Agreement No. CE 59/2019 (EP)
Food Waste Pre-treatment Facilities for Anaerobic Co-digestion Trial Scheme at Sha Tin Sewage Treatment Works - Investigation, Design and Construction

DRAFT BRIEF

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1 Introduction

1.1 This Brief is to be read in conjunction with the Memorandum of Agreement, the General Conditions of Employment of Engineering and Associated Consultants for a Design and Construction Assignment, Special Conditions of Employment, Schedule of Fees. For the avoidance of doubt but without prejudice to Clause 7 of the General Conditions of Employment, the performance of the Services specified herein shall be subject to Clause 22 of the General Conditions of Employment.

2 Description of the Project

2.1 In addition to the words and expressions as defined in the General Conditions of Employment of Engineering & Associated Consultants for a Design and Construction Assignment and the Special Conditions of Employment, the definitions used in this Brief shall be as defined as follows:

“Capital Value” means the Contractors' total lump sum price for execution and completion of the Design and the Works under the Contract.

“Certificate of Substantial Completion” means a certificate issued by the Employer to the Contractor certifying substantial completion of the Works under the Contract.

“Contract” means the Contract for the design, construction and operation of the Food Waste Pre-treatment Facilities for the Anaerobic Co-digestion Trial Scheme at the Sha Tin Sewage Treatment Works

“Contractor” means the company appointed by the Employer for the execution of the Contract.
| **“day”** | means a calendar day according to the Gregorian calendar and includes General Holidays. |
| **“Facility”** | means the Works carried out and completed by the Contractor and any changes thereto following the completion of the Works to be operated in accordance with the Contract, including but not limited to the supplied or completed Plant and Mobile Plant. |
| **“Food Waste”** | Food waste is any waste, whether raw, cooked, edible and associated with inedible parts generated during food production, distribution, storage, meal preparation or consumption of meals. It includes pre-consumed or leftover food such as rice, meat, bones, vegetables, various fruit peel, bread, used tea leaves and expired food. |
| **“Operation”** | means the operation to receive food waste, and the processing, pre-treating and delivering of it for subsequent co-digestion with sewage sludge at the Sha Tin Sewage Treatment Works, and the continuous environmental and performance monitoring of the Facility and the Site by the Contractor, as described in and in accordance with the Contract together with all work ancillary thereto as may be expressed in or inferred from the Contract, and "Operate" and "Operated" shall be construed accordingly. |
| **“Site”** | means the lands and other places under, over, on, in or through which the Works are to be constructed and any other land or places provided by the Employer for the purpose of the execution of the Works and the Operation together with such other places as may be subsequently agreed in writing by the Employer as forming part of the Site. |
| **“Works”** | mean the works or services (or any part or component thereof) to be designed, constructed, completed, commissioned and/or supplied in accordance with the Contract including but not limited to the Plant, Mobile Plant and the Temporary Works, but does not include the Operation. |
2.2 The Government has set out in the “Food Waste & Yard Waste Plan for Hong Kong 2014 – 2022” (the Food Waste Plan1) released in February 2014 that Hong Kong, among other things, needs to build a network of around five to six Organic Waste Treatment Facilities (OWTFs) with a total recycling capacity of about 1,300 to 1,500 tonnes per day (tpd).

2.3 In addition to new facilities, consideration can be given to utilizing the available capacity of anaerobic digesters at those sewage treatment works with secondary treatment for co-digestion of food waste and sewage sludge. The practice of anaerobic co-digestion is well established in many countries such as Germany, Denmark, Spain, South Korea and China.

2.4 There are prominent economic advantages of co-digestion from shared equipment, reduced land requirement, easier handling of feedstock, and a more stable process in general. Moreover, co-digestion is known to be able to improve nutrient balance and biogas yield due to positive synergy established in the digestion media in the sewage sludge anaerobic digestion process. The other potential benefits of food waste-sewage sludge co-digestion include:

(a) Reduce the lead time to provide Hong Kong with adequate food waste treatment capacity;
(b) Reduce the capital and recurrent costs as compared to a dedicated food waste treatment plant for the same food waste treatment capacity;
(c) Improve the biogas yield at the existing anaerobic digestion systems of sewage treatment works as food waste is more readily decomposable than sewage sludge;
(d) Optimize the utilization of the existing anaerobic digestion systems of sewage treatment works;
(e) Provide synergy in co-location and co-treatment of different waste types in new sewage treatment facilities; and
(f) Reduce the number of new OWTFs required to provide Hong Kong with adequate food waste treatment capacity, if co-digestion is proven to be viable and practicable.

2.5 A full scale trial scheme is thus needed to confirm the feasibility and to assess the cost-effectiveness, environmental implications, additional land requirements and technical requirements of food waste-sewage sludge co-digestion at the existing anaerobic digestion systems of sewage treatment works.

2.6 Facilities and existing anaerobic digestion system at the Sha Tin Sewage Treatment Works (Sha Tin STW) are selected to be used for the investigation, design, construction and

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operation of a proposed full scale food waste and sewage sludge co-digestion trial (Trial Scheme). The proposed scope of the Trial Scheme comprises:

(a) Reception of food waste to be collected primarily from domestic generators in the Sha Tin and nearby districts and delivered by others to the proposed pre-treatment facilities;
(b) Pre-treatment of food waste at a selected area within the Sha Tin STW (the Site, a location plan is attached at Annex 1);
(c) Conveyance of pre-treated food waste to designated anaerobic digesters at the Sha Tin STW for co-digestion;
(d) Collection and storage of biogas at the Sha Tin STW;
(e) Power generation for internal consumption at the Sha Tin STW or other uses;
(f) Dewatering of anaerobic digestion residues (digestate) at the Sha Tin STW;
(g) Delivery of digestate to other treatment and/or disposal facilities for treatment or disposal; and
(h) Carrying out the Trial Scheme for five (5) years with an option to extend the operation for another 3 years.

The Trial Scheme will be collaboratively administered and run by the Environmental Protection Department (EPD) and the Drainage Services Department (DSD). Primarily and tentatively, the EPD will be responsible for the works of items (a) to (c) and DSD will be responsible for the works of items (d) to (g).

2.7 The Project aims to set up the food waste pre-treatment including reception facilities with a capacity of about 50 tonnes per day, with objectives to receive domestic food waste, and to process, pre-treat and convey it to the designated anaerobic digesters for subsequent co-digestion with sewage sludge at the Sha Tin STW at the most cost-effective manner, and to carry out necessary environmental mitigations during construction and operation and performance monitoring of the food waste pre-treatment facilities.

2.8 Site formation works and alteration/demolition of the existing structures and facilities shall be kept to an absolute minimum. The existing chemical storage tanks, associated covers, Sodium Hydroxide Storage Tank, sludge pump and associated sludge pipes will be removed by DSD. Any proposal for demolition, alteration, relocation and reprovisioning of existing structures and facilities shall be agreed with DSD prior to implementation. Implementation of the Project and its associated works including any alteration/demolition works shall not affect the required functional, operational and environmental performance of the Sha Tin STW.
2.9 The procurement, design, construction and commissioning of the Project is to be managed and implemented under an Investigation, Design and Construction (IDC) consultancy. The services to be provided under the IDC consultancy shall include technical assessments, reference design, planning application, environmental review, public consultations, tender and contract preparation, tendering, construction supervision, facilities commissioning and post-commissioning performance monitoring and review for the food waste pre-treatment facilities.

3 Objectives of the Assignment

3.1 The objectives of the Assignment are as follows:

(a) given that domestic food waste to be collected primarily from domestic generators in the Sha Tin and nearby districts would be delivered by Refuse Collection Vehicles to the Site by others, evaluate the quantity, quality and characteristics of domestic food waste that could be made available for the Trial Scheme;

(b) assess and recommend appropriate pre-treatment methods and equipment for domestic food waste including reception facilities for domestic food waste to be delivered to the Site;

(c) carry out a reference design of the Project and establish the engineering feasibility;

(d) identify and assess the interfacing issues between the food waste pre-treatment facilities and the existing anaerobic digestion facilities and other existing process/facilities of the Sha Tin STW that may be affected, and propose cost-effective solutions to resolve the interfacing problems;

(e) conduct an environmental review to ensure that most of the significant environmental factors of the Project are addressed and proper environmental mitigation measures as necessary are proposed, including implications on the requirements of the current Environmental Permit of the Sha Tin STW;

(f) review the current land use in Sha Tin STW and apply for planning permission, if necessary;

(g) conduct a traffic impact assessment associated with the food waste collection and delivery at selected road junctions within the area of influence of the Sha Tin STW, and assess movements of vehicles associated with the delivery/unloading of food waste entering/leaving and within the Sha Tin STW and recommend traffic arrangements to minimize potential impact on the operation of the Sha Tin STW;

(h) resolve any land use issues;

(i) support and conduct public consultations;
(j) carry out the procurement and tendering process for the Project;

(k) undertake contract administration, project management, site supervision and post-commissioning monitoring for the Project to ensure proper execution by the Contractor of the design, construction, testing and commissioning in accordance with the Contract;

(l) monitor, review, provide expert advice and report on matters relating to the design, construction, testing and commissioning, environmental, operational and safety requirements of the Contract to achieve:
   i. satisfactory and successful progress and completion of the design and construction within the Contract programme and Capital Value;
   ii. the required quality and performance standards for the design, construction, operation and maintenance; and
   iii. compliance with the environmental, operational and safety requirements.

(m) conduct operational, maintenance, environmental and safety post-commissioning performance monitoring and reviews for a period of six months upon the Project’s commissioning.

4 Description of the Assignment

4.1 The Services to be provided by the Consultants for the Assignment, as set out in Clause 6 of this Brief, are divided into the following Phases:
   (a) Phase I – Investigation and Reference Design Phase: Engineering Feasibility, Environmental Review, Technical Assessments and Reference Design;
   (b) Phase II – Tender Phase: Tender Document Preparation, Tender Evaluation and Contract Document Preparation;

4.2 Whereas the Phase I - Investigation and Reference Design Phase shall commence upon the commencement of this Assignment, the Consultants shall only commence Phase II and III on receipt of written instruction from the Director’s Representative. The Consultants shall successfully complete works for each Phase as described in Clause 6 of this Brief and achieve the target milestone dates as set out in Clause 8 of this Brief.

4.3 The Phase II and Phase III have been designated as “Phases Subject to Incorporation” pursuant to Clause SCE 1 of the Special Conditions of Employment. The Consultants shall not commence and will not be paid for the services comprised within each of the “Phases Subject to Incorporation” without written instruction to do so from the Director’s
Representative. The Government shall not be held liable in any way in the event that the project does not proceed from one phase to the next.

4.4 The Assignment covers the following:


a) review international practices and standards for pre-treatment of domestic food waste for co-digestion with sewage sludge and the related pollution control systems, evaluate their applicability to Hong Kong situations and recommend practices and standards to be adopted for the Project;

b) given that food waste collected primarily from domestic generators in the Sha Tin and nearby districts would be delivered by Refuse Collection Vehicles to the Site by others, evaluate the quantity, quality and characteristics of food waste that could be made available for the Trial Scheme;

c) review available geotechnical and ground investigation (GI) information and arrange and supervise required GI works for the Project as necessary;

d) determine the key constraints, challenges, requirements, elements, components and equipment of the Project including any related ancillary or supporting facilities such as weight bridge, vehicle washing facilities, ventilation, odour control system, control panel/ control room etc.; identify and evaluate different equipment for crushing domestic food waste, evaluate whether the existing weight bridge at Sha Tin STW can be share-used by this Trial Scheme; identify and evaluate different options of arrangements and layout of facilities within the Site and recommend the pre-treatment capacity and the preferred option taking into account the applicable constraints and relevant factors identified;

e) prepare a reference design of the Project for receiving, processing, pre-treating and delivering domestic food waste to designated anaerobic digestion tanks at the Sha Tin STW for co-digestion with sewage sludge. The reference design shall address the potential variations in food waste quantity, characteristics of domestic food waste and amount of impurities with a view to determining the most practical and optimal process, plants, equipment and control parameters for the subsequent co-digestion process. However, in view of the limited available area of the Site and surrounding constraints, appropriate pre-treatment and reception facilities with smaller foot-print yet cost-effective and efficient shall be preferred;

f) assess and recommend the requirements for modification of the existing facilities, if any, of the Sha Tin STW and operational requirements for carrying out the co-digestion of food waste with sewage sludge including, but not limited, to the following:
i. in relation to the anaerobic co-digestion process and associated facilities, the quantity of food waste to be assessed is up to 50 tpd from the proposed on-site pre-treatment facilities;

ii. the pumping and conveyance of the pre-treated food waste to the designated anaerobic digesters;

iii. implementation plan and time needed for the installation and testing of the required equipment, as well as resolving the interfacing issues;

iv. any other equipment and operational requirements as necessary.

g) explore options and recommend the most cost-effective connection arrangement for the delivery of pre-treated domestic food waste to the designated anaerobic digesters at the Sha Tin STW for the agreement of the DSD;

h) determine performance, control and design requirements of the Project and prepare estimates of capital and operational costs;

i) conduct an environmental review in accordance with the Environmental Review Brief at Annex 5, assessment of operational traffic movements in the Sha Tin STW and traffic impact during the construction phase, wastewater impact assessment and drainage impact assessment for the Project;

j) conduct current land use review and prepare supporting documents for planning application, if necessary;

k) provide the Director’s Representative with expert views on the Project, including but not limited to, technical feasibility, cost-effectiveness, environmental implications, town planning and any other necessary requirements;

l) support and conduct public consultations, taking into account possible concerns of local communities, trade associations and on other planned and existing developments in Sha Tin District;

Phase II - Tender Phase: Tender Document Preparation, Tender Evaluation and Contract Document Preparation

m) review, identify and recommend the preferred procurement option for the provision and operation of the Project. The recommendation shall include type of contract, length of contract period, contract payment methods for both capital and operational costs, and if any, interfacing arrangements with the Sha Tin STW, etc.;

n) prepare screening criteria, marking scheme and tender documents for the Project based on the preferred procurement strategy and/or contract option;

o) undertake the tendering exercise, evaluate the technical and financial submissions, assist and provide technical support to the Tender Assessment Panel in the tender assessment, prepare the tender assessment and recommendation report and negotiate with tenderers if necessary; prepare contract documents; and undertake tender debriefings for
unsuccessful tenderers upon request;


p) provide personnel with appropriate qualifications and relevant experience to perform the duties on behalf of the Employer as stipulated in the Contract and execute all project management and contract administration tasks, including but not limited to, assessment of Contractor’s proposals and claims for additional payment and extension of time, etc. associated with the Contract during the design, construction and commissioning of the Project;

q) liaise closely with the Director’s Representative on matters relating to the design, construction and commissioning of the Project;

r) liaise closely with other Government departments/bureaux, relevant divisions of EPD, and where appropriate, public utility companies and other authorities, bodies, consultants, contractors or persons on matters relating to the design, construction and commissioning of the Project;

s) identify the critical construction activities and structural elements in the design that warrant the formulation of special site supervision requirements for such activities and structural elements;

t) provide the Director’s Representative with expert views on all matters relating to the Works of the Project and, where appropriate, matters on site investigations, survey/inspection works and the associated field & laboratory testing for the successful commissioning of the Project;

u) provide the Director’s Representative with technical notes and/or working papers on technological and process aspects of the Contractor’s proposals and design submissions, including but not limited to, the following:

- maximum amount of impurities permitted in the received food waste and the optimal design and control pre-treatment parameters for the subsequent co-digestion process;

- interfacing works including the delivery and connection systems for conveying the pre-treated food waste to the designated anaerobic digester at the Sha Tin STW and any necessary modification works required at the Sha Tin STW;

- environmental protection measures, surface and foul water systems, wastewater treatment system as necessary, mechanical and electrical services, fire services, ventilation and air pollution control systems, dust collection and separation systems, and food waste reception systems; and

- testing and commissioning procedures, and operation and maintenance requirements of the Project;
v) supervise and monitor the Works and report to the Director’s Representative on the programme, progress, quality, environmental and safety performance, cost and payment of the Works. The Consultants shall recommend options for any necessary remedy to resolve the identified problems including the associated cost of the options and the effects on the completion of the Project;

w) provide personnel with relevant qualifications and experience to review and audit Contractor’s submissions and quality of works to ensure the design and construction works shall be in full compliance with the Contract’s requirements;

x) undertake the checking of Contractor’s Works progress, assessment and valuation of the payments. The Consultants shall also assess and make recommendation to the Director’s Representative on all financial and contractual matters, including but not limited to the requests on claims and extension of time, negotiation on rates for variations submitted by the Contractor in relation of the execution of the Project throughout the duration of this Assignment;

y) supervise and manage any outstanding works carried out by the Contractor after the issuance of Certification of Substantial Completion of Works and ensure the Works are completed to the satisfaction of the Employer; and

z) monitor, review and advise the Employer on the performance and adequacy of the Project, which shall include but not limited to the operation, maintenance, safety and environmental performance, and the environmental monitoring aspects for a 6-month period after the successful commissioning of the Project. The commencement date of the successful commissioning of the Project shall be a date after written instruction given by the Director’s Representative.

5 Deliverables

General

5.1 Throughout the duration of this Agreement, the deliverables in this Clause 5 are to be supplied by the Consultants.

5.2 The Consultants shall submit up to 10 copies each of the draft and approved final version of all notes, papers, reports and documents necessary for the satisfactory completion of the Assessment including all deliverables in this Brief, unless otherwise specified.

5.3 Unless specified otherwise and except Monthly Progress Reports and Monthly Financial Reports, all reports, notes of meetings, papers and documents shall initially be submitted in draft form. A period of 2 weeks shall then be allowed for the Director’s Representative to
comment. The Consultants shall provide responses within 1 week from receipt of comments. The Consultants shall submit to the Director’s Representative the final version of the documents or reports within 1 week of satisfactory resolution of the comments, unless otherwise specified.


5.4 The Consultants shall submit 10 copies of each the following documents to the Director’s Representative for Phase I of the Assignment unless otherwise specified:

(a) The Consultants shall submit draft Inception Report within 4 weeks from the commencement of the Agreement, to the Director’s Representative. The Report shall include, but not limited to, the following:
   i. statements on the Consultants’ understanding and appreciation of the objectives of the Assignment;
   ii. approach and methodology for various parts, phases and stages of the Assignment;
   iii. a study programme, with detailed activities to be carried out, target dates for particular inputs/outputs, major tasks and key decision dates that may be required for uninterrupted progress of the Assignment, the critical path and activities shall also be identified, the programme shall include activities to be carried out in Phases II and III;
   iv. a schedule of submission of deliverables necessary for fulfilling the requirements of the Assignment; and
   v. a summary of the organization and staffing of the study team and the curricula vitae of the key members.

(b) The Consultants shall submit a draft Project Preparation Report of the Project within 1 month from the commencement of the Agreement. The Report shall:
   i. review the previous and current works, studies and reports locally and in overseas countries about co-digestion of food waste and sewage sludge with a view to confirming the feasibility of the Project from the aspects of technicalities, cost-effectiveness, environmental implications, town planning and land requirements; and
   ii. evaluate the quantity, quality and characteristics of food waste that could be available for the Trial Scheme of the Project.
(c) The Consultants shall submit a draft Ground Investigation Report of the Project within 4 months from the commencement of the Agreement.

(d) The Consultants shall submit a draft Reference Design Report of the Project within 5 months from the commencement of the Agreement. The Report shall:
   i. identify and determine the key constraints, challenges, requirements, elements, components and equipment of the Project including any related works or ancillary or supporting facilities;
   ii. identify and evaluate different equipment for crushing domestic food waste
   iii. identify and evaluate different options of arrangements and layout of facilities within the Site and recommend the pre-treatment capacity and the preferred option;
   iv. prepare a reference design of the Project including decommissioning and structure modification of the existing facilities, site drainage, preliminary sizing of major equipment and plants, connection arrangement for the delivery of pre-treated food waste to the designated anaerobic digesters, and an overall site plan with all necessary key facilities and ancillary facilities for the Project; and
   v. set out the performance requirements of the Project including the design criteria and design basis; and prepare estimates of capital and operational costs for the tender phase of the Assignment;

(e) The Consultants shall submit a draft Environmental Review (ER) Report within 5 months from the commencement of the Agreement. The ER Report shall identify environmental impacts associated with the Project including the proposed relocation and reprovisioning of existing facilities as described in Clause 2.7 above, report assessment findings of the identified environmental impacts including the implications on the requirements of the current Environmental Permit of the Sha Tin STW, confirm environmental acceptability, determine the necessary mitigation measures, determine the need for any additional environmental studies, and ascertain with justifications any implication under the Environmental Impact Assessment Ordinance such as the presence or not of Designated Project(s) and material change to the Designated Project(s)

(f) The Consultants shall submit the draft Planning Application Review Report within 6 months from the commencement of the Agreement. The Report shall contain sufficient information including location plans, site plans, other relevant plans/drawings and relevant technical assessments on the environmental, drainage, traffic, landscape and visual impacts of the Food Waste Pre-Treatment Facilities for supporting its planning application, if necessary, to be made under Section 16 of the Town Planning Ordinance.
Phase II - Tender Phase: Tender Document Preparation, Tender Evaluation and Contract Document Preparation

5.5 The Consultants shall submit 10 copies of each the following documents to the Director’s Representative for Phase II of the Assignment unless otherwise specified:

(a) Draft tender documents, draft tender drawings, draft tender notification and draft press release for works contract at least 3 months prior to the scheduled works tender invitation date;

(b) Final tender documents, tender drawings (A1 size), tender notification, press release, and Electronic Dissemination Package for works contract at least 2 months prior to the scheduled works tender invitation date;

(c) Final tender report (with recommendation for the best tender), technical and financial assessment report, and associated documents for works contracts within 8 weeks after the tender closing date of works contract;

(d) Updated Estimates within 4 weeks after acceptance of tender by the respective tender board;

(e) Tender Rate Analysis within 4 weeks after acceptance of tender by the respective tender board;

(f) Letter of Acceptance for works contract within 2 days after acceptance of tender by the respective tender board;

(g) Contract documents and drawings for works contract at least 2 weeks prior to scheduled date of contract signing; and

(h) Duplicate copies of signed contract documents and drawings for works contract within 2 weeks after contract signing;


5.6 The Consultants shall submit 10 copies of each the following documents to the Director’s
Representative for Phase III of the Assignment unless otherwise specified:

(a) Draft Quality Site Supervision Plan (QSSP) within 25 working days after award of the construction contract in Phase III, and in accordance with Clauses 6.4.15.

(b) Draft Review Statement on Contractor’s design, plans and drawings within 10 working days after checking and reviewing the Contractor’s design or revised design, plan or revised plan, drawing or revised drawing. The Consultants shall, after reviewing the design, plan or drawing, give its expert comments on the submitted design, plans and drawings and make recommendation to the Employer as stipulated in Clause 6.4.13.

(c) Monthly Progress Report to the Director's Representative within the first 5 working days of each month as required in Clause 9 of this Brief, giving details of progress made up to the end of the previous month, together with an updated programme for the remainder of the Assignment, as well as the details of the Contractor’s Works progress. The report shall also include the records of the payment up to the end of the previous month.

(d) Monthly Financial Reports referred to in Clause 10 of this Brief within the first 7 working days of the month in which the reports are due. The Consultants shall submit meeting minutes/records of every meeting convened and attended by the Consultants with other relevant Government departments, utility companies, authorities and other bodies or persons that have not involved the government officers from the management department.

(e) Monthly Construction Safety and Quality Audit Reports within 5 working days at the beginning of each monthly period during the construction stage of the Project, detailing the safety records and performance of the Contractor in safety aspects as well as the findings of the quality audits on the Contractor’s work, testing or inspections as stipulated in Clauses 6.4.20.

(f) Draft Review Report on Contractor’s Plans within 10 working days after checking and reviewing the Contractor’s draft or revised Plans, detailing the comments and assessment on the Contractor’s Plans with respect to the Contract’s requirements and making recommendation to the Director’s Representative on approving the Plans as stipulated in Clause 6.4.26.
(g) Draft Observation Reports within 10 working days after completion of installation of major equipment of key processes as specified by the Director’s Representative, which shall include, but not limited to, food waste pre-treatment facilities, modified pipelines and transfer systems, environmental protection measures, mechanical and electrical services, fire services, ventilation and air pollution control systems, with all necessary records detailing the assessment on the installation, function and performance of the plant and equipment as stipulated in Clause 6.4.29.

(h) Draft Commissioning Report within 1 month after satisfactory commissioning of the Project, with all necessary records detailing the commissioning procedures, the Consultants’ observations with respect to testing results, problems encountered and relevant mitigation measures, and overall performance of all the major plants and equipment as stipulated in Clause 6.4.31.

(i) Bi-Monthly Monitoring, Review and Recommendation Report within 5 working days after the end of the 2nd and 4th months, giving the Consultants’ monitoring and review of the performance and adequacy of Facility as stipulated in Clause 6.4.32, identifying any substandard performance or deficiency, and giving advice and recommendations on any immediate rectifying actions and/or remedial measures required.

(j) Draft Final Monitoring, Review and Recommendation Report within 5 working days after the end of the 6th month, summarizing the Consultants’ monitoring and review of the performance and adequacy of the Facility and giving the Consultants’ advice and recommendations for further improving the performance, efficiency and adequacy of the Facility.

(k) The Consultants shall have copies of all written correspondence between the Consultants and the Contractor, and where appropriate, its agents and sub-contractors in relation to the Contract, properly filed, classified and indexed to enable easy reference, search and retrieval of information.

Other Requirements

5.7 In addition to the number of hard copies specified above, the Consultants shall also submit electronic copies of the approved final version of all deliverables including drawings in this Clause 5 to the Director’s Representative in both editable and image formats to be agreed upon.
5.8 The Consultants shall draw to the attention of the Director’s Representative any deliverables that are under licence and any pre-existing copyright or patent on any deliverables and any other restriction whatsoever affecting the Employer’s use of the same and, if required by the Director’s Representative, to establish the existence of any licence, copyright, patent or restriction.

5.9 The content and format of all deliverables prepared by the Consultants shall be subject to the satisfaction of the Director’s Representative.

5.10 Unless otherwise specified by the Director's Representative, the Consultants shall prepare the required reports and documents in accordance with the following "green" measures:

(a) All notes, papers, tender documents and other relevant documents including their draft forms should be of A4 size, printed on both sides of recycled paper. The use of recycled paper with not less than 50% recycled materials and not exceeding 80 gsm should be used as a general rule. Bleached papers should not be used if possible. The logo of recycled paper should be printed in prominent area of the report.

(b) Unnecessary or excessive use of plastic laminates, glossy covers or double covers, and blank papers in the production of the documents should be avoided as far as possible. Use of recyclable non-glossy art board paper as document covers is recommended.

(c) Excessive space around the borders and in between the paragraphs of all documents should be avoided as far as possible. As a general rule, a margin of 2 cm should be sufficient. Reports should be of single line spacing on both sides of the paper.

(d) The number of pages can be reduced by reducing the size of type face (font). For example, "Times New Roman" or "C.G. Times" font size in the range of 10-12 characters per inch (cpi) or equivalent should be used in balancing legibility and clarity against the waste reduction objective. The appearance and readability of the document can be improved by using two columns where the font size used is 12 points.

5.11 All documents including sketches, plans, drawings, photographs, spreadsheets, charts designed for the Assignment shall be returned to and shall become the property of the Employer with full copyright. Such information shall be returned within 4 weeks of the approval of the last deliverable of each Phase as specified in this Clause 5 to the Director’s Representative.
5.12 The Consultants shall copy all correspondence and notes of meetings with public utility companies, other authorities, bodies or persons affected by the Assignment to the Director’s Representative for information.

5.13 The Consultants shall produce documents for the purpose of compliance with statutory procedures, government procedures and consultative procedures.

6 Services to be provided by the Consultants

6.1 General

6.1.1 The services to be provided by the Consultants shall be as defined in the General Conditions and Special Conditions of the Employment and as amplified, extended and set out in this Brief. The services as described in all sub-clauses to Clause 6.1 of this Brief below shall, where applicable, apply to all phases of this Assignment.

6.1.2 The Consultants shall comply with all instructions of the Director’s Representative and with all Government Handbooks, Manuals, Circular, Instructions, Code of Practice, Technical Memoranda, and Government Regulations that are in face at the relevant time and that may be relevant to the Project.

6.1.3 The Consultants shall provide all relevant information relating to the Project as may from time to time be required by the Director’s Representative.

6.1.4 The Consultants shall give due consideration to all planning, environmental, geotechnical, engineering, economic, transport, drainage impact, land, utilities, safety, security, legal, social, operational, contractual and financial implications of their proposals and recommendations.

6.1.5 The Consultants shall draw the attention of the Director's Representative to the need to consider any legal implications and consequences arising out of or in relation to the Assignment and provide necessary advice and recommendations.

6.1.6 The Consultants shall identify, take cognizance of the findings, conclusions and recommendations, and resolve any potential or actual conflicts and interface issues that may arise between the Project and the associated works for the co-digestion trial at Sha Tin STW conducted by DSD. The Consultants shall liaise closely with the Electrical and Mechanical Project (E&MP) Division, Sewage Treatment (ST) Divisions and the Mainland North (MN)
Division of DSD and with all relevant parties responsible for the works at DSD which have interface with the Project, assess the effects on the works and programme and made recommendations to resolve the interfacing problems.

6.1.7 The Consultants shall prepare electronic dissemination of the tender documents to tenderers in accordance with the provisions of the ETWB TC(W) No. 11/2005 and subsequent revisions.

6.1.8 The Consultants shall prepare a Quality Site Supervision Plan (QSSP) in accordance with Clause 6.4.15 of this Brief in the design phase of the Phase III. The Consultants shall also review the QSSP with his site staff during the construction phase of the Phase III.

6.1.9 The Consultants shall provide the services as detailed in the following Phases (Phase II and Phase III are Phases Subject to Incorporation):


Phase II - Tender Phase: Tender Document Preparation, Tender Evaluation and Contract Document Preparation; and


6.2 **Phase I - Investigation and Reference Design Phase: Engineering Feasibility, Environmental Review, Technical Assessments and Reference Design**

**Project Preparation**

6.2.1 Given that food waste to be collected primarily from domestic generators in the Sha Tin and nearby districts would be delivered by Refuse Collection Vehicles to the Site by others, the Consultants shall evaluate the quantity, quality and characteristics of food waste for the Trial Scheme in the Project. The Consultants shall determine the principal requirements of the preferred option including any supporting facilities for reception, storage and delivery of food waste at the Project Site, with due consideration of the waste composition, quantities, disposal and delivery pattern.

6.2.2 The Consultants shall review international practices and standards for pre-treatment of food waste for co-digestion with sewage sludge and the related energy recovery and pollution
control, evaluate their applicability to Hong Kong situations and recommend practices and standards to be adopted for the Project.

6.2.3 The Consultants shall prepare and submit a Project Preparation Report to the Director’s Representative on the findings of the reviews in Clause 6.2.1 and 6.2.2.

Ground Investigation and Laboratory Testing

6.2.4 The Consultants shall plan, programme and design the GI and laboratory tests to be conducted in the very beginning of Phase I and to cover all associated slope/retaining walls affecting and affected by the Project to assess the ground conditions of the Site for the Project and to enable an adequate and economic design to be prepared in the Reference Design. The Consultants shall provide qualified and experienced professionals to plan, supervise and direct the ground investigation and associated laboratory testing. In addition, the Consultants shall provide qualified and experienced professionals and technical personnel to supervise the works on Site and at the laboratory. The Consultant shall follow the recommendations of Geoguide 2 Chapter 15, WBTC No.13/90 and Ground Investigation Note No. 1/2011 or its updated version regarding the requirements of the personnel for supervision of ground investigation and laboratory testing. The Consultants shall include all remunerations and expenses for the supervisory site staff in the fees quoted in the Schedule of Fees. The Consultants shall liaise with relevant authorities and obtain the necessary permits before carrying out the proposed GI. The Consultants shall interpret and present the results together with other available relevant information.

6.2.5 The Consultants shall prepare a desk study report before ordering any GI. The desk study report should document the information examined (including available reference documents, aerial photographs and previous GI and laboratory testing reports, with GIU references where appropriate), describe the geological setting of the Site, and indicate the locations of utilities within and surrounding the Site and the land status. It should state the need, scope and objectives of the proposed GI and laboratory testing, and give the estimated depths of proposed drillholes and the likely amount of rock drilling. It should also include a proposed supervision plan for both the GI and laboratory testing works, giving the names and resumes of the proposed supervisory personnel. The Consultants shall arrange for the report to be vetted and signed by a qualified and experienced professional if the report is not prepared by such a person. A copy of the desk study report should be passed to the nominated supervisory personnel to convey to them the available information and the aims of the proposed GI.

6.2.6 The proposed GI shall be carried out by either the term contractors of Geotechnical
Engineering Office (GEO) of Civil Engineering and Development Department (CEDD) or third parties to be directly employed by the Employer under a separate works contract. For ground investigation to be carried out under GEO administered term contracts, the Consultants shall follow the guidelines and requirements as stipulated in WBTC No. 13/90 and CEDD’s Ground Investigation Note No. 1/2011 “Handling of Ground Investigation, Geophysical Survey, and Laboratory Testing Requests” or its updated version issued by GEO. The Consultants shall pass a copy of the Desk Study Report for the ground investigation and laboratory testing to the GEO Geotechnical Projects Division together with the request for arranging the work. The detailed requirements of the work shall be sent to Chief Geotechnical Engineer/Geotechnical Projects (CGE/GP) as early as possible after the commencement of the Assignment for inclusion in the relevant GEO term contract programme. Requests for soil and rock laboratory testing should be addressed to CGE/S&T (Attn: SGE/Lab). There is no guarantee, however, that GEO’s term contractor will be available to carry out the ground investigation works during the course of the Assignment. In such case, the Consultants shall prepare all necessary tender documents and assist in calling tenders from the Ground Investigation Field Work Category of the List of Approved Suppliers of Materials and Specialist Contractors for Public Works following normal Government tendering procedures, carry out the tender evaluation and administer and supervise the works for the Employer. The third parties shall not be a holding, subsidiary, associated or sister company to the consultants or sub-consultants employed on this Assignment.

6.2.7 The Consultants shall prepare and submit the Ground Investigation Report which summarizes all ground investigation and laboratory testing result, findings and conclusions including drawings to show the location of all existing services, underground structures and obstruction.

Reference Design

6.2.8 The Consultants shall note that the results of ground investigation and laboratory testing may not be available in time for the Consultants to carry out their design work. The Consultants shall exercise their professional judgment with reference to existing geological and ground investigation information, ground conditions and geology to be adopted for the purpose of design work. The Consultants shall review their assumptions when ground investigation and laboratory testing results are available and review and refine their design works in this and subsequent Phases of this Assignment.

6.2.9 Having regard to the reviews and assessments of all relevant factors including the planning, land, environmental, technical, utilities and operational aspects, the Consultants shall
identify and determine the key constraints, challenges, requirements, elements, components and equipment required for the Project including any related ancillary or supporting facilities. The Consultants shall identify and evaluate different equipment of crushing domestic food waste, identify and evaluate different options of arrangements and layout of facilities within the Site and recommend the pre-treatment capacity and the preferred layout, taking into account the applicable constraints and all other relevant factors identified in the reviews and assessments.

6.2.10 The Consultants shall develop and prepare a Reference Design for the Project. The design shall provide justifications and define appropriate designs, functional and performance/control criteria and constraints for the Project, including those for all the major elements, components, equipment and facilities. It shall provide sufficient information and details for confirming the engineering feasibility of the Project. The Reference Design shall be flexible enough so that a wide range of tenderers and technology suppliers would be able to submit a conforming tender that could meet all the tender requirements.

6.2.11 The Consultants shall specify key elements/ inventories of the Project in order to comply with the required functional, technical, operational and environmental performances. The key elements of the Project shall include, but not limited to, provision for food waste reception, storage, handling and feeding; domestic food waste processing and pre-treatment and delivery of domestic food waste to designated anaerobic digesters at the Sha Tin STW; emission control devices; site administration facilities; utilities services; waste disposal and wastewater treatment facilities; service roads and parking provisions; and transfer facilities.

6.2.12 The Reference Design shall address the potential variations in domestic food waste quantity, characteristics and amount of impurities with a view to determining the most practical and optimal process and control parameters for the subsequent co-digestion process.

6.2.13 The Reference Design shall be a cost-effective option. The Consultants shall specify key requirements and arrangements to receive, process and pre-treat food waste and to connect with the Sha Tin STW for delivery of the pre-treated food waste in the Reference Design.

6.2.14 The Consultants shall review the design drawings and relevant details of the existing facilities at the Site to identify and evaluate the required decommissioning and modification works for the development and installation of the food waste pre-treatment facilities and specify them in the Reference Design. The Consultants shall consult and seek agreement with the relevant representatives of the DSD and EPD for all the proposed decommissioning and modification works to avoid adverse potential impacts on the normal operation of the
Sha Tin STW.

6.2.15 The Consultants shall assess and recommend the most cost-effective connection arrangement for the delivery of the pre-treated food waste to the designated anaerobic digester at the Sha Tin STW in the Reference Design. The Consultants shall consult and liaise with the relevant representatives of the DSD to affirm the connection arrangement.

6.2.16 The Consultants shall identify and evaluate permanent and temporary land requirements (including Site, access road options, utilities systems and all associated on-site and off-site works) and recommend the preferred land use option for the Project.

6.2.17 The Consultants shall identify and evaluate detailed service road, parking requirements for the Project based on waste delivery patterns and quantities, taking into account other potential users of the existing road networks and other nearby infrastructures.

6.2.18 The Consultants shall give detailed and comprehensive consideration regarding avoidance/minimization of demolition of existing structures, effects on and interfacing issues with the existing and planned land uses in adjacent area and interface with the co-digestion project carried out by the DSD at the Sha Tin STW in preparing the general layout. The Consultants shall consult and seek agreement with the relevant representatives of the DSD and EPD for all the proposed on-site and off-site works which will have interfacing issues on the operation of the Sha Tin STW.

6.2.19 The Consultants shall submit the Reference Design Report which summarizes all findings and conclusion in the Clause 6.2.10 to Clause 6.2.18 and sets out the performance requirements of the Project including the design criteria and design basis; and prepare estimates of capital and operational costs for the tender phase of the Assignment.

**Environmental Review (ER)**

6.2.20 The Consultants shall carry out an Environmental Review (ER) in accordance with the ER Brief given in Annex 5 and in consultation with the Environmental Assessment Division of the EPD. The Consultants shall prepare and summit an ER Report, including Environmental Monitoring & Audit Requirements and Executive Summary, in accordance with the requirements stated in Annex 5.

6.2.21 The Consultants shall include the assessment and prediction of the environmental conditions, in quantitative terms as far as possible, that will be expected in the absence of the Project in the ER.
6.2.22 The Consultants shall assess the cumulative assessments of the potential environmental impacts and implications, taking into account the existing and proposed infrastructures in the area, in the ER.

6.2.23 The Consultants shall also assess the potential and cumulative impacts of wastewater generated from the pre-treatment facilities and identify measures and arrangements to handle and process wastewater from the pre-treatment facilities.

6.2.24 The Consultants shall identify all facilities and installations affected by the Project and propose measures, arrangements and works accordingly to resolve interfacing issues.

Public Consultation
6.2.25 The Consultants shall prepare papers, briefing notes and presentation materials which will be required to conduct public consultation and to obtain the views of representatives of community groups, District Council/Board members and relevant stakeholders.

Planning Application Review
6.2.26 The Consultants shall prepare the Planning Application Review Report containing sufficient information including location plans, site plans, other relevant plans/drawings and relevant technical assessments on the environmental, drainage, traffic, landscape and visual impacts of the Food Waste Pre-Treatment Facilities for supporting its planning application, if necessary, to be made under Section 16 of the Town Planning Ordinance.

6.2.27 The Consultants shall carry out a traffic impact assessment to identify, evaluate and mitigate potential adverse traffic impacts which might arise from the Project during the construction and operation stage. The Consultants shall agree with the Director’s Representative and the Transport Department on the Area of Influence, design years and assumptions to be adopted for the assessment of traffic impacts.

6.2.28 The Consultants shall assess the potential and cumulative drainage impacts of the Project. The Consultants shall take note of the existing drainage facilities in the vicinity and identify pre-cautionary measures to prevent disturbance, interference or damage to the existing drainage facilities. The Consultants shall also identify measures and arrangements to make good of the existing drainage facilities in case of any damage to them due to the works of the Project.
6.3 Phase II - Tender Phase: Tender Document Preparation, Tender Evaluation and Contract Document Preparation

6.3.1 Upon receipt of written instruction from the Director’s Representative, the Consultants shall agree the exact scope of works in the Tender Phase with the Director’s Representative before the commencement.

6.3.2 The Consultants shall carry out services required for the previous Phases but not yet carried out or completed.

6.3.3 The Consultants shall prepare all tender documents for the Project which shall include, but not limited to, Conditions of Contract, specifications, drawings, bills of quantities, schedules of rate, schedules of quantities, schedules of particulars and a revised estimate of cost together with all documents, matters or things that may be necessary or required to enable the Employer to invite tenders or otherwise place order for the works. Should any entrustment works be incorporated into the works contract, the Consultants shall check the compatibility/consistency of the content and format of the information supplied by others. If modification is required, the Consultants shall seek agreement from relevant parties.

6.3.4 The Consultants shall advise the Employer of the need, if any, to deviate from or vary the standard documents/procedures including the General Conditions of Contract for Civil Engineering Works, General Conditions of Contract for Term Contracts for Civil Engineering Works, General Conditions of Contract for Electrical and Mechanical Works, and normal Government procedures for calling tenders, etc. These General Conditions of Contract shall remain unaltered. Any necessary amendments required shall be by means of Special Conditions of Contract authorised in writing by the Director’s Representative. The Consultants shall also explain the reasons for any Special Conditions of Tender, Special Conditions of Contract, Particular Specification Clauses and Particular Preambles to the Bills of Quantities to embody any deviations into the tender documents.

6.3.5 The Consultants shall seek comments from relevant Government departments/bureaux on the draft tender documents. The Consultants shall explain and answer to queries raised and incorporate all relevant comments to finalize the tender documents.

6.3.6 The Consultants shall assist the Employer in the invitation of tenders for the proposed works, prepare draft tender notifications, letter of invitation, advertisement and press releases, distribute tender documents, prepare and issue tender addenda, answer queries on tender documents and carry out pre-tender briefings and site visits if required. Electronic
dissemination of tender documents is required in accordance with ETWB TC(W) No. 11/2005. The Consultants shall note that Hong Kong SAR has acceded to the Agreement on Government Procurement of the World Trade Organisation (WTOGPA), and the requirements under the WTOGPA and relevant Government procedures shall be complied with.

6.3.7 The Consultants shall examine and assess tenders received, including evaluation of alternative offers made by the tenderers, make recommendations and prepare tender reports and associated documents in accordance with Government procedures such that the Employer can, by established procedures, award works contract(s) for the Project. The number of alternative offers to be evaluated by the Consultants in each tendering exercise shall be limited to five only and any extra evaluations performed shall be taken as additional services in accordance with Clause 33 of the General Conditions of Employment.

6.3.8 The Consultants shall assist the Employer to seek approval from the relevant tender board(s) on the recommended tenderer for the work contract(s) and provide any other services and advice that are necessary for the Employer to accept the recommended tender and the award of the work contract(s).

6.3.9 Concurrent with the completion of the draft tender documents, the Consultants shall prepare an Estimate of the total cost of the Project. The Consultants shall prepare an Updated Estimate of the total cost of the Project and a Tender Rate Analysis within 4 weeks after acceptance of tender.

6.3.10 The Consultants shall assist the Employer to provide feedback to bidders including debriefing to unsuccessful bidders in accordance with ETWB TC(W) No. 42/2002 or its subsequent revisions.

6.3.11 The Consultants shall revise and re-submit programmes, estimates, and expenditure forecast should the scope or works methods change substantially during the Tender Phase.

6.3.12 The Consultants shall prepare and provide letter of acceptance and other necessary documents to the Employer for the award of work contract(s) to the successful tenderer.

6.3.13 The Consultants shall prepare, bind and provide contract documents (including, inter alia, Articles of Agreement, other documents, relevant correspondence and drawings) for signature and for retention by both the Employer and the contractors. The Consultants shall also check and carry out all formalities required under ETWB TC(W) No. 54/2002 for
executing the Articles of Agreement.

6.3.14 The Consultants shall prepare, bind and submit duplicated copies of the whole set of signed contract documents (including drawings in A1 size, and/or reduced to A2 or A3 sizes as agreed with the Director’s Representative). The Consultants shall check with due care and diligence the correctness and completeness of the duplicated copies and certify so on each of the duplicated documents provided under this sub-clause.


6.4.1 Upon receipt of written instruction from the Director’s Representative, the Consultants shall carry out the duties specified under this Clause 6.4 for the final design, construction, installation, testing, commission and performance monitoring and reviews of the works.

Contract Administration and Project Management

6.4.2 The Consultants shall provide site supervision required to attain the quality assurance objectives and to meet with the necessary management needs for the design, construction, commissioning and performance monitoring and review phases of the Project.

6.4.3 The Consultant shall provide a professional staff to assume the role of the Employer’s Representative as stipulated in the Contract to perform the duties on behalf of the Employer and provide the Director’s Representative with expert views and advice on executing the Project, as well as the technological and process aspects of the Project. The Consultants shall provide personnel with appropriate qualifications and relevant experience to manage all tasks and shall direct, control and undertake, where appropriate, the services detailed in the following sections.

6.4.4 The Employer’s Representative shall report to the Director’s Representative or such other person as may be authorized by the Director in writing and notified to the Consultants.

6.4.5 The Employer’s Representative shall carry out such duties and may exercise such powers as are assigned to him under the Contract and as may be delegated to him by the Director’s Representative.

6.4.6 The Employer’s Representative shall act for overall control of the Project and perform all project management, contract administration tasks, engineering and supervision duties in regards to the design, construction, installation and commissioning of the works of the
Project described in relevant sub-clauses under Clause 6.4 to ensure the cost-effectiveness of the Project and that the Contractor’s Works are in full compliance with the Contract.

6.4.7 The Consultants shall appraise the performance of the Contractor and submit the performance appraisal reports of the Contractor to the Director’s Representative at quarterly intervals.

6.4.8 The Consultants shall check the Contractor’s programme and monitor the progress with an aim to ensuring that the scheduled programme of the design, construction and commissioning of the Project can be achieved. The Consultants shall submit Monthly Progress Reports with progress photos describing the Contractor’s progress. The Consultants shall also be required to report immediately to the Director’s Representative any significant slippage of the Contractor’s progress.

6.4.9 The Consultants shall arrange and conduct monthly progress meetings, or meetings as requested by the Director’s Representative, with the Contractor to resolve matters in respect of design, construction, commissioning, safety, environmental, construction programme and progress. The Project Director of the Consultants shall chair the monthly progress meetings.

6.4.10 The Consultants shall be required to deal with claims and negotiate rates for variations in connection with the Contract and assist the Employer in settling disputes or differences between the Employer and the Contractor. For mediation, litigation and arbitration of disputes between the Employer and the Contractor relating to matters which arise before the completion of this Assignment, appropriate assistance shall be provided by the Consultants to the Employer, and if any input in these regards are agreed between the Consultants and the Director’s Representative as additional services, payment of such would be in accordance with the Schedule of Fees.

6.4.11 The Consultants shall be responsible for monitoring the Contract’s expenditure and checking the progress with respect to certifying payments regarding the design, construction, installation and commissioning phases of the Project to the Contractor. The Consultants shall also be required to prepare estimates of expenditure for the Works.

Final Design, Construction, Installation and Commissioning

6.4.12 The Consultants shall provide and assemble a Design Team responsible for providing expert advice on all matters relating to the design, installation, construction and operation of the Project. The Design Team shall comprise suitably qualified personnel and be led by a Design Team Leader who shall have a bachelor’s degree or master’s degree and be Corporate
member of an appropriate professional institution or equivalent, who shall have at least 10 years of relevant post-qualification experience in designing, and/or managing projects compatible to that of the scale and complexity of the Project, including, but not limited, to food waste pre-treatment and co-digestion of food waste and sewage sludge.

6.4.13 Unless otherwise agreed by the Director’s Representative and stated, the Consultants shall check and certify all Contractor’s design. The Contractor’s design shall be copied to the Director’s Representative for comment. The Design Team shall check and review the Contractor’s design, or revised design, plan, or revised plan, drawing, or revised drawing, technical submission, or revised technical submission, and provide expert advice for the Director’s Representative to comment on the Contractor’s design or give consent to the Contractor’s design. In all cases, the Design Team shall submit Review Statements on Contractor’s design, plan, drawing or technical submission giving expert advice to the Director’s Representative with respect to the Contract requirements.

6.4.14 The Consultants shall provide a Construction Team and a Commissioning Team to be responsible for checking, reviewing and monitoring the installation, commissioning and testing performance of the plant and equipment of the key processes of the Project. The Construction Team Leader and Commissioning Team Leader shall be a qualified personnel with a bachelor’s degree or master’s degree, or equivalent, in a relevant science or engineering subject or equivalent, who shall have at least 10 years of relevant post-qualification experience in the installation, instrumentation and system control, testing and commissioning of treatment plant similar to the Project.

6.4.15 According to the terms of the Contract, the certification of the Contractor’s design and the routine site supervision and checking of Contractor’s construction works and workmanship and certification of plant commissioning and completion, etc. will be carried out by the Employer’s Representative. The Consultants shall:

(a) submit a QSSP to include but not limited to the following details:

i. A detailed site supervision arrangement, including arrangements for supervision of construction and installation activities that are required to be carried out outside the normal working hours of the site staff;

ii. A list of critical construction activities and structural elements that require special attention together with the associated supervision requirements for such items, where appropriate the level of supervision and the rank of staff who should perform the supervision of such items and/or sign the Request for
Inspection Form (or a purposely made inspection form for a particular activity or test);

iii. If necessary, the Consultants shall also specify for any critical construction activities, structural elements and particular aspects or details that should be noted by the inspection officer on the Request for Inspection Form for future reference;

iv. A guideline on the details of inspection to be recorded for specialist works or critical elements; and

v. In case it is envisaged that construction or fabrication works will be carried out outside Hong Kong, the Consultants shall formulate supervision requirements and inspection arrangement for such works. The Consultants shall also prepare comprehensive guidelines to be followed by the specialists who need to conduct inspection outside Hong Kong. The Guideline shall include the three minimum requirements as given in Annex 2.

(b) at the commencement of works, review the QSSP (against the activities described by the Contractor in this Quality Plan prior to the execution of Works), and conduct regular reviews of the QSSP subsequently, and as the need arises, and make necessary updating and modification in order to suit the actual circumstances, and the Consultants shall report in the Monthly Progress Report the status of implementing the QSSP and any major modifications to it as a result of a review. The Consultants shall submit a revised QSSP to the Director’s Representative if there is a major revision and as requested by the Director’s Representative.

(c) provide at least ONE suitably qualified and experienced site staff who shall have a bachelor’s degree in relevant engineering disciplines and minimum 3 years relevant post-qualification experience to supervise the Works and implement the QSSP. Job duties of the site staff shall include, but not limited to, the following:
   - supervise the Contract;
   - check and advise on the Contractor’s submission on temporary works design and method statement;
   - check and advise on the Works’ programme;
   - ensure that the Works are carried out and satisfactorily completed in accordance with and in compliance with the Contract;
   - monitor and report on Works progress, quality and workmanship, adequacy of Contractor's plant and labour force required for the proper execution at the works,
and safety and environmental performance;
- prepare and submit monthly progress report;
- check and verify bills and quantities submitted by the Contractor;
- ensure safety and environmental precautions and measures are implemented by the Contractor in accordance with the Contract; and
- maintain up-to-date site measurement, diary and records.

6.4.16 The expected aggregated total site supervision time as stipulated in sub-clause 6.4.15(c) shall not be less than 6 man-month.

6.4.17 The Consultants shall include all remunerations and expenses for employing the site staff stipulated in sub-clause 6.4.15(c) in the fees quoted in the Schedule of Fees.

6.4.18 The Consultants shall arrange bi-monthly joint inspections or at times as required by the Employer with the Director’s Representative on the Project Site.

6.4.19 The Consultants shall investigate at the request of the Director’s Representative including but not limited to the design, quality of works, progress, safety and environmental impacts of the Contractor’s work.

6.4.20 The Consultants shall audit the quality and workmanship of the Contractor’s work by carrying out monthly quality audits on the site works as well as the quality records of the Contractor. The Consultants shall submit Monthly Construction Safety and Quality Audit Reports to the Employer detailing their findings.

6.4.21 The Consultants shall monitor the Contractor’s compliance and ensure that the requirements in the Environmental Review Report of the Project are fully complied with. The Consultants shall report to the Director’s Representative on any outstanding issues of the environmental mitigation measures and environmental monitoring. The Consultants shall also review any environmental monitoring reports submitted by the Contractor and investigate the complaint received regarding to the construction of the Project.

6.4.22 The Consultants shall advise the Director’s Representative of any unsatisfactory works, plant and materials.

6.4.23 The Consultants shall advise the Director’s Representative on the necessity of ordering of any change of the Project.
6.4.24 The Consultants shall give professional advice to the Director’s Representative on any change proposed by the Contractor.

6.4.25 The Consultants shall ensure the compliance of the safety plan submitted by the Contractor and the implementation of the safety measures under the Contract by carrying out safety audit. The Consultants shall submit Safety Audit Reports to the Director’s Representative detailing the findings and giving recommendation on enhancement of safety on Site. The frequency of the safety audits shall be proposed by the Consultants for the agreement of the Director’s Representative.

6.4.26 The Consultants shall review and comment on the Contractor’s Plans with respect to the Contract’s requirements, provide expert advice and make recommendation to the Director’s Representative to comment or give consent to the plans, and submit the Review Report to the Director’s Representative. The Consultants shall be required to provide comments and conduct assessments to the revised Plans as regularly reviewed and updated by the Contractor. The Contractor’s Plans shall include, but not limited to, the following:

(a) Project Management Plan;
(b) Design Plan;
(c) Works Plan;
(d) Operation Plan;
(e) Environmental Management Plan;
(f) Safety & Health Plan;
(g) Quality Assurance Plan; and
(h) Emergency Procedures Plan.

6.4.27 The Consultants shall respond to enquiries and investigate all complaints including, but not limited, to those from members of the public, District Councils, local organizations, neighbouring facilities/establishments and the likes regarding the works of the Project and report to the Director’s Representative.

6.4.28 The Commissioning Team Leader shall advise on the proposed plant and equipment installation and provide the Director’s Representative with technical notes and/or working papers on technological and process aspects, including, but not limited to, the following:

(a) maximum amount of impurities permitted in the received food waste and the optimal design and control pre-treatment parameters for the subsequent co-digestion process;
(b) interfacing works including delivery and connection system for conveying the
pre-treated food waste to the designated anaerobic digesters at the Sha Tin STW and any necessary modification works required at the Sha Tin STW;

(c) environmental protection measures, surface and foul water systems, wastewater treatment system (as necessary), mechanical and electrical services, fire services, ventilation and air pollution control systems, dust collection and separation systems, and food waste reception systems; and

(d) testing and commissioning procedures, and operation and maintenance requirements of the Project;

6.4.29 After completion of installation of major equipment of key process by the Contractor, the Consultants shall submit the Observation Report with all necessary records detailing the assessment on the installation, function and performance of the plant and equipment to the Director’s Representative. The Consultants shall arrange the Commissioning Team Leader to be stationed on-site at a suitable time to monitor the testing and commissioning of the plant and equipment of the key processes as may be specified by the Director’s Representative, which shall include, but not limited to, the following:

(a) food waste receiving and storage systems;
(b) food waste processing and pre-treatment systems;
(c) delivery system of the pre-treated food waste;
(d) emission/odour control systems; and
(e) performance of anaerobic co-digestion process of DSD.

6.4.30 The Commissioning Team Leader shall advise the Director’s Representative on the monitoring, overseeing and certifying the testing and commissioning of the plant and equipment of the Project. The Commissioning Team Leader and other specialists as agreed by the Director’s Representative shall be required to station on-site for the monitoring, overseeing, and certifying the testing and commissioning of the Project during the commission stage. The commencement of the Facility Commissioning shall only be allowed upon reaching the facilities stable operating conditions and the satisfactory completion of all the system commissioning tests as certified by the Employer’s Representative and consented by the Director’s Representative.

6.4.31 The Consultants shall submit the Commissioning Report within 1 month after satisfactory commissioning of the Project detailing the commissioning process together with all relevant records. The Consultants shall review and give their expert advice on the final tests (including Commissioning Tests) and make recommendations to the Director’s Representative on issuing the Certificate of Substantial Completion for the Works and
Certificate of Completion for the Works as stipulated in the Contract.

Performance Monitoring and Reviews

6.4.32 The Consultants shall submit to the Director’s Representative Bi-monthly Monitoring, Review and Recommendation Reports on a bi-monthly basis and Final Monitoring, Review and Recommendation Report at the end of the 6th month after satisfactory commissioning of the Project, reviewing, summarizing the Consultants’ observations and review of the performance and adequacy of Facility, giving the Consultants’ advice and recommendations on further improving the performance, efficiency and adequacy of the Facility. The Consultants shall advise the Director’s Representative of any technical problem or operation and/or maintenance deficiency, and provide recommendations for rectifications or improvements. The scope of the monitoring, review and recommendation shall include, but not limited to the following:

(a) food waste receiving and storage systems;
(b) food waste processing and pre-treatment systems;
(c) delivery system of the pre-treated food waste;
(d) emission/odour control systems; and
(e) performance of anaerobic co-digestion process of DSD.

6.4.33 The Consultants shall review the reports submitted to the Director’s Representative by the Contractor on the results of the monitoring, sampling and testing, where appropriate, within 7 working days. The Consultants shall advise the Director’s Representative on the acceptability of the monitoring and/or test results and make recommendations to the Director’s Representative on whether more monitoring and/or test are needed if the results are found to be unsatisfactory.

6.4.34 The Consultants shall require the Contractor to submit to the Director’s Representative the inventory records, as-constructed drawings, record drawings, records of correspondence, operation and maintenance plans, manuals, procedure documents, any other necessary documents and reports showing in full details the Contract’s works and utilities works as actually carried out within the period as stipulated in the Contract, or any other period as required by the Director’s Representative. The Consultants shall inspect, ensure the correctness and completeness of the said documents and handover to the Director’s Representative within 6 months after satisfactory commissioning of the Project.

6.5 The Consultants shall note that the Project may arouse considerable community interest, the findings may be subject to extensive public consultation and critical scrutiny by both
non-government experts and by laymen. The Consultants shall have particular regard to these special factors in preparing their proposals and recommendations. Special care must be taken to present all work in a systematic manner, stating clearly the procedures and methodologies for the various approaches, underlying rationales and assumptions adopted. The Consultants must be prepared for the possibility of challenge in respect of any and all of the foregoing and must thus ensure they are able to respond quickly to such challenges by producing relevant detailed analysis and citing suitable references as support for their rationales, assumptions and conclusions. The Consultants shall ensure that all deliverables are properly checked prior to submission. All technical supporting documents including calculations shall be submitted separately to the Director’s Representative for information and record.

6.6 The Consultants shall attend up to 10 external meetings to brief/explain the findings and recommendations of the Assignment on the request of the Director’s Representative. The Consultants shall attend external meeting requested prior to a date three months after the final submission of the deliverables required under the Agreement at no additional charge to the Assignment. Such date shall be confirmed in writing to the Consultants by the Director's Representative. Further requirement of such services beyond the said period or attendance at more than the said number of external meetings shall be paid for as additional service. The external meetings shall include meetings with Advisory Council on the Environment (ACE), LegCo Environmental Affairs Panel, District Councils, public discussion forums, community/public consultations and any other meetings as required by the Director’s Representative in connection with the Assignment. The Consultants shall also allow fees for all progress meetings, technical meetings and liaison meeting with relevant departments or authorities in the fee proposal. These meetings shall not be considered as part of the external meetings.

6.7 The Consultants shall report to the Director's Representative or any other delegated person on day-to-day administration of the Assignment and shall attend, serve or report to progress meetings at monthly or any other intervals as agreed with the Director's Representative.

6.8 The Consultants shall take cognizance of the findings, conclusions, recommendations and interfacing issues of all completed, on-going and planned studies related to or having implications on the Assignment.

6.9 The Consultants shall consult all authorities having rights or powers in connection with the Assignment relating to the location of services, including consultation with the public utility companies and other authorities, bodies or persons affected by the Assignment.
6.10 The Consultants shall communicate and correspond direct with relevant Government bureaux/departments and agencies, and all other parties involved in this and any other projects or developments likely to be affected by this Assignment, and to obtain information in connection with the Assignment. Any problems in communication or liaison should be referred to the Director's Representative for assistance. Any correspondence, notes or minutes arising from this communication or liaison shall be copied to the Director's Representative. In particular, the Consultants will be required to liaise with and seek input from the specialist groups of the EPD as appropriate, and consultation may be required with relevant government departments and agencies.

6.11 The Assignment shall be carried out with due regard to all relevant information, policies, ordinances, regulations, codes of practice, requirements, procedures and in particular the following list which is by no means exhaustive:

- Air Pollution Control Ordinance
- Antiquities and Monuments Ordinance
- Buildings Ordinance
- Dangerous Goods Ordinance
- Environmental Impact Assessment Ordinance
- Fire Services Ordinance
- Gas Safety Ordinance
- Noise Control Ordinance
- Roads (Works, Use and Compensation) Ordinance
- Town Planning Ordinance
- Waste Disposal Ordinance
- Water Pollution Control Ordinance
- Waterworks Ordinance

6.12 The services for this Assignment including the engineering feasibility study, environmental review, technical assessment, reference design, other necessary assessment and document preparation associated for the planning application, preparation of tender, tendering, tender evaluation and negotiation, preparation of contract documents, contract administration and project management, design, construction, installation, commissioning, performance monitoring and review, site supervision and related public engagement and meetings shall be deemed to be included in the lump sum fee.
7 Responses to Queries

7.1 The Consultants shall respond to queries raised by the Director's Representative prior to a date three months after the final submission of the deliverables required under the Agreement at no additional charge to the Assignment. Such date shall be confirmed in writing to the Consultants by the Director's Representative. Further requirement of such services beyond the said period shall be paid for as additional work.

7.2 The Consultants shall liaise with and provide assistance to other government consultants, in particular those engaged in other related studies, as directed by the Director's Representative during the course of the Assignment.

8 Programme of Implementation

8.1 The due date for commencement of the Agreement is June 2020.

8.2 The Assignment is expected to be completed within 36 months. The indicative time frame for each activity is as follows:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Tentative Commencement Time</th>
<th>Tentative Completion Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>Date of commencement of the Assignment</td>
<td>7 months</td>
</tr>
<tr>
<td>Phase II</td>
<td>8th month</td>
<td>13 months</td>
</tr>
<tr>
<td>Phase III</td>
<td>14th month</td>
<td>36 months</td>
</tr>
</tbody>
</table>

8.3 Pursuant to Clause 26(B) of the General Conditions of Employment, the Consultants shall submit the draft programme and revised draft programme and the Directors Representative shall agree, or instruct, within the following periods:

Submission of the draft programme : Within 4 weeks of the due date for commencement of the Agreement

Agreement of the draft programme : Within 4 weeks from receipt of the draft programme or instruction for submission of the revised draft programme

37
Submission of revised draft programme: Within 2 weeks from the instruction of the Director's Representative

The draft programme and revised draft programme shall detail the activities to be carried out, target dates for particular tasks and any decision dates that may be required for the uninterrupted progress of the Assignment. The Consultants shall discuss with the Director's Representative during the above periods to agree the timing of submission of reports, other documents and plans for each of the main elements of the Assignment, for inclusion in the draft programme and revised draft programme.

8.4 The key dates referred to in Clause 8.3 of this Brief shall include but not limited to:

(a) The date of commencement of the Assignment;
(b) The date of submitting a Reference Design of the Project;
(c) The date of awarding the works contract;
(d) The date of commissioning the Project;
(e) The date of submitting the Final Monitoring, Review and Recommendation Report; and
(f) The date of completion of this Assignment.

8.5 The Consultants shall endeavour to ensure that the Assignment is carried out in compatible with the Contractor’s Programme and shall review as part of the Progress Reports referred to in Clause 9 of this Brief.

9 Progress Reports

9.1 The Consultants shall submit to the Director's Representative progress reports within the first 5 working days of each calendar month on all aspects of the Services relating progress to the Programme referred to in Clause 8 of this Brief. The report shall include a list of those parts of the Services under the Assignment and those parts of the works under the construction contract of which the execution is behind the Programme, together with proposals to expedite progress, so as to complete the works on time. The report shall also include the records of the milestone payment up to the end of the previous month. The reports shall also include updated expenditure forecasts in accordance with Clause 10 of this Brief. The content and form of such reports shall be subject to the satisfaction of the Director’s Representative.

10 Financial Management

10.1 At monthly intervals or at such other intervals as the Director's Representative may require,
the Consultants shall submit a report on the current and the forecast expenditure on the various elements of the Assignment and the fees due to the Consultants, in a form to be agreed by the Director's Representative.

10.2 The Consultants shall closely monitor progress and expenditure on any works contracts and be alert to the possibility of the approved contract sum being exceeded. They shall advise the Director's Representative immediately if there is any likelihood of the approved contract sum being exceeded. To ensure sufficient time to obtain the necessary authorities and make funds available, the Consultants shall give the Director's Representative at least four months’ notice in writing of the need to increase the approved contract sum to meet contractual payments and shall provide the supporting information, except that if the need cannot be foreseen so far ahead, then the Consultants shall give as much notice as is possible in the circumstances. The following information shall be provided:

(a) full details of the proposed net increase broken down into the following categories:
   (i) price fluctuation payment under the Contract. An arithmetical derivation based on the projected percentage and the estimated final effective value of work done is required;
   (ii) additional works and savings arising from the variation orders. Reasons shall be given for increases and decreases in the earlier estimates; and
   (iii) claims from the Contractor. These shall be the Consultants' estimates of the amounts which will be certified for payment.

(b) an assessment of increase in consultancy fees and site staff costs if the Contract period is likely to be extended or additional site staff are required; and

(c) a revised projected monthly cash flow pattern of Contract payments, consultancy fees and site costs.

11 Standards and Specifications

11.1 The Consultants shall adopt such standards and specifications as are in current use by Government departments or, if non-existent, British Standard Codes of Practice and Specifications, IEE Regulations or equivalent. Should instances arise for which suitable standards or specifications do not exist or for which the current standards or specifications appear to require modification or if by the adoption of current standards the Consultants would incur additional expenses not within reasonable contemplation, the Consultants shall submit recommendations on appropriate alternatives to the Director's Representative for
agreement.

11.2 The Consultants shall comply with and observe all Ordinances, by-laws, regulations and rules for the time being in force in the Hong Kong SAR.

12 (Not Used)

13 Variations and Other Commitments

13.1 The value of a variation to the Contract Works or other expenditure commitment for the purposes of Clause 24 of the General Conditions of Employment is $0.

13.2 All variations to the Contract Works shall be covered by a variation order in a form to be agreed by the Director's Representative, except that no variation order will be required for increase or decrease in quantities arising from remeasurement of the items in the bills of quantities.

13.3 The Director's Representative shall advise the Consultants of his approval or otherwise under Clause 24 of the General Conditions of Employment within 14 days of submission. The reasons for non-approval, which may include insufficiency of supporting information provided with the submission, will be provided to the Consultants at the same time. If, because of the need for consultation or referral elsewhere, the Director's Representative is unable to give his decision within the period stated then he shall inform the Consultants immediately and advise them of when he will give his decision. Provided that, in any case, a different period can be applied by mutual agreement.

13.4 Under sub-clause (iii) of Clause 25 of the General Conditions of Employment, the Consultants shall report all claims to the Director’s Representative within 14 days of their receipt. The Director's Representative shall provide the views to the Consultants within 60 days of receipt of the Consultants’ principles of assessment of a claim.

13.5 Under sub-clause (iv) of Clause 25 of the General Conditions of Employment, the Consultants shall report all delays to the Director's Representative within 14 days of the delay being identified. The Director's Representative shall provide the views to the Consultants within 28 days of receipt of the Consultants' assessment of extension of time.

14 (Not Used)
15 Director’s Representative

15.1 The Director’s Representative as defined in the General Conditions of Employment shall be the Assistant Director (Waste Infrastructure Planning) of the EPD or such other person as may be authorized by the Director in writing and notified to the Consultants. The Director’s Representative may delegate any of the powers and functions vested in him to other officers. If the Consultants are dissatisfied with a decision or instruction of any such officer the matter shall be referred to the Director’s Representative for a ruling.

15.2 During the course of the Agreement, the Consultants shall report directly to the Director's Representative.

16 Control of the Project and Assignment

16.1 On commencement of the Assignment, the Consultants shall notify the Director’s Representative the names of the Project Director and the Project Manager for the Assignment supplement with an organization chart of the project team.

16.2 The Assignment will be managed by a Project Steering Group and, if necessary, a Working Group formed within the Government. These Groups shall be the forum for liaison within Government departments and agencies, providing guidance to the Consultants, and for comment and review on the work and outputs of the Assignment.

16.3 A Project Steering Group will be established under the chairmanship of the Director's Representative or his representative, and attended by the Consultants’ Project Director and representatives of relevant Government departments.

16.4 A Working Group will be set up and meeting will be held on as-needed basis to provide general and technical guidance to the Consultants and to facilitate the exchange of information. The Consultants shall attend these Working Group meetings as requested by the Director’s Representative.

16.5 In addition to their duties under Clause 13 of the General Conditions of Employment, the Consultants’ Project Director and other appropriate staff of the Consultants are expected to attend, serve or report to all Steering and Working Groups meetings as necessary during the Assignment period. The Consultants may be required to prepare minutes for the meetings stated in this Clause. Formal decisions and minutes of these meetings will be advised to the Consultants by the Director's Representative.
17  Information and Facilities Provided by the Employer

17.1 All available information relevant to the Assignment will be provided to the Consultants. Relevant documents including reports, drawings and other background materials are listed at Annex 3 to this Brief. The Consultants shall indicate for guidance those documents which they currently hold and those of which a copy may be needed, should the Assignment be awarded to them. A copy of each of the documents indicated will be arranged on loan from the Director's Representative, if available, on request from the Consultants except those currently available from the Publications Sales Section of the Information Services Department. In the case of plans and drawings, two prints of each plan or drawing shall be provided free of charge if requested by the Consultants.

17.2 No information collated by, or transferred to the Consultants for the purposes of this Assignment shall be released to any third party without the prior approval of the Director’s Representative. The Consultants shall return all planning data, which has been obtained from Government departments in connection with the Assignment, to the Director’s Representative after completion of the Assignment.

18  Consultants’ Office and Staffing

18.1 The Consultants shall maintain for the duration of this Agreement an office in Hong Kong under the control of the Project Director of the Consultants who shall be responsible for the Assignment. Under the direction of and within the responsibilities delegated to him by the management of the Consultants, the Project Director shall be responsible for overall management of the Consultants, other professional, technical and administrative support staff involved, in all relevant disciplines and in connection with the Assignment, in order to ensure progress to the satisfaction of the Director’s Representative. The Project Director shall have competent experience in planning, design, construction, operation and maintenance of infrastructure projects and shall possess in-depth knowledge in multi-disciplined engineering projects. He/She shall have specific expertise, detailed knowledge and poise in connection with the Assignment, and shall be able to convincingly present and defend the Assignment’s findings and conclusions in appropriate public forums.

18.2 The Consultants shall provide the staff and manpower input in accordance with the Technical Proposal which was submitted with the Consultants’ tender for this Assignment, or the quarterly manpower input updates as stated in sub-clause 6 below if available. The
Director’s Representative shall have the right to check the time-log record of the Consultants’ staff deployed for the Assignment.

18.3 If the Director’s Representative considers that the performance of the Consultants is not satisfactory due to inadequate staffing and manpower input allocated to the Assignment, the Consultants shall, upon the request of the Director’s Representative, forthwith submit to the Director’s Representative the time-log record of the staff deployed for the Assignment for the Director’s Representative to check against the Technical Proposal, or the quarterly manpower input updates as stated in sub-clause 6 below if available.

18.4 The Consultants’ failure to adhere to their staffing proposal, in particular the employment of core personnel of the Consultants and their sub-consultants, thus causing an adverse impact on the performance of the Services, shall be duly reflected in the Employer’s performance report on the Consultants.

18.5 If the Consultants are unable to maintain any of the core personnel specified in the Technical Proposal, the Consultants shall as soon as possible report this to the Director’s Representative and propose, for the Director’s Representative’s approval, a revised personnel arrangement which is equivalent to or better than the existing personnel arrangement, in terms of qualifications, experience and competence.

18.6 The Consultants shall follow the relevant requirements stipulated in Development Bureau Technical Circular (Works) No. 5/2018 or its latest revision or replacement and submit to the Director’s Representative quarterly updates on the manpower input deployed and/or to be deployed by the Consultants under the Assignment for checking and monitoring with the use of Public Works Consultants Resources Allocation Register (PWCRAR) in accordance with the relevant mechanism mentioned in the same technical circular. The Consultants shall provide clarifications on the manpower input to the Director’s Representative upon request.

18.7 The Consultants agree that the quarterly updates as mentioned in sub-clause 6 above would be inputted into the PWCRAR for purposes as mentioned in the personal information collection statement to be sent to the Consultants with the templates for the quarterly updates, which shall include but not limited to the following:

(a) activities relating to the management of the status of the Consultant under the List of Consultants (the List) under the purview of the Engineering and Associated Consultants Selection Board (EACSB) of the Government, including any regulating actions against the Consultant such as downgrading, suspension or removal from the
List;
(b) activities relating to the award of consultancies including but not limited to the assessment of the Consultant’s tenders for consultancies;
(c) activities relating to management of consultancies including but not limited to the monitoring of manpower resources provided and the assessment of Consultant’s performance; and
(d) compilation of statistical report and diagnosis of problems with or concerning PWCRAR or the management of consultants to help the Government to improve.

19 Specialist and Sub-consultant Services

19.1 The Consultants shall provide all specialist and sub-consultant services required for the satisfactory completion of the Assignment. No additional fees or expenses for the provision of such services rendered locally or overseas shall be payable by the Employer except as otherwise provided for in the Schedule of Fees.

19.2 Without derogating from the generality of Clause 38(i) of the General Conditions of Employment, the Consultants shall, upon the award of this Agreement and save as otherwise agreed by the Director’s Representative, appoint the sub-consultants as proposed in their Technical Proposal for the Assignment. The Director’s Representative shall have the right to check the sub-consultancy agreements. If the Director’s Representative considers that the performance of the Consultants is not satisfactory due to inadequate staffing and manpower input allocated to the Assignment, the Consultants shall, upon the request of the Director’s Representative, forthwith submit to the Director’s Representative a certified copy of any or all of the sub-consultancy agreements.

20 Surveys

20.1 Two prints of topographical mapping at 1:1000, 1:5000 and 1:20000 scales prepared by the Survey and Mapping Office of the Lands Department, where available for the area covered by the Project of which the Assignment forms a part, can be obtained free of charge on application to the Director’s Representative.

20.2 The Consultants may apply for the supply of the series of Digital Map products from Lands Department for the exclusive use of this Assignment free of charge. Applications should be made to the Director’s Representative by completing and submitting the form “Undertakings by Consultant/Contractor on the Use of Digital Map from Land Information Centre” (SMF-0096) together with a list of the Digital Map product required. The Consultants are
required to provide the storage media for the supply of the Digital Map product files unless Lands Department advises the otherwise.

20.3 All the mapping information provided shall be for the exclusive use of this Assignment. In using the Digital Map products supplied by Lands Department, the Consultant shall abide by the terms and conditions as stipulated in the undertaking form. Upon completion of the Assignment, the Consultant shall destroy immediately the supplied Digital Map products and confirm the destruction to Lands Department by completing and returning the form “Confirmation by Government’s Consultant/Contractor on the Cessation of the Use of Digital Map from Land Information Centre” (SMF-0097) to the Director’s Representative within two weeks upon completion of the Assignment.

20.4 All the lot boundary information provided is for identification of approximate location of lot only and is subject to amendments by the Lands Department without prior notice. The Consultants shall refer to the District Survey Offices of the Lands Department for the most up-to-date lot boundary information.

20.5 The Consultants shall be responsible for verifying the accuracy and, where necessary, updating all survey and mapping information provided. Unless otherwise provided for in the Assignment, all field survey work required for the proper execution of the Assignment shall be the duty of the Consultants. A copy of field notes, field data and resultant plans arising from these surveys shall be handed over to the Director’s Representative in hardcopy (paper, transparency and/ or microfilms) and MicroStation (DGN) file format upon completion of the Assignment. The accuracy as well as presentation of these surveys shall be of a standard agreed by the Director’s Representative. After the Director’s Representation has accepted the survey results, the Consultants shall forward a set of as-built survey plans in hardcopy and softcopy to the Land Information Centre of the Survey and Mapping Office of the Lands Department.

20.6 The Consultants shall be responsible for submitting drawing computer files which shall be delivered on compact disc in MicroStation (DGN) file format unless otherwise specified by the Director’s Representative. The survey drawings shall be in compliance with the CAD Standard for Works Project (CSWP) version 1.03.00 (or later versions as agreed by the Director’s Representative) as posted on the Development Bureau’s web-site and the Drafting Specification for Engineering Survey Rev 2.0 (or later versions as agreed by the Director’s Representative) as posted on Civil Engineering and Development Department’s web-site.
20.7 Annex 4 specifies the division of responsibility for other surveying between the Consultants, the Lands Administration Office and the Survey and Mapping Office of the Lands Department.

21 Insurance

21.1 The amount of insurance cover to be maintained in accordance with sub-Clause (A) of SCE 12 of the Special Conditions of Employment shall be HONG KONG Dollars ____ (equal to 2 x Lump Sum fee, subject to a minimum of HK$ 5 million and a maximum of HK$ 75 million).

---- END ----
Annex 1

Agreement No. CE 59/2019 (EP)
Food Waste Pre-treatment Facilities for Anaerobic Co-digestion Trial Scheme at Sha Tin Sewage Treatment Works– Investigation, Design and Construction

Figure 1 - Site Location Plan of the Sha Tin Sewage Treatment Works and the Proposed Food Waste Pre-treatment Facilities
Annex 2

Agreement No. CE 59/2019 (EP)
Food Waste Pre-treatment Facilities for Anaerobic Co-digestion Trial Scheme at Sha Tin Sewage Treatment Works– Investigation, Design and Construction

Guideline to specialists who need to conduct inspection visits outside Hong Kong

1 In the event that production activities in a works contract are undertaken outside Hong Kong, the supervisory staff conducting inspections on the production sites outside Hong Kong shall, to the best of their knowledge, declare to the Director’s Representative for the Contract if the main contractor, the sub-contractor for the production activities, or any of their employees is his spouse, family member, or close relatives.

2 Such inspection visits shall also be subject to the approval of the Consultants. Where the Contractor makes arrangement for transportation, accommodation and entertainment including meals, such arrangement shall be agreed to by the Director’s Representative for the Contract beforehand. Other than the agreed arrangement, supervisory staff shall not be allowed to receive any form of hospitality or entertainment from the Contractor during such inspection visits.

3 Should the supervisory staff incur reimbursement expenses in the course of inspection, all claims for reimbursement should all be made to the Consultants in accordance with the prevailing rules and regulations for such. The Consultants will in turn seek reimbursement from the contractor where applicable. Under no circumstances should all the staff seek reimbursement direct form the Contractor.
Agreement No. CE 59/2019 (EP)

Agreement No. CE 59/2019 (EP)
Food Waste Pre-treatment Facilities for Anaerobic Co-digestion Trial Scheme at Sha Tin Sewage Treatment Works – Investigation, Design and Construction

List of Documents Available for Reference

The following is a non-exhaustive list of documents relevant to the Assignment available for the Consultants’ reference. The tentatively available dates of some of the documents are for indicative purpose, and are subject to change.

1. A proposal on Co-digestion of Food Waste with Sewage Sludge in Sewage Treatment Works to Alleviate Solid Waste Problem in Hong Kong, submitted by DSD staff under the Staff Suggestions Scheme, December 2013


Annex 4

Agreement No. CE 59/2019 (EP)

Food Waste Pre-treatment Facilities for Anaerobic Co-digestion Trial Scheme at Sha Tin Sewage Treatment Works—Investigation, Design and Construction

Responsibility for Survey Work

The division of responsibility among the Consultants, the Lands Administration Office, and the Survey and Mapping Office of the Lands Department for surveying required in connection with the Assignment shall be as follows:-

<table>
<thead>
<tr>
<th>Task</th>
<th>Responsibility of</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>(a) Provision of basic horizontal and vertical survey control</td>
<td>Survey and Mapping Office (Consultants to download from <a href="http://www.geodetic.gov.hk">www.geodetic.gov.hk</a>)</td>
</tr>
<tr>
<td>(b) Checking of given control point values and establishment of survey control net-work(s) based on survey control given vide (a)</td>
<td>Consultants</td>
</tr>
<tr>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>(a) Provision of topographic maps (at 1:1000 or other standard scale relevant to the Assignment)</td>
<td>Survey and Mapping Office (excluding those specified as to be provided by the Consultants in the Assignment)</td>
</tr>
<tr>
<td>(b) Provision of available Digital Map products relevant to the Assignment</td>
<td>Land Information Centre, Survey and Mapping Office</td>
</tr>
<tr>
<td>(c) Updating and verification of accuracy of information shown on plans supplied vide (a) and (b) as necessary in relation to the Assignment</td>
<td>Consultants</td>
</tr>
<tr>
<td>(d) Carrying out detailed surveys for site investigation and for preparation of design and contract documents as necessary in relation to the Assignment</td>
<td>Consultants</td>
</tr>
<tr>
<td>(3)</td>
<td>District Survey Office</td>
</tr>
<tr>
<td>Supply of existing cadastral plans and records and co-ordinate data</td>
<td>District Survey Office</td>
</tr>
<tr>
<td>(4)</td>
<td>Consultants</td>
</tr>
<tr>
<td>Computation of detailed dimensioned layouts of roads, drainage and waterworks reserves, platforms, etc.</td>
<td>(checked and accepted by District Survey Office)</td>
</tr>
<tr>
<td>Agreement No. CE 59/2019 (EP)</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>(5)</strong> Determination of site/lot boundaries, calculation of areas, etc. in connection with the agreed dimensioned layouts</td>
<td>District Survey Office (in liaison with District Lands Office)</td>
</tr>
<tr>
<td><strong>(6)</strong> (a) Processing of resumption and surrender for privately owned land in Development Area</td>
<td>District Lands Office (in liaison with District Survey Office and Consultants)</td>
</tr>
<tr>
<td>(b) Resumption and surrender plans and demarcation of lands to be resumed</td>
<td>District Survey Office (in liaison with District Lands Office and Consultants)</td>
</tr>
<tr>
<td><strong>(7)</strong> (a) Setting-out of roads, drainage works, formation areas, etc.</td>
<td>Contractors (checked and accepted by Consultants.)</td>
</tr>
<tr>
<td>(b) Initial site survey, and interim and final payment surveys</td>
<td>Consultants (joint survey with contractors or agreed survey with contractors)</td>
</tr>
<tr>
<td><strong>(8)</strong> Preparation of proposal plans for Government land allocations and other land grants relevant to the Assignment</td>
<td>District Survey Office (in liaison with District Lands Office)</td>
</tr>
<tr>
<td><strong>(9)</strong> Preparation of dimensioned plans and setting out of boundaries of sites and lots for Government land allocation and other land grants relevant to the Assignment</td>
<td>District Survey Office</td>
</tr>
<tr>
<td><strong>(10)</strong> As-built surveys on all completed phases of the Works (including records of positions and levels on all underground pipelines, etc.)</td>
<td>Consultants</td>
</tr>
<tr>
<td><strong>(12)</strong> Supply a set of as-built survey plans in both hardcopy and softcopy to the Land Information Centre of the Survey and Mapping Office of the Lands Department</td>
<td>Consultants</td>
</tr>
<tr>
<td><strong>(13)</strong> For as-built surveys of those completed road works to be handed over to Highways Department for maintenance, submission of a set of road inventory data in GIS format in compliance with the specifications to Highways Department. A copy of the submission should also be provided to the Land Information Centre of the Survey and Mapping Office of Lands Department.</td>
<td>Consultants</td>
</tr>
</tbody>
</table>
1. PURPOSE OF THE ER

1.1 The purpose of this ER is to provide information on the nature and extent of environmental issues arising from the construction and operation of the Project and related activities that take place concurrently. This information will contribute to the decisions to be made by the representatives of Environmental Assessment Division of the Environmental Protection Department on behalf of Director of Environmental Protection on:

i. the overall acceptability of any adverse environmental consequences that is likely to arise as a result of the Project;

ii. the conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences wherever practicable; and

iii. the acceptability of residual impacts after the proposed mitigation measures is implemented.

2. OBJECTIVES OF THE ER

2.1 The objectives of the ER are as follows:

(i) to describe the Project and associated works together with the requirements for carrying out the Project;

(ii) to consider alternative with a view to avoiding and minimising the potential environmental impacts;

(iii) to compare the environmental benefits and disbenefits of each option;

(iv) to provide reasons for selecting the preferred option(s) and to describe the part of environmental factors played in the selection;

(v) to identify and describe elements of the community and environment likely to be affected by the Project and/or likely to cause adverse impacts to the Project, including natural and man-made environment and the associated environmental constraints;

(vi) to identify and quantify emission/pollution sources and determine the significance of impacts on sensitive receivers and potential affected uses with respect to air, noise and water quality;

(vii) to identify and quantify the waste generated and to propose mitigation/management
measures during construction and operation of the Project;

(viii) to identify and assess any potential landscape and visual impacts to nearby sensitive receivers and to proposed measures to mitigate these impacts;

(ix) to identify and assess any potential land contamination issues arising from the Project and to propose remediation measures if necessary;

(x) to identify and assess any potential environmental impacts due to the presence of the Project under normal and emergency situations;

(xi) to propose the provision of mitigation measures so as to minimise pollution, environmental disturbance and nuisance during construction and operation of the Project;

(xii) to investigate the feasibility, effectiveness and implications of the proposed mitigation measures;

(xiii) to identify, predict and evaluate the residual environmental impacts (i.e. after practicable mitigation) and the cumulative effects expected to arise during the construction and operation phases of the Project in relation to the sensitive receivers and potential affected uses;

(xiv) to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the Project which are necessary to mitigate the identified environmental impacts and cumulative effects and reduce them to acceptable levels;

(xv) to investigate the extent of the secondary environmental impacts that may arise from the proposed mitigation measures and to identify constraints associated with the mitigation measures recommended in the ER, as well as the provision of any necessary modification;

(xvi) to design and specify environmental monitoring and audit requirements to ensure the effective implementation of the recommended environmental protection and pollution control measures; and

(xvii) to provide relevant and sufficient information to substantiate any implication under the Environmental Impact Assessment Ordinance, including any presence of Designated Project(s) and any material changes to the Sha Tin STW and implication on its current Environmental Permit.

3. DETAILED REQUIREMENT OF ER

3.1 The Consultants shall demonstrate in the ER Report that the criteria in the relevant sections of the Technical Memorandum on the EIA Process of the EIA Ordinance (hereinafter referred to as the TM) are complied with.

The Scope
3.2 The ER shall address the likely key issues described below, together with any other key issues identified during the course of the ER:

(i) air quality impacts arising from construction and operation of the Project including odour impacts to the nearby sensitive receivers;

(ii) noise impacts arising from construction and operation of the Project to the nearby sensitive receivers;

(iii) water quality impacts arising from the construction and operation of the Project;

(iv) waste management implications during construction and operation of the Project;

(v) land contamination implications during construction and operation of the Project.

(vi) landscape and visual impacts arising from construction and operation of the Project to the nearby sensitive receivers;

Technical Requirements

3.3 The Consultants shall conduct the ER to address all environmental aspects of the activities as described in the scope as set out above. The ER shall include the following technical requirements on specific impacts.

Air Quality Impact

3.4 The Consultants shall follow the criteria and guidelines for evaluating and assessing air quality impact as stated in Section 1 of Annex 4 and Annex 12 of the TM respectively.

3.5 The assessment area for the air quality impact assessment shall generally be defined by a distance of 500m from the boundary of the Project works sites, yet it may be extended depending on the circumstances and the scale of the Project.

3.6 The Consultants shall assess the air pollution concentrations with reference to relevant sections of the Guidelines for Local-Scale Air Quality Assessment Using Models (http://www.epd.gov.hk/epd/english/environmentinhk/air/guide_ref/guide_aqa_model.html) or other methodology as agreed by the Director of Environmental Protection.

3.7 The air quality impact assessment shall include the following:

Background and Analysis of Activities

(i) Provide background information relating to air quality issues relevant to the Project, e.g. description of the types of activities during operation stage of the Project such as emission of odour from the proposed food waste pre-treatment facilities;

(ii) Give an account, where appropriate, of the consideration/measures that have been taken into consideration in the planning of the Project to abate the air pollution impact. The Consultants shall consider alternative modes of operation to minimise
the operational air quality impact;

(iii) Present the background air quality levels in the assessment area for the purpose of evaluating the cumulative operational air quality impacts. Identification of Air Sensitive Receivers (ASRs) and Examination of Emission/Dispersion Characteristics;

(iv) Identify and describe representative existing and planned/committed ASRs that would likely be affected by the Project, including those earmarked on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans and Layout Plans. The Consultants shall select the assessment points of the identified ASRs such that they represent the worst impact point on these ASRs. A map showing the location and a description including the name of the buildings, their uses and height of the selected assessment points shall be given. The separation distances of these ASRs from the nearest emission sources should also be given;

(v) Provide an exhaustive list of air pollutant emission sources, including any nearby emission sources which are likely to have impact on the Project. Examples of operational stage emission sources include odour emissions from the Sha Tin STW. Confirmation of the validity of the assumptions and the magnitude of the activities shall be obtained from the relevant government/authorities and documented;

Construction Stage Air Quality Impact

(vi) The Consultants shall follow the requirements stipulated under the Air Pollution Control (Construction Dust) Regulation to ensure that construction dust which may arise as a result of the works are controlled within the relevant standards as stipulated in Section 1 of Annex 4 of the TM. A monitoring and audit programme for the construction stage shall be devised to verify the effectiveness of the control measures proposed so as to ensure proper construction dust control;

(vii) If the Consultants anticipate that the Project will give rise to significant construction dust impacts likely to exceed recommended limits in the TM at the ASRs despite the incorporation of the dust control measures proposed in accordance with (vi) above, a quantitative assessment should be carried out to evaluate the construction dust impact at the identified ASRs. The Consultants shall follow the methodology set out in (ix) below when carrying out the quantitative assessment;

Operational Stage Air Quality Impact

(viii) The Consultants shall calculate the expected air pollutant concentrations including odour levels at the identified ASRs. Calculations for the expected impact shall be based on an assumed reasonably worst case scenario under normal operating conditions. The evaluation shall be based on the strength of the emission sources identified in (v) above. The Consultants shall follow (ix) below when carrying out the quantitative assessment. A monitoring and audit programme for the operational stage shall be devised to verify the effectiveness of the control measure proposed so as to ensure proper operational odour control;

Quantitative Assessment Methodology
(ix) The Consultants shall apply the general principles enunciated in the modelling guidelines while making allowance for the specific characteristic of the Project. This specific methodology must be documented to such a level of detail (preferably with tables and diagrams) to allow the readers of the assessment report to grasp how the model is set up to simulate the situation at hand without referring to the model input files. Details of the calculation of the emission rates of air pollutants for input to the modeling shall be presented in the report. The Consultants must ensure consistency between the text description and the model files at every stage of submission. In case of doubt, the Consultants should seek prior agreement from the EPD on specific modeling details;

(x) The Consultants shall identify the key/representative air pollutant parameters (types of pollutants and the averaging time concentration) to be evaluated and provide explanation for choosing these parameters for the assessment of the impact of the Project;

(xi) The Consultants shall calculate the net and cumulative air quality impact at the identified ASRs and compare these results against the criteria set out in section 1 of Annex 4 in the TM. The predicted air quality impacts (both unmitigated and mitigated) shall be presented in the form of summary tables and pollution contours, for comparison with relevant air quality standards and for examination of the land use implications of these impacts. Plans of suitable scale should be used for presentation of pollution contours for determining buffer distances required;

Mitigating Measures for Non-compliance

(xii) The Consultants shall propose remedies and mitigating measures, such as deodourisation facilities and/or enclosure, where the predicted air quality impact exceeds the criteria set in section 1 of Annex 4 in the TM. These measures and any constraints on future land use planning shall be agreed with the relevant government departments/authorities and documented. The Consultants shall demonstrate quantitatively that the resultant impacts after incorporation of proposed mitigating measures will comply with the criteria stipulated in section 1 of Annex 4 in the TM; and

Submission of Model Files

(xiii) All input and output file(s) of the model run(s) shall be submitted in both electronic format and hard copy attached to the final ER Report.

Noise Impact

3.8 The Consultants shall follow the criteria and guidelines for evaluating and assessing noise impact as stated in Annexes 5 and 13 of the TM, respectively.

3.9 The noise impact assessment shall include the following:

(i) Determination of Assessment Area

The noise impact assessment shall include all areas within 300m from the Project boundary. Subject to the agreement of the Director’s Representative, the assessment
area could be reduced accordingly if the first layer of noise sensitive receivers, closer than 300m from the Project boundary, provides acoustic shielding to those receivers further from the site.

(ii) Provision of Background Information and Existing Noise Levels

The Consultants shall provide all background information relevant to the Project, including relevant previous or current studies. Unless necessary for planning standards, it will not be necessary to investigate the existing noise levels.

(iii) Identification of Noise Sensitive Receivers

(a) The Consultants shall refer to Annex 13 of the TM when identifying the noise sensitive receivers (NSRs). The NSRs shall include all existing NSRs and all planned/committed noise sensitive developments and uses earmarked on the relevant Outline Zoning Plans, Outline Development Plans, Layout Plans and other published plans, including any land use and development applications approved by Town Planning Board. For planned noise sensitive land uses without committed layouts, the Consultants shall work out indicative site layouts based on the relevant planning parameters.

(b) The Consultants shall select assessment points to represent all identified NSRs for carrying out quantitative noise assessment described below. The assessment points shall be agreed with Director of Environmental Protection prior to the quantitative noise assessment. A map showing the location and description such as name of building, use, and floors of each and every selected assessment point shall be given.

(iv) Provision of an Emission Inventory of the Noise Sources

The Consultants shall provide an inventory of noise sources including construction equipment for construction noise assessment. Confirmation of the validity of the inventory shall be obtained from the relevant Government departments/authorities.

(v) Construction Noise Assessment

(a) The Consultants shall carry out assessment of noise impact from construction (excluding percussive piling) of the Project during day time, i.e. 7 a.m. to 7 p.m., on weekdays other than general holidays in accordance with the methodology stipulated in paragraphs 5.3 and 5.4 of Annex 13 of the TM. The criteria in Table 1B of Annex 5 of the TM shall be adopted in the assessment.

(b) To minimise the construction noise impact, alternative construction methods to replace percussive piling shall be explored and recommended as far as practicable.

(c) If the unmitigated construction noise levels are found to exceed the relevant criteria, the Consultants shall propose practicable direct mitigation measures (including movable barriers, enclosures, quieter alternative methods, re-scheduling and restricting hours of operation of noisy task) to minimise the impact. If the mitigated noise levels still exceed the relevant criteria, the
duration of the noise exceedance shall be given.

(d) The Consultants shall confirm whether construction works during restricted hours is required. If affirmative, the Consultants shall evaluate whether construction works in restricted hours as defined under the Noise Control Ordinance (NCO) are feasible or not in the context of programming construction works. Reference shall be made to the relevant technical memoranda issued under the NCO. Regardless of the results of the construction noise impact assessment for restricted hours, the Noise Control Authority will process the Construction Noise Permit (CNP) application, if necessary, based on the NCO, the relevant technical memoranda issued under the NCO, and the contemporary conditions/situations. This aspect should be explicitly stated in the noise chapter and the conclusions and recommendations chapter in the ER Report.

(vi) **Operational Noise Assessment**

(a) The Consultants shall analyse the scope of the proposed system to identify noise sources for the purpose of noise impact assessment.

(b) The Consultants shall calculate the expected noise using standard acoustic principles. Calculations for the expected noise shall be based on assumed plant inventories and utilisation schedule for the worst case scenario. The Consultants shall calculate the noise levels taking into account of correction of tonality, impulsiveness and intermittency in accordance with the TM for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites.

(c) The Consultants shall present the existing and future noise levels in $\text{Leq (30 mins)}$ at the NSRs at various representative floor levels (in $\text{mPD}$) on tables and plans of suitable scales. Quantitative assessment at the NSRs for proposed fixed noise source(s) shall be carried out and compared against the criteria set out in Table 1A of Annex 5 of the TM.

(d) **Proposal for Noise Mitigation Measures**

The Consultants shall propose direct technical remedies in all situations where the predicted noise level exceeds the criteria set out in Table 1A of Annex 5 of the TM to protect the affected NSRs. Specific reasons for not adopting certain direct technical remedies in the design to reduce the noise to a level meeting the criteria in the TM or to maximise the protection for the NSRs should be clearly quantified and laid down. The total number of dwellings and other noise sensitive element that will be benefited by the provision of direct technical remedies should be provided.

The total number of dwellings and other noise sensitive elements that will still be exposed to noise above the criteria with the implementation of all recommended direct technical remedies shall be quantified.

In case where a number of the NSRs cannot all be protected by the recommended direct technical remedies, the Consultants shall consider
alternatives to reduce the impacts to within the relevant criteria.

(vii) **Assessment of Side Effects and Constraints**

The Consultants shall identify, assess and propose means to minimise any side effects and to resolve any potential constraints arising from the inclusion of any recommended direct technical remedies.

(viii) **Evaluation of Constraints on Planned Noise Sensitive Developments/Land-uses**

For planned noise sensitive uses which will still be affected even with all practicable direct technical remedies in place, the Consultants shall propose, evaluate and confirm the practicality of additional measures within the planned noise sensitive uses and shall make recommendations on how these noise sensitive uses will be designed for the information of relevant parties.

**Water Quality Impact**

3.10 The Consultants shall follow the criteria and guidelines for evaluating and assessing water pollution as stated in Annexes 6 and 14 of the TM respectively.

3.11 The Consultants shall include in the water quality impact assessment of the following tasks:

(i) collection and review of background information on the existing and planned water systems and their respective catchments and sensitive receivers which might be affected by the Project;

(ii) characterisation of water quality on the surrounding water systems and respective catchments and sensitive receivers which might be potentially affected by the Project both during construction and operation stages;

(iii) identification and analysis of the existing and planned future activities and beneficial uses related to the water systems and identification of the water sensitive receivers by referring to those developments and uses indicated on the relevant Outline Zoning Plans, Outline Development Plans and Layout Plans, and consult the Planning Department on any other developments being considered in the planning process;

(iv) identification of any alteration of sewage bypass, water courses, drainage systems, leachate collection systems, and change of catchment types or areas;

(v) review of the specific construction methods and operation of the Project;

(vi) identification, analysis and quantification of all existing and likely future water pollution sources, including point discharges and non-point sources to surface water runoff. Establishment and provision of an emission inventory on the quantities and characteristics of all these pollution sources;

(vii) establishment of the water quality objectives, criteria and standards for all sensitive receivers;

(viii) assessment and evaluation of any potential water quality impacts on the identified...
water systems and sensitive receivers; and

(ix) identification and recommendation of mitigation measures to minimise the adverse water quality impact.

Waste Management Implications

3.12 The Consultants shall follow the criteria and guidelines for evaluating and assessing waste management implications as stated in Annexes 7 and 15 of the TM respectively. The study of waste management impacts shall cover the following:

(i) Analysis of Activities and Waste Generation

The Consultants shall identify the quantity, type, quality and timing of the waste and chemical waste arising as a result of the construction and operation activities of the Project based on the sequence and duration of these activities and other wastes which will be generated during construction and operation stages.

(ii) Proposal for Waste Management

(a) Prior to considering the disposal options for various types of wastes, opportunities for reducing waste generation, on-site or off-site re-use and recycling shall be fully evaluated. Measures that can be taken in the planning and design stages e.g. by modifying the design approach and in the construction stage for maximising waste reduction shall be separately considered.

(b) After considering the opportunities for reducing waste generation and maximising re-use, the types and quantities of wastes required to be disposed of as a consequence shall be estimated and the disposal methods/options for each type of wastes shall be described in detail. The disposal method recommended for each type of wastes shall take into account the result of the assessment in (c) below. The transportation routes and the frequency of the trucks/vessels involved, any barging point or conveyor system to be used, the stockpiling areas and the disposal outlets for the waste identified should be clearly stated.

(c) The assessment shall cover the following areas:

- air and odour emissions;
- noise;
- wastewater discharge; and
- public transport.

Land Contamination Implications

3.13 In view of the past land use of the project area, the Consultants shall identify and evaluate the potential risks and hazards due to land contamination problems associated with the construction and operation of the Project. The Consultants shall follow the criteria and guidelines given in the following EPD’s guidance notes for evaluating and assessing the land contamination implications:

(i) Guidance Note for Contaminated Land Assessment and Remediation;
(ii) Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management; and

(iii) Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards, and Car Repair/Dismantling Workshops.

3.14 The review of land contamination implications shall include at least the following:

(i) provision of a clear and detailed account of the present use of the land and the relevant past land history in relation to possible land contamination;

(ii) identification of potential contamination and associated impacts, risks or hazards relating to the Project, based on previous relevant surveys, investigations, samplings, testing, studies and reports; and

(iii) detailed recommendation of any further works regarding land contamination issues, including surveys, investigations, samplings, testing and/or studies, that may be required for satisfactory completion and commissioning of the Project.

Landscape and Visual Impacts

3.15 The Consultants shall follow the criteria and guidelines for evaluating and assessing landscape and visual impacts as stated in Annexes 10 and 18 of the TM respectively.

3.16 Landscape Impact Assessment and Visual Impact Assessment shall be studied separately. Clear mapping of landscape and visual impact assessment is required. Both assessments shall consist of the following major elements:

(i) description of assessment methodology and setting up assessment criteria for landscape assessment and visual impact assessment respectively;

(ii) identification of existing landscape and visual characteristics of the study area including visual envelop, sensitive receivers and representative viewpoints;

(iii) assessment of existing landscape and visual quality of the study area including a review of the relevant planning and development control framework;

(iv) illustration of the Project by photomontage from different viewing angles;

(v) assessment and quantification of the landscape impacts of the Projects and assessment of visual impacts of the proposed developments to individual receptors and identification of the most affected landscape and views; and

(vi) proposals of mitigation measures required for the affected area and supported by visual materials such as photomontage or sketches.

Summary of Environmental Outcomes

3.17 The ER shall contain a summary of the key environmental outcomes arising from the ER, including the population and environmental sensitive areas protected, environmentally
friendly designs recommended, key environmental problems avoided and the environmental benefits of environmental protection measures recommended. In preparing the ER, the Consultants shall ensure that all the issues as described in Clause 1 to 3 of this ER Brief, as well as any subsequence issues that arouse, have been fully addressed.

**Environmental Monitoring & Audit (EM&A) Requirements**

3.18 The ER shall identify whether there is any need for EM&A activities during the construction and operation phases of the Project and, if affirmative, to define the scope of the EM&A requirements for the Project in the ER. The EM&A requirements shall include a recommendation for Event/Action Plan to address any adverse or unforeseen environmental issues and non-compliance identified from the post-commissioning monitoring.

3.19 The ER shall include a project implementation schedule, in the form of a checklist containing all the ER’s recommendation and mitigation measures with reference to the implementation programme.

4. **OTHER PROCEDURAL REQUIREMENT OF ER**

4.1 The Consultants shall carry out the ER in consultation with the Environmental Assessment Division of the Environmental Protection Department, and shall liaise with and seek input from the Environmental Assessment Division of the Environmental Protection Department.

4.2 The Consultants shall respond to queries raised by the Environmental Assessment Division of the Environmental Protection Department prior to a date **three months** after the final submission of the ER Report required under the Agreement at no additional charge to the Assignment. Such date shall be confirmed in writing to the Consultants by the Director's Representative.

4.3 The ER Report shall contain all the requirements stipulated in this ER Brief and an Executive Summary summarizing the main issues, findings, conclusions and recommendations.

- End -