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6 May 2019

Clerk to Panel on Development
Legislative Council Secretariat
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

(Attn: Ms Doris WY LO)

Dear Ms LO,

Re: Studies related to Artificial Islands in the Central Waters

We have received the letter and email regarding the subject matters that the Legislative Council (LegCo) Member Hon CHU Hoi-dick submitted to the LegCo Secretariat on 26 March and 1 April 2019. Having consulted the Transport and Housing Bureau and the Environmental Protection Department, we hereby provide our responses.

Yours sincerely,

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

(Jacky WU)

for Secretary for Development

C.C.

Director of Civil Engineering and Development (Attn: Mr Andy LOK)

Transport and Housing Bureau (Attn: Mr Kenny OR/ Mr KF CHOI)

Environmental Protection Department (Attn: Mr Simon HO)

Re: Studies related to Artificial Islands in the Central Waters

In respect of the letter and email regarding the subject matters that the Legislative Council (LegCo) Member Hon CHU Hoi-dick submitted to the LegCo Secretariat on 26 March and 1 April 2019, having consulted the Transport and Housing Bureau (THB) and the Environmental Protection Department (EPD), the Development Bureau hereby provides responses.

Response to Items (1.1) and (1.2)

The project that we are seeking LegCo funding approval is “768CL – Studies related to artificial islands in the Central Waters” (the Study).

The scope of the Study mainly covers a detailed planning and engineering (P&E) study for the artificial islands around Kau Yi Chau (KYC Artificial Islands), a transport infrastructure study on the associated strategic roads and rails, collection of information on waters in the vicinity of Hei Ling Chau and Cheung Chau South, and conduct of the associated site investigation.

These are all directly related to the studies on the artificial islands in the Central Waters. We consider it appropriate to apply funding under a single project.

We estimate the total capital cost of the Study to be \$550.4 million in money-of-the-day prices. Please refer to the LegCo paper PWSC(2019-20)5 we submitted to the Public Works Subcommittee for details of the break-down of the estimates.

Subject to the funding approval of the Finance Committee, we plan to commence the Study in the latter half of 2019 for completion in 42 months.

The Study involves a number of studies of multi-disciplinary nature, and the studies (such as the developments on the KYC Artificial Islands and its ancillary external transport infrastructure) are all interrelated. To ensure that all studies can fully cohere with and supplement each other, we are carefully examining the contract arrangement. According to the usual practice, the associated site investigation will be one of the contracts.

Response to Item (1.3)

We have provided the details of the Study in Enclosure 1 of the LegCo paper CB(1)729/18-19(03), which has covered the priority transport network at Items (C) to (G) of Enclosure 6 of the said paper. As we mention in Enclosure 5 of the paper, the Government plans to seek funding from the LegCo in the latter half of this year for the Lung Kwu Tan reclamation, Sunny Bay reclamation, and Road P1 that involves small-scale reclamation at Siu Ho Wan, which are at Items (B) and (H) of Enclosure 6 of the said paper. We will provide the relevant documents at that juncture.

Response to Item (1.4)

It is not a usual practice for the Government to provide the construction cost for a large-scale development project before carrying out a P&E study. Nevertheless, after the announcement of the Lantau Tomorrow Vision (the Vision), we noted that members of the public were very concerned about the financial implications of the newly added public works projects (particularly the plan of forming KYC Artificial Islands by reclamation) to the Government. With a view to addressing and alleviating the concerns in the community, we have, on an exceptional basis, at this preliminary stage provided a ballpark estimate of the construction cost of the key projects under the Vision in the LegCo paper CB(1)729/18-19(03) submitted to the Panel on Development in March this year; and provided data about the cost and benefit in “constant prices” or close-to-current prices. The relevant key projects cover the ones not yet upgraded to Category A, such as the KYC Artificial Islands as well as the associated priority strategic roads and rails .

Unlike the applications for funding for works projects, we normally use “constant prices” or close-to-current prices instead of “money-of-the-day prices” in analysing the cost of the project since the monetary value of time can be removed. More importantly, members of the public can more easily apprehend construction costs that are expressed in close-to-current prices. Further, since studies have to be conducted prior to drawing up concrete programmes for the relevant works, we are unable to provide a ballpark estimate for the construction cost in money-of-the-day prices at this preliminary stage.

Regarding the other public works proposals with studies or construction works already commenced, the relevant bureaux and departments should have already given an account of the matters that the public are concerned about during the LegCo’s scrutiny of the relevant funding applications.

As regards Route 11, according to the information provided by THB, the Highways Department (HyD) is conducting feasibility study which is expected to be completed in 2020. The study are to explore the alignment options of Route 11, establish the engineering technical feasibility and formulate the works implementation strategy. HyD is carrying out different technical studies, covering traffic simulation, marine traffic impact assessment, identification of major environmental problems and examination on land use demands, with a view to drawing up several proposals for consideration. Subject to the findings of the feasibility study, HyD will provide the estimated expenditure on Route 11 in due course.

Response to Item (2)

The Task Force on Land Supply (TFLS) pointed out in the Report published on 31 December 2018 that in quantitative analysis, the supporting rates of the East Lantau Metropolis (ELM) option are as tabulated, indicating that in randomised survey, the majority of the respondents support this option –

	All responses	Responses which could meet the shortfall of at least 1 200 ha of land
Questionnaires	62%	78%
Telephone survey	58%	68%

The Vision has strengthened the ELM proposal. In particular, the location, scale, broad development mode and potential development benefits of the KYC Artificial Islands all match with the ELM proposal.

Besides, the LegCo Panel on Development held special meetings on 13 and 27 April 2019 to receive public's views on the Study. The majority of the members of the public attending the special meetings supported the proposal of taking forward the Study.

The scope of the Study are all directly related to the studies on the artificial islands in the Central Waters. We consider it appropriate to apply for funding under a single project. As TFLS also pointed out in the Report, Hong Kong is facing an acute shortage of land supply; and there is a pressing need to increase land supply. In implementing this item, we will strive to minimise the lead time required for provision of land and the supporting infrastructure and, wherever practicable, studies of various components will be carried out in parallel.

Response to Item (3)

Having analysed the data of past relevant studies and considered the latest proposals on the broad alignment of roads and rails, the Civil Engineering and Development Department (CEDD) preliminarily assessed that the priority transport network proposed under the Vision can meet the traffic demand of the KYC Artificial Islands; and will not create insurmountable conditions to the major roads or rails of Hong Kong Island North.

We will carry out an area-wide transport infrastructure study in the Study to decide on the road and rail options required (including alignment and the supporting facilities, etc.) and the technical feasibility (including assessing the possible impacts on the traffic networks in the vicinity). During the course of the Study, we will conduct public engagement activities and provide more comprehensive information to consult the public and collect relevant suggestions.

Response to Item (4)

As regards marine traffic, CEDD preliminarily analysed that the formation of the KYC Artificial Islands does not require narrowing or rerouting of the existing principal fairways (such as the Western Fairway) yet rerouting of some of the existing ferry routes may be required. We will assess in detail the impacts arising from reclamation and the associated infrastructure on port operation, marine traffic and fairway safety as well as ferry routes in the detailed P&E study for the KYC Artificial Islands. We will consult the relevant stakeholders about the findings under the Study.

As in other studies, we will normally study a number of subjects related to the project at the same time and their interrelationships with a view to proposing feasible options for exploration. In this regard, we consider it appropriate to incorporate the impact on ferry as one studies of the project.

Response to Item (5)

We will draw up proposals for highway and rail connecting Kau Yi Chau and Kennedy Town in the Study. It is worth noting that the “Technical Study on Transport Infrastructure at Kennedy Town for Connecting East Lantau Metropolis – Feasibility Study” involves only those preliminary options for transport infrastructure connecting ELM with Hong Kong Island, rather than the final proposal.

We will observe the requirements under the relevant legislation (including the Protection of the Harbour Ordinance, the Foreshore and Sea-bed (Reclamations) Ordinance, the Town Planning Ordinance and the Environmental Impact Assessment Ordinance) in the Study and ensure the completion of the necessary statutory procedures before the commencement of the reclamation works.

Response to Item (6)

The Government will implement railway and other public works projects according to the existing mechanism and will give an account of the progress of the large-scale projects in LegCo in due course.

The priority rail network under the Vision has to coordinate and interface with the existing rails and the individual proposed rail projects. We will maintain close contact and communication with the relevant stakeholders in the Study such that the various proposed rail projects can be implemented in time, coping with social development and enhancing the rail network of Hong Kong.

The following is the information provided by THB –

Having regard to the indicative implementation window recommended in the Railway Development Strategy 2014 (RDS-2014), THB invited the MTR Corporation Limited (MTRCL) to submit proposals for the implementation of the Tuen Mun South Extension, Northern Link (and Kwu Tung Station), East Kowloon Line, Tung Chung West Extension (and Tung Chung East Station) and North Island Line. MTRCL submitted proposals for these five railway projects to the Government in end December 2016, end March 2017, end July 2017, end January 2018 and end July 2018 respectively. THB, HyD and the relevant bureaux/departments have evaluated the proposals and have requested MTRCL to provide additional information and supplement details. In carrying out the evaluation, our main focus is to ensure that the proposals are practically feasible and can bring maximum benefits to the society. Due to the tight housing supply and the potential housing supply that may be brought about by railway development, the Government is reviewing this aspect of the proposals submitted by MTRCL.

Railway projects involve huge capital investment, and the Government has to plan in a prudent manner. The new railway projects proposed in RDS-2014 have different degrees of complexities. As clearly stated in RDS-2014, the taking forward of individual proposed railway projects set out in the Strategy will be subject to the outcome of detailed engineering, environmental and

financial studies relating to each project, as well as updated demand assessment and availability of resources. Moreover, for railway projects which are mainly for complementing new development areas and new housing developments, the implementation timetable for the development areas and new housing developments in question will be an important planning parameter for the railway projects. Therefore, the indicative implementation windows recommended in RDS-2014 may be adjusted having regard to any change in circumstances.

Response to Item (7)

The construction sequence of the works is subject to different conditions and designs. It would be difficult to provide a generally applicable sequence. For example, the part of traffic infrastructure within the reclamation site usually needs to match the progress of reclamation yet the remaining part is not restrained by reclamation works.

In the Study to be conducted, we will decide on the preliminary engineering proposals, detailed particulars (such as the alignment and the mode of construction (e.g. bridges or tunnels)) and the construction sequence, etc. of each works scheme.

Response to Item (8)

We preliminarily estimate that the proposed KYC Artificial Islands of around 1 000 hectares (ha) can provide about 45 000 to 78 000 private housing units and the third Core Business District established on the KYC Artificial Islands can provide about 4 million square metres of commercial floor area. We will formulate detailed land use proposals and planning parameters for the KYC Artificial Islands in the Study to be conducted. It would be premature to draw up a land sale schedule for the artificial islands at this preliminary stage.

As for the remaining 700-ha artificial islands near Hei Ling Chau and the waters at Cheung Chau South, the Study will collect technical data for reference in future long-term planning. There is no concrete implementation timetable at this stage.

The private housing floor area and commercial floor area of the development projects mentioned in the question are provided below (the following projects have already been taken into consideration in estimating the supply and future demand of housing/commercial floor area) –

Projects	Private housing floor area*	Commercial floor area[#]
Kai Tak ¹	about 477,000 m ²	about 1,287,000 m ² ²
Kwu Tung North and Fanling North ³	about 1,640,000 m ²	about 868,000 m ²
Hung Shui Kiu ⁴	about 29,800 private housing units	about 2,055,000 m ²
Kam Tin South ⁵ (No relevant figures for Kam Tin North ⁶)	about 1,172,000 m ²	about 56,535 m ²
Yuen Long South ⁷	about 11,100 private housing units	about 180,000 m ²
Tung Chung East ⁸	about 15,100 private housing units	about 827,000 m ²
Airport Island	not applicable	SKYCITY: (i) gross floor area for retail, dining and entertainment projects is about 350 000 m ² (ii) gross floor area for hotel

¹ The relevant figures are the floor areas of the land not yet sold.

² Excluding the commercial floor area within residential land.

³ Made reference to “Kwu Tung North New Development Area”, “Fanling North New Development Area” and LegCo paper CB(1)456/18-19(03)
(<https://www.legco.gov.hk/yr18-19/english/panels/dev/papers/dev20190122cb1-456-3-e.pdf>)

⁴ Made reference to the brief on Hung Shui Kiu New Development Area Planning and Engineering Study
(https://www.hsknda.gov.hk/files/rodp/Information_Digest.pdf)

⁵ Made reference to Paper No. 9590 of the Town Planning Board and the study on land use review (only English version is provided)
(https://www.info.gov.hk/tpb/en/papers/TPB/1056-tpb_9590.pdf)

⁶ Kam Tin North development land is private development. Sale of land is not involved. The relevant private housing/ commercial floor areas are subject to the scale of the individual construction sites in the future.

⁷ Made reference to the brief on the Planning and Engineering Study for Housing Sites in Yuen Long South
(<https://www.legco.gov.hk/yr17-18/english/panels/dev/papers/dev20180227cb1-608-7-e.pdf>)

⁸ Made reference to the Tung Chung New Town Extension website
(<http://www.tung-chung.hk/about.php?locale=en>)

Projects	Private housing floor area*	Commercial floor area [#]
		development is about 33 700 m ²
Hong Kong-Zhuhai-Macao Port Artificial Island	not applicable	to be studied/ confirmed
Tseung Kwan O Area 137	To be studied/ confirmed	to be studied/ confirmed
Land provided after relocation of different public facilities to cavern (Shatin, Diamond Hill, Yau Tong, Sham Tseng, Sai Kung, etc)	To be studied/ confirmed	to be studied/ confirmed
<p>* Estimated figures for the relevant private housing floor area of some of the projects are yet available. Therefore, only the numbers of private housing units are provided. Actual private housing floor area can only be confirmed subsequent to detailed land surveying of the area of individual construction site.</p> <p># Unless otherwise specified, the figures on “commercial floor area” above are only ballpark figures, or cover the non-domestic floor area of the construction site (such as the portion of the non-domestic floor and facilities of ancillary residential development). Actual floor area can only be confirmed subsequent to detailed land surveying of the area of individual construction site.</p>		

Since the land sale schedule of private residential sites and commercial sites are subject to various factors, such as the progress of development, the prevailing supply and demand and the economic environment, relevant figures are yet available at this stage.

Response to Item (9)

In general, public fill, manufactured sand and marine sand are used for reclamation. Public fill currently comes from the inert construction and demolition waste generated locally. The industry can generally import manufactured sand from the Pearl River Delta region of the Guangdong Province and they can import marine sand from the Mainland and countries in South East Asia.

As for the KYC Artificial Islands, Lung Kwu Tan reclamation, Sunny Bay reclamation, and the reclamation for the portion of Road P1 at Siu Ho Wan, the quantities, types and other matters of the fill shall be explored in detail in the study of the next phase. In principle, we shall as far as possible use the 15 million tonnes of public fill (or inert construction and demolition waste) generated in Hong Kong annually as filling materials.

With more than 10 years to plan and implement the reclamation of the KYC Artificial Islands, we preliminarily estimate that around half or more than half of the fill will be public fill. For the remaining part, manufactured sand and marine sand can be used. We crudely estimate that the construction cost of the KYC Artificial Islands reclamation works will be \$140 billion (in September 2018 prices). Apart from the cost for fill, the construction cost also covers seawall construction, land stabilisation works, labour and machinery and other associated works. Therefore, the cost of the fill is only part of the construction cost of reclamation works.

In response to the question, information regarding the fill of the following three projects is provided. Since commercially sensitive information is involved, the price of the sand materials are not disclosed.

- (a) The Hong Kong Boundary Crossing Facilities Island of Hong Kong-Zhuhai-Macao Bridge reclamation works: The amount of procured marine sand is about 43.1 million tonnes. The marine sand is from the Mainland.
- (b) The artificial island of the three-runway system of the Airport: According to the response of THB, the Airport Authority Hong Kong and its main reclamation contractor are working on the fill supply issue for the reclamation works of the three-runway system projects with different Mainland and overseas suppliers. Disclosure of information about the quantities of marine sand and manufactured sand used and the further quantities to be finally procured will affect the negotiation with the suppliers on the price of the fill and other details.
- (c) Tung Chung East reclamation: As at end February 2019, about 540 000 tonnes of manufactured sand have been used and they are from the Pearl River Delta region of the Guangdong Province. The estimated total usage of sand materials of the entire Tung Chung East reclamation project would be more than 7 million tonnes. Based on our understanding, the contractor has no plan at this stage to procure marine sand for reclamation.

Response to Item (10)

TFLS considers that developing the ELM artificial islands of 1 000 ha is a key initiative to resolve the problem of land shortage in the medium-to-long term; and the Government should commence the preliminary studies and planning as soon as possible to collect more information and data for deciding on the next step of work. As mentioned in the LegCo brief issued on 20 February 2019, the Government fully accepts the TFLS's recommendations, including expediting the detailed studies on the KYC Artificial Islands and the related infrastructure.

We consider the suggestion of "not forming artificial islands" cannot resolve the problem of land shortage in the medium-to-long term.

Response to Item (11.1) and (11.2)

The Government has been active in implementing a wide range of measures to reduce emission from local air pollution sources (including controlling emissions of motor vehicles, vessels and power plants, etc.) with a view to improving air quality. These measures can facilitate improving the air quality in different districts of Hong Kong.

We will carry out the required environmental assessments for the various developments proposed under the Vision. The reclamation development is a designated project under the Environmental Impact Assessment Ordinance, which is required to go through the statutory environmental impact assessment procedures, including conducting air quality assessment for the works, to ensure that the works can comply with all the relevant statutory requirements.

Response to Item (11.3)

The following is the information provided by EPD –

For protection of public health, the Air Quality Guidelines of the World Health Organization (WHO) sets a set of ultimate and interim targets for air quality in respect of various key air pollutants including respirable suspended particulates, fine suspended particulates, sulphur dioxide, nitrogen dioxide, ozone, carbon monoxide and lead such that governments worldwide can progressively improve their air quality to meet the WHO ultimate targets through setting interim targets and implementing measures according to their local

circumstances. The Air Quality Objectives (AQOs) of Hong Kong is based on the ultimate and interim targets of the AQG of WHO.

Under the Air Pollution Control Ordinance (APCO), the Secretary for the Environment is required to review the AQOs at least once in the five years beginning 1 January 2014, and thereafter in each successive five-year period. According to the APCO, the Environment Bureau has completed the review on the prevailing air quality objectives in December 2018 and has at the meeting of March 2019 of the LegCo Panel on Environmental Affairs reported the findings of the review and recommended further tightening of the AQOs. The target year of the subject review is 2025.

As regards how the AQOs thereafter should be, it will be handled in future review on AQOs.

Response to Item (12)

We do not have information of the relevant electricity consumption, emission of greenhouse gas or number of additional journeys arising from the works of the major projects under the Vision.

To tackle climate change, the Government strive to facilitate restructuring Hong Kong as a low-carbon society and at the same time emphasise conservation of environment and ecology. Construction operation is a key element of urban development and the society needs to strike an appropriate balance between development and environment protection. To promote low-carbon building, where reasonable and practicable, energy saving devices and renewable energy technologies will be adopted in public works projects as far as possible. In seeking funding for the construction cost of individual public works projects planned to adopt these devices or technologies, the Administration will provide information about the relevant suggestions in the documents submitted to the Public Works Subcommittee.

Besides, according to the information provided by EPD, government buildings and private buildings governed by the Buildings Energy Efficiency Ordinance (Cap. 610) should observe the statutory Building Energy Code (BEC). The new edition of BEC to be fully implemented in August this year can increase energy efficiency of about 18% compared with the 2012 edition. Besides, the Government has requested the energy efficiency performance of all newly-built Government buildings to exceed the BEC standard by 3% to 10%. The Government will set an example in setting targets, striving to reduce the energy consumption of Government buildings by 5% during the financial years from

2015-16 to 2019-20. As at 2017-18, the energy consumption of Government buildings has already reduced by around 4.9%. Having considered that more energy saving projects will be completed in 2018-19 and 2019-20, it is presumed that the target of 5% energy reduction can be met in 2019-20.

Response to Item (13)

According to the information provided by THB to the LegCo Finance Committee, the feasibility study of Route 11 will also look into the need of planning for the Tsing Yi - Lantau Link.

Response to Item (14)

CEDD will process the request mentioned above according to the Code on Access to Information.

Response to Item (15)

CEDD has responded to the LegCo Secretariat on 3 May 2019 and provided a copy of the Report on Preliminary Traffic and Transport Impact Assessments for reference.

**Development Bureau
May 2019**