

Our ref : AECOM/(GE/2013/35)/M45/100(1443)

By Hand

22 January 2018

Environmental Protection Department
Environmental Compliance Division, Regional Office (North)
27th Floor, Southorn Centre
130 Hennessy Road, Wan Chai
Hong Kong

Dear Sir,

Contract No. GE/2013/35
Landslip Prevention and Mitigation Programme, 2012, Package A
Landslip Prevention and Mitigation Works

Feature Nos. 11SW-A/R94 and 11SW-A/FR218
Caine Lane, Mid-Levels
Final Environmental Monitoring and Audit Report

In according with the condition of Environmental Permit No. EP-520/2016 dated 8 August 2016, I submit herewith 3 hard copies and 1 electronic copy of Final Environmental Monitoring and Audit Report.

Should you have any enquiry about the report, please feel free to contact me at 5664 0760.

Yours faithfully,
For and on behalf of
AECOM Asia Co. Ltd.



Patrice Lai
Engineer's Representative

Encl.

PL/bt

c.c. CGE/LPM3 – Attn: Mr. Ivan Chan
AECOM – Attn: Mr. Addy Chan
AECOM – Attn: Ms. Gigi Lam

Contract No. GE/2013/35
Landslip Prevention and Mitigation Programme, 2012, Package A
Landslip Prevention and Mitigation Works

Landslip Prevention and Mitigation Works at Feature Nos. 11SW-A/R94 and
11SW-A/FR218, Caine Lane, Mid-Levels

Final Environmental Monitoring and Audit Report

AECOM Asia Co. Ltd.

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Executive Summary

This is the Final Report for the EM & A programme (EP-520/2016) that the programme had commenced since 04 April 2017 and ended on 23 Dec 2017. It is satisfactory that the mitigation measures mentioned in Project Profile (in noise control and premises protection) have been adequately implemented within the permit period.

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1 INTRODUCTION

1.1 Purpose of the Report

- 1.1.1 This Final Environmental Monitoring and Audit (EM&A) Report aims to provide a record of audit on the implementation of the mitigation measures recommended in the Project Profile and EP-520/2016 upon completion of the construction works.

1.2 Report Structure

- 1.2.1 This Final EM&A Report is organized as follows:

Section 1: Introduction

Section 2: Project Information

Section 3: Summary of Monitoring Results

Section 4: Summary of Environmental Site Inspection and Audit

Section 5: Summary of Environmental Non-conformance

Section 6: Summary of Government Authority Inspection

Section 7: Conclusions

2 PROJECT INFORMATION

2.1 Background

- 2.1.1 The Project comprises Feature Nos. 11SW-A/R94 and 11SW-A/FR218 which respectively located at the south of the Hong Kong Museum of Medical Sciences (HKMMS) and the northwest of HKMMS, Caine Lane, Mid-levels. They are located within a "Government, Institution or Community" (G/IC) zone on the Sai Ying Pun & Sheung Wan Outline Zoning Plan (OZP) No. S/H3/29. The location of the Project is shown in Project Profile plan.
- 2.1.2 The Consultants, which was engaged by the Geotechnical Engineering Office (GEO) of CEDD, carried out the design and construction supervision of the Project. The Lands Department (LandsD) is the maintenance department.
- 2.1.3 The Project Profile (PP) for the above features (No.: PP-541/2016) was submitted on 20 June 2016 under the Environmental Impact Assessment Ordinance (EIAO). Following the submitted PP, the Director of Environmental Protection (DEP)'s letter of permission to apply directly for environmental permit on 26 July 2016 (Ref.: DIR-250/2016). Environmental Permit (EP) (EP No. EP-520/2016) was granted on 8 August 2016, which covers Feature Nos. 11SW-A/R94 and 11SW-A/FR218.

2.2 Site Description

- 2.2.1 The main scope of works for the two features comprises the following as shown:

Feature no. 11SW-A/R94

- Temporary removal of the masonry stone facing
- Drilling of soil nail holes by coring machine
- Fixing and installation of soil nail bars
- Grouting of soil nail holes
- Construction of soil nail heads
- Reinstatement of the masonry stone facing

Feature no. 11SW-A/FR218

- Pit by pit excavation
- Laying of blinding at the bottom of the excavated pits
- Installation of dowel bars at the back of the masonry wall
- Backfilling of the excavated pits by concrete
- Backfilling of top soil
- Installation of masonry stone facing
- Landscape works (planter wall, shrubs and hydroseeding)

2.3 Project Personnel

2.3.1 The key project personnel and their contact numbers are summarized in **Table 2.1**.

Table 2.1 Contact Information of Key Personnel

<u>Party</u>	<u>Position</u>	<u>Name</u>	<u>Telephone</u>
AECOM Asia Co. Ltd.	IEC	Gigi Lam	3922 9000
AECOM Asia Co. Ltd.	Engineer's Representative	Patrice Lai	5667 0760
Contractor - Geotech Engineering Ltd.	Project Manager	Danise Tang	9183 2621
	Site Agent	Benny Li	6343 1976

2.4 Status of Environmental Licenses, Notification and Permits

2.4.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project are summarized in **Table 2.2**.

Table 2.2 Environmental Licenses, Notifications and Permits

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
<i>Environmental Permit</i>				
EP-520/2016	8-8-2016	-	Valid	Informed EPD the completion date of Feature Nos. 11SW-A/R94 and 11SW-A/FR218 is 23/12/2017.
<i>Billing Account for Construction Waste Disposal</i>				
701982721	30-4-2014	End of Project	Account Active	-

3 SUMMARY OF MONITORING RESULTS

3.1 Waste Management

- 3.1.1 The C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 3.1.2 As advised by the Contractor, a total of 370.69 tons inert C&D material and 28.61 tons non-inert C&D waste were generated in the whole construction period. No paper/cardboard packaging material, metal or plastic was collected by recycling contractor in the construction period.

3.2 Noise Management

- 3.2.1 Noise mitigation measures, which mentioned in PP, had implemented.
- 3.2.2 Noise monitoring was conducted in every week at 6 Noise Sensitive Receivers which mentioned in the PP. The results of the noise level had fully complied with the standard as in the PP.

3.3 Cultural Heritage Management

- 3.3.1 Readings of the ground settlement, tilting monitoring and vibration monitoring were obtained at a daily interval. The reading of the above monitoring had fully complied with the standard in the PP.

3.4 Wastewater Management

- 3.4.1 All wastewater generated from construction activities was collected and pumped to the storage tanks for reuse on site. No wastewater was discharged out of the site.

4 SUMMARY OF ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 4.1.1 Joint weekly site inspections were carried out by IEC together with the Engineer and the Contractor from April 2017 to December 2017. IEC Site Audit Checklists were submitted to EPD at monthly interval. No major deficiencies were observed during the site audits. Minor housekeeping and building protection issues were brought to the Contractor's attention and were rectified accordingly.
- 4.1.2 Particular observations during the site inspections are summarized below:

Air Quality

- The hoarding at the Feature No. 11SW-A/R94 was not well covered, reminded the Contractor to replace tarpaulin cover as soon as possible.
- The gap at the hoarding of Feature No. 11SW-A/R94 was still not covered, reminded the Contractor to follow up as soon as possible.

Noise

- Modifications of noise enclosures were recommended
- The door of the noise enclosure near Feature No. 11SW-A/FR218 was not appropriately closed, it was rectified by the Contractor immediately
- The noise enclosure at Feature No. 11SW-A/R94 was damaged, requested the Contractor to repair it before using the generator.

Water Quality

- The manhole cover at the crest of Feature No. 11SW-A/R94 was opened after rainstorm. The Contractor was reminded to cover the manhole properly.
- The sand bags at the site entrance to Feature No. 11SW-A/R94 were found to be broken, it was replaced by Contractor immediately
- A portion of sandbag at the slope toe and at the storage area were not properly placed. Advised the Contractor to add sandbags to prevent surface runoff during rainy season.
- Sandbags along the site boundary of Feature No. 11SW-A/FR218, facing Silver Jubilee Mansion, were found to be broken.
- A short section of drain near the staircase of 11SW-A/FR218 was covered incompletely, reminded the Contractor to well cover it.
- It was observed that there were minor surface runoff from Feature No. 11SW-A/R94 and No. 11SW-A/FR218 as well as accumulation of mud and trash at drain and catchpit. Requested the contractor to stop all runoff from the works area, remove mud/trash as soon as possible.
- New observations on Feature No. 11SW-A/R94 were found. The Contractor agreed to increase the height for a sandbag to prevent potential surface runoff.
- Traces of leakage/ surface runoff were observed at the works area immediately next to the annex block of the HKMMS, not only to the drain but to the Chinese herbal plants area of the HKMMS. Reminded the Contractor to pay attention on the leakage and surface runoff.
- Accumulation of sand at a drain outside Feature No. 11SW-A/R94 was observed. Requested the contractor to remove the sand from the drain as soon as possible.

Waste Management

- Some refuse and soil debris were found on site. Contractor was reminded to clean up the site regularly.
- The Contractor was reminded to cover the packed waste material by tarpaulin
- Dispose of waste material timely and properly.
- The site area within Feature No. 11SW-A/R94 was untidy, requested the Contractor to tidy up and remove trash from the site as soon as possible.
- Accumulation of sand / sediment at a drain near Feature No. 11SW-A/R94 was observed. Requested the contractor to check the source of discharge and remove the sand / sediment from the drain as soon as possible.
- For the Feature No. 11SW-A/FR218, construction waste skip/container was not covered. Reminded the contractor to cover it with tarpaulin after use. Besides, sand for back filling was stockpiled on the ground without covering. Reminded the Contractor to cover it with tarpaulin after use.

- Some Sandbags being disposal of were located at an open area without any cover, advised the contractor to remind workers to observe good sit practice and reminded the contractor to provide tarpaulin to cover it when waiting for disposal of.

Cultural Heritage

- The Contractor was reminded to submit all monitoring result/ record to IEC.
- Damage of three tiles at the roof of the Annex Block located near Feature No. 11SW-A/R94 was observed during the current audit. It is noted that tarpaulin cover part of the roof area of the annex Block located near to the works area. While there is no visible risk to structural integrity to Annex Block, it is advised that precautionary measures should be provided to avoid any potential damage to the building.
- Further to observations for the damage of three tiles at the roof of the Annex Block located near Feature No. 11SW-A/R94 on 07/09/2017. It is noted that there were cracks on two walls inside the Annex Block and damage of about 10tiles (including three observed in the last audit) at the Annex Block. The Contractor was requested to check against the baseline condition of the wall and tiles, investigate the reason of damage, and propose precautionary and mitigation measures to avoid any potential damage to the building.
- Although no further cracks of wall and tiles observed in these weeks, the Contractor should avoid any damage to the Annex Block during construction.
- The Contractor should pay attention to the Annex Block in order to avoid any damage during construction on Feature No. 11SW-A/R94.

5 SUMMARY OF ENVIRONMENTAL NON-CONFORMANCE

5.1 Summary of Environmental Non-Compliance

5.1.1 No environmental non-compliance was recorded in the whole construction period.

5.2 Summary of Environmental Complaints

5.2.1 No environmental complaint was recorded in the whole construction period.

5.3 Summary of Environmental Summon and Successful Prosecutions

5.3.1 No environmental related prosecution or notification of summons was received in the whole construction period.

6 SUMMARY OF GOVERNMENT AUTHORITY INSPECTION

- 6.1.1 Three inspections was conducted by the Environmental Protection Department (EPD) at the Feature Nos. 11SW-A/R94 and 11SW-AFR218 respectively on 22/05/2017, 17/08/2017 and 19/12/2017.
- 6.1.2 The inspector of EPD has verbally commented on the design of noise enclosure of the generators on 22/5/2017. The Contractor had modified the noise enclosure accordingly on 27/05/2017. No further comments were received during the other two inspections.

7 CONCLUSIONS

- 7.1.1 The Project is designated project under the EIAO with an environmental permit (EP-520/2016) for its construction. Construction works were commenced in April 2017 and completed in December 2017. IEC site inspections and audits were conducted at weekly interval throughout the construction period while the Contractors rectified the problems observed promptly and no major environmental deficiency was induced.
- 7.1.2 No non-compliance, environmental complaint, notification of summons nor successful prosecution was recorded in whole construction period.
- 7.1.3 Mitigation measures recommended in the Project Profile (No. PP-541/2016) and Environmental Permit (No. EP-520/2016) were certified to have been fully implemented.

Appendix A

Photographic Records of the Project Sites

Photo 1
Taken on 23/12/2017 at Feature No.11SW-A/R94



Photo 2
Taken on 23/12/2017 at the Annex Block next to
Feature No.11SW-A/R94



Photo 3
Taken on 23/12/2017 at the Annex Block next to Feature
No.11SW-A/R94



Photo 4
Taken on 03/01/2018 at the Annex Block next
to Feature No.11SW-A/R94



Photo 5
Taken on 23/12/2017 at Feature No.11SW-A/FR218



Photo 6
Taken on 23/12/2017 showing Feature No.
11SW-A/FR218

