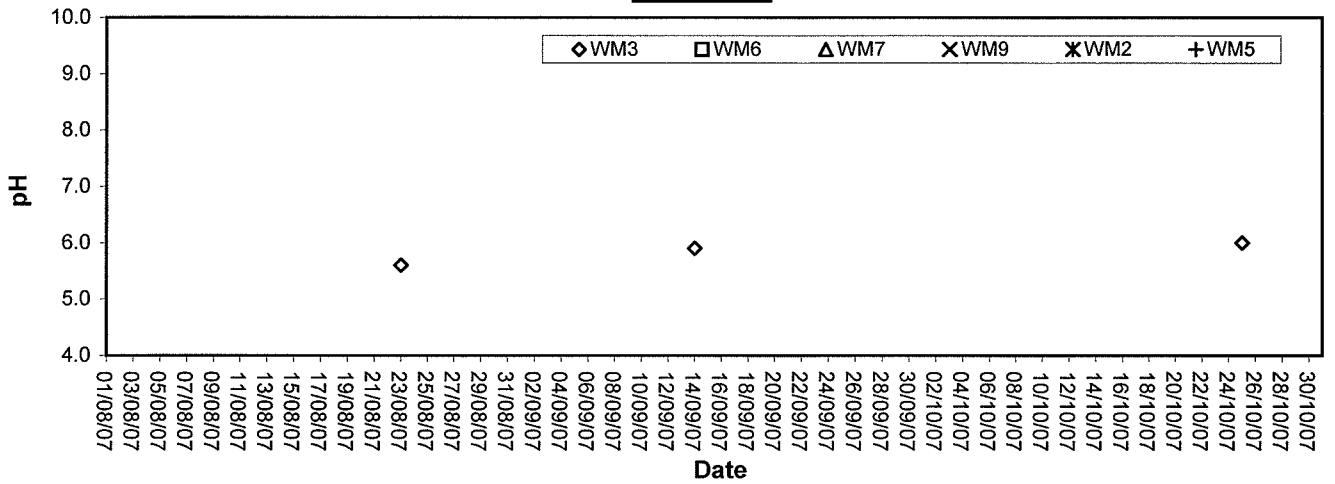
Graphical Plots of Groundwater Monitoring Data



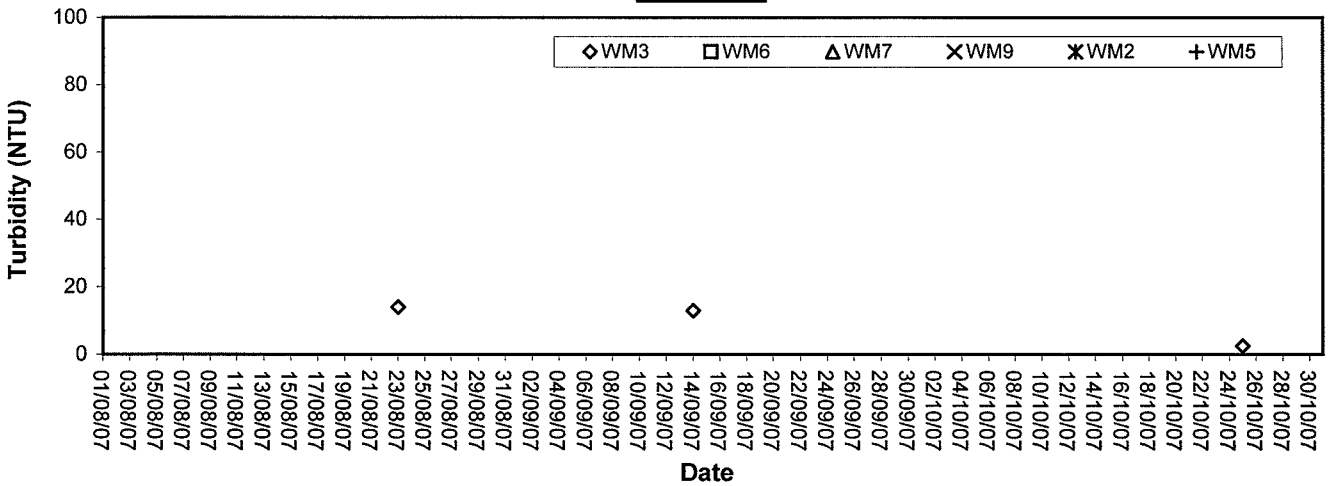
5-day Biochemical Oxygen Demand (BOD₅)



pH Value



Turbidity






Appendix D

General Layout Plan

Legend:

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

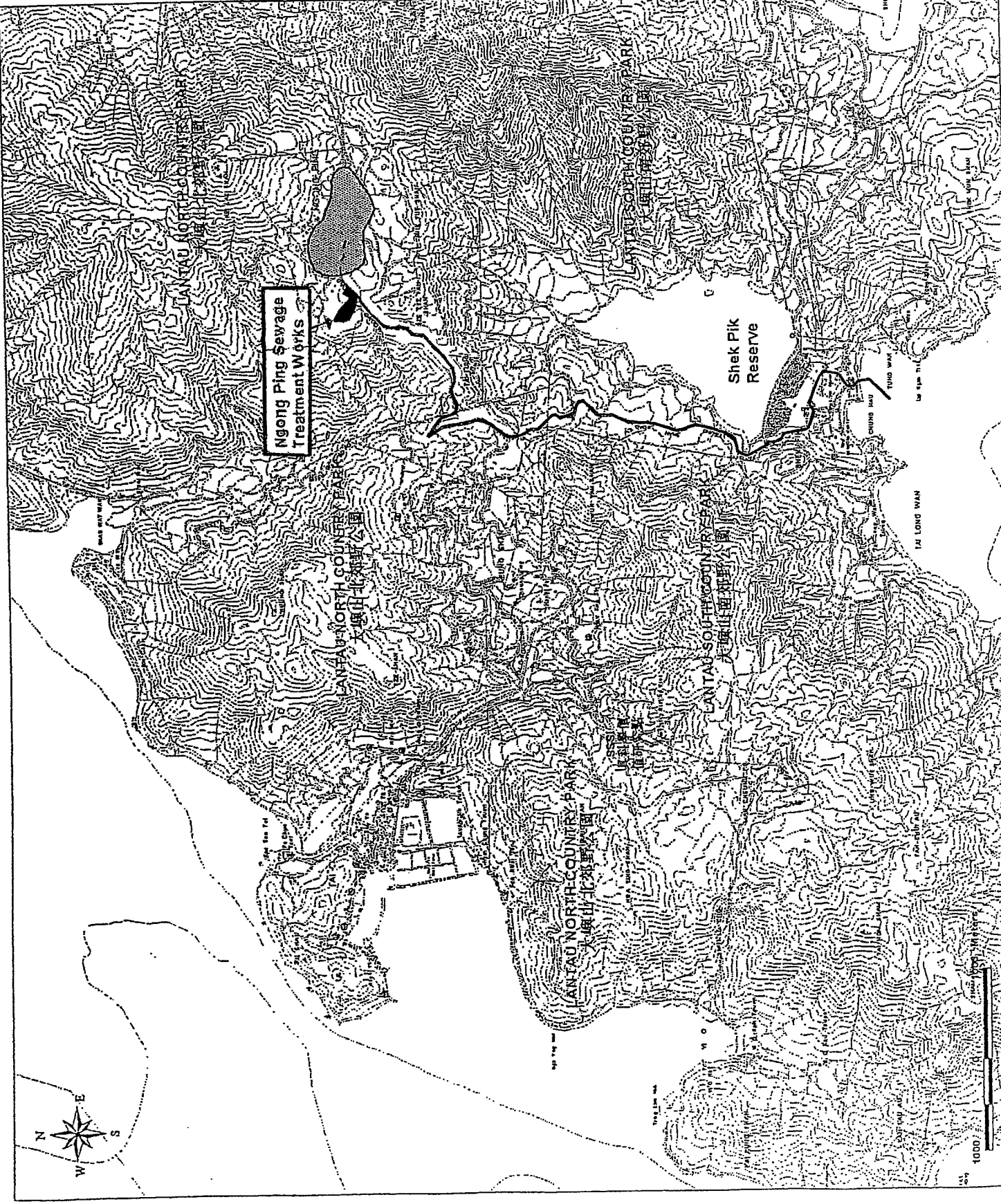
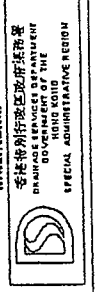
DATE	DESCRIPTION	BY	CHK

ARUP
ARUP GROUP OF COMPANIES LIMITED

PROJECT NO. CE 2901
 CUTLIVING ISLANDS STAGE 1 PHASE 1
 NGONG PING SEWERAGE TREATMENT WORKS AND SEWERAGE

Ngong Ping Sewerage Project
 Scheme - General Layout

PROJECT NO.	234001EN/098
DATE	Feb 03
SCALE	1:2000@A3
STATUS	Preliminary





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	102.0	WM3	0.8	---	---
Nitrate + Nitrite	96.7	---	---	---	---
Oil & Grease	102.4	---	---	---	---
Ammoniacal Nitrogen	104.2	---	---	---	---
Synthetic detergents	---	---	---	---	---
Biochemical Oxygen Demand (5-day)	99.5	---	---	---	---
Total Phosphates	103.2	---	---	---	---
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
- H HATCHBOX CHAMBER
- G GATE VALVES CHAMBER
- V VENTILATION PIPE CHAMBER
- 1:25 BENDS

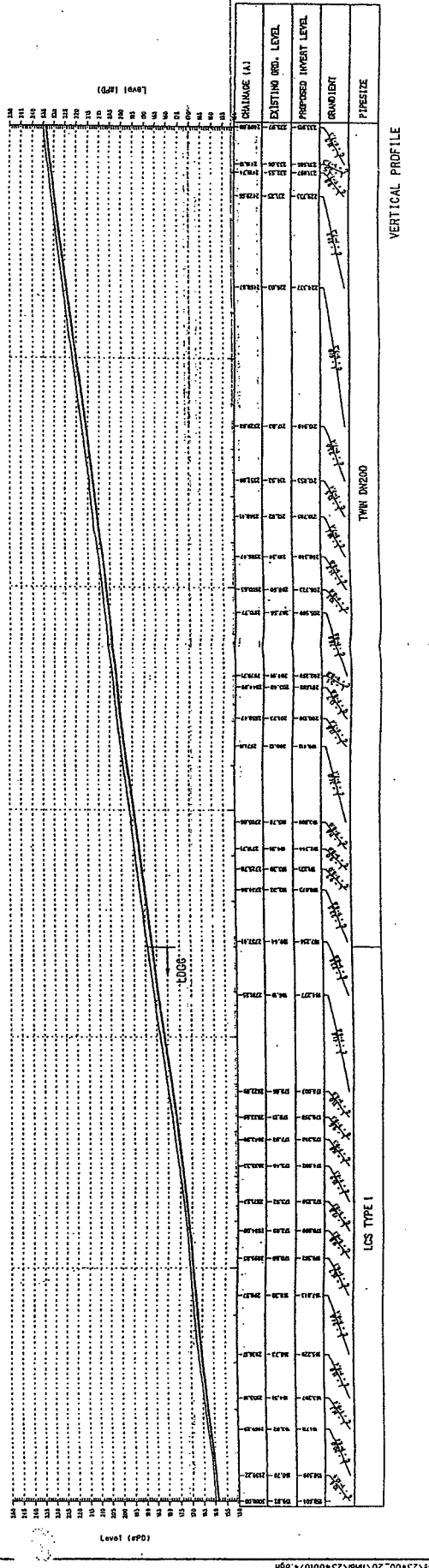
NOTE:

1. REFER TO DRAWING NO. 2340071074 FOR GENERAL NOTES
2. USE LATEST COLLECTION SYSTEM LAYOUT - LOWER DUCT NETWORKS DRAWING NO. 2340071074 TO BE FOR ACTUAL NETWORK CHANGES.
3. REFER DRAWING NO. 2340071074 TO BE FOR ACTUAL NETWORK CHANGES.
4. REFER DRAWING NO. 2340071074 TO BE FOR ACTUAL NETWORK CHANGES.
5. REFER DRAWING NO. 2340071074 TO BE FOR ACTUAL NETWORK CHANGES.
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9. REFER DRAWING NO. 2340071074 TO BE FOR ACTUAL NETWORK CHANGES.
10. REFER DRAWING NO. 2340071074 TO BE FOR ACTUAL NETWORK CHANGES.



ISSUE FOR CONSTRUCTION	IRC 08/03
Revised Description	By Date
Consultant	
ARUP On Behalf of Partner Hong Kong Limited	
Project Title	
CONTRACT NO. DC200901 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. 2340071074	
Drawn By	Checked By
Approved By	Approved By
Scale	Scale
Revision	Revision
COPYRIGHT RESERVED	

香港特別行政區政府
 渠務處
 DRAINAGE SERVICES DEPARTMENT
 GOVERNMENT OF THE
 HONG KONG
 SPECIAL ADMINISTRATIVE REGION



VERTICAL PROFILE

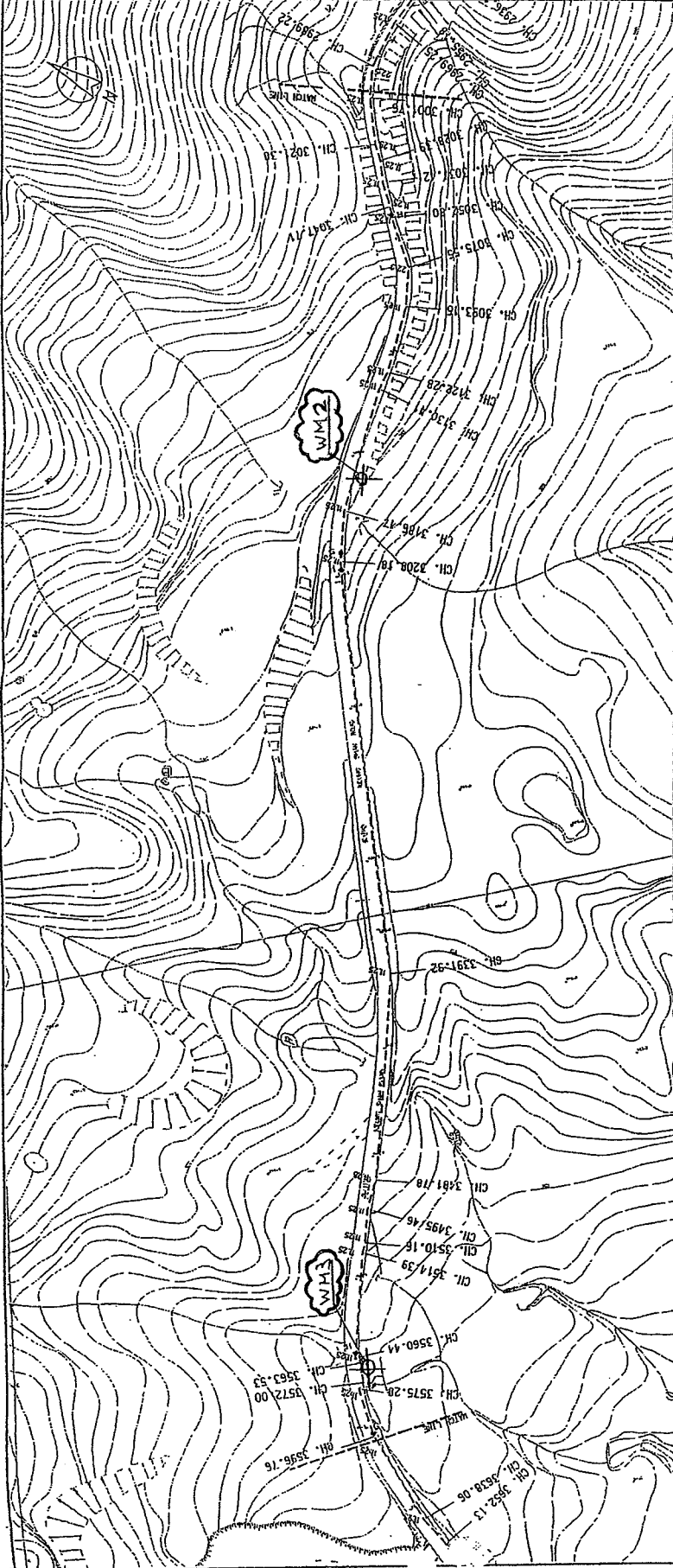
TWIN DN200

LCS TYPE I

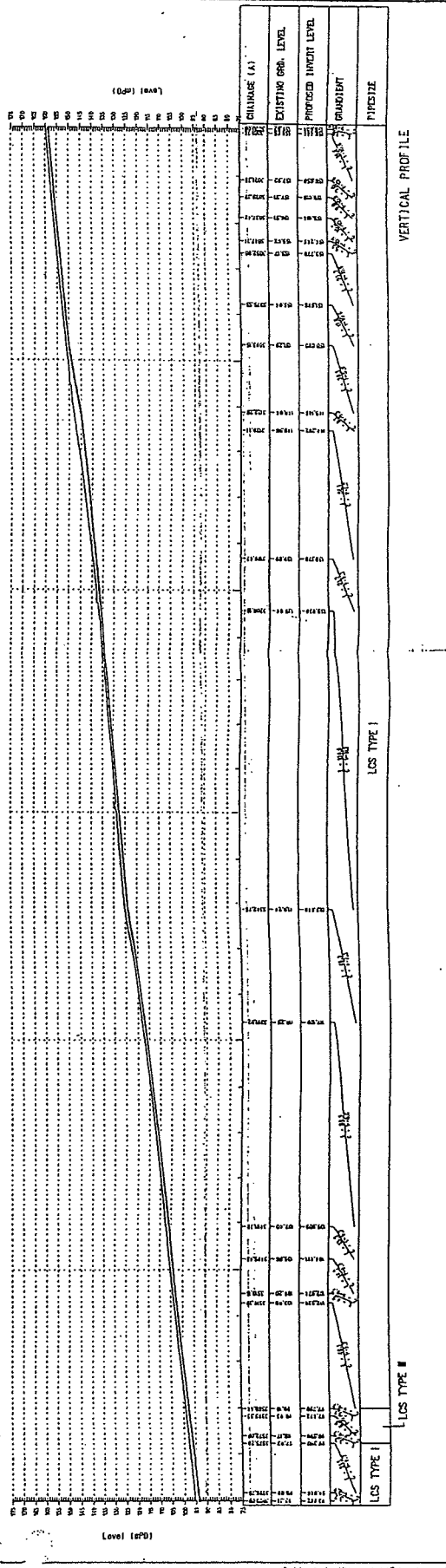
- LEGENDS :
- EFFLUENT PIPELINE ALIGNMENT
 - EXISTING GROUND LEVEL
 - EFFLUENT PIPELINE PROFILE
 - HATCHBOX CHAMBER
 - G GATE VALVES CHAMBER
 - ▲ V VENTILATION PIPE CHAMBER
 - 1:25 BENDS

NOTE:

1. REFER TO DRAWING NO. 234001075 FOR EXISTING LEVELS.
2. ALL LEAKAGE COLLECTION SYSTEMS - UNDER STREET SURFACE SHOULD BE LOCATED AND DELETED TO ALL THE BORDERS OF HATCHBOX CHAMBER. PIPING NOT TO EXCEED 300.
3. HATCHBOX CHAMBERS ARE TO BE PROVIDED AT THE POINTS OF CHANGE OF PIPE SIZE AND AT THE POINTS OF CHANGE OF PIPE MATERIAL.
4. EACH LOCATION OF BENDS ARE TO BE EXTENDED ON SET.
5. ALL CHANGES IN PIPE SIZE AND MATERIAL ARE TO BE INDICATED BY A CHANGE IN LINE STYLE.
6. ALL CHANGES IN PIPE SIZE AND MATERIAL ARE TO BE INDICATED BY A CHANGE IN LINE STYLE.
7. HATCHBOX CHAMBERS ARE TO BE PROVIDED AT THE POINTS OF CHANGE OF PIPE SIZE AND AT THE POINTS OF CHANGE OF PIPE MATERIAL.



<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">ISSUE FOR CONSTRUCTION</td> <td style="width: 50%;">DTC 08/03</td> </tr> <tr> <td>Rev / Description</td> <td>By / Date</td> </tr> <tr> <td colspan="2">Comments</td> </tr> </table> <p style="text-align: center; font-size: 24pt; font-weight: bold;">ARUP</p> <p style="text-align: center;">On: Aug 1, 2003 Project Name: On: Aug 1, 2003 Contract No. DC/2003/01 NGONG PING SEWAGE TREATMENT PLANT TRUNK SEWERS AND EFFLUENT EXPORT PIPELINE</p> <p style="text-align: center;">Drawing No. 234001075</p> <p style="text-align: center;">EFFLUENT EXPORT PIPELINE: ALIGNMENT AND PROFILE (SHEET 6 OF 10)</p>	ISSUE FOR CONSTRUCTION	DTC 08/03	Rev / Description	By / Date	Comments		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Drawing No. 234001075</td> <td style="width: 50%;">Rev.</td> </tr> <tr> <td>Scale: 1:25</td> <td>Scale: 1:25</td> </tr> <tr> <td>Author: [Name]</td> <td>Checked: [Name]</td> </tr> <tr> <td>Drawn: [Name]</td> <td>Reviewed: [Name]</td> </tr> <tr> <td>Issue Date: 10/08/03</td> <td>Issue Date: 10/08/03</td> </tr> <tr> <td>Issue Time: 10:00 AM</td> <td>Issue Time: 10:00 AM</td> </tr> <tr> <td>Issue Location: [Location]</td> <td>Issue Location: [Location]</td> </tr> <tr> <td>Issue Status: [Status]</td> <td>Issue Status: [Status]</td> </tr> <tr> <td>Issue Reason: [Reason]</td> <td>Issue Reason: [Reason]</td> </tr> <tr> <td>Issue Action: [Action]</td> <td>Issue Action: [Action]</td> </tr> <tr> <td>Issue Comment: [Comment]</td> <td>Issue Comment: [Comment]</td> </tr> </table> <p style="text-align: center;">COMMITTEE RECEIVED</p> <p style="text-align: center;">DRAINAGE SERVICES DEPARTMENT HONG KONG GOVERNMENT</p>	Drawing No. 234001075	Rev.	Scale: 1:25	Scale: 1:25	Author: [Name]	Checked: [Name]	Drawn: [Name]	Reviewed: [Name]	Issue Date: 10/08/03	Issue Date: 10/08/03	Issue Time: 10:00 AM	Issue Time: 10:00 AM	Issue Location: [Location]	Issue Location: [Location]	Issue Status: [Status]	Issue Status: [Status]	Issue Reason: [Reason]	Issue Reason: [Reason]	Issue Action: [Action]	Issue Action: [Action]	Issue Comment: [Comment]	Issue Comment: [Comment]
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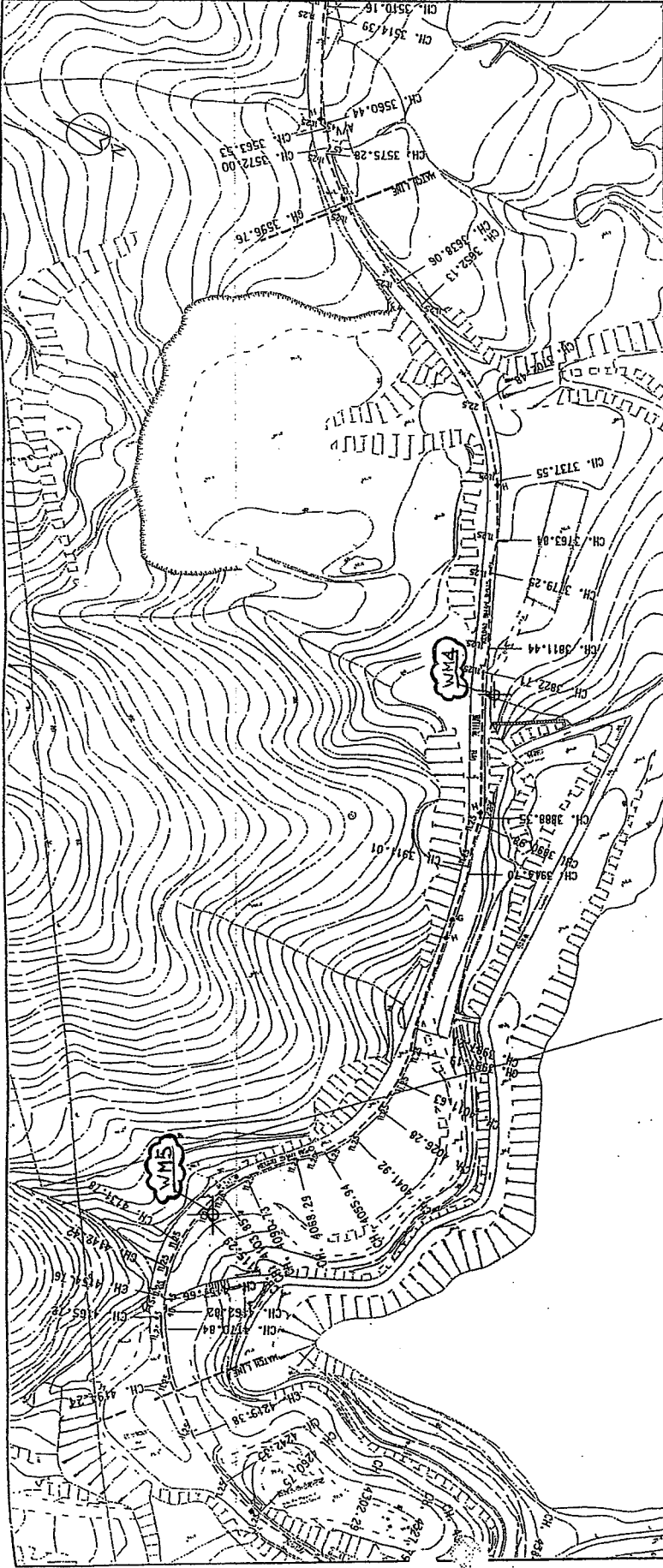


LEGENDS :

- EFFLUENT PIPELINE ALIGNMENT
- EXISTING GROUND LEVEL
- EFFLUENT PIPELINE PROFILE
- HATCHBOX CHAMBER
- GATE VALVES CHAMBER
- VENTILATION PIPE CHAMBER
- 11.25 BENDS

NOTE:

1. REFER TO DRAWING IN SUPPLEMENTARY SHEETS.
2. "L.S." - LEAKAGE COLLECTION SYSTEMS - UNDER WHICH CONDITIONS ABOVE GROUND PIPELINE IS TO BE INSTALLED TO BE FOR DETAILS OF HATCHBOX CHAMBER.
3. REFER TO DRAWING IN SUPPLEMENTARY SHEETS FOR DETAILS OF GATE VALVE CHAMBER.
4. REFER TO DRAWING IN SUPPLEMENTARY SHEETS FOR DETAILS OF VENTILATION PIPE CHAMBER.
5. REFER TO DRAWING IN SUPPLEMENTARY SHEETS FOR DETAILS OF HATCHBOX CHAMBER.
6. REFER TO DRAWING IN SUPPLEMENTARY SHEETS FOR DETAILS OF GATE VALVE CHAMBER.
7. REFER TO DRAWING IN SUPPLEMENTARY SHEETS FOR DETAILS OF VENTILATION PIPE CHAMBER.
8. REFER TO DRAWING IN SUPPLEMENTARY SHEETS FOR DETAILS OF HATCHBOX CHAMBER.
9. REFER TO DRAWING IN SUPPLEMENTARY SHEETS FOR DETAILS OF GATE VALVE CHAMBER.
10. REFER TO DRAWING IN SUPPLEMENTARY SHEETS FOR DETAILS OF VENTILATION PIPE CHAMBER.



ISSUE FOR CONSTRUCTION	DATE	08/03
Rev	Description	By
Comments		

ARUP
One Step & Protect Hong Kong Limited

Project Title
CONTRACT NO. DC2003/001
NGONG PING SEWAGE TREATMENT PLANT - TRUNK SEWERS AND EFFLUENT EXPORT PIPELINE

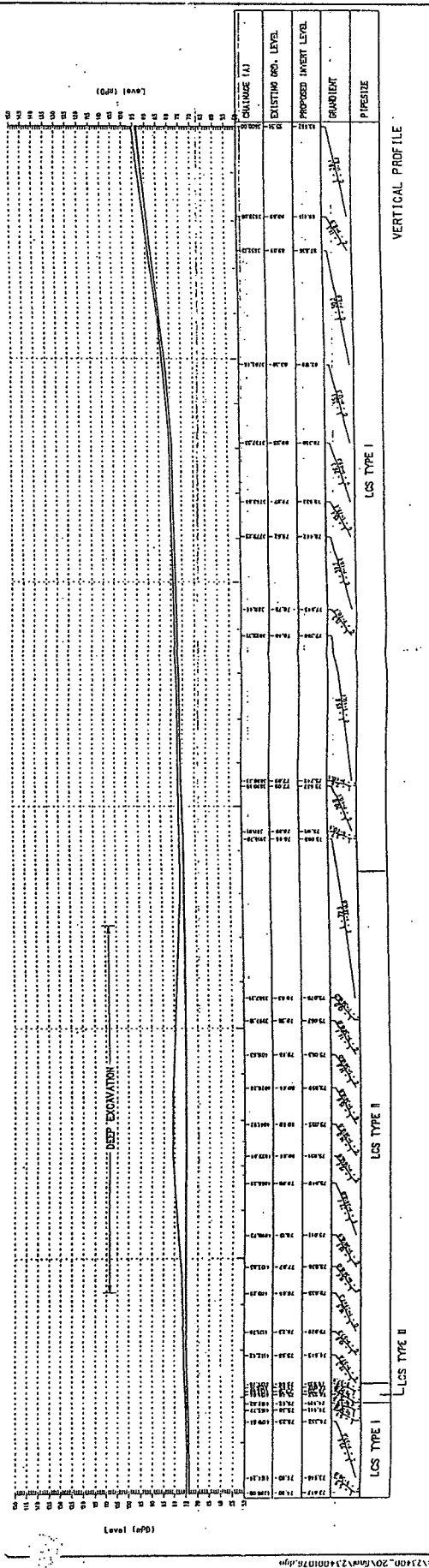
Drawing Title
EFFLUENT EXPORT PIPELINE ALIGNMENT AND PROFILE (SHEET 7 OF 10)

Drawing No. 234007076

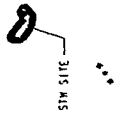
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Drawn by: [Name]
Checked by: [Name]
Approved by: [Name]

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排水服務處
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION

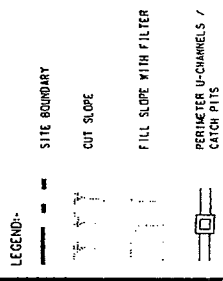


REF
DATE



KEY PLAN

NOTE:
1. COORDINATES SHOWN ON THE TABLE ARE MEASURED AT THE OUTSIDE WALL AT r.p.d.
2. PLAN OF STRUCTURES ARE SHOWN AT 44.41.00 r.p.d.



Rev	Description	By	Date
1	AS-CONSTRUCTED DRAINING	IR	01/05

ARUP
No. 101-1, Nathan Road, Hong Kong

PROJECT No.
CONTRACT NO. DC2003/01
RONG PING SEWAGE TREATMENT PLANT, TRUNK SEWERS AND EFFLUENT RETURN PIPELINE

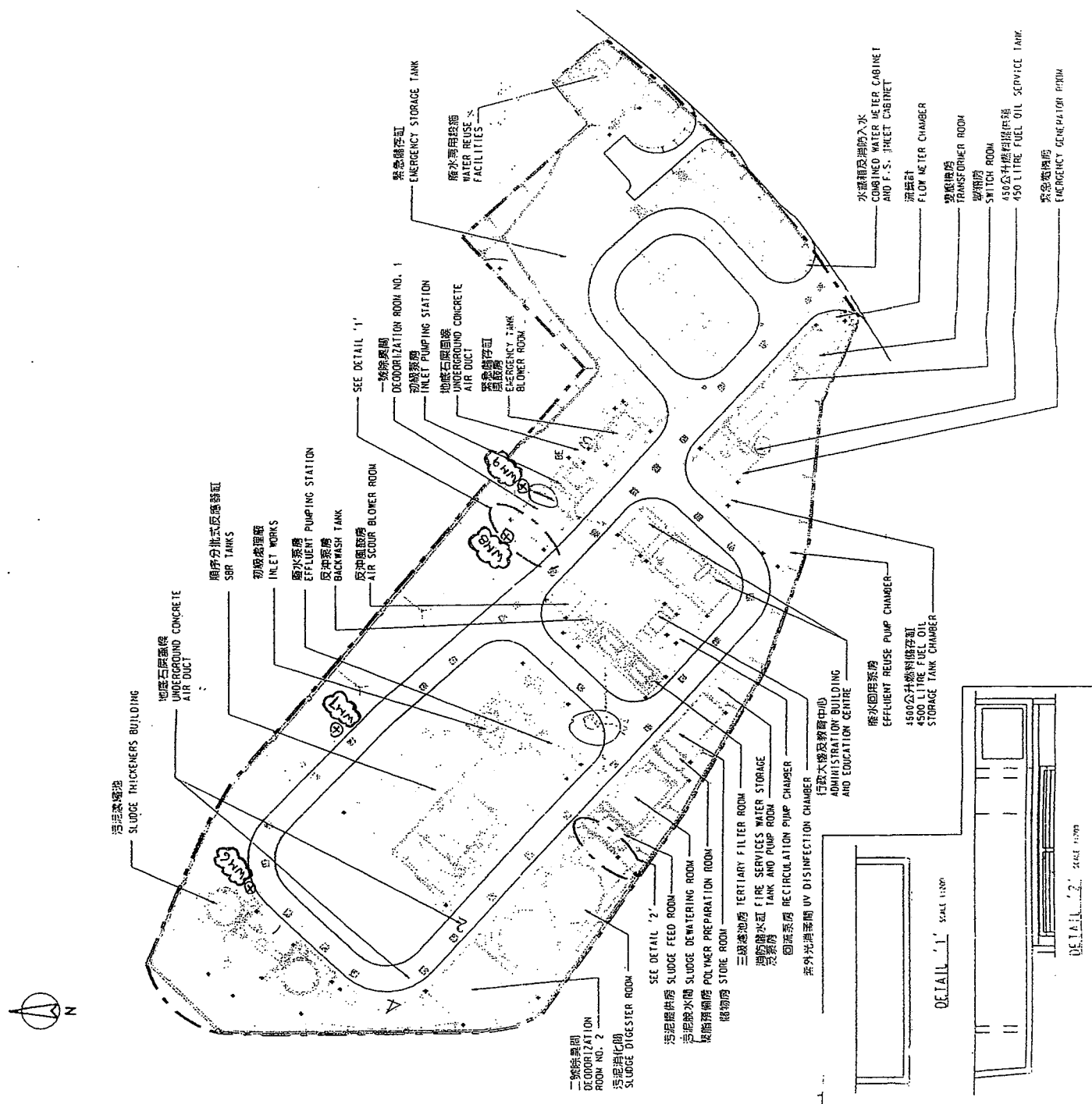
Drawing Title
RONG PING SEWAGE TREATMENT PLANT
SETTING OUT PLAN FOR STRUCTURES

Drawn by	21/00/17/202	Rev.	2
Checked by		Checked	
Scale	1:1000	Scale	

APPROVED FOR THE
SPECIAL ADMINISTRATIVE OFFICE

SETTING OUT TABLE

LOCATION	COORDINATES	NORTHING	EASTING
A		01714.352	00786.027
B		01715.201	00783.487
C		01715.416	00780.348
D		01716.412	00777.602
E		01714.179	00786.784
F		01717.497	00782.357
G		01716.940	00777.374
H		01715.064	00783.667
I		01721.475	00785.043
J		01721.117	00786.353
K		01720.361	00786.606
L		01719.584	00785.984
M		01714.287	00784.356
N		01715.407	00786.005
O		01717.119	00784.536
P		01724.012	00785.107
Q		01710.870	00788.468
R		01710.537	00783.799
S		01707.051	00785.590
T		01721.149	00789.106
U		01711.005	00783.348
V		01714.250	00789.666
W		01714.687	00782.454
X		01714.745	00784.745
Y		01714.552	00786.824
Z		01714.422	00785.323
AA		01706.901	00786.276
AB		01721.419	00783.118
AC		01723.285	00784.478
AD		01729.005	00786.703
AE		01731.487	00789.137
AF		01734.325	00791.249
AG		01730.780	00786.986
AH		01735.446	00782.970
AI		01735.264	00785.429
AJ		01734.540	00787.084
AK		01731.880	00786.610
AL		01724.440	00787.210
AM		01724.433	00785.183
AN		01711.933	00784.680
AO		01702.950	00786.800
AP		01714.144	00785.337
AQ		01714.144	00786.319
AR		01714.320	00784.538
AS		01716.320	00784.701
AT		01705.440	00785.701
AU		01705.235	00785.400
AV		01717.924	00780.076
AW		01725.970	00780.375
AX		01741.185	00782.459
AY		01733.483	00784.689
AZ		01738.182	00783.207
BA		01726.617	00784.508
BB		01745.464	00777.357
BC		01741.361	00782.908
BD		015016.290	00782.025
BE		015007.420	00782.785
BF		01737.944	00784.587
BG		01739.336	00786.720
BH		01737.673	00786.366
BI		01735.256	00786.347



DETAIL '1' SCALE 1:1000

DETAIL '2' SCALE 1:200