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By Fax: 3922 9797
22 June 2017

AECOM Asia Co. Ltd.
8/F, Grand Central Plaza, Tower 2,
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Shatin.

Attn: Mr. Matthew TSUI

Dear Mr. Tsui,

Agreement No. CE3/2015 (DS)
Yuen Long Effluent Polishing Plant – Investigation, Design and Construction
Method Statement for Sediment Sampling and Testing

We refer to your letter of 1 June 2017 regarding the above.

We have no comment to the proposed method statement. Please note that our comments/ views are provided on advisory basis without prejudice to any future decision by the Director of Environmental Protection under the EIAO.

Yours sincerely,

(HO Man-wu)
Environmental Protection Officer
for Director of Environmental Protection

c.c.
DSD

(Attn: Ms. Suki PUN)

Fax: 2827 8700)

(Internal) – S(RA)4

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1. INTRODUCTION

1.1 Background

- 1.1.1 The existing Yuen Long Sewage Treatment Works (YLSTW) provides secondary level treatment to sewage collected from Yuen Long area (including sewerage areas at Wang Chau, Yuen Long Industrial Estate, the Yuen Long Town and Kam Tin). YLSTW was commissioned in 1984 with a design capacity of 70,000 m³/d at average dry weather flow.
- 1.1.2 In 2013, Drainage Services Department (DSD) commissioned a feasibility study under Agreement No. SP 06/2013 “Effluent Polishing Scheme at Yuen Long Sewage Treatment Works – Treatment Process Study” to review the sewage flow projection and treatment process for YLSTW upgrading. The findings of the feasibility study identified that the design capacity of YLSTW to be fully committed in 2025 and recommended the design capacity to be upgraded to 150,000 m³/d in two phases.
- 1.1.3 The treated effluent from YLSTW attaining secondary treatment level is discharged into Deep Bay through Shan Pui River currently. To meet EPD’s requirement of “No net increase in pollution load in Deep Bay Policy”, it is also necessary to concurrently upgrade YLSTW to effluent polishing plant with tertiary level to reduce the residual pollution loading of the treated effluent.
- 1.1.4 AECOM Asia Co Ltd. was commissioned by Drainage Services Department (DSD) on 11 May 2016 to carry out this Assignment for the investigation, design and construction supervision for upgrading the YLSTW to Yuen Long Effluent Polishing Plant (YLEPP), (hereinafter refer as “the Project”). The location of the proposed YLEPP is shown in **Figure 60505476/MSSST/701**.
- 1.1.5 Based on the proposed design capacity for the Project, the Project is a designated project under Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO, Cap 499) that an Environmental Impact Assessment (EIA) study is needed to provide information on the nature and extent of environmental impacts arising from the construction and operation of the Project and related activities that take place concurrently. Project profile was submitted to the Director of Environmental Protection (DEP) and an EIA Study Brief (No. ESB-241/2012) was issued on 5 April 2012. One of the major task of the Assignment is to conduct EIA Study in accordance with the EIA Study Brief.

1.2 Purpose of the Report

- 1.2.1 The Project area covers the whole of existing YLSTW. The Project area was originally part of the mud flat area located along Shan Pui River and was changed to fishponds in the 1970s. The Project area was subsequently reclaimed in 1979 for the construction of YLSTW. Based on the available geological records, there are land-based marine deposit within the Project area and the top level of marine deposit is ranged from around 4.5 to 6.0 m below ground level (bgl).
- 1.2.2 Based on the latest engineering design, the abovementioned land-based sediment (marine deposit) layer could potentially be encountered during the proposed piling and excavation works for the proposed YLEPP under the Project. The proposed YLEPP, where sediment could be encountered, covers the entire area of the existing YLSTW. The location of the proposed YLEPP is shown in **Figure 60505476/MSSST/701**.
- 1.2.3 In accordance with Appendix E of the EIA Study Brief, it is necessary to identify the quantity, quality and timing of wastes arising (including any dredged/excavated

sediment/mud) as a result of the construction and operation activities of the Project. The purpose of this Method Statement for Sediment Sampling and Testing (MSSST) is to seek EPD agreement on the sampling and testing procedures for assessing the quality of the sediment generated from the Project under the EIA Study.

- 1.2.4 This MSSST is prepared in accordance with the *Environmental, Transport and Works Bureau Technical Circular (Works) No. 34/2002 – Management of Dredged / Excavated Sediments (ETWB TC(W) No. 34/2002)* and shall only serve the purpose of fulfilling the EIA Study for this Project under the EIAO, Technical Memorandum on Environmental Impact Assessment Process (TM) and EIA Study Brief. Findings from the sediment sampling and testing exercise would be used to assess the waste management implications associated with the sediment generated from the Project under the EIA Study. Any future sediment disposal works under the Project should follow management hierarchy of minimization and on-site reuse (after treatment) before off-site disposal, a separate Sediment Sampling and Testing Plan (SSTP) / Sediment Quality Report (SQR) should be prepared and submitted to EPD for approval for the application of the dumping permit under the Dumping at Sea Ordinance (DASO). A rationale for sediment removal/ disposal should also be provided for agreement with the Marine Fill Committee (MFC) of Civil Engineering and Development Department (CEDD) under *ETWB TC(W) No. 34/2002*.

1.3 Structure of this Report

- 1.3.1 Apart from this introductory section, the other sections of the MSSST are as follows:

- Section 2 - Timetable for the sediment quality assessment
- Section 3 - Proposed sediment sampling plan
- Section 4 - Proposed laboratory analysis requirements
- Section 5 - Approach to interpret the laboratory results

2. TIMETABLE FOR SEDIMENT QUALITY ASSESSMENT

2.1.1 The timetable for the sediment sampling, chemical / biological screening and the subsequent reporting is summarised in **Table 2.1** below.

Table 2.1 Timetable for Sediment Quality Assessment

Task Descriptions	Timeframe*
Sediment sampling	Jan to June 2017
Tier II chemical screening	Jan to June 2017
Tier III biological screening (if required)	February to July 2017

*Tentative timeframe subjected to actual condition encountered at site

3. SEDIMENT SAMPLING PLAN

3.1 Proposed Sampling Locations and Depth of Sampling

3.1.1 A total of **twelve (12)** sampling locations are proposed for the land-based sediment quality assessment. As the proposed YLEPP covers the whole of existing YLSTW, the locations were proposed taken into consideration the existing facilities and operation of the existing YLSTW. Details of the sampling locations are shown in **Table 3.1** and illustrated in **Figure No. 6050476/MSSST/702**. The sampling locations generally follow the 100 x 100m grid arrangement.

Table 3.1 Details of Proposed Sampling Locations

Proposed Sampling Location ID	Coordinates*	
	Easting	Northing
BH01(E)	820878.89	836641.04
BH04(E)	820784.99	836600.78
BH06(E)	820957.42	836603.80
BH07(E)	820727.00	836532.95
BH08(E)	820788.72	836549.93
BH09(E)	820930.72	836491.90
BH11(E)	820712.09	836462.25
BH13(E)	820814.09	836420.13
BH14(E)	820697.47	836395.11
BH16(E)	820803.13	836374.13
BH17(E)	820876.28	836361.63
BH18(E)	820919.31	836364.22

Note:

* Actual locations subject to fine adjustments on-site.

3.1.2 In addition to the above and if biological screening is required, a grab sample will also be collected from EPD's routine sediment monitoring station PS6 at Port Shelter (E850234, N820057) as the reference sediment sample.

3.1.3 The exact sampling locations will be determined on site and subject to fine adjustment due to site specific conditions (e.g. locations, presence of foundations, underground utilities, delivery pipes and services). Details of the adjustments, if any, will be reported in the EIA study.

3.2 Sampling Procedure

3.2.1 Upon determination of the exact sampling locations, a survey will be undertaken to measure the Hong Kong Grid Coordinates and metres above the Principal Datum (mPD) of the sampling locations.

3.2.2 All sediment samples will be collected using borehole drilling method. The borehole will be undertaken by means of dry rotary drilling method (i.e. without the use of flushing medium) as much as possible. For safety reasons, an inspection pit will be excavated down to 1.5m below ground level (m bgl) to inspect for underground utilities at the proposed borehole locations.

3.2.3 Soil boring using drill rigs should then be performed at depth 1.5m below ground. Undisturbed samples using U100 sampler (made of stainless steel or other

appropriate materials) will be collected at depth where marine sediments are firstly encountered and samples will be taken at that particular depth (i.e. immediately above the top of marine deposit), 0.9m down, 1.9m down, 2.9m down and then every 3m down to the borehole termination depth. The depth of sediment sampling will be terminated at least 1m below the base of marine sediment or base of excavation, whichever is shallower. Sufficient amount of sediment sample will be taken for both chemical and biological testing. The undisturbed samples will be sealed up with tightly fitting rubber caps and duct-taped in place. Each sample will be clearly labeled 'top' and 'bottom' and with sample identity (e.g. station number, sample depth, sampling date and time, together with full description of the sample).

3.2.4 The samples will be stored, transported and maintained at 4°C or lower without being frozen in the dark prior to any laboratory testing. All samples will be packed and transported in such a manner as to avoid shock, vibration or any other disturbance of the samples. Samples will be delivered to laboratory within 24 hours after collection and analyzed within 14 days of delivery for chemical testing. The chain-of-custody procedure will be followed to record the flow of sample handling, from collection of samples to delivery of samples to the designated laboratory.

3.3 Strata Logging

3.3.1 Strata logging for boreholes should be undertaken during the course of drilling/digging and sampling by a qualified geologist. The logs should include the general stratigraphic description, depth of soil sampling, sample notation and level of groundwater (if encountered). The presence of rocks/boulders/cobbles and foreign materials such as metals, wood and plastics should also be recorded.

3.4 Sediment Sampling at Port Shelter

3.4.1 Prior to sampling, the laboratory responsible for analysis will be consulted for the sample size for both chemical and biological testing as well as the required preservation procedures.

3.4.2 Prior to sampling, the sampling location should also be set out with the aid of a differential global positioning system (DGPS) or equivalent device. After the setting out, the depth of water or the seabed surface level, in metres below the Principal Datum (mPD), should be measured.

3.4.3 Surface sediment will be taken by a closed grab sampler at EPD's routine marine sediment monitoring station PS6 at Port Shelter (E850234, N820057) as the reference sample. The grab sampler will be thoroughly washed with seawater prior to each sampling attempt.

3.4.4 The surface sediment samples will be recovered on site and placed in laboratory-provided clean high density polyethylene containers, wide mouth borosilicate glass bottles with Teflon lined lids or other appropriate containers and sealed to prevent leakage. Only new or pre-cleaned sample containers will be used to hold the sediment samples. The containers will be labeled with station number, sample depth, sampling date and time, together with full description of the sample. If the contents are hazardous, this will be clearly marked on the container and precautions taken during transport.

3.4.5 The samples will be stored, transported and maintained at 4°C or lower without being frozen in the dark prior to any laboratory testing. All samples will be packed and transported in such a manner as to avoid shock, vibration or any other disturbance of the samples. Samples will be delivered to laboratory within 24 hours after collection and analyzed within 14 days of delivery for chemical testing. The chain-of-custody procedure will be followed to record the flow of sample handling, from

collection of samples to delivery of samples to the designated laboratory.

3.5 Sample Size and Decontamination Procedures

3.5.1 All equipment in contact with the sediment should be thoroughly decontaminated between each excavation, drilling and sampling event to minimize the potential for cross contamination. The equipment (including drilling equipment and sediment samplers) should be decontaminated by steam cleaning or high-pressure hot water jet, then washed by phosphate-free detergent and finally rinsed by distilled water.

3.5.2 Prior to sampling, the laboratory responsible for analysis should be consulted for the particular sample size for chemical / biological testing. According to *ETWB TC(W) No. 34/2002*, the recommended sample sizes for each parameter and test are as follows:

Table 3.2 Recommended Sample Size

Parameters to be tested	Sample Size
Metals and metalloid	0.5 L
Others	0.5 L
Biological response	6 L

4. LABORATORY ANALYSIS

4.1 Tier II Chemical Screening

4.1.1 Sediment samples collected will be tested for parameters stated in Table 1 – Analytical Methodology in Appendix B of *ETWB TCW No. 34/2002*. The parameters to be analyzed, methodology used and reporting limits are presented in **Table 4.1** below.

Table 4.1 Chemical Testing Parameters

Parameters	Reporting Limit	Preparation Method USEPA Method [^]	Determination Method USEPA Method [^]
Metals (mg/kg dry weight)			
Cadmium (Cd)	0.2	3050B	6020A or 7000A or 7131A
Chromium (Cr)	8	3050B	6010C or 7000A or 7190
Copper (Cu)	7	3050B	6010C or 7000A or 7210
Mercury (Hg)	0.05	7471A	7471A
Nickel (Ni)	4	3050B	6010C or 7000A or 7520
Lead (Pb)	8	3050B	6010C or 7000A or 7420
Silver (Ag)	0.1	3050B	6020A or 7000A or 7761
Zinc (Zn)	20	3050B	6010C or 7000A or 7950
Metalloid (mg/kg dry weight)			
Arsenic	1	3050B	6020A or 7000A or 7061A
Organic-PAHs (µg/kg dry weight)			
Low Molecular Weight PAHs ⁺	55	3550B or 3540C and 3630C	8260B or 8270C
High Molecular Weight PAHs ⁺⁺	170	3550B or 3540C and 3630C	8260B or 8270C
Organic-non-PAHs (µg/kg dry weight)			
Total PCBs ⁺⁺⁺	3	3550B or 3540C and 3665A	8082
Organometallics (µg TBT/L in interstitial water)			
Tributyltin	0.015	Krone et al. (1989)* - GC/MS UNEP/IOC/IAEA**	Krone et al. (1989)* - GC/MS UNEP/IOC/IAEA**

Note:

[^] Other equivalent methods may be used subject to the approval of DEP.

⁺ Low molecular weight PAHs include acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene.

⁺⁺ High molecular weight PAHs include benzo(a)anthracene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluoranthene, pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-c,d)pyrene and benzo(g,h,i)perylene.

⁺⁺⁺ The reporting limit is for individual PCB congeners. Total PCBs include 2,4' diCB, 2,2',5' triCB, 2,4,4' triCB, 2,2',3,5' tetraCB, 2,2',5,5' tetraCB, 2,3',4,4' tetraCB, 3,3',4,4' tetraCB, 2,2',4,5,5' pentaCB, 2,3,3',4,4' pentaCB, 2,3',4,4',5' pentaCB, 3,3',4,4',5' pentaCB, 2,2',3,3',4,4' hexaCB, 2,2',3,4,4',5' hexaCB, 2,2',4,4',5,5' hexaCB, 3,3',4,4',5,5' hexaCB, 2,2',3,3',4,4',5' heptaCB, 2,2',3,4,4',5,5' heptaCB, 2,2',3,4',5,5',6' heptaCB (ref: the "summation" column of Table 9.3 of Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual (The Inland Testing Manual) published by USEPA).

* Krone et al. (1989), A method for analysis of butyltin species and measurement of butyltins in sediment and English Sole livers from Puget Sound, Marine Environmental Research 27 (1989) 1-18. Interstitial water to be obtained by centrifuging the sediment and collecting the overlying water.

** UNEP/IOC/IAEC refers to IAEA's Marine Environment Laboratory reference methods. Interstitial water to be obtained by centrifuging the sediment and collecting the overlying water.

4.2 Tier III Biological Screening

4.2.1 In accordance with the guidelines of *ETWB TCW No. 34/2002*, Tier III biological screening will be necessary for all Category M and certain Category H sediment samples in which one or more contaminants exceed 10 times of Lower Chemical Exceedance Level (LCEL) as identified in the Tier II chemical screening. The methods will follow the guidelines of *ETWB TCW No. 34/2002*.

4.2.2 The biological screening will either be conducted on the composite samples or individual samples, depending on the category and distribution profile. If composite samples are to be tested, they should be prepared by mixing up to 5 samples of the same category (M or H) which are continuous in vertical or horizontal profile.

4.2.3 According to *ETWB TCW No. 34/2002*, the following three toxicity tests (to be considered as one set) will be conducted on Category M and certain Category H sediments:

- a 10-day burrowing amphipod toxicity test;
- a 20-day burrowing polychaete toxicity test; and
- a 48-96 hour larvae (bivalve or echinoderm) toxicity test.

4.2.4 The species to be used for each type of biological test and the test conditions are listed in **Table 4.2** below.

Table 4.2 Testing Species for Biological Screening

Test Type	Species	Reference Test Condition ⁽¹⁾⁽²⁾
10-day burrowing amphipod toxicity test	<i>Ampelisca abdita</i>	USEPA (1994) / PSEP (1995)
	<i>Leptocheirus plumulosus</i>	USEPA (1994)
	<i>Eohaustorius estuaries</i>	USEPA (1994) / PSEP (1995)
20-day burrowing polychaete toxicity test	<i>Neanthes arenaceodentata</i>	PSEP (1995)
48-96 hour larvae (bivalve or echinoderm) toxicity test	Bivalve: <i>Mytilus spp.</i> <i>Crassostrea gigas</i>	PSEP (1995)
	Echinoderm: <i>Dendraster excentricus</i> <i>Strongylocentrotus spp.</i>	

Remark:

(1) U.S.EPA (U.S. Environmental Protection Agency) 1994. Methods for assessing the toxicity of sediment-associated contaminants with estuarine and marine amphipods. Office of Research and Development. U.S. Environmental Protection Agency, Cincinnati, OH. EPA/600/R94/025.

(2) PSEP (Puget Sound Estuary Program) 1995. Recommended guidelines for conducting laboratory bioassays on Puget Sound sediments.

4.2.5 Category H sediment with one or more contaminant levels exceeding 10 times LCEL should also be subjected to the above three toxicity tests but in a diluted manner (dilution test). All biological tests should be conducted by accredited laboratories and include appropriate quality assurance / quality control such as negative control and positive control. Samples of reference sediment will also be tested.

4.2.6 Additional ancillary parameters including moisture content, grain size, total organic content (TOC), ammonia and salinity of pore water should also be tested on the composite and reference samples. The ancillary test will provide necessary information on the general characteristic of the sediment. Test organisms will be selected based on their application limits for sediment grain size and porewater

salinity. When ammonia level is found to be higher than the tolerance limit (i.e. > 20mg/l), sediment samples will be flushed (purged) by frequent renewal of the overlying water after test set-up, until the ammonia level drops below the tolerance limit.

4.2.7 Sediment samples will be thoroughly homogenized prior to initiation of any tests to minimize variance among test replicates. Debris and indigenous organisms present in the sediment will be removed beforehand so that neither false positive results (due to presence of predatory species) nor false negative results (from indigenous species that are taxonomically similar to the test species) will be generated.

4.2.8 The samples should be promptly analyzed with maximum holding time of 2 weeks for chemical test and 8 weeks for biological test.

4.3 QA/QC Requirements

4.3.1 All tests will be conducted by laboratories accredited by Hong Kong Laboratory Accreditation Scheme (HOKLAS) or, in case of overseas laboratories, by equivalent accreditation for these tests.

4.3.2 For chemical screening, the following QC plan will be implemented for the laboratory testing:

- Method Blank;
- Duplicate (at 5% level i.e. one for every 20 samples); and,
- Matrix Spike (at 5% level i.e. one for every 20 samples).

4.3.3 The proposed data quality objectives are shown in **Table 4.3**.

Table 4.3 Data Quality Objectives for Chemical Screening

Quality Controls	Acceptance Criteria
Method Blank	Less than method detection limit (MDL)
Duplicate	Agree within ±25% of the mean of duplicate results
Matrix Spike	Agree within ±25% of the recovery of spike concentration

4.3.4 For biological screening, negative and positive control should be included as appropriate quality assurance/quality control.

5. INTERPRETATION OF RESULTS

5.1.1 For Tier II chemical screening, the sediment quality will be assessed according to sediment quality criteria in Appendix A of *ETWB TCW No. 34/2002*. As specified in the *ETWB TCW No. 34/2002*, sediments will be classified into three categories based on their contaminant levels. The classification is as follows:

Category L: Sediment with all contaminant levels not exceeding the LCEL. The material must be dredged, transported and disposed of in a manner that minimizes the loss of contaminants either into solution or by suspension.

Category M: Sediment with any one or more contaminant levels exceeding the LCEL and none exceeding the UCEL. The material must be dredged and transported with care, and must be effectively isolated from the environment upon final disposal unless appropriate biological tests demonstrate that the material will not adversely affect the marine environment.

Category H: Sediment with any one or more contaminant levels exceeding the UCEL. The material must be dredged and transported with great care, and must be effectively isolated from the environment upon final disposal.

5.1.2 The sediment quality criteria for the classification of sediment are shown in **Table 5.1** below.

Table 5.1 Sediment Quality Criteria for the Classification of Sediment

Contaminants	Lower Chemical Exceedance Level (LCEL)	Upper Chemical Exceedance Level (UCEL)
Metals (mg/kg dry wt.)		
Cadmium (Cd)	1.5	4
Chromium (Cr)	80	160
Copper (Cu)	65	110
Mercury (Hg)	0.5	1
Nickel (Ni)*	40	40
Lead (Pb)	75	110
Silver (Ag)	1	2
Zinc (Zn)	200	270
Metalloid (mg/kg dry wt.)		
Arsenic	12	42
Organic-PAHs (µg/kg dry wt.)		
Low Molecular Weight PAHs	550	3160
High Molecular Weight PAHs	1700	9600
Organic-non-PAHs (µg/kg dry wt.)		
Total PCBs	23	180
Organometallics (µg TBT/L in Interstitial water)		
Tributyltin*	0.15	0.15

Remark:

* The contaminant level is considered to have exceeded the UCEL if it is greater than the value shown.

5.1.3 Upon completion of the Tier II chemical screening, Tier III biological screening will be conducted for sediment samples that were classified as either Category M or Category H sediment with one or more contaminant levels exceeding 10 times the

LCEL. The test endpoints and decision criteria for biological screening are summarized in **Table 5.2**. The sediment is deemed to have failed the biological test if it fails in any one of the three toxicity tests.

Table 5.2 Test Endpoints and Decision Criteria for Tier III Biological Screening

Toxicity Test	Endpoints Measured	Failure Criteria
10-day amphipod	Survival	Mean survival in test sediment is significantly different ($p \leq 0.05$) ¹ from mean survival in reference sediment and mean survival in test sediment <80% of mean survival in reference sediment.
20-day polychaete worm	Dry Weight ²	Mean dry weight in test sediment is significantly different ($p \leq 0.05$) ¹ from mean dry weight in reference sediment and mean dry weight in test sediment <90% of mean dry weight in reference sediment.
48-96 hour larvae (bivalve or echinoderm)	Normality Survival ³	Mean normality survival in test sediment is significantly different ($p \leq 0.05$) ¹ from mean normality survival in reference sediment and mean normality survival in test sediment <80% of mean normality survival in reference sediment.

Remark:

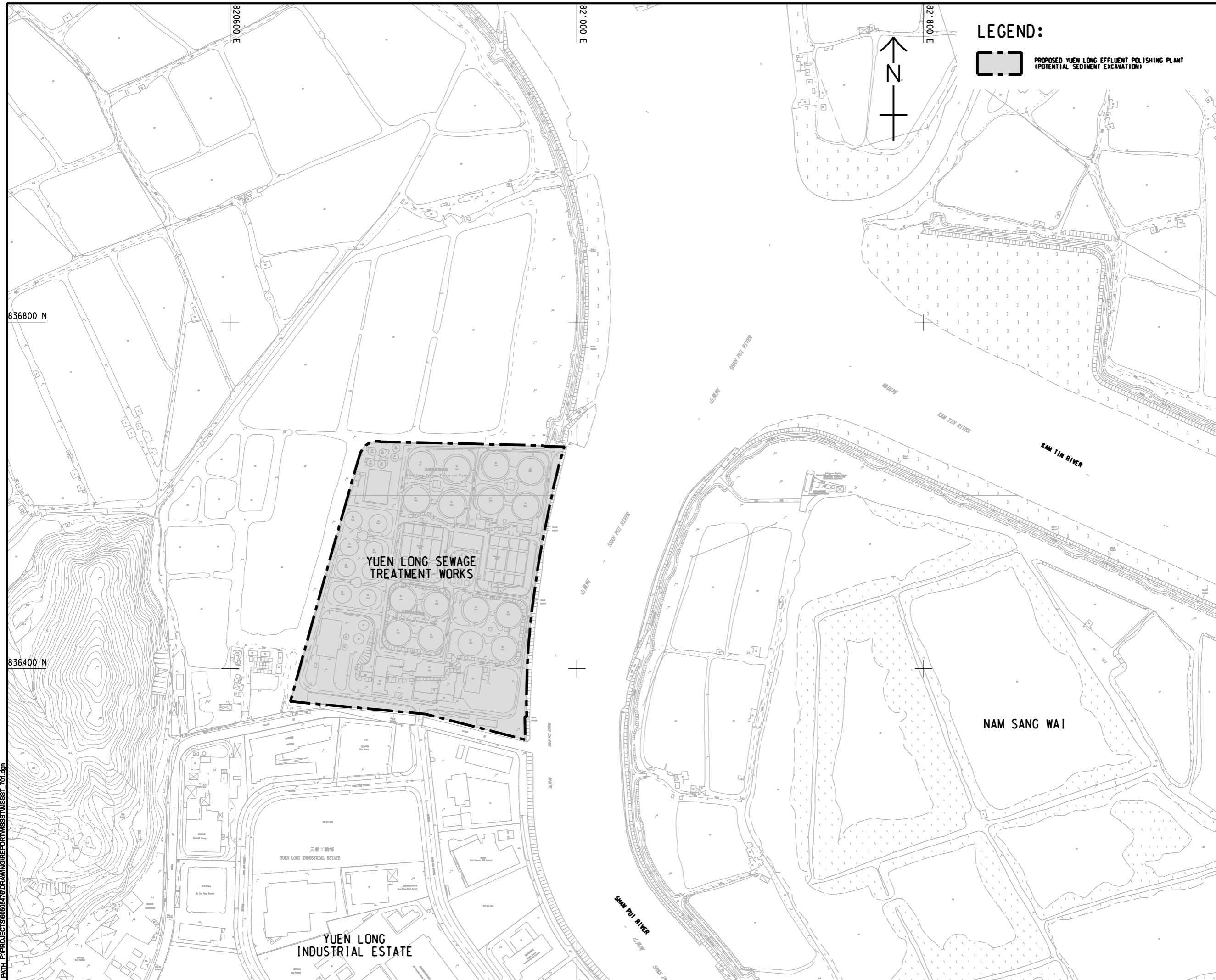
1. Statistically significant differences should be determined using appropriate two-sample comparisons (e.g., t-tests) at a probability of $p \leq 0.05$.
2. Dry weight means total dry weight after deducting dead and missing worms.
3. Normality survival integrates the normality and survival end points, and measures survival of only the normal larvae relative to the starting number.

5.1.4 The sediment quality results would be presented in the EIA Study and would facilitate the assessment of the waste management implications to the Project.

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Figures

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LEGEND:

 PROPOSED YUEN LONG EFFLUENT POLISHING PLANT (POTENTIAL SEDIMENT EXCAVATION)

AECOM

PROJECT
項目

YUEN LONG EFFLUENT POLISHING PLANT - INVESTIGATION, DESIGN AND CONSTRUCTION

CLIENT
業主

 渠務署
Drainage Services Department

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分門工程顧問公司

ISSUE/REVISION
更改

I/R 更改	DATE 日期	DESCRIPTION 內容摘要	CHK. 校核

STATUS
階段

SCALE
比例

A1 1 : 2000

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60505476

CONTRACT NO.
合約編號

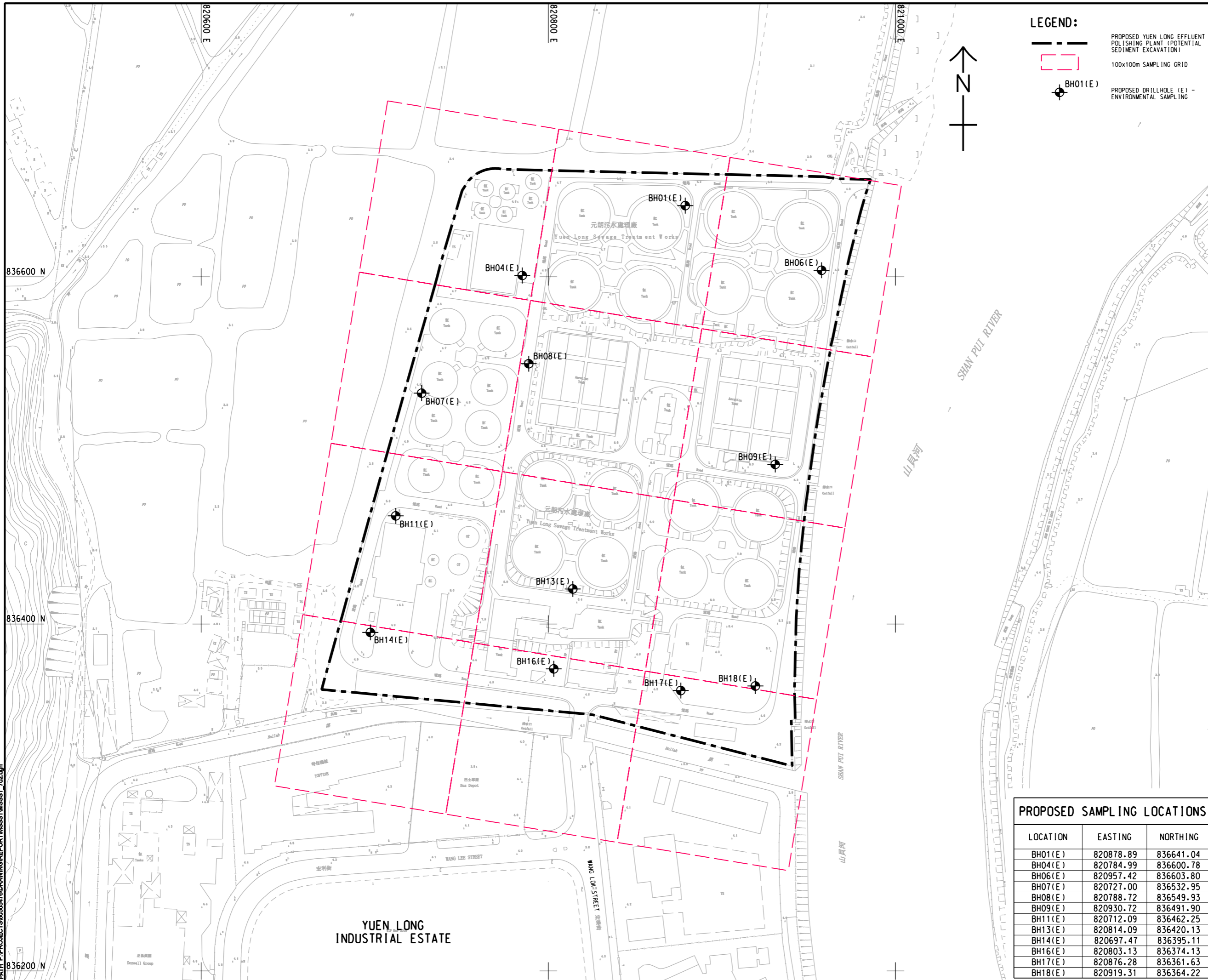
CE 3/2015 (DS)

SHEET TITLE
圖紙名稱

LOCATION OF PROPOSED
YUEN LONG EFFLUENT
POLISHING PLANT

SHEET NUMBER
圖紙編號

60505476/MSSSTP/701



LEGEND:

- 100x100m SAMPLING GRID
- PROPOSED DRILLHOLE (E) - ENVIRONMENTAL SAMPLING



PROJECT
YUEN LONG EFFLUENT POLISHING PLANT - INVESTIGATION, DESIGN AND CONSTRUCTION

CLIENT
 渠務署
 Drainage Services Department

CONSULTANT
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ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE
 A1 1: 1000

DIMENSION UNIT
 METRES

KEY PLAN

PROPOSED SAMPLING LOCATIONS

LOCATION	EASTING	NORTHING
BH01(E)	820878.89	836641.04
BH04(E)	820784.99	836600.78
BH06(E)	820957.42	836603.80
BH07(E)	820727.00	836532.95
BH08(E)	820788.72	836549.93
BH09(E)	820930.72	836491.90
BH11(E)	820712.09	836462.25
BH13(E)	820814.09	836420.13
BH14(E)	820697.47	836395.11
BH16(E)	820803.13	836374.13
BH17(E)	820876.28	836361.63
BH18(E)	820919.31	836364.22

PROJECT NO.
 60505476

CONTRACT NO.
 CE 3/2015 (DS)

SHEET TITLE
 PROPOSED GROUND INVESTIGATION LAYOUT PLAN

SHEET NUMBER
 60505476/MSSSTP/702

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