

**CED Contract No. GE/2002/17**  
**10-Year Extended LPM Project,**  
**Phase 2, Package G – Landslip Preventive Works for**  
**Slopes and Retaining Walls in Lantau and Lamma Island**

**PROPOSAL**  
**ON**  
**SITE RUN-OFF CONTROL**  
**FOR FEATURES AT KEUNG SHAN & SHEK PIK**  
[IN COMPLIANCE WITH ENVIRONMENTAL PERMIT No. EP-148/2002]

PREPARED BY:

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## 1. INTRODUCTION

A total number of nine features along South Lantau Road and Keung Shan Road near Shek Pik Reservoir lie within Lantau South Country Park. All works at these features shall be carried out in accordance with the ordinances and regulations stipulated in the Contract Particular Specifications and the conditions for working in Country Parks.

In addition, the conditions of the *Environmental Permit No. EP-148/2002*, which is issued by Environmental Protection Department (EPD) and is reproduced in Appendix A in this proposal, shall also be conformed in all respects. As stipulated in Clause 2.2 of the permit, a proposal on site run-off control shall be deposited before the commencement of works at these features.

This proposal is therefore prepared to set out the proposed mitigation measures, the details of on-going surveillance and monitoring activities, an action plan listing out the responsibilities and action of all related personnel, and a contingency plan to deal with unexpected circumstances of pollution of Shek Pik Reservoir.

## 2. SECTIONS OF THE WORKS CONCERNED

This proposal applies on the following Sections of the Works:

Section Nos.	Feature No(s)
1 & 1A	13NW-B/C80
2 & 2A	13NE-A/C133
7 & 7A	13NE-A/C108
12 & 12A	13NE-A/C98
13 & 13A	13NE-A/C99 & 13NE-A/C100
17 & 17A	13NE-A/C101 & 13NE-A/C102
19 & 19A	13NE-B/C82

## 3. PROPOSED MITIGATION MEASURES

In order to reduce the impacts on Shek Pik Reservoir and the stream courses flowing into the reservoir arising from the site run-off, the following mitigation measures are proposed for implementation on site.

- ❖ Program works to minimize the number and extent of bare slope surfaces at any one time. Bare slope surfaces without works in progress to be covered with tarpaulin sheets.
- ❖ Remove excavated materials and debris weekly or at other frequency agreed by the Engineer.
- ❖ Keep minimal construction materials (e.g. aggregates, sand and fill materials) on site.
- ❖ Cover e.g. by tarpaulin, securely temporary exposed slope surfaces and open stockpiles on site.
- ❖ Inspect site and as-built records of the existing storm drains system as well as the water gathering network within and adjacent to slope features. Prevent discharging site run-off into water gathering network.

- ❖ Design and provide site run-off control system such as alignment of temporary intercepting / perimeter channels, earth bunds and/or sand bag barriers, temporary channels and location of temporary desilting traps for each site. Design will be based on actual site condition and submit to Engineer's Representative for comment and approval prior to implementation on each individual slope site. A sketch showing typical site run-off control system is given in Appendix E.
- ❖ Typical drawing / sketch showing the run-off control system should be submitted.
- ❖ Inspect the site run-off control system daily and remove sand/silt/grit inside channels, desilting traps regularly.
- ❖ Check comprehensively and enhance the site run-off control system before weekend and long holidays.
- ❖ Determine and conduct surveillance and monitoring activities such as monitoring the quality of site run-off.
- ❖ Prepare a Contingency Plan to deal with unexpected circumstances of pollution of Shek Pik Reservoir.
- ❖ Besides, chemical toilets will be provided on site and be cleaned regularly; oil leaking vehicles will be prohibited to enter our sites; drip tray will be provided under generators.

#### **4. ACTION PLAN**

In order to ensure this proposal is being implemented effectively on site, an action plan is prepared and given in Appendix B. This action plan clearly lists out the responsibilities and actions of all related project team members.

#### **5. SURVEILLANCE AND MONITORING ACTIVITIES**

In order to determine the effectiveness of the mitigation measures being implemented and to ensure Shek Pik Reservoir and the stream courses flowing into the reservoir are not adversely affected by the respective site run-off, a surveillance and monitoring checklist is prepared and is given in Appendix C.

#### **6. CONTINGENCY PLAN**

In order to deal with unexpected circumstances of pollution of Shek Pik Reservoir and the stream courses flowing into the reservoir, a contingency plan is prepared and given in Appendix D. This contingency plan defines the necessary steps to be taken upon adverse conditions being encountered.

Unexpected circumstances of pollution defined in this Proposal include:

- ❖ Tropical Cyclone Warning Signals (Signal No. 3 or higher);
- ❖ Rainstorm Warnings (Colour Red or Black);
- ❖ Flooding observed at Slope Features.

## **Table of Contents**

<b>1. INTRODUCTION.....</b>	<b>1</b>
<b>2. SECTIONS OF THE WORKS CONCERNED.....</b>	<b>1</b>
<b>3. PROPOSED MITIGATION MEASURES.....</b>	<b>1</b>
<b>4. SURVEILLANCE AND MONITORING ACTIVITIES .....</b>	<b>2</b>
<b>5. ACTION PLAN .....</b>	<b>2</b>
<b>6. CONTINGENCY PLAN .....</b>	<b>2</b>

**APPENDIX A – ENVIRONMENTAL PERMIT EP-148/2002**

**APPENDIX B – ACTION PLAN**

**APPENDIX C – SURVEILLANCE & MONITORING CHECKLIST**

**APPENDIX D – CONTINGENCY PLAN**

**APPENDIX E – SKETCH OF TYPICAL SITE RUN-OFF CONTROL SYSTEM**

## APPENDIX B – ACTION PLAN

### (A) Actions to be taken during establishment phase

Site Agent	Prepare Site Run-off Control Proposal and submit to the Engineer for approval.
Site Agent	Train project team members the content and requirements of this proposal. Ensure this proposal is fully implemented at all concerned slope features.
Site Manager	Program works to minimize bare slope surfaces.
Site Manager	Inspect site and as-built records the existing storm drains system as well as the water gathering network within and adjacent to slope features.
Site Manager	Determine the details and extent of the site run-off control system such as alignment of temporary intercepting /perimeter channels, earth bunds and/or sand bag barriers, channels and location of desilting traps.
Site Engineer	Make copies of this proposal, details of site run-off control system, Environmental Permit No. EP-148/2002 together with all documents referred readily available at all times at respective features.
Foreman	Supervise the construction of site run-off control system.
Site Manager	Check and confirm the effectiveness of as-built site run-off control system.

### (B) Actions to be taken under normal weather conditions

Foreman	Inspect comprehensively daily the site run-off system.
Foreman	Remove excavated materials and debris weekly or at other frequency agreed by the Engineer. Keep minimal construction materials (e.g. aggregates, sand and fill materials) on site.
Foreman	Inspect daily the site run-off control system and repair immediately any parts damaged. Remove regularly sand/silt/grit inside channels and desilting traps.
Foreman	Before weekend / holidays, examine the site run-off control system and repair immediately any parts damaged. Remove immediately sand/silt/grit inside channels, and desilting traps. Cover e.g. by tarpaulin, securely temporarily exposed slope surfaces and open stockpiles.
Site Engineer	Check completion of “weekend / holiday eve preparation works”.

### **APPENDIX B – ACTION PLAN (CONT'D)**

#### **(C) Actions to be taken when a rainstorm is imminent or forecast**

Foreman	Examine immediately the site run-off control system and repair any parts damaged. Remove immediately sand/silt/grit inside channels, sand traps and silt traps.
Foreman	Cover e.g. by tarpaulin, securely temporarily exposed slope surfaces and open stockpiles.
Site Manager	Check with every foremen all precautionary actions been taken at all concerned slope features and review of the capacity of the system to water for rainstorm priod.

#### **(D) Actions to be taken during a rainstorm**

Foreman	Monitor the quality of site run-off being discharge.
Foreman	Repair immediately any parts of the site run-off control system damaged.
Foreman	Remove frequently sand/silt/grit inside channels, sand traps and silt traps.
Foreman	Re-secure covering sheets on exposed slope surfaces and open stockpiles.
Foreman	Report to Site Manager immediately if unexpected circumstances encountered.

#### **(E) Actions to be taken under unexpected circumstances [**

Site Manager	Notify the implementation of Contingency Plan and arrange stand-by of Emergency Team.
All emergency team members	Take actions as specified in the Contingency Plan.

#### Remark:

Unexpected circumstances of pollution defined in this Proposal include:

- ❖ Tropical Cyclone Warning Signals (Signal No. 3 or higher);
- ❖ Rainstorm Warnings (Colour Red or Black);
- ❖ Flooding observed at Slope Features.

**APPENDIX C – SURVEILLANCE & MONITORING CHECKLIST**

**Section No.:** \_\_\_\_\_ **Feature No.** \_\_\_\_\_ **Commencement Date:** \_\_\_\_\_

(A) Checklist during establishment phase

Action Description	Action by	Completed on
Inspect site and as-built records the existing storm drains system as well as the water gathering network within and adjacent to slope features.	Site Manager	
Determine the details and extent of the site run-off control system such as alignment of temporary intercepting /perimeter channels, earth bunds and/or sand bag barriers, channels and location of sand traps and silt traps.	Site Manager	
Make copies of this proposal, details of site run-off control system, Environmental Permit No. EP-148/2002 together with all documents referred readily available at all times at respective features.	Site Engineer	
Supervise the construction of site run-off control system.	Foreman	
Check and confirm the effectiveness of as-built site run-off control system.	Site Manager	

(B) Checklist on “rainstorm preparation works” – by Site Manager

Inspection		Checking Items				Checked by
Date	Time	(1)	(2)	(3)	(4)	

Checking items:

- Quantity of and cover to stockpile on site.
- Conditions of intercepting /perimeter channels, earth bunds and/or sand bag barriers, channels.
- Conditions of desilting traps.
- Overall site tidiness.

Comments:

Good – satisfactorily at time of inspection  
 Fair – needs improvement and re-inspection is not required  
 Bad – needs immediate actions and re-inspection is required

**APPENDIX C – SURVEILLANCE & MONITORING CHECKLIST (CONT'D)**

Section No.: \_\_\_\_\_ Feature No. \_\_\_\_\_ Commencement Date: \_\_\_\_\_

(C) Checklist on “weekend / holiday eve preparation works” – by Site Engineer

Inspection		Checking Items				Checked by
Date	Time	(1)	(2)	(3)	(4)	

Checking items:

- 1. Quantity of and cover to stockpile on site.
- 2. Conditions of intercepting /perimeter channels, earth bunds and/or sand bag barriers, channels.
- 3. Conditions of desilting traps.
- 4. Overall site tidiness.

Comments:

Good – satisfactorily at time of inspection  
Fair – needs improvement and re-inspection is not required  
Bad – needs immediate actions and re-inspection is required



### APPENDIX D – CONTINGENCY PLAN

Site Agent	Notify the Engineer the implementation of Contingency Plan.
Site Agent	Mobilize Emergency Team & deploy to site.
Foreman	Stop immediately all works at the respective feature(s).
Site Agent and Site Manager	Inspect immediately the respective feature(s) and identify the cause(s) of the unexpected circumstances. Assess the degree and extent of area being affected. Decide and instruct the immediate rectification measures. Mobilize and deploy additional labour and plant resources, if consider necessary, to rectify the situation at the soonest possible.
Site Agent	In the event of emergency situations, notify WSD and EPD and relevant Departments.
Site Manager	Supervise the immediate rectification measures.
Foreman	Assist Site Manager in supervising the implementation of immediate rectification measures.
Site Agent	Report to the Engineer from time to time the situations. Co-ordinate with relevant Departments, if found necessary, the implementation of the immediate rectification measures.
Site Agent	Submit full report to the Engineer within the next 24 hours. The full report shall at least cover the followings: <ol style="list-style-type: none"> <li>1. Cause(s) of the unexpected circumstances.</li> <li>2. Degree and extent of area being affected.</li> <li>3. Rectification measures which were taken immediately.</li> <li>4. The site conditions after taking rectification measures.</li> <li>5. Proposed reinstatement plans.</li> <li>6. Proposed mitigation measures in future.</li> </ol>

Remark:

Unexpected circumstances of pollution defined in this Proposal include:

- ❖ Tropical Cyclone Warning Signals (Signal No. 3 or higher);
- ❖ Rainstorm Warnings (Colour Red or Black);
- ❖ Flooding observed at Slope Features.

Emergency Team members:

Site Agent, Site Manager, Site Engineer, Foreman, Safety officer, Safety Supervisor, Electrical Worker, Site Admin. Officer, lorry driver, and labour.

Stand-by plant & materials:

Lorry truck, water pump, sandbag, tarpaulin, traffic sign, traffic cones, flash light, touch and others to be determined.