

Expansion of Hong Kong International Airport into a Three-Runway System

Marine Mammal Watching Plan

April 2016

Airport Authority Hong Kong



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This Marine Mammal Watching Plan has been reviewed and certified by

the Environmental Team Leader (ETL) in accordance with

Condition 2.11 of Environmental Permit No. EP-489/2014.

Certified by:



Terence Kong
Environmental Team Leader (ETL)
Mott MacDonald Hong Kong Limited

Date

27 April 2016

Our Ref : 60440482/C/JCHL160428

By Email

Airport Authority Hong Kong
HKIA Tower, 1 Sky Plaza Road
Hong Kong International Airport
Lantau, Hong Kong

Attn: Mr. Lawrence TSUI, Senior Manager

28 April 2016

Dear Sir,

Contract No. 3102
3RS Independent Environmental Checker Consultancy Services

Marine Mammal Watching Plan

Reference is made to the Environmental Team's submission of Marine Mammal Watching Plan under Condition 2.11 of the Environmental Permit No. EP-489/2014 certified by the ET Leader on 27 April 2016.

We would like to inform you that we have no adverse comment on the captioned submission. Therefore we write to verify the captioned submission in accordance with the requirement stipulated in Condition 1.9 of EP-489/2014.

Should you have any query, please feel free to contact our Isabella Yeung at 3922 9348 or the undersigned at 3922 9376.

Yours faithfully,
AECOM Asia Co. Ltd.



Jackel Law
Independent Environmental Checker

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1 Introduction

1.1 Background

Under the Environmental Impact Assessment Ordinance, the Environmental Impact Assessment (EIA) Report and the Environmental Monitoring and Audit (EM&A) Manual (Register No.: AEIAR-185/2014) prepared for the “Expansion of Hong Kong International Airport into a Three-Runway System” (the Project) have been approved by the Environmental Protection Department (EPD), and an Environmental Permit (EP) (Permit No.: EP-489/2014) has been issued for the Project. Pursuant to Condition 2.11 of the Environmental Permit (EP), the Airport Authority Hong Kong (AAHK) should prepare a Marine Mammal Watching Plan to specify the requirements on regular inspection of silt curtains, visual inspection of the waters around silt curtains and the works areas, and the response plan to cope with any unpredicted incidents.

Mott MacDonald Hong Kong Limited (MMHK) was appointed by AAHK as the Environmental Team (ET) and one of the tasks of the ET is to provide environmental team consultancy services to establish a Marine Mammal Watching Plan to be implemented for reclamation related marine works or works involving deployment of silt curtains during the construction phase of the project.

1.2 Project Description

The project is proposed to be located on a new land formation area immediately north of the Hong Kong International Airport (HKIA) in North Lantau, covering a permanent footprint of approximately 650 ha. As stated in the approved EIA, the project primarily comprises:

- New third runway with associated taxiways, aprons and aircraft stands;
- New passenger concourse building;
- Expansion of the existing Terminal 2 (T2) building; and
- Related airside and landside works, and associated ancillary and supporting facilities.

In accordance with the recommendations of Section 2.1 of the Silt Curtain Deployment Plan, marine works activities / plant that require deployment of silt curtains during the construction phase include the following:

- Sand blanket laying activities (‘Type III’ silt curtains required in a double layer arrangement primarily around the active eastern works areas and configured to minimise suspended solids release during ebb tides);
- Marine filling activities (‘Type II’ or ‘Type III’ silt curtains required in a double layer arrangement primarily around the eastern and south-western openings between partially completed seawalls and configured to minimise suspended solids release during ebb tides);
- Field joint excavation for the submarine cable diversion (silt curtains surrounding the grab dredger);
- Modification of existing seawall e.g. demolition of existing northern seawall as part of 3RS land formation and temporary removal of existing seawall for connection of the submarine cables to the airport island (silt curtains to completely enclose the seawall modification activities); and
- Piling activities for construction of new runway approach lights and Hong Kong International Airport Approach Area (HKIAAA) marker beacons (silt curtains to completely enclose the piling works)

Marine Mammal Watching Plan shall be implemented for the above works activities that involve the deployment and relocation of silt curtains.

1.3 Purpose and Scope of the Plan

One of the good construction site practices committed under the approved EIA for minimising the impact on marine ecology involves the deployment of silt curtains for water quality protection. The project proponent has committed to conduct regular inspection of the silt curtains to ensure the integrity and effectiveness of the silt curtains. This Plan is prepared as a precautionary measure for the protection of Chinese White Dolphin during the deployment or relocation of silt curtains and provides the details in accordance with the requirement under the EP-489/2014 Condition 2.11:

“The Permit Holder shall, no later than 3 months before the commencement of reclamation related marine works or works involving deployment of silt curtains of the Project, submit 3 hard copies and 1 electronic copy of Marine Mammal Watching Plan (The Plan) to the Director for approval. The Plan shall include regular inspection of silt curtains, visual inspection of the waters around silt curtains and the works areas, and a response plan to cope with any unpredicted incidents such as any marine mammal including, but not limited to, CWD is found within the waters surrounded by silt curtains or the works areas.”

Details of regular inspection of the silt curtains, visual inspection of the waters around the silt curtains and the works areas, the responses to cope with incidents and the implementation of this plan are presented in **Section 2**.

2 Marine Mammal Watching Plan

2.1 Regular Inspection of the Silt Curtains

Regular inspection of the silt curtains was mentioned in detail in the Silt Curtain Deployment Plan for this Project and is extracted as below with the inclusion of procedure for marine mammal inspection. During operation of the silt curtains, inspections shall be carried out by the Contractor who installed the silt curtains with a trained dolphin observer, to check that the silt curtains are not damaged, are performing as intended and no dolphin being trapped or in vicinity of the silt curtains.

Visual inspections of the silt curtain condition, function and any trap of dolphin shall be carried out daily by small vessel along the length of silt curtains deployed. During visual inspections, the observer shall check that the silt curtains are maintained in the correct positions with no obvious defects / entanglement, the marker buoys and lights are present and operational, and there is no observable muddy water passing through the silt curtain system. Any floating refuse trapped by the silt curtain shall be removed as part of the regular inspection.

In addition, diver inspections for conducting more thorough underwater inspections shall be carried out by the Contractor fortnightly and whenever there is suspected sediment release due to ineffectiveness of silt curtains (e.g. based on the results of water quality monitoring of suspended solids conducted by the ET). Diver inspections shall cover at least a 10 m length of silt curtain or one whole silt curtain panel (whichever is greater) at each diving location, and at intervals of at least every 200 m along the length of silt curtains deployed. The diver inspections shall check that the silt curtain fabric is intact, the silt curtain depths and anchor positions are correct, and there is no damage / breakage in anchor and load lines. Photographic records shall be taken during each underwater inspection. All identified defects / damage shall be photographed and the position recorded on GPS to enable the affected areas to be subsequently located for in-situ repair where appropriate.

2.2 Visual Inspection of the Waters around the Silt Curtains and the Works Areas

Apart from the vessel inspection, visual inspection shall also be conducted from an elevated platform (e.g. a high point on construction barge) which can provide an open and unobstructed view of the works areas contained by the silt curtains. Visual inspection shall be conducted by trained dolphin observers with naked eyes and the aid of binoculars to check for any presence of dolphin inside the works areas surrounded by silt curtains prior to commencement of work within silt curtains in each day. For 24-hour continuous marine works that require deployment of silt curtains (as described in Section 1.2), before the commencement of such works, the waters around the silt curtains and the works areas shall be scanned from the elevated platform for 30 minutes. The works can only commence after confirming that the surrounding waters of the silt curtain and the works areas under protection by the silt curtains are continuously clear of dolphins for 30 minutes.

Night-time deployment of silt curtain is generally not preferred, except under certain circumstances that deployment of silt curtain in day-time is restricted due to airport operation and safety requirements. Should the silt curtain requires deploying/ relocating at night-time, the Contractor shall propose night-time deployment / relocation arrangement with the use of practical CWD detection method to AAHK, ET and

Independent Environmental Checker (IEC) for approval. As diver inspection for silt curtain and visual inspection for CWD during night-time are difficult, it is suggested to avoid carrying out silt curtain deployment/ relocation processes during night-time. Otherwise, additional CWD detection method such as the use of night vision goggles and Passive Acoustic Monitoring should be proposed.

For day-time only works (i.e. works during daylight hours only, e.g. 0700 – 1900), the same procedure for confirming absence of dolphins inside the works area surrounded by silt curtains shall be followed before the commencement of works on each day. Thereafter, frontline staff, i.e. foremen, site agent, superintendents and engineers will assist the dolphin observers in implementing the Plan from the active work fronts within the water surrounded by the silt curtains throughout the work period. The dolphin observers will conduct regular check in day time to observe if there is dolphin around the silt curtain or being trapped by the silt curtain. If the silt curtain is within the marine works that require for the implementation of dolphin exclusion zone (DEZ), the dolphin observers for implementing the DEZ plan could take the role of the visual inspection.

In the event of dolphins being sighted, the trained dolphin observers or site staff shall notify the site agent and/or construction superintendent immediately for further actions described in Section 2.5 of this Plan. The trained dolphin observers shall then record the details of the sighting such as the time of first sighting, time of last sighting, approximate location, direction of dolphin movement, group size, behaviour, etc. as much as possible. A summary of the records of dolphin sighting shall be included in the Contractor's monthly environmental reports, which shall be submitted to AAHK and the ET within three days from the end of the reporting month.

2.3 Silt Curtain Integrity Check

During adverse weather conditions (e.g. typhoon signal No.3 or higher), no marine works shall be conducted and potentially affected silt curtains shall be retracted where possible to avoid unnecessary damage. The divers / crew responsible for maintenance of the silt curtains shall be on standby as soon as typhoon signal No.1 is raised, and silt curtains shall not be retracted until the marine works are fully halted. The Contractor is responsible for coordinating the construction workers and the silt curtain maintenance divers / crew to enable sufficient time for any works involving retraction of silt curtains before typhoon signal No.3 is raised.

After typhoon signal No.3 is lowered, retracted silt curtains shall be re-deployed and visual inspection by both small vessel and on elevated platform shall be carried out in accordance to the procedure in Section 2.5, to confirm the integrity of the silt curtain and no marine mammals in adjacent waters prior to re-initiation of marine works. If any damage is observed or suspected, divers shall be deployed for further inspection and affected silt curtains shall be repaired or replaced before relevant marine works are re-initiated.

2.4 Response Plan to Cope with any Unpredicted Incidents

The silt curtains for the 3RS project will mainly be in the form of linear floating type that not forming an enclosed environment, however, in case a dolphin is observed within the works area enclosed by silt curtain or found along the silt curtain that seems to have difficulty in leaving the curtain, the dolphin observer and/or site staff shall immediately notify the site agent and/or construction superintendent through mobile phone or handheld transceivers. After the notification, the site agent and/or construction superintendent shall cease all marine construction works within the concerned works area. In case there are other active marine works on the possible route(s) for the dolphin to leave the area, the dolphin observer shall report to the AAHK's representative / ET to request those active marine works to cease. If dolphin is observed close to the silt curtain but not being trapped, the dolphin observers shall alert the site agent and/or construction superintendent to review if the works are disturbing the dolphin and take necessary action including slow down the activities until the dolphin leave the area.

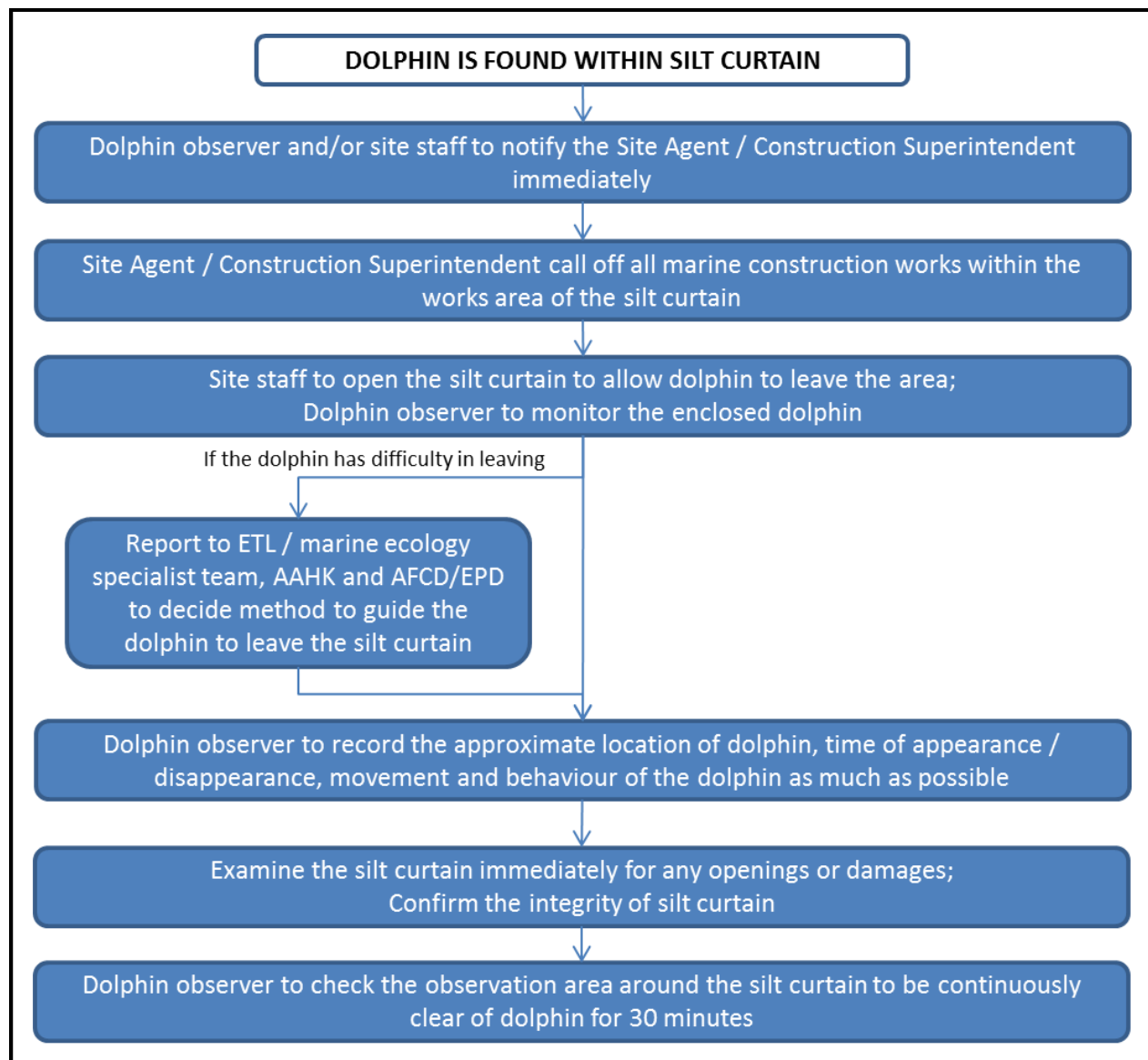
After that, site staff shall open the silt curtain to allow dolphin to leave the area. During this time, the dolphin observer shall monitor the movement and behaviour of the enclosed dolphin. If the dolphin encounters difficulty in leaving the silt curtain enclosed area for a duration of 20 minutes, the site staff shall report to the Environmental Team Leader (ETL) / marine ecology specialist team and AAHK as well as AFCD/EPD to decide whether other methods to encourage the dolphin to leave the silt curtain enclosed area should be adopted (e.g. using small vessels to guide the dolphin towards the opening in the silt curtain). The approximate location, time of appearance / disappearance, the direction of movement of the dolphin and the behaviour of the dolphin shall be recorded as far as possible.

After the dolphin is clear of the area enclosed by the silt curtain, the silt curtain shall be immediately examined for any openings or damages that may be overlooked. Construction works within the enclosed area of the silt curtain can only be resumed after confirming the integrity of silt curtains and after the observation area within and around the silt curtain is clear of dolphin for 30 minutes.

The process for response procedures is shown in **Figure 2.1**.

In case of any injured or live-stranded cetaceans are found within or nearby the silt curtain, dolphin observer and/or site staff should immediately notify the site agent and/or construction superintendent. The site agent and/or construction superintendent shall then report to the ETL / marine ecology specialist team and AAHK immediately and contact AFCD through "1823" marine mammal stranding hotline.

Figure 2.1: Response Procedures for Occurrence of Dolphin within Silt Curtain



2.5 Implementation of the Plan

A Marine Mammal Watching Plan shall be implemented for works involving deployment or relocation of silt curtains (Section 1.2 refers) and at enclosed areas once silt curtains are installed during construction phase. Prior to the complete enclosure of any open water area within a silt curtain or deployment in form of linear floating silt curtain, observations around waters enclosed by the silt curtain deployment and 250 m from the installation works will take place for 30 minutes, to ensure no dolphins are trapped within the silt curtain. Floating silt curtains will need to be adjusted regularly to fit with construction works schedule/progress, therefore exact positioning of silt curtains will depend on Contractor's arrangements. For each construction contract requiring deployment of silt curtains for the Project, the silt curtain layout arrangements will be proposed and submitted by the Contractor at least 4 weeks prior to works involving silt curtain deployment, for agreement with AAHK, ET and IEC, according to the Silt Curtain Deployment Plan that can be accessed from <http://env.threerunwaysystem.com/en/ep-submissions.html>. The Contractor shall submit a contract-specific Marine Mammal Watching Plan, according to the specifications and requirements of this Plan, to propose detailed implementation of visual inspection, integrity check and Response Plan for AAHK, ET and IEC approval at least 2 weeks prior to works involving silt curtain deployment. In the contract-specific plan, the Contractor shall demarcate the concerned works area (i.e. works area enclosed by silt curtain, area along the silt curtain and the vicinity that may affect dolphin leaving the area) according to the silt curtain layout arrangement as far as possible and the response plan for dolphin occurrence with the arrangement of temporary slowdown of works or cease of works.

Adequate dolphin observers in the form of two observers as one team shall be employed by each Contractor for silt curtain inspections and the dolphin observers shall be independent of the Contractor. Each Contractor shall, in the Marine Mammal Watching Plan, detail the arrangement of visual inspection platform and demonstrate sufficient dolphin observers for the daily inspection if more than one silt curtain is required to be deployed for the Contract. Dolphin observers shall be required to attend training sessions conducted by a qualified dolphin specialist/ marine ecologist of the ET with briefing materials provided for the dolphin observers as guidelines, so as to ensure every dolphin observer has adequate knowledge of all requirements for observing dolphins and are familiar with and are able to take appropriate actions according to this Plan. The qualified dolphin specialist/ marine ecologist shall also provide competence checking / auditing at least once every 6 months to the trained dolphin observers involved in implementing this Marine Mammal Watching Plan.

Frontline on-site staff and other relevant personnel (e.g. foremen, site agents, superintendents and engineers, etc.) employed by the Contractor shall also be involved in the implementation of this Plan and shall assist the dolphin observers in ensuring that the area enclosed by the silt curtains be observed from the active works side. Briefings will be provided by the trained dolphin observers for frontline site staff and other relevant personnel employed by the Contractor to aid opportunistic observations of CWDs within waters surrounded by silt curtains. The frontline staff should familiarise with the marine mammal watching plan and stay alert during works that there is potential of dolphin that may trap by the silt curtain and take necessary action according to the Plan and advice by the dolphin observers. Briefings will be provided to all frontline site staff during induction trainings, and refresher briefings will be provided every 6 months.

The briefing and training records will be provided to ETL, IEC and AAHK's representative for audit and record.