

**Agreement No. CE 9/2011 (CE)**

**Increasing Land Supply by Reclamation and Rock Cavern Development cum Public  
Engagement – Feasibility Study**

**BRIEF**

1. **Introduction**

1.1 This Brief is to be read in conjunction with the Memorandum of Agreement, General Conditions of Employment of Engineering and Associated Consultants for a Feasibility Assignment (1997 Edition) (hereinafter called “the General Conditions of Employment”), Special Conditions of Employment, Schedule of Fees, Appendices to this Agreement and any other detailed instructions issued by the Director’s Representative (DR).

1.2 The following words and expressions shall have the meaning hereby assigned to them except when the context of this Brief otherwise requires:

- (a) “**Cavern Study**” means the feasibility study undertaken under *Agreement No. CE 66/2009 (GE) – Enhanced Use of Underground Space in Hong Kong – Feasibility Study*;
- (b) “**CDF**” means confined disposal facilities;
- (c) “**CDF Study**” means the study undertaken under Agreement No. FM01/2010 – Preliminary Engineering Feasibility Study on Confined Disposal Option for Contaminated Sediment;
- (d) “**Government**” means the Government of the Hong Kong Special Administrative Region;
- (e) “**Longlisted Sites**” means a list of at least forty-five (45) sites in total comprising at least twenty (20) potential reclamation sites suitable for handling public fill, at least five (5) potential reclamation sites for construction of CDF and at least twenty (20) RCD-released Sites (see Clause 1.2(i) below) recommended in Territory-wide Site Search under Task 5;
- (f) “**PE**” means public engagement;
- (g) “**PR sub-consultants**” means a **separate** public relations firm satisfying the qualification requirements stipulated in the Brief;
- (h) “**RCD**” means rock cavern development;

- (i) “**RCD-released Sites**” means those sites that could be released from relocation of existing government facilities to rock caverns by means of rock cavern development (RCD);
- (j) “**RCD-receiving Sites**” means rock caverns to receive the government facilities relocated from the RCD-released Sites;
- (k) “**SEA**” means strategic environmental assessment under the Assignment;
- (l) “**Selected Sites**” those Shortlisted Sites selected under Stage 2 PE;
- (m) “**Shortlisted Sites**” means at least eighteen (18) potential sites comprising at least seven (7) potential reclamation sites for handling public fill, at least three (3) potential reclamation sites suitable for construction of CDF and at least eight (8) RCD-released sites;
- (n) “**Study**” means the study for increasing land supply by reclamation and rock cavern development cum public engagement under this Agreement No. CE 9/2011 (CE);
- (o) “**Study Webpage**” means an interactive webpage as required in Clause 5.3.12 in the Brief; and
- (p) “**Telephone Poll**” means territory wide telephone interview survey to be carried out during Stage 1 PE.

1.3 The following table lists out the abbreviated titles of government bureaux, departments, offices, statutory bodies and public organizations mentioned in this Brief:

<b>Abbreviation</b>	<b>Full title</b>
ACE	Advisory Council on the Environment
AFCD	Agriculture, Fisheries and Conservation Department
AMO	Antiquities and Monuments Office of the Leisure and Cultural Services Department
ArchSD	Architectural Services Department
CEDD	Civil Engineering and Development Department
CIG	Central Internet Gateway
CPLD	Committee on Planning and Land Development
DEVB	Development Bureau
DSD	Drainage Services Department
EACSB	Engineering and Associated Consultants Selection Board
EPD	Environmental Protection Department
ETWB	The then Environment, Transport and Works Bureau

<b>Abbreviation</b>	<b>Full title</b>
FSD	Fire Services Department
GEO	Geotechnical Engineering Office of the Civil Engineering and Development Department
HKPF	Hong Kong Police Force
HyD	Highways Department
LandsD	Lands Department
LCSD	Leisure and Cultural Services Department
LegCo	The Legislative Council
PlanD	Planning Department
PFC	Public Fill Committee
PWL	Public Works Laboratory
TD	Transport Department
TPB	Town Planning Board
WSD	Water Supplies Department

1.4 The following table lists out the meaning of abbreviation for expressions adopted in this Brief:

<b>Abbreviation</b>	<b>Full meaning</b>
C&D material	Construction and Demolition Material
C&DMMP	Construction and Demolition Material Management Plan
CASET	Computer Aided Sustainability Evaluation Tool
CV	Curriculum Vitae
DEVB TC(W)	Development Bureau Technical Circular (Works)
DIA	Drainage Impact Assessment
DR	Director's Representative
E&M	Electrical and Mechanical
EIA	Environmental Impact Assessment
EIAO	Environmental Impact Assessment Ordinance, Cap 499
EM&A	Environmental Monitoring & Auditing
EP	Environmental Permit issued under EIAO
ERA	Estimating using Risk Analysis defined under WBTC No. 22/93
ETWB TC(W)	Technical Circulars (Works) issued by the then Environment, Transport and Works Bureau
GA	Geotechnical Assessment
GEO TGN	Technical Guidance Notes issued by GEO
HKSAR	Hong Kong Special Administrative Region
LMPO	Land (Miscellaneous Provisions) Ordinance, Cap 28
NTHA	Natural Terrain Hazard Assessment
PAH	Project Administration Handbook by the HKSAR

<b>Abbreviation</b>	<b>Full meaning</b>
	Government
PWP	Public Works Programme
SA	Sustainability Assessment
SEA	Strategic Environmental Assessment
SI	Site Investigation
SIA	Sewerage Impact Assessment
SRM	Systematic Risk Management
TTIA	Transport and Traffic Impact Assessment
UIA	Utility Impact Assessment
VM	Value Management
WBTC	Technical circulars issued by the then Works Bureau, the then Works Branch, the then Lands & Works Branch or the then Public Works Department
XP	Excavation Permit

## 2. **Description of the Project**

### **Background**

- 2.1 To meet the demand for public and private housing sites, Government will continue with the work on land use planning and urban design. There are needs to explore new ways to increase the supply of land. Two possible ways are reclamation on an appropriate scale outside Victoria Harbour and rock cavern development. Development Bureau will initiate public discussion about the feasibility of these new options by carrying out relevant studies and public engagement exercise. A number of factors, including engineering feasibility, cost-effectiveness and public acceptability, will be considered before deciding how to put the ideas into action.
- 2.2 It is the general public expectation that a visionary and innovative approach should be adopted to meet the challenge. Meanwhile, as the delivery of public works project takes time, it is the government strategy to kick-start the preliminary study and planning for reclamation outside Victoria Harbour and rock cavern development to create land resources as a long-term strategy to cope with imminent future development needs. Taking this opportunity, the handling of surplus public fill and disposal of contaminated mud by means of reclamation and confined disposal facilities

(CDF<sup>1</sup>) will also be explored. The reclamations formed could become a source of new land for other beneficial uses.

- 2.3 For this initiative having such strategic importance and territory-wide significance, Public Engagement (PE) will form a significant component of the Study to gauge public views and foster the public's understanding and acceptance on increasing land supply by new and innovative ways including reclamation and rock cavern development.

### **Land Supply**

- 2.4 Due to the long lead time required for land production, developable land should be available in time to capture windfall opportunities. This concept may be particularly applicable to land uses of which the demand is less predictable, e.g. special industries. Incidentally, it will enhance Hong Kong's economic competitiveness and improve the livelihood of local people.
- 2.5 Finance and business, trade, logistics, special industries, cultural and creative industries, tourism, etc. will support the future economic vitality. In addition, a thriving trade sector requires the support of the convention and exhibition business. Provision of the required land on time to address long-term requirements is essential.
- 2.6 Logistics industry is improving its efficiency to provide reliable and speedy value-added logistics services so as to compensate for cost differentials with other regional competitors. Due to the scale of infrastructure required to support the logistics industry, Government need to ensure that the consideration and planning of new facilities to meet future needs should be made well in advance.
- 2.7 The Government is committed to driving forward innovation and technology by facilitating the provision of suitable and adequate technology infrastructure, such as industrial estates and the Science Park. Similarly, cultural and creative industries

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<sup>1</sup> CDF have been widely used in overseas countries and are able to handle a large amount of contaminated sediment. CDF refer to an area specifically designed for the containment of contaminated sediment that provides control of potential releases of contaminant to the environment. It is usually in the form of a diked containment structure constructed in water and serves to store contaminated sediment. After CDF are filled with contaminated sediment, normally up to 3 to 5 metres below the designed formation level, it will be covered with public fill up to the designed formation level.

are industries with value added through creativity. Government need to plan for their accommodation and infrastructure requirements accordingly.

- 2.8 Due to its geographic location, Hong Kong will continue to act as tourism gateway of China. New Mainland policies implemented since 2003 have boosted mainland visitor arrivals. There is scope to improve the hardware in terms of cross-boundary facilities, hotel accommodations and development of alternative tourism such as ecotourism and cultural tourism.
- 2.9 Housing and good urban infrastructure, including community facilities, open space, efficient and green energy supply, sewage and waste treatment systems, are essential parts of a city's development. Government needs to plan ahead and ensure the timely provision of adequate land and infrastructure for the development of housing land and associated facilities.

#### **Handling Surplus Public Fill Materials**

- 2.10 Reclamation has long been a primary source of new land in the past and played a vital part in boosting development in Hong Kong in the past few decades. Reclamation projects have all along served as major outlet for surplus inert construction waste, which is also known as "public fill materials".
- 2.11 Construction wastes are a mixture of inert and organic materials arising from site clearance, excavation, construction, refurbishment, renovation, demolition and road works. Its inert component comprising rocks, concrete, asphalt, rubbles, bricks, stones and earth which are also known as public fill materials are suitable for reuse in public filling areas and site formation works.
- 2.12 On average, there are several million tonnes of surplus public fill materials left for handling each year, after reusing part in reclamation projects and recycling part in making construction materials. Additional surplus fill materials are anticipated in the coming years in view of on-going and new mega infrastructure projects.
- 2.13 It is government's latest forecast that the two temporary fill banks at Tseung Kwan O Area 137 and Tuen Mun Area 38 set up to serve the functional purpose of buffering and addressing the timing-mismatch of fill generation and demand are anticipated to reach their capacity by around 2015. Therefore, there is a pressing need to address the imminent surplus fill disposal problem and to develop new sources of outlets to

sustain new infrastructure development. Reclamation outside Victoria Harbour is one of the options that are being looked into.

### **Disposal of Contaminated Sediment**

- 2.14 Infrastructure projects as well as regular dredging of the harbour fairways and rivers in Hong Kong will inevitably generate some contaminated sediment requiring disposal. Currently, the contaminated sediment is being disposed of at the mud pits at east of Sha Chau. Apart from the planned mud pits to be formed to the south of The Brothers, there is no other feasible location identified for the provision of new mud pits.
- 2.15 It is the government's latest estimate that the problem of the lack of disposal grounds for contaminated sediment will come to light by around 2017. CEDD have recently completed a preliminary engineering study under Agreement No. FM 01/2010 "*Preliminary Engineering Feasibility Study on Confined Disposal Option for Contaminated Sediment*" (i.e. the CDF Study) for investigating feasible solutions. A proposal of using contaminated sediments for near-shore reclamation was put forward as a long-term arrangement to accommodate contaminated sediments.
- 2.16 Near-shore reclamation is a CDF which is an area specifically designed for the containment of contaminated sediment that provides control of potential releases of contaminants to the environment. The land so formed could also provide land resource for some gainful (e.g. golf course, park, etc.) but limited uses due to the presence of contaminated sediment.
- 2.17 The Study will review and take into account the findings from the above study in mapping out a master plan for enhancing land supply and to formulate PE strategy.

### **Rock Cavern Development**

- 2.18 To explore possible means of land supply, a strategic planning and engineering study was undertaken by the Geotechnical Engineering Office of CEDD under Agreement No. CE 66/2009 (GE) "*Enhanced use of Underground Space in Hong Kong – Feasibility Study*" (i.e. the Cavern Study) to assess the potential of utilizing underground space, in particular rock caverns as part of Hong Kong's pursuit of sustainable development.

- 2.19 Rock caverns have been used to house new facilities such as refuse transfer station in the Western District and the sewage treatment plant in Stanley. To enhance its use and pursue its development in a strategic manner, the above study has identified those existing public facilities with potential for relocation in rock caverns so as to release surface land for other more gainful uses and has identified a number of strategic cavern areas with potential for large scale cavern development to meet community needs.
- 2.20 The Study will review and take into account the findings from the above study under Agreement No. CE 66/2009 (GE) to recommend potential sites for rock cavern development and formulate PE strategy.

### **Public Engagement (PE)**

- 2.21 With the heightened public awareness and involvement on public issues, PE will form a significant component of this Assignment to gauge public views and foster the public's understanding and acceptance on increasing land supply by new and innovative ways including reclamation and rock cavern development.
- 2.22 A careful assessment of public opinion received during previous public consultations, including briefings to LegCo, will be required in formulation of PE strategy for the Study. The review of the outcomes of the PE will be essential in setting objectives and study scope for the further studies to be carried out in next stage.

## **3. Objectives of the Assignment**

### **3.1 Main Objectives of the Assignment**

3.1.1 The main objectives of the Assignment are:

- (a) to conduct a territory-wide site search in Hong Kong for various possible land uses and undertake assessments on the suitability, sustainability, technical feasibility and environmental acceptability of housing development option, or other development option to be agreed by the DR, for each potential site recommended by increasing land supply through reclamation and rock cavern development;

- (b) to recommend at least two (2) more categories of possible land use planning with ranking, in addition to the housing development option, or other development option to be agreed by the DR, mentioned in sub-clause (a) above, suitable for other development options for each of the Longlisted Sites;
- (c) to devise a housing development option, or other development option to be agreed by the DR, for each of the Longlisted Sites for public engagement exercise and assessment on the suitability, sustainability, technical feasibility and environmental acceptability;
- (d) to identify suitable reclamation sites for handling surplus public fill and contaminated sediment (i.e. CDF);
- (e) to identify potential sites suitable for rock cavern development including RCD-released Sites and RCD-receiving Sites;
- (f) to launch a public engagement exercise throughout the Study process to engage the public in rational discussions on the land use constraints in Hong Kong and the need to increase usable land through reclamation outside Victoria Harbour and rock cavern development to meet future demand in the long run;
- (g) to build up in-principle public support on the initiative of increasing land supply through reclamation on an appropriate scale outside Victoria Harbour and rock cavern development; and
- (h) to evaluate, rank and recommend for at least eighteen (18) potential sites screened from the Longlisted Sites through a site shortlisting study to form a list of the Shortlisted Sites;

## 3.2 **Specific Objectives of the Assignment**

3.2.1 The specific objectives of the Assignment are:

- (b) **Strategic Environmental Assessment**
  - (i) to conduct the Strategic Environmental Assessment (SEA) as an integral part of the Study to identify, assess and compare, at the strategic level, the potential environmental performance and impacts of

the potential sites under different scenarios in the Assignment; to recommend possible strategic environmental mitigation approaches; to identify further studies/assessments required; to recommend the necessary follow-up arrangement of implementing the recommendations, including policy and institutional arrangements; and identify Designated Project(s) under the Environmental Impact Assessment Ordinance (EIAO) which will be subject to the statutory EIA process;

- (ii) to provide environmental information, at the strategic level, to justify the identification and shortlisting of potential sites;
- (iii) to integrate the consideration of environmental factors, at the strategic level, together with other considerations in identifying and shortlisting potential sites to avoid potential environmental problems; and
- (iv) to identify the environmentally preferred Longlisted and Shortlisted sites and provide environmental input into the site identification and shortlisting process.

#### 4. **Description of the Assignment**

4.1 This Assignment mainly consists of studies on overseas experience (e.g. Macau, Singapore, etc.) on various options to increase land supply, value management study, reviews on previous relevant studies, territory-wide site search, two-stage public engagement exercise, broad technical assessment, strategic environmental assessment, site selection, site investigation, etc. in order to achieve the objectives of the Assignment. The Assignment does not involve detailed engineering assessments, detailed computational modelling and any field works for site investigation supervised by the Consultants. For technical assessments, the Study shall address potential implications of the potential sites, the environment, sustainability, fisheries, costs and more specifically the technical requirements. The Consultants are required to draw conclusions and recommend the way forward based on the findings of the Assignment.

#### 4.10 **Task 8 – Strategic Environmental Assessment (SEA)**

- 4.10.1 The Consultants are required to conduct SEA as an integral part of the Study to identify, assess, compare, rank and shortlist potential sites with a view to integrating environmental consideration, at the strategic level, together with other considerations in site identification and shortlisting process throughout the Study. The level of details shall be such that collection of further detailed information would unlikely affect the environmental recommendations and conclusions.
- 4.10.2 The Consultants are required to incorporate inception report, baseline review, identification of environmental constraints and opportunities, examination of key environmental issues into appropriate part(s) of the deliverables for the Study.
- 4.10.3 The Consultants are required to prepare a report on strategic environmental monitoring and assessment report, the final SEA report and executive summary. Such reports including those for SEA under Clause 4.10.2 shall be prepared in Hyper Text Mark-up Language (HTML) format which can be readily uploaded onto the Study Webpage. The SEA's findings and recommendations should be summarized in the appropriate part(s) of the deliverable(s) of the Study accurately and consistently, wherever necessary.

#### 4.12 **Task 10 – Site Investigation**

- 4.12.1 On instruction by the DR, the Consultants are required to prepare a desktop study report for site investigation proposal and prepare a site investigation report to interpret all results of site investigation works for the Selected Sites.

### **5. Deliverables**

#### **5.1 General**

- 5.1.1 The Consultants shall assist the DR to set up a Study Steering Group and Working Groups and arrange regular meetings as agreed by the DR to discuss and endorse the deliverables.
- 5.1.2 The Consultants shall produce and submit the required deliverables as part of the Assignment. The Consultants shall be responsible for the circulation and timely

delivery of sufficient hard copies (and/or soft copies where appropriate) of the deliverables and the papers/reports directly to all relevant parties including the Study Steering Group/Working Groups Members before the submission deadlines in accordance with the approved study programme in the Inception Report. The total number of hard copies of each deliverables (draft or final paper/reports) to the Study Steering Group/Working Groups Members and relevant parties shall be as specified below, unless otherwise approved by the DR.

- 5.1.3 The Consultants shall prepare and submit at least the required deliverables to the DR and circulate copies to all relevant parties for comments and / or actions in accordance with the programme as stated in Clause 8 of this Brief. The remaining copies will be delivered to the DR according to the instruction of the DR. Except for the Monthly Progress Report, the deliverables shall be subject to the approval of Study Steering Group / Working Groups according to Clause 6 of this Brief.
- 5.1.4 Except for the Monthly Progress Report, Final Reports and Executive Summary on Final Report, up to 30 copies of an interim draft of deliverables shall be submitted to the DR for initial comments not later than 2 weeks before the deadline of submission of the respective deliverables unless otherwise instructed by the DR. The interim draft of a deliverable shall provide the DR with a clear idea of scope of the deliverables, its structure/format, approach/methodology, interim contents, compliance with relevant regulations, and relevance to the Assignment (e.g. by quoting the relevant clauses in the Assignment and explaining how the Assignment requirement have been fulfilled), wherever applicable.
- 5.1.5 The Consultants shall prepare a summary of the comments received on the deliverables, the Consultants' replies, advice and recommendations for further action arising out of the comments. Such summary shall be circulated to the Study Steering Group / Working Groups members at least 3 working days before the meetings of the Study Steering Group / Working Groups. The Consultants shall prepare responses to comments to the satisfaction of the parties providing that comments before finalization of the deliverables. Upon clearance of the comments from all relevant parties, the Consultants shall circulate the summary to relevant parties for record.

## 5.2 Required Deliverables for this Assignment

5.2.1 Unless otherwise specified in this Brief, the Consultants shall submit the following Deliverables up to the specified number of hard copies to the DR and other relevant parties as agreed or instructed by the DR for comments and / or actions:

Deliverables		Max. No. of copies	Deadline for Submission from the date of commencement of the Agreement	Remark
<b>General</b>				
(1) Inception report	Draft	30	2 weeks	
	Final	30	1 month	
	Final	30	21 months <sup>#</sup>	
(19) Report on Desktop Study for Site Investigation	Draft	50	1 month on instruction by the DR <sup>#</sup>	
	Final	50	2 months on instruction by the DR <sup>#</sup>	
(20) Site investigation report	Draft	30	20 months <sup>#</sup>	
	Final	30	21 months <sup>#</sup>	
(21) Strategic environmental assessment report & executive summary	Draft	80	20 months	
	Final	80	21 months	
(22) Strategic environmental monitoring and audit report	Draft	80	20 months	
	Final	80	21 months	

## 5.5 Other Reporting Requirement for Deliverables

5.5.1 To facilitate the Strategic Environmental Assessment (SEA) and other findings to be made available to the public, electronic copies of the SEA final report, the Final Report and the Executive Summary should be produced. For the electronic copies of the reports, they shall be prepared in Hypertext Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF version 4.0 or later), unless

otherwise agreed by the Director's Representative. For the HTML version, a content page capable of providing hyperlink to each section and sub-section of the reports shall be included in the beginning of the document. Hyperlinks to all figures, drawings and tables in the reports shall be provided in the main text from where the respective references are made. All graphics in the reports shall be in interlaced GIF format unless otherwise agreed by the Director's Representative.

## **6. Services to be provided by the Consultants**

### **6.24 Task 8 – Strategic Environmental Assessment (SEA)**

- 6.24.1 The Consultants shall conduct Strategic Environmental Assessment (SEA) as integral part of the Study to identify, assess, compare and shortlist potential sites with a view to integrating environmental consideration, at the strategic level, together with other considerations in site identification and shortlisting process throughout the Study. The level of details of the SEA should be such that collection of further detailed information would unlikely affect the environmental findings and recommendations.
- 6.24.2 The Consultants shall review the findings and recommendation of the SEA conducted under the Cavern Study together with the Consultants' supplementary environmental assessments for carrying out the SEA for selection of RCD-released sites and identification of their corresponding RCD-receiving sites.
- 6.24.3 The SEA shall include, at least, the following elements:
- (a) Review of the SEA Baseline Conditions
    - (i) to collect and compile relevant environmental information to serve as inputs to the Study;
    - (ii) to carry out territorial review of the environmental baseline conditions and identification of environmental constraints and opportunities;
    - (iii) to examine key environmental issues for the identification of potential sites;

- (iv) to identify “ no-go ” areas taking into account different environmental constraints and opportunities, key environmental issues and areas of high conservation value and interest for the identification of potential sites; and
- (v) to identify potential Longlisted Sites taking into account the territorial environmental baseline conditions.

(b) Strategic Environmental Assessment for Territory-wide Site Search

- (i) to recommend environmental performance indicators, criteria and evaluation methodologies/tools for strategic environmental evaluation and comparison in identifying the Longlisted Sites;
- (ii) to use the environmental performance indicators, criteria and evaluation methodologies/tools mentioned above to evaluate and compare, at the strategic level, the potential environmental performance of development option(s) of the potential Longlisted sites; and
- (iii) to identify environmentally preferred Longlisted Sites in the territory of Hong Kong.

(c) Strategic Environmental Assessment for Site Shortlisting Study

- (i) to recommend environmental performance indicators, criteria and evaluation methodologies/tools, for environmental evaluation and comparison for shortlisting the Longlisted Sites;
- (ii) to use the environmental performance indicators, criteria and evaluation methodologies/tools mentioned above to evaluate and compare the environmental performance of Longlisted Sites for shortlisting the Longlisted Sites;
- (iii) to identify environmentally preferred Shortlisted Sites in the territory of Hong Kong.

- (iv) to recommend possible strategic environmental mitigation approaches; and
- (v) to identify any other follow-up studies/assessments required. The Consultants shall also identify Designated Project(s) under the EIAO from the Shortlisted Sites which will be subject to the statutory EIA procedure(s) at the subsequent stages of the development.

(d) Site Investigation on Selected Sites for Strategic Environmental Assessment

- (i) to propose contaminant testing for soil and rock agreed with EPD for the Selected Sites and interpret their results for conducting SEA.

6.24.4 The Consultants shall recommend the strategic environmental monitoring and audit plan and programme for the Shortlisted Sites to ensure that the recommended strategic environmental mitigation approaches would be carried forward and implemented at the subsequent stages of the development.

6.24.5 The Consultants shall recommend the implementation programme of the EIA processes for those Shortlisted Sites identified as Designated Project(s) under the EIAO

6.24.6 The Consultants shall examine and assess the potential environmental issues throughout which the SEA process should include but not limited to:

- (a) Air quality impact;
- (b) Noise impact;
- (c) Water quality impact;
- (d) Waste management implications;
- (e) Ecological impact (including terrestrial, aquatic and marine);
- (f) Fisheries impact;
- (g) Cultural heritage impact;
- (h) Landscape and visual impact;
- (i) Hazard to life;
- (j) Landfill gas hazard;
- (k) Land contamination;
- (l) Indoor air quality and noise impact for rock cavern development;
- (m) Potential environmental benefits; and
- (n) Other relevant green measures opportunities and constraints, if any.

- 6.24.7 The Consultants shall provide appropriate maps/figures with suitable scales to illustrate graphically different environmental profiles / resources / habitats / species / issues, including but not limited to:
- (a) Map(s) showing territorial environmental constraints;
  - (b) Map(s) showing territorial environmental opportunities ;
  - (c) Map(s) showing the marine, terrestrial and aquatic ecologically sensitive areas which are of conservation value and interest, such as Ramsar site, country parks, special areas, conservation areas, marine parks, marine reserves, sites of special scientific interest, geopark, etc.;
  - (d) Map(s) showing the fisheries resources and activities;
  - (e) Map(s) showing the sites of cultural heritage;
  - (f) Map(s) showing the sites of high landscape value;
  - (g) Map(s) showing the locations of potentially hazardous installations; and
  - (h) Map(s) showing the locations of the landfills and the LFG consultation zones
- 6.24.8 The Consultants should make reference to the relevant completed studies and their SEAs and EIAs throughout the SEA process, including but not limited to:
- (a) Territorial Development Strategy Review;
  - (b) Hong Kong 2030: Planning Vision and Strategy;
  - (c) Study on Sustainable Development for the 21st Century;
  - (d) Second Railway Development Study;
  - (e) Third Comprehensive Transport Study; and
  - (f) Study on Land Use Planning for the Closed Area.
- 6.24.9 In light that the proposed development/land use strategies/options/projects in the on-going studies, SEAs and EIAs and the studies to be commissioned may have implications on identifying, shortlisting, and selecting the potential sites for reclamation, CDF and RCD-released Sites with their corresponding RCD-receiving Sites, reference should also be made to the relevant on-going studies, SEAs and EIAs throughout the SEA process.
- 6.24.10 The Consultants should also make reference to the Hong Kong Strategic Environmental Assessment Manual and follow various published environmental standards, guidelines, manuals and circulars, whenever necessary and appropriate, throughout the SEA process.

- 6.24.11 The Consultants shall incorporate, for SEA, inception report, baseline review, identification of environmental constraints and opportunities, examination of key environmental issues into appropriate part(s) of the deliverables for the Study.
- 6.24.12 The Consultants shall prepare a report on strategic environmental monitoring and assessment report, the final SEA report and executive summary. Such reports including those for SEA under Clause 6.24.11 above shall be prepared in Hyper Text Mark-up Language (HTML) format which can be readily uploaded onto the Study Webpage.

6.26 **Task 10 – Site Investigation**

- 6.26.1 The Consultants shall carry out this Task 10 only when instructed by the DR in writing.
- 6.26.2 As part of this study, the Consultants shall prepare a desktop study for site investigation for the Selected Sites. Preliminary site investigation may be carried out on the Selected Sites under GEO service contracts with detailed requirements of the site investigation prepared by the Consultants. The Consultants shall:
- (a) Follow Ground Investigation Note No. 1/2011 (or the latest version) for handling of ground investigation, geophysical survey, and laboratory testing requests;
  - (b) prepare a site investigation proposal for the Selected Sites. The desktop site investigation study shall document the information examined (including available reference documents, aerial photographs, site investigation and laboratory testing reports, with GIU reference where appropriate), describe the geological settings of the sites, and indicate the locations of utilities within and surrounding the sites and the land status. The Consultants should arrange for the site investigation proposal to be vetted and signed by a qualified and experienced professional;
  - (c) propose preliminary site investigation and associated laboratory testing works including an investigation into the compressibility characteristic of soft sediments;

- (d) determine the type and standard of contaminant testing for soil and rock, if required, to be agreed with the EPD for incorporating into the site investigation for the collection of sufficient and suitable samples for environmental testing for the purpose of conducting SEA;
- (e) advise on any proposed special testing, as well as any rock testing required, at an early stage of the Assignment. This is important because such testing will require advance planning, due to the need for developments and the limited capacity in Hong Kong. A list of tests available under GEO service contracts and the associated test methods specified can be obtained from GEO Standards & Testing Division;
- (f) specify compliance testing to the standards and test methods recognized by the Government. A set of Information Notes on the services available at the Public Works Central Laboratory (PWCL) and a Compliance Test Directory giving up-to-date recognized test methods are available from PWCL;
- (g) recommend the necessary site investigation works and the laboratory tests, including contamination testing for soil and rock agreed with EPD for conducting SEA under Task 8, which will be carried out by the term contractor of Geotechnical Engineering Office. Supervision of the site investigation and laboratory tests will be carried out by CEDD staff;
- (h) document the vetted site investigation proposal and the findings and recommendation in the desktop site investigation study in the Report on Desktop Studies for Site Investigation;
- (i) submit the Report on Desktop Studies for Site Investigation for agreement by GEO of CEDD; and
- (j) interpret the results of the site investigation works / laboratory test and present their findings and recommendation in the Site Investigation Report.

## **8. Programme of Implementation**

8.1 The due date for commencement of the Agreement is **4 July 2011**.

8.2 The Assignment shall take a total of **21 months** to complete subject to programme agreed by the DR.