For Information

**Legislative Council Subcommittee
to Follow Up Issues Relating to the
Three-Runway System at the Hong Kong International Airport**

Follow-Up to Meeting on 11 April 2017

Introduction

At the Subcommittee meeting held on 11 April 2017, Members requested supplementary information on the following issues –

(a) measures in place to control and monitor the filling materials used in the three-runway system ("3RS") reclamation;

(b) details of the contracts signed between Airport Authority Hong Kong ("AAHK") and its contractors regarding the filling materials used in the 3RS reclamation, including the grading and specification requirements of filling materials as well as the number of suppliers used by the contractors;

(c) details of the tests conducted by AAHK on the some 800 barges of filling materials received, including the dates, barge size, test items and results of the tests;

(d) details of the non-dredge reclamation and the seawall construction methods to be adopted by AAHK, including the measures to prevent similar incidents of extension of reclaimed land concerning the Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road Project which has also adopted the non-dredge reclamation method;

(e) given that exceedances of suspended solids ("SS") have been recorded at the water quality monitoring stations in the past four months, the independent laboratory reports regarding the relevant tests on SS;

(f) AAHK's findings of its investigation into the allegations made in the anonymous letter it received in March 2017 on the use of substandard filling materials in the 3RS reclamation; and

(g) whether AAHK would consider making arrangements for members to peruse the reclamation contract signed between AAHK and its contractor regarding the supply of filling materials used in the 3RS reclamation under a confidentiality agreement.

2. In addition, the following motion (LC Paper No. CB(4)836/16-17(01)) was passed at the same Subcommittee meeting –

> "Given the sourcing of reclamation materials for the three-runway system project at the Hong Kong International Airport has significant bearing on the project costs, quality of reclamation and the environment, the Subcommittee requests the Airport Authority Hong Kong to provide information on the quantities and prices (estimated total price and price per tonne) of all the marine sand and mechanical sand procured and ordered by contractors, the names of the sand suppliers as well as the places of origin of the sand."

3. Separately, there was an anonymous letter dated 25 March 2017 alleging that substandard filling materials were used in the 3RS reclamation works. Hon CHU Hoi-dick referred to this anonymous letter, among other issues related to the 3RS reclamation works, in his letters dated 7 and 11 April 2017.

4. This paper sets out AAHK's consolidated response to the issues set out in paragraphs 1 to 3 above.

Non-dredge Reclamation and Seawall Construction

5. Reclamation works for the 3RS commenced in November 2016. Having considered the possible impact on the environment, a combination of non-dredge reclamation methods will be used. LC Paper No. CB(4)275/15-16(01) sets out, inter alia, the formation of land by reclamation for the 3RS project. Relevant sections of the paper concerning the non-dredge reclamation method and the seawall construction are extracted at **Annex 1**. In the course of the works, minor changes to the ground improvement methods may be necessary to take heed of the site condition. However, the methodologies remain largely

the same. In addition, the Detailed Plan on Deep Cement Mixing ("DCM"), specified in Condition 2.17 of the Environmental Permit ("EP") granted for the 3RS project, was submitted to the Environmental Protection Department ("EPD") and is available on AAHK's website at http://env.threerunwaysystem.com/ep%20submissions/201607%20DPDCM.pdf.

6. Insofar as reclamation methods are concerned, there are different non-dredge reclamation methods. As far as AAHK understands, the non-dredge reclamation method adopted in the Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road Project[1] is different from the DCM adopted for the 3RS reclamation. Although DCM has never been used in Hong Kong's reclamation projects, it has been widely used in Asia (principally Japan and Korea), Europe and America. To provide further confidence in the constructability and the environmental acceptability of the method in the local context, a series of trials has been conducted before commencement of the 3RS reclamation works. The trials and the associated monitoring and testing had all been proven successful.

Requirements for Filling Materials for the 3RS Reclamation

7. While AAHK does not specify the source(s) of filling material to be used for the 3RS reclamation works, all filling materials must meet the contract specification and the stringent requirements of the EP for the 3RS project for the purpose of mitigating any possible impact on water quality during the construction. Specifically, Condition 2.26(i) of the EP specifies that "a maximum of 10% fines content shall be adopted for sand blanket and 20% fines content for marine filling below +2.5 mPD prior to substantial completion of seawall". The EP is available at EPD's website at http://www.epd.gov.hk/eia/chi/register/permit/latest/ep4892014.pdf. Along the line of the EP condition, AAHK also prescribed in the contracts specific requirements on the particle size. Generally speaking, there are three types of filling materials that can fulfil the requirements for marine filling below +2.5 mPD, namely, marine sand, manufactured sand and suitable filling materials from works sites in Hong Kong. The Government is fully aware of these requirements for filling materials and there have been no changes to such requirements.

[1] http://www.legco.gov.hk/yr16-17/english/panels/tp/papers/tp20170224cb4-621-2-e.pdf

8. In the event that the contractors import sand for the reclamation works, relevant statutory provisions, namely that of the Sand Ordinance (Cap. 147)[2] ("the Ordinance"), which regulates the importation of sand, have to be observed.

9. As at end of April 2017, about two million cubic metres ("m^3")[3] of filling materials have been used, of which 23,000 m^3 were marine sand imported from Vietnam ; 20,000 m^3 were suitable filling materials from works sites in Hong Kong; and the remaining were manufactured sand.

10. Of the above three types of filling materials used, only marine sand imported from Vietnam requires a Sand Removal Permit ("the Permit") from the Civil Engineering and Development Department ("CEDD"). The first batch of permits were issued by CEDD to allow the permittee to transport sand from Vietnam to Pun Shan Shek Anchorage during the period between 27 January 2017 and 25 February 2017. CEDD subsequently issued the second batch of permits to allow the same permittee to transport sand from Pun Shan Shek Anchorage to the 3RS works area during the period between 6 February 2017 and 7 March 2017. Copy of the Permits is at **Annex 2**. As regards manufactured sand imported, the contractor has applied for "Hong Kong Natural Sand Final User Certificates" under the Sand Ordinance but was informed that such certificates were not necessary as the import of manufactured sand was not governed by the Ordinance.

Main Reclamation Works for the 3RS Project and Related Contracts

11. Contract 3206 for Main Reclamation Works at the Hong Kong International Airport ("The Contract") was awarded to Zhen Hua Engineering Company Limited, China Communications Construction Company Limited and CCCC Dredging (Group) Company Limited Joint Venture ("The Contractor") on 27 September 2016 through open tender. The awarded sum was HK$15,263,960,096.

12. The Contract between AAHK and the Contractor, which includes the cost of filling materials, is a commercial document which cannot be disclosed. However, Members may wish to know that –

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[2] The Sand Ordinance shall not apply to sand which is produced by any quarrying operation or by the washing of other material so as to produce sand (Section 1A, Cap. 147).

[3] The two million m^3 of filling materials covered all 3RS reclamation contracts. Apart from the Main Reclamation Works (Contract 3206), there are five DCM contracts.

(a) the requirements for filling materials, as set out in paragraph 7 above, have been clearly specified in the tender documents and Contract;

(b) the Contractor has engaged suppliers to source the filling materials, who had obtained the materials from several quarries. Under the Contract, there is no need for AAHK to approve the suppliers engaged by the Contractor, but AAHK would carry out testing at source to ensure the compliance of filling materials with the specified requirements;

(c) in the light of the allegations mentioned in an anonymous letter received in March 2017, AAHK understood informally from the Contractor that Gold Mountain is one of the agents/ suppliers for sourcing the quarries of the contractor. However, AAHK has no contractual relationship with the Contractor's agents/ suppliers; and

(d) the cost of filling materials incurred by the reclamation contractors include, amongst others, material and transportation costs. Apart from commercial confidentiality between AAHK and its Contractor, the cost of filling materials also has implications concerning commercial agreements between the Contractor and its subcontractor, AAHK therefore is not in a position to divulge the cost of filling materials. However, the cost was within AAHK's estimate.

Control and Monitoring of the Filling Materials for the 3RS Reclamation

13. AAHK monitors the filling materials for the 3RS reclamation on three major fronts –

(a) source of filling materials;
(b) the transportation of filling materials into Hong Kong; and
(c) sampling and testing.

Source of Filling Materials

14. While the actual sourcing of the filling materials is done by AAHK's reclamation contractors, AAHK requires the contractors to comply fully with the following –

(a) the requirements for filling materials as set out in paragraph 7 above. Apart from carrying out testing at source as set out in paragraph 12 (b) above, AAHK would also conduct sampling and testing for each sand barge arriving in Hong Kong. More details about sampling and testing are provided in paragraphs 17 to 19 below;

(b) the requirements specified under the Sand Ordinance (Cap. 147); and

(c) the requirement to provide the following documents, for each sand barge arriving in Hong Kong to support the verification of the origin and approval of each sand barge –

(i) Shipping Order Form;
(ii) Mainland China Export Form from the General Administration of Customs;
(iii) Import/ Export Form from Vessels between Mainland China to/from Hong Kong/Macao; and
(iv) Certification of the Sand from the Quarry.

15. Subject to the above being met, AAHK would issue no objection certificates to the source of filling materials proposed by the contractors. So far, AAHK has not issued any objections to the source of filling materials proposed by the contractors.

Monitoring of the Transportation of Filling Materials

16. AAHK has imposed stringent requirements with respect to the transportation of filling materials from source to the works site. All barges for transporting the filling materials are required to install an Automatic Identification System ("AIS")[4]. Their journey from the origin of the filling materials to Hong Kong would be monitored closely by AAHK. Prior to a barge's entrance into Hong Kong waters, the

[4] The AIS is an automated, autonomous tracking system used on vessels. AIS transponders (on vessel stations) include a Global Positioning System receiver which collects the subject vessel's position and movement details.

contractor has to report to the relevant government authorities (namely, Marine Department, Customs and Excise Department and Immigration Department) of the expected entrance into Hong Kong. Apart from inspection by relevant departments as and when necessary, the barge will be inspected by AAHK staff and no irregularities were found so far.

Sampling and Testing

17. For each of the sand barges[5] arriving in Hong Kong, the contractors have to produce relevant documentations, such as shipping order form, import/export forms etc. for inspection by AAHK. AAHK will take samples of the filling materials from each of the barges. The collected samples will be properly labelled, signed by both AAHK staff and the contractor, sealed and then taken to a Hong Kong Laboratory Accreditation Scheme ("HOKLAS") laboratory for testing.

18. Each of the samples will be tested to ensure compliance with the requirements. Since commencement of reclamation (November 2016) to end April 2017, a total of 916 samples of filling materials taken from the barges have been tested. All samples passed the laboratory tests. A breakdown of the number of samples collected by month and the results are summarized in **Annex 3**.

19. According to Condition 3.5 of the EP, monthly Environmental Monitoring and Audit ("EM&A") Reports covering, inter alia, implementation of the EP condition regarding the maximum percentage of fines content (see paragraph 7 above) have been submitted to the EPD and are available at AAHK's website at http://env.threerunwaysystem.com/en/em&a-reports.html. All Monthly EM&A Reports submitted have been reviewed and certified by the Environmental Team ("ET") and the Independent Environmental Checker ("IEC") had issued no adverse comments on the monthly reports.

Monitoring of Suspended Solids ("SS")

20. Water quality monitoring is conducted at 22 water quality monitoring stations covering areas around the construction site as well as areas upstream and downstream. About 2,400 SS monitoring results were obtained from these 22 water monitoring stations from 1 December 2016 to 30 April 2017. There were 62 cases of SS exceedance. The ET has carried out investigation on each of these cases, involving a

[5] A typical barge carries 1,500m^3 to 2,500m^3 of filling materials.

comprehensive review of water currents, on-site activities and observations, and comparison with other control and monitoring stations. The findings of the investigations by the ET and IEC indicated that the exceedances were not related to the 3RS project.

21. The independent laboratory reports regarding the relevant test on SS are summarized in Section 4.5 of each Monthly EM&A Report, and copies are available at the link provided in paragraph 19 above. Given the large volume of laboratory reports between December 2016 and April 2017 (over 700 pages) and that the results were all summarized and made available in the Monthly EM&A Reports, a sample copy of the laboratory report is attached at **Annex 4**, which should provide a sufficiently useful reference.

Anonymous Letter and Other Issues Raised

22. As mentioned in paragraph 3, an anonymous letter dated 25 March 2017 alleging that substandard filling materials were used in the 3RS reclamation works was issued to, among others, AAHK. Despite the anonymous nature of the letter, AAHK has looked into the allegations. AAHK takes the compliance of the quality of filling materials with the EP requirements very seriously. As explained above, the contractors have produced all necessary documentations required by AAHK and that all the 916 samples tested so far have passed the tests. The allegations were unsubstantiated.

Motion Passed at the Meeting on 11 April 2017

23. AAHK's response to the motion passed (see paragraph 2 above) is at **Annex 5**.

Advice Sought

24. Members are invited to note the supplementary information set out in this paper.

Airport Authority Hong Kong
June 2017

Annex 1

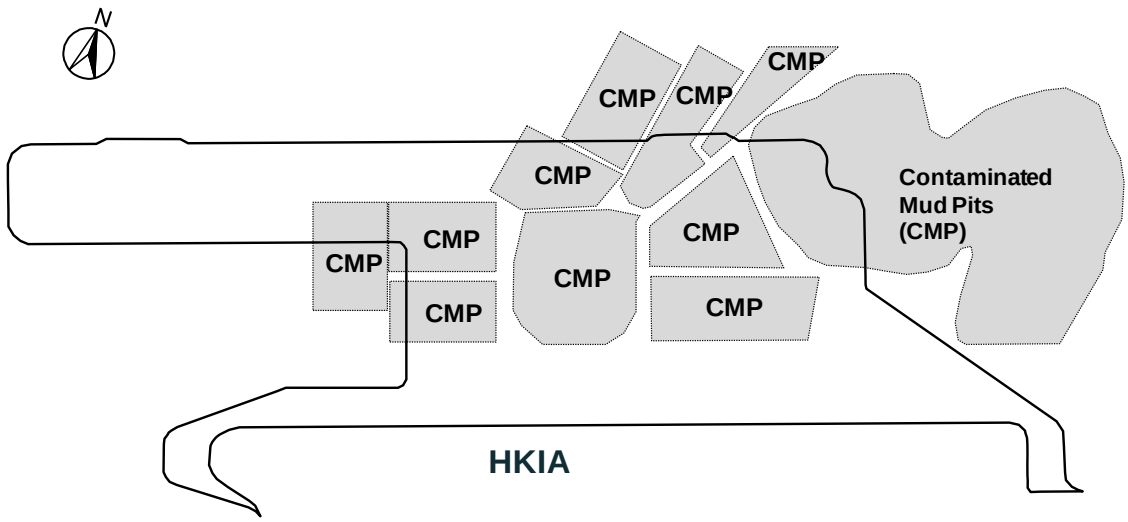
An Extract of LC Paper No. CB(4)275/15-16(01) for the Subcommittee to Follow Up Issues Relating to the Three-runway System at the Hong Kong International Airport

Non-dredge Reclamation and Seawall Construction

6. The 3RS project requires reclamation to create a platform of around 650 ha north of the existing airport to accommodate the new runway, all associated taxiways, a passenger concourse, aprons and other airport infrastructure.

7. In order to fully understand the existing ground conditions of the reclamation area, a comprehensive ground investigation study has been conducted (with over 650 ground investigation points). The study reveals that the general ground condition comprises a thick layer of soft marine mud of varying thickness (averaging 15m), underlain by a layer of stiffer alluvium of 15 to 20m. About 40% of the reclamation area is underlain by disused Contaminated Mud Pits ("CMPs") within the layer of the marine mud, as shown in **Figure 1** below. The contaminated mud is generally highly disturbed and is softer than the surrounding mud.

Figure 1 : Contaminated Mud Pits within the Reclamation Footprint



8. The reclamation works comprises three main components : ground improvement, seawall formation and land formation. In view of the ground conditions and environmental considerations, a combination of meticulous techniques and procedures, which will comply with both the geotechnical as well as environmental requirements, will be adopted to strengthen the soft marine mud which will be left in place but, at the same time, strong enough to ensure the formation of a stable platform.

Ground Improvement

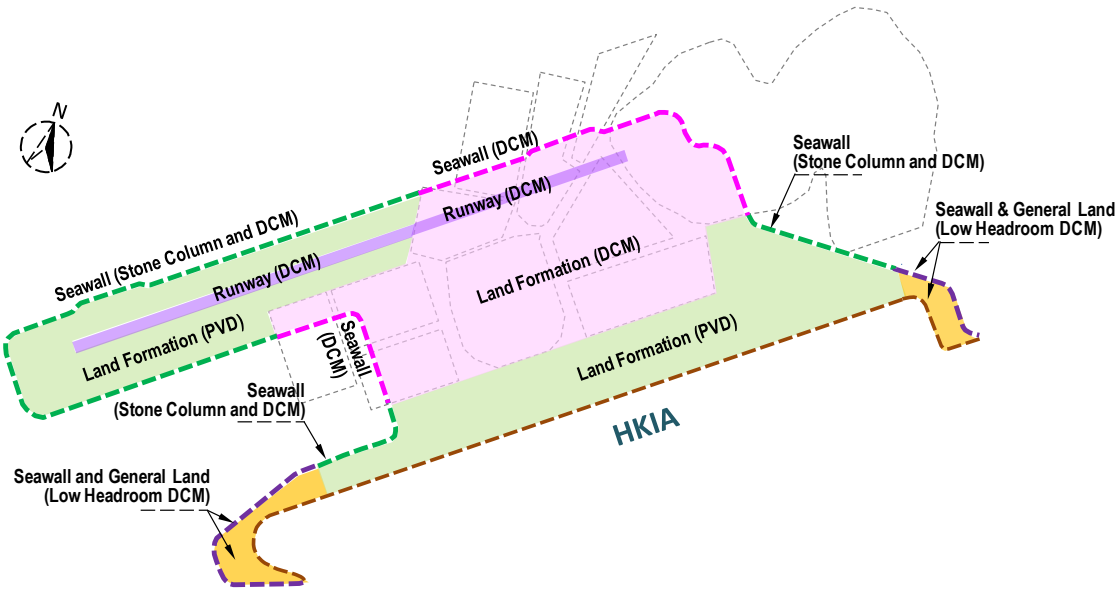
9. In simple terms, land will be formed above the CMP areas and non-CMP areas. Having considered the possible impacts on the environment, a combination of non-dredge reclamation methods will be used. In the CMP areas, the use of Deep Cement Mixing ("DCM") will be adopted. DCM involves the solidification of the marine mud by mixing it with cement, giving rise to clusters of improved ground in the form of closely spaced columns that are able to support the reclamation above. The merit of DCM is to contain contaminates from escaping in any water squeezed out. Whilst this technique has been widely used in Asia (principally Japan and Korea)[1] and Europe and America, to provide confidence in the constructability and the environmental acceptability of the method in Hong Kong, a series of trials has been conducted. The trials and the associated monitoring and testing have all been proven successful.

10. For the formation of land in the remaining non-CMP area, the traditional method of drained reclamation will be adopted by installing closely spaced Perforated Vertical Drains ("PVD") within the thick marine mud layer to allow the water within the mud to escape during the filling operation, thereby accelerating consolidation of the marine mud. In addition, the land will be filled to several metres above the future formation level to provide a temporary additional load (called "surcharge") to speed up the consolidation process. Upon the removal of the surcharge, the excessive settlement would have been removed and ready for the subsequent infrastructure and superstructure construction.

11. A simplified layout of the different ground improvement methods to be adopted, with their relative locations and areas within the land formation footprint, is illustrated in **Figure 2** below.

[1] Examples of DCM used in other major airport developments include the Osaka Kansai Airport and the Tokyo Haneda Airport.

Figure 2 : Layout of Ground Improvement Methods to be Adopted



Seawall Formation

12. The reclamation area will be bounded by approximately 13.4 km of seawall. The seawall principally consists of a conventional sloping rubble mound seawall for protecting the fill materials in the reclamation. The seawall has been designed to withstand the action of currents and waves under operating and predicted extreme conditions (including typhoons) derived from the hydrodynamic modelling and studies. A 10% increase in the predicted future typhoon intensity was adopted in the model and the crest levels of the seawalls will also be raised to cater for effects based on the suggestion in the Intergovernmental Panel on Climate Change[2] (IPCC 2014).

13. Ground improvement techniques will be adopted below the seawalls, including DCM wall panels, to provide lateral resistance under the seawall in the CMP. Outside the CMP, the marine mud will be improved by stone columns (another common type of ground improvement technique used in soft ground), together with DCM wall panels introduced to counter lateral loads.

[2] The Intergovernmental Panel on Climate Change, established by the United Nations Environment Programme and the World Meteorological Organization in 1988, is the leading international body for the assessment of climate change. It provides the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.

Annex 2

Copy of the Sand Removal Permit Issued by CEDD

a) Transport of Sand from Vietnam to Pun Shan Shek Anchorage

搬運沙粒許可證編號/ Sand Removal Permit No.	SRP-17-0019-1	有效期由: valid from:	2017 年 01 月 27 日	至: to :	2017 年 02 月 25 日
持證人 Permittee	[redacted]				
地址:	[redacted]			/電話:	[redacted]

甲部 (Part A)

搬運沙粒許可證(在香港境內搬運沙粒)
SAND REMOVAL PERMIT (for Removal and Transportation of Sand in HONG KONG)
在本港境內進行搬運時，此證必須存放在船隻/車輛內。
This Permit shall remain in the vessel/vehicle at all time during the period of removal and transportation in Hong Kong.
(每一載由船隻/車輛運載的沙粒均須領有一張許可證。每一張許可證只可使用一次。)
(One Permit is required for each vessel load/vehicle load and could be used for only one time)

土木工程拓展署
Civil Engineering and Development Department
香港法例第一四七章 沙粒條例
Laws of Hong Kong Chapter 147 Sand Ordinance

茲根據沙粒條例第二及第三條及本許可證的條件之規定，准許下列:
Under the provisions of Sections 2 & 3 of the Sand Ordinance and the Conditions of this Permit, permission is hereby given for the following:

船隻/車輛編號:
Vessel/Vehicle Reg. No(s).: [redacted]

搬走及運送沙粒(重量不能超過其准許載貨量)，
to remove and transport sand (weight shall not exceed the carrying capacity permitted),

並循最便捷之航線由
for delivery by the most direct route from **Cua Hoi, Ha Tinh, Vietnam** 運往以下地點
to the following place(s)

1. **Puh Shan Shek Anchorage.**

香港土木工程拓展署蓋印
Chop of Civil Engineering and Development Department, HKSARG

YUNG Lai-kwan, Lisa

(L K YUNG, Engineer, FMD) 簽章 (Signature)
香港土木工程拓展署署長代行
for Director of Civil Engineering and Development
簽發日期 : 2017 年 01 月 27 日 (年/月/日)
Issued on : (yyyy/mm/dd)

乙部 (Part B)

*** 此證須於使用後 7 天內交回填料管理部總工程師。持證人亦須填報以下資料。**
*** This Permit should be returned to Chief Engineer/Fill Management within 7 days after use. The Permittee is also required to fill the following part.**

持證人或其所授權人士已於_____年_____月_____日使用此許可證以船隻/車輛編號_____搬走及運送上述沙粒。

Permittee or his authorized person have used this Permit to remove and transport the sand mentioned above by the vessel / vehicle reg. no. _____ on _____ (yyyy/mm/dd).

持證人公司蓋印
Company Chop of Permittee

(Version May 2008)

搬運沙粒許可證條件

1. 在香港特別行政區境內搬運沙粒的船隻/車輛須持有有效的搬運沙粒許可證(下稱"許可證")。每一張許可證只適用於一次船隻/車輛的運載上並只可使用一次。
2. 許可證屬於香港特別行政區政府所有並不可轉讓。
3. 許可證乃根據申請人在其申請表上填報的資料簽發。若許可證上所載資料有更改，持證人須申領新的許可證，並把舊有的許可證交回土木工程拓展署填料管理部總工程師。
4. 除非已使用的許可證被填料管理部總工程師或其授權人員在指定卸下沙粒地點收回，否則，持證人須在卸下沙粒完畢後 7 天內把已使用的許可證親身或郵寄交回填料管理部總工程師。
5. 持證人須保管許可證，並於證上所定的有效期內使用。任何已過期或未經使用的許可證，須在有效期過後 7 天內交回填料管理部總工程師。
6. 持證人須於該船隻或車輛抵達許可證所示的指定目的地前最少 8 小時，填寫「**表格 A -送抵沙粒申報表**」並以傳真((852)2714 9481)方式遞交填料管理部總工程師以作通知。
7. 於卸下沙粒完畢後 2 天內，持證人須填寫「**表格 B-沙粒送抵目的地申報表**」並以傳真((852)2714 9481)方式遞交填料管理部總工程師以作通知。
8. 持證人及其最終用戶或零售客戶，須允許填料管理部總工程師或其授權人員在任何時間內進入許可證所示的卸下沙粒地點，並須提供一切所需協助，以便執行抽查工作。
9. 運送內地進口沙粒到香港特別行政區的船隻/車輛：
   (i) 持證人須在每個月的第十日或之前，將前一個月份從內地進口沙粒的搬運資料填在「**表格C-持證人每月由內地進口沙粒申報表**」上，並以傳真((852)2714 9481)方式遞交填料管理部總工程師。
   (ii) 持證人的每名最終用戶亦須在每個月的第十日或之前，把前一個月份的接收內地進口沙粒數量、已使用或零售沙粒數量和屯積沙粒數量等結存資料填在「**表格 D-最終用戶每月由內地進口沙粒申報表**」上，並以傳真((852)2714 9481)方式遞交填料管理部總工程師。
   (iii) 除非事先獲得填料管理部總工程師批准，否則不可將內地進口的沙粒轉出口至香港境外地區或國家。
   (iv) 持證人及其最終用戶或零售客戶須知悉並同意遵守中華人民共和國商務部的規定，即從國內進口香港的天然沙（中華人民共和國海關稅則中 '2505100000' 及 '2505900090' 兩個稅號的商品），只可在香港境內使用，不可以轉出口至香港特別行政區境外地區或國家。
10. 如違反上述任何條件，填料管理部總工程師可全權取消許可證，事前毋須通知。

備注：表格A, B, C及D可在土木工程拓展署網頁內下載（網址：www.cedd.gov.hk）。

Conditions of Sand Removal Permit

1. Vessel/vehicle for removal and transportation of sand in the territory of Hong Kong Special Administrative Region (HKSAR) shall have a valid Sand Removal Permit (hereinafter called Permit). One Permit is used for a single vessel load/vehicle load and can be used for only one time.
2. The Permit is the property of the Government of HKSAR and is not transferable.
3. The Permit is granted in reliance on the information declared by the applicant on his application. If the information stipulated in the Permit has changed, the Permittee shall apply for a new Permit and return the obsolete Permit to the Chief Engineer/Fill Management (hereinafter called CE/FM) of Civil Engineering and Development Department.
4. The Permittee shall send the used Permit back to the CE/FM by post or by hand within 7 days from the date of completion of unloading sand unless it has been collected by the CE/FM or his authorized staff at the designated unloading place.
5. The Permittee shall keep care of the Permit and use it within the validity period stipulated at the Permit. Any unused or expired Permit should be returned to the CE/FM within 7 days after the expiry date of the Permit.
6. The Permittee shall inform the CE/FM at least 8 hours in advance prior to arrival at the destination shown on the Permit by completing the "**Form A - Report on Sand Arrival**" and faxing it to ((852) 2714 9481).
7. The Permittee shall inform the CE/FM by completing the "**Form B - Report on Completion of Unloading Sand at Destination**" and faxing it to ((852) 2714 9481) within 2 days after completion of unloading sand.
8. The Permittee and his final users or his customers shall allow access and provide all necessary assistance at any time to the CE/FM and/or his authorized staff to carry out the spot checking at the sand unloading places shown on the Permit.
9. For vehicle/vessel to deliver imported sand from the Mainland to HKSAR：
   (i) The Permittee shall complete the "**Form C - Permittee's Monthly Return on Imported Sand from Mainland**" showing the transportation data of the imported sand from the Mainland in the preceding month and fax it to CE/FM by fax ((852) 2714 9481) on or before the 10th day of each month.
   (ii) The Permittee's final users shall complete the "**Form D - Final User's Monthly Return on Imported Sand from Mainland**" showing the 'balanced' records of the imported sand received, quantities of sand used or retailed, and quantities of sand stockpiled in the preceding month and fax it to CE/FM by fax ((852) 2714 9481) on or before the 10th day of each month.
   (iii) Re-export of any sand imported from the Mainland is prohibited unless prior approval has been obtained from the CE/FM.
   (iv) The Permittee and his final users or his customers shall observe and follow the requirement of Ministry of Commerce of the People's Republic of China, i.e. the sand imported from the Mainland (中華人民共和國海關稅則中 '2505100000' 及 '2505900090' 兩個稅號的商品) can only be used within the Hong Kong Special Administration Region and cannot re-exported to other regions or countries.
10. In case of contravention of any of the conditions stipulated in the above, the CE/FM shall have the sole discretion of cancelling the Permit without any prior notice.

Remark: Form A, B, C and D can be downloaded from the website of the Civil Engineering and Development Department (www.cedd.gov.hk).

b) Transport of Sand from Pun Shan Shek Anchorage to 3RS Works Area

搬運沙粒許可證編號/ Sand Removal Permit No.	SRP-17-0021-1	有效期由: valid from:	2017 年 02 月 06 日	至: to :	2017 年 03 月 07 日
持證人 Permittee	[redacted]				
地址:	[redacted]			/電話:	[redacted]

甲部 (Part A)

搬運沙粒許可證(在香港境內搬運沙粒)
SAND REMOVAL PERMIT (for Removal and Transportation of Sand in HONG KONG)
在本港境內進行搬運時，此證必須存放在船隻/車輛內。
This Permit shall remain in the vessel/vehicle at all time during the period of removal and transportation in Hong Kong.
(每一載由船隻/車輛運載的沙粒均須領有一張許可證。每一張許可證只可使用一次。)
(One Permit is required for each vessel load/vehicle load and could be used for only one time)

土木工程拓展署
Civil Engineering and Development Department
香港法例第一四七章 沙粒條例
Laws of Hong Kong Chapter 147 Sand Ordinance

茲根據沙粒條例第二及第三條及本許可證的條件之規定，准許下列:
Under the provisions of Sections 2 & 3 of the Sand Ordinance and the Conditions of this Permit, permission is hereby given for the following:

船隻/車輛編號:
Vessel/Vehicle Reg. No(s).: [redacted]

搬走及運送沙粒(重量不能超過其准許載貨量)，
to remove and transport sand (weight shall not exceed the carrying capacity permitted),

並循最便捷之航線由 **Puh Shan Shek Anchorage** 運往以下地點
for delivery by the most direct route from to the following place(s)

1. **HK International Airport Third Runway Project.**

CEDD - HONG KONG - FILL MANAGEMENT DIVISION 土木工程拓展署 - 填料管理部
香港土木工程拓展署蓋印
Chop of Civil Engineering and Development Department, HKSARG

YUNG Lai-kwan, Lisa
(L K YUNG, Engineer, FMD) 簽章 (Signature)
香港土木工程拓展署署長代行
for Director of Civil Engineering and Development
簽發日期 : 2017 年 02 月 06 日 (年/月/日)
Issued on : (yyyy/mm/dd)

乙部 (Part B)

* 此證須於使用後 7 天內交回填料管理部總工程師。持證人亦須填報以下資料。
* This Permit should be returned to Chief Engineer/Fill Management within 7 days after use. The Permittee is also required to fill the following part.

持證人或其所授權人士已於 2017 年 2 月 6 日使用此許可證以船隻/車輛編號 [redacted] 搬走及運送上述沙粒。
Permittee or his authorized person have used this Permit to remove and transport the sand mentioned above by the vessel / vehicle reg. no. [redacted] on 2017/02/06 (yyyy/mm/dd)

[redacted]
Company Chop of Permittee

(Version May 2008)

搬運沙粒許可證條件

1. 在香港特別行政區境內搬運沙粒的船隻/車輛須持有有效的搬運沙粒許可證(下稱"許可證")。每一張許可證只適用於一次船隻/車輛的運載上並只可使用一次。
2. 許可證屬於香港特別行政區政府所有並不可轉讓。
3. 許可證乃根據申請人在其申請表上填報的資料簽發。若許可證上所載資料有更改，持證人須申領新的許可證，並把舊有的許可證交回土木工程拓展署填料管理部總工程師。
4. 除非已使用的許可證被填料管理部總工程師或其授權人員在指定卸下沙粒地點收回，否則，持證人須在卸下沙粒完畢後 7 天內把已使用的許可證親身或郵寄交回填料管理部總工程師。
5. 持證人須保管許可證，並於證上所定的有效期內使用。任何已過期或未經使用的許可證，須在有效期過後 7 天內交回填料管理部總工程師。
6. 持證人須於該船隻或車輛抵達許可證所示的指定目的地前最少 8 小時，填寫「**表格 A -送抵沙粒申報表**」並以傳真((852)2714 9481)方式遞交填料管理部總工程師以作通知。
7. 於卸下沙粒完畢後 2 天內，持證人須填寫「**表格 B-沙粒送抵目的地申報表**」並以傳真((852)2714 9481)方式遞交填料管理部總工程師以作通知。
8. 持證人及其最終用戶或零售客戶，須允許填料管理部總工程師或其授權人員在任何時間內進入許可證所示的卸下沙粒地點，並須提供一切所需協助，以便執行抽查工作。
9. 運送內地進口沙粒到香港特別行政區的船隻/車輛：
   (i) 持證人須在每個月的第十日或之前，將前一個月份從內地進口沙粒的搬運資料填在「**表格C-持證人每月由內地進口沙粒申報表**」上，並以傳真((852)2714 9481)方式遞交填料管理部總工程師。
   (ii) 持證人的每名最終用戶亦須在每個月的第十日或之前，把前一個月份的接收內地進口沙粒數量、已使用或零售沙粒數量和屯積沙粒數量等結存資料填在「**表格 D-最終用戶每月由內地進口沙粒申報表**」上，並以傳真((852)2714 9481)方式遞交填料管理部總工程師。
   (iii) 除非事先獲得填料管理部總工程師批准，否則不可將內地進口的沙粒轉出口至香港境外地區或國家。
   (iv) 持證人及其最終用戶或零售客戶須知悉並同意遵守中華人民共和國商務部的規定，即從國內進口香港的天然沙（中華人民共和國海關稅則中 '2505100000' 及 '2505900090' 兩個稅號的商品），只可在香港境內使用，不可以轉出口至香港特別行政區境外地區或國家。
10. 如違反上述任何條件，填料管理部總工程師可全權取消許可證，事前毋須通知。

備注：表格A, B, C及D可在土木工程拓展署網頁內下載（網址: **www.cedd.gov.hk**）。

Conditions of Sand Removal Permit

1. Vessel/vehicle for removal and transportation of sand in the territory of Hong Kong Special Administrative Region (HKSAR) shall have a valid Sand Removal Permit (hereinafter called Permit). One Permit is used for a single vessel load/vehicle load and can be used for only one time.
2. The Permit is the property of the Government of HKSAR and is not transferable.
3. The Permit is granted in reliance on the information declared by the applicant on his application. If the information stipulated in the Permit has changed, the Permittee shall apply for a new Permit and return the obsolete Permit to the Chief Engineer/Fill Management (hereinafter called CE/FM) of Civil Engineering and Development Department.
4. The Permittee shall send the used Permit back to the CE/FM by post or by hand within 7 days from the date of completion of unloading sand unless it has been collected by the CE/FM or his authorized staff at the designated unloading place.
5. The Permittee shall keep care of the Permit and use it within the validity period stipulated at the Permit. Any unused or expired Permit should be returned to the CE/FM within 7 days after the expiry date of the Permit.
6. The Permittee shall inform the CE/FM at least 8 hours in advance prior to arrival at the destination shown on the Permit by completing the "**Form A - Report on Sand Arrival**" and faxing it to ((852) 2714 9481).
7. The Permittee shall inform the CE/FM by completing the "**Form B - Report on Completion of Unloading Sand at Destination**" and faxing it to ((852) 2714 9481) within 2 days after completion of unloading sand.
8. The Permittee and his final users or his customers shall allow access and provide all necessary assistance at any time to the CE/FM and/or his authorized staff to carry out the spot checking at the sand unloading places shown on the Permit.
9. For vehicle/vessel to deliver imported sand from the Mainland to HKSAR：
   (i) The Permittee shall complete the "**Form C - Permittee's Monthly Return on Imported Sand from Mainland**" showing the transportation data of the imported sand from the Mainland in the preceding month and fax it to CE/FM by fax ((852) 2714 9481) on or before the 10th day of each month.
   (ii) The Permittee's final users shall complete the "**Form D - Final User's Monthly Return on Imported Sand from Mainland**" showing the 'balanced' records of the imported sand received, quantities of sand used or retailed, and quantities of sand stockpiled in the preceding month and fax it to CE/FM by fax ((852) 2714 9481) on or before the 10th day of each month.
   (iii) Re-export of any sand imported from the Mainland is prohibited unless prior approval has been obtained from the CE/FM.
   (iv) The Permittee and his final users or his customers shall observe and follow the requirement of Ministry of Commerce of the People's Republic of China, i.e. the sand imported from the Mainland (中華人民共和國海關稅則中 '2505100000' 及 '2505900090' 兩個稅號的商品) can only be used within the Hong Kong Special Administration Region and cannot re-exported to other regions or countries.
10. In case of contravention of any of the conditions stipulated in the above, the CE/FM shall have the sole discretion of cancelling the Permit without any prior notice.

Remark: Form A, B, C and D can be downloaded from the website of the Civil Engineering and Development Department (**www.cedd.gov.hk**).

Annex 3

Number of Filling Material Samples Tested
on Compliance with the Requirement of the Environmental Permit
(from November 2016 to April 2017)

Month	Number of Samples Tested	Laboratory Test Results
November 2016	59	Passed
December 2016	186	Passed
January 2017	204	Passed
February 2017	55	Passed
March 2017	206	Passed
April 2017	206	Passed
Total :	916	All Passed

Sample of Independent Laboratory Reports Regarding the Relevant Tests on Suspended Solids

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: MOTT MACDONALD HONG KONG LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 12
Contact	: [redacted]	Contact	: [redacted]	Work Order	: HK1711981
Address	: [redacted]	Address	: [redacted]		
E-mail	: [redacted]	E-mail	: [redacted]		
Telephone	: [redacted]	Telephone	: [redacted]		
Facsimile	: [redacted]	Facsimile	: [redacted]		
Project	: EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM (3RS) - IMPACT MONITORING	Quote number	: HK/637/2016	Date received	: 30-MAR-2017
Order number	: ----			Date of issue	: 03-APR-2017
C-O-C number	: ----			No. of samples	- Received : 248
Site	: ----				- Analysed : 248

Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	Position	Authorised results for:
Lin Wai Yu, Iris	Senior Chemist - Inorganics	Inorganics

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1711981 supersedes any previous reports with this reference. Testing period is from 30-MAR-2017 to 03-APR-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1711981 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on an as received basis.

Analytical Results

Sub-Matrix: **SEAWATER**

Client sample ID	Client sampling date / time	Laboratory sample ID	Compound	EA025: Suspended Solids (SS)				
			LOR Unit	2 mg/L				
				EA/ED: Physical and Aggregate Properties				
C1/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-001		**10**				
C1/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-002		**10**				
C1/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-003		**11**				
C1/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-004		**12**				
C1/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-005		**12**				
C1/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-006		**13**				
C2/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-007		**11**				
C2/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-008		**12**				
C2/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-009		**11**				
C2/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-010		**12**				
C2/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-011		**15**				
C2/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-012		**15**				
C3/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-013		**10**				
C3/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-014		**10**				
C3/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-015		**10**				
C3/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-016		**12**				
C3/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-017		**11**				
C3/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-018		**12**				
IM1/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-019		**12**				
IM1/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-020		**12**				
IM1/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-021		**13**				
IM1/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-022		**14**				
IM1/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-023		**14**				
IM1/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-024		**13**				
IM2/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-025		**12**				
IM2/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-026		**13**				
IM2/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-027		**12**				
IM2/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-028		**14**				
IM2/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-029		**13**				
IM2/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-030		**15**				
IM3/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-031		**12**				
IM3/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-032		**12**				
IM3/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-033		**11**				
IM3/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-034		**12**				
IM3/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-035		**15**				

Sub-Matrix: **SEAWATER**

Client sample ID	Client sampling date / time	Laboratory sample ID	Compound	EA025: Suspended Solids (SS)				
			LOR Unit	2 mg/L				
				EA/ED: Physical and Aggregate Properties				
IM3/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-036		**14**				
IM4/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-037		**14**				
IM4/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-038		**16**				
IM4/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-039		**19**				
IM4/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-040		**16**				
IM4/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-041		**18**				
IM4/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-042		**17**				
IM5/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-043		**17**				
IM5/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-044		**18**				
IM5/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-045		**19**				
IM5/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-046		**17**				
IM5/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-047		**19**				
IM5/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-048		**19**				
IM6/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-049		**16**				
IM6/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-050		**16**				
IM6/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-051		**16**				
IM6/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-052		**16**				
IM6/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-053		**18**				
IM6/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-054		**20**				
IM7/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-055		**21**				
IM7/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-056		**20**				
IM7/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-057		**20**				
IM7/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-058		**21**				
IM7/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-059		**23**				
IM7/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-060		**24**				
IM8/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-061		**12**				
IM8/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-062		**13**				
IM8/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-063		**15**				
IM8/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-064		**15**				
IM8/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-065		**16**				
IM8/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-066		**18**				
IM9/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-067		**12**				
IM9/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-068		**14**				
IM9/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-069		**13**				
IM9/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-070		**15**				

Sub-Matrix: **SEAWATER**

	Compound	EA025: Suspended Solids (SS)				
	LOR Unit	2 mg/L				
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties				
IM9/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-071	**13**				
IM9/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-072	**13**				
IM10/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-073	**12**				
IM10/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-074	**14**				
IM10/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-075	**13**				
IM10/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-076	**14**				
IM10/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-077	**14**				
IM10/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-078	**15**				
IM11/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-079	**10**				
IM11/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-080	**10**				
IM11/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-081	**10**				
IM11/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-082	**11**				
IM11/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-083	**14**				
IM11/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-084	**13**				
IM12/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-085	**13**				
IM12/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-086	**15**				
IM12/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-087	**13**				
IM12/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-088	**15**				
IM12/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-089	**13**				
IM12/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-090	**14**				
SR2/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-109	**12**				
SR2/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-110	**11**				
SR2/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-113	**13**				
SR2/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-114	**11**				
SR3/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-115	**17**				
SR3/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-116	**16**				
SR3/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-117	**15**				
SR3/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-118	**17**				
SR3/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-119	**16**				
SR3/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-120	**18**				
SR4A/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-121	**17**				
SR4A/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-122	**17**				
SR4A/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-123	**17**				
SR4A/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-124	**19**				
SR4A/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-125	**18**				

Sub-Matrix: **SEAWATER**

	Compound	EA025: Suspended Solids (SS)				
	LOR Unit	2 mg/L				
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties				
SR4A/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-126	**20**				
SR5A/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-127	**12**				
SR5A/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-128	**14**				
SR5A/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-131	**16**				
SR5A/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-132	**15**				
SR6/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-133	**18**				
SR6/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-134	**20**				
SR6/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-137	**20**				
SR6/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-138	**20**				
SR7/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-139	**8**				
SR7/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-140	**7**				
SR7/ME/M/REPLICATE 1	[30-MAR-2017]	HK1711981-141	**9**				
SR7/ME/M/REPLICATE 2	[30-MAR-2017]	HK1711981-142	**7**				
SR7/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-143	**6**				
SR7/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-144	**8**				
SR8/ME/S/REPLICATE 1	[30-MAR-2017]	HK1711981-145	**13**				
SR8/ME/S/REPLICATE 2	[30-MAR-2017]	HK1711981-146	**15**				
SR8/ME/B/REPLICATE 1	[30-MAR-2017]	HK1711981-149	**14**				
SR8/ME/B/REPLICATE 2	[30-MAR-2017]	HK1711981-150	**15**				
C1/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-151	**66**				
C1/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-152	**61**				
C1/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-153	**168**				
C1/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-154	**163**				
C1/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-155	**168**				
C1/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-156	**166**				
C2/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-157	**16**				
C2/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-158	**16**				
C2/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-159	**15**				
C2/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-160	**15**				
C2/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-161	**15**				
C2/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-162	**15**				
C3/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-163	**5**				
C3/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-164	**7**				
C3/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-165	**6**				
C3/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-166	**8**				

Sub-Matrix: **SEAWATER**

	Compound	EA025: Suspended Solids (SS)				
	LOR Unit	2 mg/L				
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties				
C3/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-167	**14**				
C3/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-168	**14**				
IM1/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-169	**32**				
IM1/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-170	**32**				
IM1/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-171	**52**				
IM1/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-172	**53**				
IM1/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-173	**66**				
IM1/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-174	**70**				
IM2/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-175	**42**				
IM2/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-176	**40**				
IM2/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-177	**82**				
IM2/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-178	**83**				
IM2/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-179	**91**				
IM2/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-180	**84**				
IM3/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-181	**85**				
IM3/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-182	**88**				
IM3/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-183	**89**				
IM3/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-184	**87**				
IM3/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-185	**97**				
IM3/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-186	**96**				
IM4/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-187	**56**				
IM4/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-188	**52**				
IM4/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-189	**67**				
IM4/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-190	**71**				
IM4/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-191	**68**				
IM4/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-192	**68**				
IM5/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-193	**42**				
IM5/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-194	**44**				
IM5/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-195	**52**				
IM5/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-196	**53**				
IM5/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-197	**139**				
IM5/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-198	**148**				
IM6/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-199	**48**				
IM6/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-200	**48**				
IM6/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-201	**70**				

Sub-Matrix: **SEAWATER**

	Compound	EA025: Suspended Solids (SS)				
	LOR Unit	2 mg/L				
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties				
IM6/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-202	**77**				
IM6/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-203	**84**				
IM6/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-204	**80**				
IM7/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-205	**59**				
IM7/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-206	**61**				
IM7/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-207	**100**				
IM7/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-208	**99**				
IM7/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-209	**128**				
IM7/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-210	**121**				
IM8/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-211	**16**				
IM8/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-212	**17**				
IM8/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-213	**18**				
IM8/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-214	**19**				
IM8/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-215	**21**				
IM8/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-216	**23**				
IM9/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-217	**14**				
IM9/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-218	**16**				
IM9/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-219	**16**				
IM9/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-220	**16**				
IM9/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-221	**16**				
IM9/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-222	**16**				
IM10/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-223	**15**				
IM10/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-224	**16**				
IM10/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-225	**16**				
IM10/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-226	**16**				
IM10/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-227	**16**				
IM10/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-228	**15**				
IM11/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-229	**21**				
IM11/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-230	**21**				
IM11/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-231	**23**				
IM11/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-232	**25**				
IM11/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-233	**25**				
IM11/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-234	**27**				
IM12/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-235	**22**				
IM12/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-236	**24**				

Sub-Matrix: **SEAWATER**

	Compound	EA025: Suspended Solids (SS)				
	LOR Unit	2 mg/L				
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties				
IM12/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-237	**24**				
IM12/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-238	**25**				
IM12/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-239	**25**				
IM12/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-240	**24**				
SR2/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-259	**24**				
SR2/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-260	**24**				
SR2/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-263	**23**				
SR2/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-264	**24**				
SR3/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-265	**16**				
SR3/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-266	**16**				
SR3/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-267	**16**				
SR3/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-268	**17**				
SR3/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-269	**20**				
SR3/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-270	**22**				
SR4A/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-271	**14**				
SR4A/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-272	**15**				
SR4A/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-273	**16**				
SR4A/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-274	**15**				
SR4A/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-275	**14**				
SR4A/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-276	**15**				
SR5A/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-277	**23**				
SR5A/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-278	**23**				
SR5A/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-281	**24**				
SR5A/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-282	**24**				
SR6/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-283	**13**				
SR6/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-284	**12**				
SR6/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-287	**16**				
SR6/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-288	**16**				
SR7/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-289	**7**				
SR7/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-290	**8**				
SR7/MF/M/REPLICATE 1	[30-MAR-2017]	HK1711981-291	**9**				
SR7/MF/M/REPLICATE 2	[30-MAR-2017]	HK1711981-292	**8**				
SR7/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-293	**7**				
SR7/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-294	**9**				
SR8/MF/S/REPLICATE 1	[30-MAR-2017]	HK1711981-295	**15**				

Sub-Matrix: **SEAWATER**

	Compound	EA025: Suspended Solids (SS)				
	LOR Unit	2 mg/L				
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties				
SR8/MF/S/REPLICATE 2	[30-MAR-2017]	HK1711981-296	**15**				
SR8/MF/B/REPLICATE 1	[30-MAR-2017]	HK1711981-299	**15**				
SR8/MF/B/REPLICATE 2	[30-MAR-2017]	HK1711981-300	**17**				

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4455847)								
HK1711981-001	C1/ME/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	10	10	0.0
HK1711981-011	C2/ME/B/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	15	14	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4455848)								
HK1711981-021	IM1/ME/M/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	13	12	8.4
HK1711981-031	IM3/ME/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	12	12	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4455849)								
HK1711981-041	IM4/ME/B/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	18	17	0.0
HK1711981-051	IM6/ME/M/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	16	16	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4455850)								
HK1711981-061	IM8/ME/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	12	12	0.0
HK1711981-071	IM9/ME/B/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	13	13	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4455851)								
HK1711981-081	IM11/ME/M/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	10	11	10.1
HK1711981-109	SR2/ME/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	12	10	11.6
EA/ED: Physical and Aggregate Properties (QC Lot: 4455852)								
HK1711981-121	SR4A/ME/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	17	17	0.0
HK1711981-133	SR6/ME/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	18	19	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4455853)								
HK1711981-145	SR8/ME/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	13	14	8.4
HK1711981-157	C2/MF/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	16	14	9.7
EA/ED: Physical and Aggregate Properties (QC Lot: 4455854)								
HK1711981-167	C3/MF/B/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	14	16	8.9
HK1711981-177	IM2/MF/M/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	82	85	4.1
EA/ED: Physical and Aggregate Properties (QC Lot: 4455855)								
HK1711981-187	IM4/MF/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	56	56	0.0
HK1711981-197	IM5/MF/B/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	139	146	4.8
EA/ED: Physical and Aggregate Properties (QC Lot: 4455856)								
HK1711981-207	IM7/MF/M/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	100	104	4.9
HK1711981-217	IM9/MF/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	14	15	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4455858)								
HK1711981-227	IM10/MF/B/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	16	16	0.0
HK1711981-237	IM12/MF/M/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	24	24	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4455860)								
HK1711981-267	SR3/MF/M/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	16	15	0.0
HK1711981-277	SR5A/MF/S/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	23	23	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4455861)								
HK1711981-291	SR7/MF/M/REPLICATE 1	EA025: Suspended Solids (SS)	----	2	mg/L	9	8	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 4455847)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	100	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455848)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	96.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455849)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	106	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455850)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	107	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455851)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	104	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455852)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	95.5	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455853)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	109	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455854)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	104	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455855)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	104	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455856)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	104	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455858)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	107	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455860)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	109	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 4455861)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	108	----	85	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

Annex 5

Legislative Council Subcommittee
to Follow Up Issues Relating to the
Three-Runway System at the Hong Kong International Airport

Motion Passed at the Meeting on 11 April 2017

Introduction

At the Subcommittee meeting held on 11 April 2017, the following motion was passed –

> "Given the sourcing of reclamation materials for the three-runway system project at the Hong Kong International Airport has significant bearing on the project costs, quality of reclamation and the environment, the Subcommittee requests the Airport Authority Hong Kong to provide information on the quantities and prices (estimated total price and price per tonne) of all the marine sand and mechanical sand procured and ordered by contractors, the names of the sand suppliers as well as the places of origin of the sand."

This paper sets out Airport Authority Hong Kong's ("AAHK's") response.

AAHK's Response

2. Reclamation works for the Three-Runway System ("3RS") project commenced in November 2016. As at end of April 2017, about two million cubic metres ("m^3") of filling materials have been used, of which 23,000 m^3 were marine sand imported from Vietnam; 20,000 m^3 were suitable filling materials from works sites in Hong Kong; and the remaining were manufactured sand imported from the quarries in the Pearl River Delta region.

3. The reclamation contractors are responsible for sourcing the required filling materials. As it is the commercial decisions of the contractors to secure and procure filling materials in accordance with the requirements prescribed in their contracts with AAHK, AAHK does not have information on the material prices and quantities of different fill materials procured by its contractors. AAHK also does not require its contractors to inform it of the name(s) of their filling material supplier(s).

4. For manufactured sand used by the contractors, AAHK however requires its contractors to submit proposals for sand source, including the relevant mining certificates, business licences and test reports. The contractors are also required to make relevant submissions to the government departments to confirm that the imported manufactured sand is not governed by the Sand Ordinance (Cap. 147). Upon satisfactory compliance with all requirements, AAHK will issue no objection certificates to the sand source proposals from the contractors. So far, AAHK has issued no objection certificates to its contractors to source manufactured sand from nine quarry locations, mainly in the Pearl River Delta region.

Airport Authority Hong Kong
June 2017