

# Slope Management Work

Best Practice Guide

Code No.: **G23/2024**





# **Property Management Services Authority**

## **Slope Management Work – Best Practice Guide**

**Guide No.: G23/2024**

**Effective Date: 19 July 2024**

### **Preamble**

For the purpose of enabling licensees<sup>1</sup> to comply more effectively and professionally with the guidelines set out in the Code of Conduct<sup>2</sup> entitled “Slope Management Work” (Code No.: C23/2024) (“Code”) issued by the Property Management Services Authority (“PMSA”) on 19 July 2024, the PMSA provides relevant guidelines in this Best Practice Guide (“Guide”) pursuant to section 44<sup>3</sup> of the Property Management Services Ordinance (Cap. 626) (“PMSO”). While licensees are encouraged to use their best endeavours to follow the Guide, failure to comply with the Guide will, however, not be regarded as a disciplinary offence referred to in section 4 of the PMSO.

### **Background**

2. A licensed property management company (“PMC”) may, in respect of clients’<sup>4</sup> property for which property management services (“PMSs”) are provided by it, manage the private slopes<sup>5</sup> related to the property. A lease document issued by the Lands Department (such as a Government lease or conditions of grant, conditions of sale, and conditions of exchange, etc.) (i.e. “land lease”) also stipulates that the concerned owners are liable for maintenance of adjoining slopes and natural terrain (such slopes and natural terrain aforementioned hereafter referred to as “slopes”). This Guide aims to enable licensed PMCs and their licensed property management practitioners<sup>6</sup> (“PMPs”)

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<sup>1</sup> The term “licensee” means the holder of the following licence: a PMC licence; a PMP (Tier 1) licence; a PMP (Tier 2) licence; a provisional PMP (Tier 1) licence; or a provisional PMP (Tier 2) licence.

<sup>2</sup> With regard to the Code of Conduct containing practical guidance issued by the PMSA under section 5 of the PMSO for the purpose of section 4 of the PMSO (disciplinary offences), although a licensee does not incur a legal liability only because the licensee has contravened a provision of the Code of Conduct, the Code of Conduct is admissible in evidence in disciplinary hearings, and proof that a licensee contravened or did not contravene the relevant provision of the Code of Conduct may be relied on as tending to establish or negate a matter that is in issue in the hearings.

<sup>3</sup> Section 44 of the PMSO provides: “The Authority may do anything it considers appropriate for it to do for, or in relation to, the performance of its functions”.

<sup>4</sup> The term “client” has the same meaning as defined in section 16 of the PMSO, i.e. “in relation to a property for which a licensed PMC provides PMSs, means – (a) the owners’ organization of the property; and (b) the owners of the property who pay or are liable to pay the management expenses in respect of the services”. According to such a definition, a tenant is not a client.

<sup>5</sup> “Private Slopes” refer to slopes, retaining walls and natural terrain hazard mitigation measures with the maintenance responsibility resting with the owners of private properties. For details, please refer to the Geotechnical Engineering Office, Civil Engineering and Development Department’s webpage: (<https://hkss.cedd.gov.hk/hkss/en/prevention-of-landslide-hazards/slope-maintenance/index.html>)

<sup>6</sup> According to section 2 of the PMSO, licensed PMP means (a) a licensed PMP (Tier 1); or (b) a licensed PMP (Tier 2).

to comply more effectively and professionally with the guidelines set out in the Code.

### **Buildings Ordinance (Cap. 123) (“BO”)**

3.1 Where any slope, including any natural, formed or man-made land, or any earth-retaining structure, has due to any cause been rendered so dangerous or liable to become so dangerous, the Buildings Department may issue Dangerous Hillside Order under Section 27A of the BO pursuant to the advice of the Geotechnical Engineering Office of the Civil Engineering and Development Department (“Geotechnical Engineering Office”) in writing served on the owners of the land or structure, or on the persons who under the terms of the land lease are under the obligation to maintain the land or structure, require the concerned owners to appoint an authorized person, a registered structural engineer or a registered geotechnical engineer or the concerned professionals specified in the order to undertake the investigation works and, if necessary, to appoint registered specialist contractor to repair the dangerous slopes under their responsibility within the period stipulated in the order. The order will be registered in the Land Registry against the related land title and would be discharged when it is complied with.

3.2 If a water pipe, drain or sewer of any building is laid in, on or under the ground in or in the vicinity of any natural, formed or man-made land, or any earth-retaining structure and any leakage, defect or inadequacy of the water pipe, drain or sewer may result in a landslide of the land or a collapse of the structure, either totally or partially, and such landslide or collapse may cause, or may be likely to cause, a risk of injury to any person or damage to any property, the Buildings Department may issue Buried Services Investigation Order under Section 27C of the BO pursuant to the advice of the Geotechnical Engineering Office, requiring the concerned owners to appoint an authorized person to undertake the investigation works and, if necessary, to arrange works to rectify any leakage, defect or inadequacy of the water pipe, drain or sewer laid in the vicinity of any slopes or earth-retaining structures which may result in a landslide or collapse of the structure within the period stipulated in the order. The order will be registered in the Land Registry against the related land title and would be discharged when it is complied with.

3.3 Under Section 40(1B) of the BO, any person who fails to comply with a statutory order served on him/her under Section 27A or 27C without reasonable excuse shall be guilty of an offence and liable on conviction to a fine at Level 5 (HK\$50,000 at present) and imprisonment for one year. Those persons who still fail to comply with the order will be fined a further HK\$5,000 for each subsequent day of continued failure<sup>7</sup>. Besides, the Buildings Department may carry out the required works on behalf of the

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<sup>7</sup> For details, refer to section 40(1B) of the BO.

owners and will recover the costs plus supervision charges and surcharges.

## **Duties of Owners**

4.1 Owners of private slopes are responsible for the safety and maintenance of their slopes. They are responsible for the inspection, maintenance, repair and upgrading works of slopes located within their land lots, as well as adjoining slopes specified in the land leases or other land title documents, so as to ensure the slopes are in good condition and safe.

4.2 An owner has to, in accordance with the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office<sup>8</sup>, regularly inspect and repair the slope which he/she is liable for, so as to ensure that such slope is in good condition and safe<sup>9</sup>.

4.3 Apart from the legislation aforementioned in paragraphs 3.1 to 3.3, other laws and regulations, terms, codes of practice and guidelines relevant to slope management and repair in respect of a property also include the following:

## **Common Law Duty of Care**

4.3.1 The owners of a landed property have a common law duty of care to maintain the property. The owners may be held liable for personal injury and / or property damage arising from failure to observe the duty. Therefore, the owners have to properly manage and repair slopes which they are liable for so as to prevent and avoid having personal injury and / or property damage to the public caused by slope failure.

## **Occupiers Liability Ordinance (Cap. 314)<sup>10</sup>**

4.3.2 In the event of failure to properly manage and repair slopes responsible thus causing injury or death to third parties, the owners / owners’ corporation (“OC”) can be held legally liable for a breach of the Occupiers Liability Ordinance. Therefore, the owners / OC have to comply with the relevant law to ensure the reasonable safety of third parties.

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<sup>8</sup> Refer to the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf)).

<sup>9</sup> For relevant requirements, refer also to item 5.1 – Slope Safety of the “Code of Practice on Building Management and Maintenance” issued by the Home and Youth Affairs Bureau ([https://www.buildingmgt.gov.hk/file\\_manager/en/documents/code\\_of\\_practice/code\\_of\\_practice\\_on\\_buildin\\_g\\_management\\_and\\_maintenance\\_en.pdf](https://www.buildingmgt.gov.hk/file_manager/en/documents/code_of_practice/code_of_practice_on_buildin_g_management_and_maintenance_en.pdf))

<sup>10</sup> The Occupiers Liability Ordinance imposes on an occupier of premises, that is the person in control of the premises, a duty to his/her visitors to take such care as is reasonable in the circumstances to see that his/her visitors will be reasonably safe in using the premises for the permitted purposes.

## **Deed of Mutual Covenant (“DMC”) of a Property**

4.3.3 The DMC of a property is a legal document which is binding on all the owners of the property and stipulates clearly the rights, interests and obligations of the owners, the PMC, etc. regarding the supervision, repair, maintenance and management of private areas, common parts and facilities, etc. within the property.

## **Provisions in Land Leases<sup>11</sup>**

4.3.4 The responsibility for slope maintenance is based on land ownership as evidenced from a land lease. In addition to slopes inside a lot boundary, owners may also be responsible for maintenance of slopes adjoining their lot in accordance with the land lease. Owners may also be responsible for maintenance of land adjoining their lot, without such responsibility being stated in the land lease, when they have given themselves responsibility by their actions (e.g. they may have cut into adjoining land, an action which could render them responsible for the slope maintenance under common law). Moreover, the land lease may also include the requirements of the “Natural Terrain Clause” which specifies the owners’ obligations in examining the landslide hazards originating from natural terrain outside the site boundary and in constructing and maintaining “mitigation and stabilisation measures” for protecting the property. The mitigation measures constructed and their maintenance requirements are usually documented in the Natural Terrain Hazard Mitigation and Stabilisation Works Plan registered in the Land Registry by the property developer. Therefore, owners should carefully examine the land lease to ascertain the slopes they are responsible to maintain.

## **General Duties of a Licensed PMC**

4.3.5 A licensed PMC has to, in respect of the property for which PMSs are provided by it, remind the owners’ organisation<sup>12</sup> (if any) and the owners that they have full and ultimate duty regarding the common parts and facilities (including slopes, retaining walls and natural terrain) within and beyond the property owned by them (if responsible), and that they have to perform such duty in accordance with the Building Management Ordinance (Cap. 344), other relevant regulations, provisions, code and guidelines, and the DMC of the property.

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<sup>11</sup> In the sale or grant of a plot of land, the Lands Department executes a lease with the purchaser / grantee, who will then be the owner of the land and is required to comply with the lease conditions. Leases executed at different times contain different conditions prevailing at that time. Lot owners (including the above purchasers / grantees and their subsequent assignees) have to check and comply with the lease conditions.

<sup>12</sup> The term “owners’ organisation” has the same meaning as defined by section 2 of the PMSO i.e. “in relation to a property, means an organisation (whether or not formed under the Building Management Ordinance (Cap. 344) (“BMO”) or a DMC) that is authorised to act on behalf of all the owners of the property”.

## **Slopes Relevant to a Property**

**Code:** A(1) A licensed PMC has to, in respect of the property for which PMSs are provided by it, ascertain slopes which owners of the property are responsible to maintain (i.e. slopes inside the lot boundary of the property, and slopes adjoining the lot and natural terrain outside the lot boundary for which the owners are responsible to maintain in accordance with the land lease (if any)), and remind the owners and/or owners' organisation (if any) their responsibility to maintain these slopes.

Guide:

- a(1) The licensed PMC should examine the land lease of the property and relevant information so as to ascertain slopes which owners of the property are responsible to maintain. Where appropriate, advice may be sought from professionals (e.g. estate surveyors and lawyers, etc.) in respect of the maintenance responsibilities.
- a(2) The information aforementioned in paragraph a(1) of this Guide includes information on slopes provided by the Lands Department<sup>13</sup> and the Catalogue of Slopes maintained by the Geotechnical Engineering Office (the catalogue registers up-to-date information on sizeable man-made slopes and retaining walls within Hong Kong and is contained in the Slope Information System<sup>14</sup> which can be accessed from the "Hong Kong Slope Safety" web site. The Catalogue of Slopes also contains information on natural terrain hazard mitigation measures.).

## **Management Measures and Maintenance Requirements for Man-made Slopes and Retaining Walls**

**Code:** B(1) A licensed PMC has to, in respect of the property for which PMSs are provided by it and so far as reasonably practicable, make appropriate slope management arrangements so as to properly manage and regularly maintain man-made slopes and retaining walls inside the lot boundary of the property and adjoining man-made slopes and retaining walls (if any and are responsible), thereby preventing and avoiding injury to

<sup>13</sup> Refer to the "Slope Maintenance Responsibility Information System" provided by the Lands Department (<https://www2.slope.landsd.gov.hk/smr/s/disclaimer?lg=en>)

<sup>14</sup> Refer to the "Slope Information System" provided by the Geotechnical Engineering Office (<https://hkss.cedd.gov.hk/hkss/en/facts-and-figures/slope-information-system/sis/index.html>)

persons and/or damage to property caused by slope collapse.

Guide:

b(1) The licensed PMC should remind owners and/or the owners' organisation (if any) that they have to undertake regular maintenance inspections and works regarding the aforementioned slopes. If such slopes have never been maintained before, the licensed PMC should remind owners and/or the owners' organisation (if any) that they have to take the following actions<sup>15</sup>, including:

- (a) Start Routine Maintenance Inspections (refer to paragraph b(2)(a) of this Guide) and then carry out the maintenance works needed;
- (b) Commission the first Engineer Inspection for Maintenance (refer to paragraph b(2)(b) of this Guide) as soon as possible, particularly for slopes and retaining walls with no Maintenance Manual<sup>16</sup>; and
- (c) Maintenance inspections and necessary maintenance works should be carried out regularly and as recommended in the Maintenance Manual.

If owners and/or the owners' organisation (if any) require technical advice/assistance and/or financial assistance in order to carry out slope maintenance or works regarding man-made slopes and retaining walls, they should enquire with the relevant department or authority<sup>17</sup>.

b(2) The maintenance procedures or actions regarding the man-made slopes and retaining walls inside the lot boundary of the property and adjoining man-made slopes and retaining walls (if any and are responsible) aforementioned in paragraph B(1) of this Code should include:

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<sup>15</sup> Refer to item 2.1 – Maintenance Management Actions of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

<sup>16</sup> The Maintenance Manual records general information on the slopes concerned. If the slopes are properly designed and built upon Building Department's approval, in order to assist the owners or parties required to maintain land to appreciate the maintenance requirements, the geotechnical engineer who designs a slope should prepare a Maintenance Manual as part of his design services. For details, please refer to items 2.2 – Maintenance Manuals and 6.2 – Maintenance Manual for Natural Terrain Hazard Mitigation Measures of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

<sup>17</sup> The Community Advisory Unit (“CAU”) of the Geotechnical Engineering Office provides technical assistance and advice to slope owners who have received a Dangerous Hillside Order or need to carry out slope maintenance. For details, please make enquiry with the CAU (<https://hkss.cedd.gov.hk/hkss/en/prevention-of-landslide-hazards/community-advisory-services/index.html>). The Integrated Building Rehabilitation Assistance Scheme provides financial assistance to eligible slope owners in carrying out slope works. For details, please make enquiry with the Urban Renewal Authority (<https://brplatform.org.hk/en/subsidy-and-assistance/integrated-building-rehabilitation-assistance-scheme>).

(a) Routine Maintenance Inspections<sup>18</sup>

(i) The purpose of carrying out Routine Maintenance Inspections is to ascertain the need for maintenance of man-made items on slopes. PMPs or maintenance staff can perform such Routine Maintenance Inspections; in general, professional geotechnical engineering expertise is not required. They include the following (for details, please refer to **Annex 1** – “Indicative Record Sheets for Routine Maintenance Inspections and Works”):

- clearance of accumulated debris from drainage channels and slope surface;
- repair of cracked or damaged drainage channels or pavement;
- repair or replacement of cracked or damaged slope surface cover;
- unblocking of weepholes and outlet drainpipes;
- removal of any vegetation that has caused severe cracking of slope surface cover and drainage channels;
- re-grassing of bare soil slope surface areas;
- repair of missing or deteriorated pointing in masonry walls (i.e. repair the materials used to connect adjacent masonry walls to make the whole wall become more rigid);
- removal of loose rock debris and undesirable vegetation from rock slopes or around boulders;
- checking for signs of leakage of buried and exposed water-carrying services and, if signs of leakage are identified, alerting relevant services’ owners, maintenance parties or relevant authorities to take prompt actions;
- repair or replacement of rusted steel slope furniture; and
- maintenance of landscape items on the slope.

(ii) If the required works involve repair of hard cover of any natural, formed or man-made slope or pointing in a masonry retaining wall, etc. (and the works do not involve excavation work of depth over 300mm, nor replacement or removal of

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<sup>18</sup> Refer to item 3.1 – Routine Maintenance of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office  
([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))



masonry blocks), a licensed PMC may assist owners in appointing registered contractors to carry out the works under the simplified requirements of the “Minor Works Control System”. For details on the “Minor Works Control System”, please visit the relevant webpage of the Buildings Department<sup>19</sup>.

- (iii) The licensed PMC should, if it discovers abnormalities during Routine Maintenance Inspections such as signs of leakage, spillage or overflow of drainage channels, widening of cracks, settling ground, bulging or distortion of masonry walls, or settlement of the crest platforms, immediately arrange for Engineer Inspection for Maintenance (refer to paragraph b(2)(b) of this Guide) and recommend any necessary actions. For details, please visit the webpage of the Engineers Registration Board<sup>20</sup>.
- (iv) Where a change in the land use in the vicinity of a slope or retaining wall is noted in a Routine Maintenance Inspection, the inspection personnel should report it to the owners and/or owners’ organisation (if any) responsible for maintaining the land. The owners and/or owners’ organisation (if any) should then review whether this would result in any change in the “Consequence-to-Life Category<sup>21</sup>” of the slope or retaining wall and the required frequency of maintenance inspections. Advice should be sought from a professionally-qualified geotechnical engineer when needed.
- (v) Routine Maintenance Inspections should be carried out in accordance with the frequency specified in the Maintenance Manual<sup>22</sup>. If Routine Maintenance Inspections are carried

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<sup>19</sup> For details on the “Minor Works Control System”, please visit the webpage of the Buildings Department. (<https://www.bd.gov.hk/en/building-works/minor-works/introduction-to-minor-works-control-system/index.html>)

<sup>20</sup> An Engineer Inspection for Maintenance should be carried out by a professionally-qualified geotechnical engineer in Hong Kong. A suitable qualification is Registered Professional Engineer (Geotechnical), information on which can be obtained from the website of the Engineers Registration Board. (<https://www.erb.org.hk/searchRPE.asp>)

<sup>21</sup> There are three Consequence-to-Life Categories. Category 1 consists of Heavily Used Buildings and Lightly Used Buildings (e.g. residential building, commercial office, school, hospital, indoor car park and church, etc.); Category 2 consists of major infrastructure facility and heavily used open space and public waiting area (e.g. railway, subway, open car park, etc.) and Category 3 consists of lightly used open-air recreation area and remote area (e.g. district open space, country park). (<https://www.cedd.gov.hk/eng/publications/geo/geo-technical-guidance-notes/index.html>) (English only)

<sup>22</sup> Refer to item 3.1.2 – Frequency and Timing of Routine Maintenance Inspections of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office. ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

out not more than once a year, a licensed PMC should, so far as reasonably practicable, arrange for Routine Maintenance Inspections to be carried out between October and February, and any required maintenance works should be completed prior to the onset of the wet season in April.

- (vi) A licensed PMC should discuss with the owners and/or owners' organisation (if any) the soonest possible in order to carry out the inspection and maintenance works as mentioned in paragraph b(2)(a)(v) of the Guide.
- (vii) Inspect the drainage channels and clear any blockage after a heavy rainstorm.

(b) Engineer Inspections for Maintenance<sup>23</sup>

- (i) The frequency of Engineer Inspections for Maintenance should normally be recommended by the designer in the Maintenance Manual, or as considered appropriate by the engineer commissioned to carry out the inspection. In general, a licensed PMC should, so far as reasonably practicable, arrange for a professional engineer (e.g., Registered Professional Engineer (Geotechnical)) to carry out inspection once every five years for slopes and retaining walls in Consequence-to-Life Categories 1 and 2 and once every ten years for those in Category 3<sup>24</sup>).
- (ii) The licensed PMC should, when assisting owners and/or the owners' organisation (if any) to carry out Routine Maintenance Inspections and Engineer Inspections for Maintenance, make reference to the Maintenance Manual. If a slope has existed for many years, its design and construction may not comply with the current safety standard and a Maintenance Manual may not be available. If so, the licensed PMC should assist and arrange for owners and/or the owners' organisation (if any) to commission the first Engineer Inspection for Maintenance immediately. The engineer will go through all design and construction records of the slope

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<sup>23</sup> Refer to item 3.2 – Engineer Inspections for Maintenance of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office  
([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

<sup>24</sup> Refer to item 3.2.2 – Frequency of the Inspections of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office  
([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

and other relevant information to prepare a Maintenance Manual. If it is discovered that the slope has never been assessed, or there is no record of Stability Assessment, the engineer will recommend to carry out such Stability Assessment. The licensed PMC should assist owners and/or the owners' organisation (if any) to find out whether Stability Assessment has been carried out on the slope they are responsible to maintain, so as to determine if the slope satisfies the current safety standards.

- (c) Regular Checks of Buried Water-carrying Services<sup>25</sup>, <sup>26</sup> – The licensed PMC should, so far as reasonably practicable, arrange for specialist contractors to carry out Regular Checks of Buried Water-carrying Services according to the recommended frequency in the Maintenance Manual<sup>27</sup>.
- (d) Regular Monitoring of Special Measures<sup>28</sup> – Such monitoring is only necessary where the stability of a slope relies on specific measures (e.g. “permanent prestressed ground anchors” and “purposely designed raking drains which are not used in a prescriptive manner”) which are liable to become less effective with the passage of time. The licensed PMC should arrange for specialist contractors to conduct monitoring at the recommended frequency given in the Monitoring Schedule, or more frequently as required. Where the results of monitoring exceed the ‘alert levels’ given in the Monitoring Schedule, the licensed PMC should remind the owners and/or owners’ organisation (if any) to promptly appoint a professionally-qualified geotechnical engineer to implement the stipulated contingency actions and conduct “Stability Assessment” and to determine whether upgrading works are required. Such events should also be brought to the attention of engineers undertaking subsequent Engineer

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<sup>25</sup> Buried Water-carrying Services include sewers, stormwater drains and watermains. As a preventive measure, it is essential that the services are inspected and maintained regularly. Lack of maintenance may result in water leakage, which may affect the stability of slopes and retaining walls within or even away from the lot boundary. As a result, landslides can occur.

<sup>26</sup> Refer to item 3.3 – Regular Checks of Buried Water-carrying Services of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office  
([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

<sup>27</sup> Refer to item 3.3.2 – Frequency for Regular Checks of Buried Water-carrying Services of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office  
([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

<sup>28</sup> Refer to item 3.5 – Regular Monitoring of Special Measures of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office  
([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

## Inspections for Maintenance.

- b(3) If an immediate and obvious danger is noted regarding man-made slopes and retaining walls, the licensed PMC should report the situation to relevant departments (e.g. the Police, Fire Services Department, Geotechnical Engineering Office and Buildings Department) immediately, seal off the dangerous areas as precautionary measure and notify the owners and/or owners' organisation (if any) to arrange for maintenance works.

### **Maintenance Requirements for Natural Terrain Hazard Mitigation Measures**

Code: C(1) A licensed PMC has to, in respect of the property for which PMSs are provided by it, remind the owners and/or owners' organisation (if any) to carry out maintenance on hazard mitigation measures on natural terrain (if any and liable for them).

#### Guide:

- c(1) The maintenance requirements of hazard mitigation measures on natural terrain (if any and liable for them) mentioned in paragraph C(1) of the Code should include:
- (a) Routine Maintenance Inspections for Mitigation Measures<sup>29</sup>
- (i) Routine Maintenance Inspections should be carried out to identify any maintenance works required to ensure the integrity and physical condition of the hazard mitigation measures and continued satisfactory performance of the measures. It should cover the measures, the area containing the measures and the adjoining ground (for details, please refer to **Annex 2** – “Indicative Record Sheets for Routine Maintenance Inspections and Works for Natural Terrain Hazard Mitigation Measures”). In general, the inspection should assess the need for carrying out maintenance works of man-made items on natural terrain such as:
- clearing debris from drainage channels, catch trenches and pits, containment basins and straining structures;
  - repairing or replacing damaged sections;
  - unblocking weepholes and drainage outlet;

<sup>29</sup> Refer to item 6.3 – Routine Maintenance Inspections for Mitigation Measures of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

- removing any vegetation that has caused severe cracking of channels or hard surfaces;
  - repairing or reinstating the ground adjoining the measures if affected by severe erosion;
  - other routine maintenance works to upkeep the integrity and function of the measures;
  - removal of accumulated debris behind Defence Measures (such as rigid and flexible barriers, gabion wall); and
  - trimming or removal of trees affecting flexible barriers.
- (ii) The licensed PMC should, so far as reasonably practicable, carry out Routine Maintenance Inspections<sup>30</sup> at least once every year. If the inspection is to be carried out annually, it should preferably be completed well before the onset of the wet season. This will allow sufficient time for carrying out the necessary routine maintenance works as well as to inspect “Defence Measures” and clear any significant volume of debris accumulated after a heavy rainstorm.
- (b) Engineer Inspections for Maintenance of Mitigation Measures<sup>31</sup>
- (i) Engineer Inspections for Maintenance are not required unless specified otherwise by the designer or in special provisions, e.g. the requirements under the Natural Terrain Clause or delineation of “Green-hatched-black” area in the land lease.
- (ii) If the licensed PMC discovers unusual conditions e.g. a check dam filled up with a large amount of landslide debris or significant movement observed at boulders supported by buttresses, it should seek advice from a professionally-qualified geotechnical engineer upon approval from the owners and/or owners’ organisation (if any) (if applicable).
- (c) Special Follow-up Review for Defence Measures Involving Steel Flexible Barrier<sup>32</sup>

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<sup>30</sup> Refer to item 6.4 – Frequency of Routine Maintenance Inspections of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

<sup>31</sup> Refer to item 6.5 – Engineer Inspections for Maintenance of Mitigation Measures of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

<sup>32</sup> Refer to item 6.6 – Special Follow-up Review for Defence Measures Involving Steel Flexible Barrier of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))



- (i) Where steel flexible barrier<sup>33</sup> is erected as “Defence Measures”, a Special Follow-up Review should be triggered when major defects or anomalies are observed (e.g. barriers severely damaged by landslide, hill fire, typhoon, overturning of posts upslope, slackening of upslope wire ropes, reduction of height of principal net, main components severely rusted).
  - (ii) The review should be undertaken by a professionally-qualified geotechnical engineer (e.g. Registered Professional Engineer (Geotechnical)). The review should examine the causes and assess the implication of the observed anomalies or defects, and recommendations to rectify them should be made in order to restore the retaining function of the flexible barrier. Specialist advice, from professionally-qualified engineers of other appropriate disciplines and barrier manufacturers or suppliers, should be sought if necessary.
- c(2) The licensed PMC should be familiar with the maintenance requirements of other Natural Terrain Hazard Mitigation Measures (refer to **Annex 3** for details), so as to provide appropriate information and advice for clients, insofar as reasonably practicable.

### **Executing Dangerous Hillside Order / Buried Services Investigation Order**

**Code:** D(1) When a licensed PMC receives Dangerous Hillside Order / Buried Services Investigation Order (order) issued by the Buildings Department, it has to, in respect of the property for which PMSs are provided by it, notify the owners and/or owners’ organisation (if any), remind them to carry out maintenance work as per the order and the legal consequences of non-compliance<sup>34</sup>; and with approval from the owners and/or owners’ organisation (if any) arrange for such works to be carried out so as to comply with the order.

Guide:

- d(1) The licensed PMC should assist owners and/or the owners’ organisation (if any) to thoroughly read the requirements of the order and discuss follow-up action together, i.e. arranging for authorized persons<sup>35</sup> specified in the order

<sup>33</sup> Refer to Plate 6.1 – Examples of Natural Terrain Hazard Mitigation Measures of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

<sup>34</sup> Refer to paragraph 3.3 of this Guide

<sup>35</sup> Refer to paragraphs 3.1 and 3.2 of this Guide

and registered specialist contractors to carry out the works to comply with the order<sup>36</sup>.

### **Monitoring Service Contractors and Keeping Record**

- Code:** E(1) If a licensed PMC engages registered professionals or contractors (“service contractors”) to handle the maintenance / repair works, it has to, when making contracts with the concerned service contractors, stipulate clearly the requirements of relevant codes and monitor the services provided by such service contractors.
- E(2) If the maintenance / repair works mentioned in paragraph E(1) of this Code are handled by service contractors engaged directly by the owners’ organisation (if any), the licensed PMC has to remind the owners’ organisation that it has to, when making contracts with the concerned service contractors, stipulate clearly the requirements of relevant codes and monitor the services provided by such service contractors.
- E(3) The licensed PMC and the owners’ organisation have to keep all contracts entered into with service contractors as well as the relevant documents for not less than six years<sup>37</sup>.

Guide:

- e(1) Based on the findings of the maintenance inspections mentioned in paragraphs b(2) and c(1) of this Guide, the licensed PMC should remind the owners and/or owners’ organisation (if any) to carry out the corresponding repair works (if necessary); and with approval from the owners and/or owners’ organisation (if any), arrange for registered professionals or contractors (e.g. registered housing or civil engineering contractors, registered structural engineer or registered geotechnical engineer, etc.) to carry out the repair works so as to ensure the slopes are in good condition and safe, and natural terrain hazard mitigation measures continue to be effective. Under the Building (Minor Works) Regulation (Chapter 123N), certain types of slope maintenance works are included in Minor Works Control System, which facilitates owners in carrying out small-scale slope maintenance works safely and lawfully through simplified procedures. Details of the simplified procedures and types of building works under the Minor Works Control System can be obtained from

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<sup>36</sup> Refer to “A Simple Guide to Comply with ‘Dangerous Hillside Order’” issued by the Geotechnical Engineering Office

([https://www.cedd.gov.hk/filemanager/eng/content\\_441/cedd\\_DHO\\_booklet\\_eng.pdf](https://www.cedd.gov.hk/filemanager/eng/content_441/cedd_DHO_booklet_eng.pdf))

<sup>37</sup> This guideline is made with reference to section 20A(4) of the BMO.

the Buildings Department<sup>38</sup>.

e(2) The licensed PMC should:

- (a) Select service contractors with recognised maintenance / repair qualifications, relevant work experience and professional expertise;
- (b) Arrange for suitable staff to be responsible for coordinating, supervising and monitoring the services provided by the service contractors, and communicate with the service contractors;
- (c) Keep the contract, record, document (including the tender document), Maintenance Manual, Record for Maintenance Inspection and Works, and information properly in an appropriate place, and pursuant to written request (if applicable) made by the owners and/or owners' organisation (if any) or statutory requirement, provide such information timely for perusal; and
- (d) If the licensed PMC is responsible for a large number of slopes within the managed property, it may consider digitalising the Maintenance Manual, Record for Maintenance Inspection and Works for more convenient management.

e(3) If the service contract is entered into directly by the owners' organisation (if any), the licensed PMC should remind the owners' organisation the matters addressed in paragraphs e(2)(a)-(d) of this Guide.

### **Notification and Follow-up Work**

- Code:** F(1) A licensed PMC has to display notice in prominent place in the lobby of the property concerned to inform owners and relevant persons about the maintenance / repair works before such works commence.
- F(2) After completion of the works mentioned in paragraph F(1), the licensed PMC has to supervise the service contractor to clear up the affected area, and properly restore damaged facilities and areas arising from the works.
- F(3) If the maintenance / repair works mentioned in paragraph F(1) are handled by service contractors engaged directly by the owners' organisation, the licensed PMC has to remind the owners' organisation the requirements of paragraphs F(1) and F(2) of this Code.

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<sup>38</sup> Refer to item 5.1 – Guidelines on Preventive Maintenance Works of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office  
([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

Guide:

- f(1) The licensed PMC should include in the notice:
- (a) The affected area (e.g. the location of the works / scope), work nature and duration; and
  - (b) A reminder to residents of the flats, especially for flats which may be affected (e.g. nearby flats in respect of the works (if applicable)) that they should remain vigilant when the works are in progress.

– END –

If there is any inconsistency between the Chinese version and the English version of this Guide, the Chinese version shall prevail.

If there are any amendments to any ordinances or regulations covered in this Guide, licensees have to act in accordance with those prevailing amended provisions.

## **Indicative Record Sheets for Routine Maintenance Inspections and Works**

**(For slopes in the property and adjoining slopes)**

<b>RECORD OF ROUTINE MAINTENANCE INSPECTION</b>				<b>(SHEET 1 OF 5)</b>	
<b>SLOPE/RETAINING WALL REFERENCE NO.<sup>(1)</sup></b>					
Location of Slope/Retaining Wall (address)					
Date of Inspection:			Weather Condition at Time of Inspection:		
Date of Last Engineer Inspection for Maintenance:					
Due Date of Next Engineer Inspection for Maintenance:					
Maintenance Action Item	Location Reference	Action Required		Works Completion Date	
		No	Yes		
Clear drainage channels of accumulated debris					
Repair cracked/damaged drainage channels or pavements along crest and toe of slope or retaining wall					
Repair or replace cracked or damaged impermeable slope surface cover					
Remove surface debris and vegetation that has caused severe cracking of slope surface cover and drainage channels					
Remove loose rock debris and undesirable vegetation from rock slopes or boulders					
Re-vegetate bare soil slope surface					
Repair pointings in masonry walls (i.e. repair the materials used to connect adjacent masonry walls to make the whole wall become more rigid)					
Unblock weepholes and outlet drainpipes					
Repair leaky exposed water-carrying services					
Repair or replace rusted slope furniture (e.g. steel gates, boundary fences and stairs)					
Remove debris from defence measures					
Others (specify works and give details)					
Recommended Date for Completion of Above Works:					
Note: (1) Upon request, the Geotechnical Engineering Office can provide a slope or retaining wall reference number if applicable.					



## RECORD OF ROUTINE MAINTENANCE INSPECTION (SHEET 2 OF 5)

**SLOPE/RETAINING WALL REFERENCE NO.**

SITE PLAN (Reference numbers should be assigned to locations of man-made items for which maintenance works are required. The corresponding reference numbers should be quoted in the photographic records.)

Note: Add additional record sheets for site plan as necessary.

**SLOPE/RETAINING WALL REFERENCE NO.**

Immediate arrangement for investigation and repair of buried water-carrying services needed? (Yes/No)

(e.g. condition of trees for which specialist advice is needed)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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<b>RECORD OF ROUTINE MAINTENANCE INSPECTION      (SHEET 4 OF 5)</b>
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<b>SLOPE/RETAINING WALL REFERENCE NO.</b>
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RECORD PHOTOGRAPHS (with descriptions, date, and reference numbers as given on the site plan)
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Notes:      (1) Add additional record sheets for photographs as necessary. (2) Record photographs should show in detail areas where maintenance works are required, signs of distress observed (e.g. tension cracks, bulging of wall), and be annotated with descriptions.
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**(SHEET 5 OF 5)**

**SLOPE/RETAINING WALL REFERENCE NO.**

Maintenance works arranged by: \_\_\_\_\_ (Name)

of \_\_\_\_\_ (Organisation)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Maintenance works carried out by: \_\_\_\_\_ (Name)

of \_\_\_\_\_ (Organisation)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Maintenance works carried out on: .....

RECORD PHOTOGRAPHS (with descriptions, date, and reference numbers as given on the site plan)

- |        |  |
|--------|--|
| Notes: | <ol style="list-style-type: none"> <li>(1) Add additional record sheets for photographs as necessary.</li> <li>(2) For removal of loose rocks from rock face or clearing debris from defence measures, e.g. check dam, the estimated volume of debris removed should be recorded.</li> <li>(3) Record photographs should show in detail areas where maintenance works have been carried out and be annotated with descriptions.</li> <li>(4) Record photographs before and after the execution of maintenance works should be taken from the same vantage points.</li> </ol> |
|--------|--|

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RECORD OF ROUTINE MAINTENANCE INSPECTION				(SHEET 2 OF 5)	
DEFENCE MEASURE REFERENCE NO.					
GENERAL MAINTENANCE ACTION ITEMS					
Maintenance Action Items	Action Required		Location Reference	Remarks (e.g. Works Completion Date)	
	No	Yes			
A1. Trim/remove undesirable trees from the barrier					
A2. Remove accumulated debris from the barrier (e.g. behind principal net and around base plates of posts of flexible barriers)					
A3. Clear accumulated debris from drainage channels					
A4. Repair cracked/damaged drainage channels or maintenance access					
A5. Repair/replace rusted steel furniture (e.g. steel gates, hand railings, boundary fences and stairs)					
A6. Repair/reinstate the ground adjoining the measures affected by severe erosion					
A7. Repair/reinstate the pavement of the vehicular maintenance access					
A8. Repair, or notify relevant parties of, leaky exposed water-carrying services					
A9. Repair cracked/damaged baffles					
A10. Others (specify works and give details)					
Recommended Date for Completion of Above Works:					
OBSERVATIONS REQUIRING ADVICE OF PROFESSIONAL ENGINEER					
B1. Accumulation of large quantity of landslide debris at the rear of Defence Measures					
B2. Excessive deformation of Defence Measures					
OTHER OBSERVATIONS / RECOMMENDATIONS (continue on separate sheets if necessary).....					
Inspected by:.....(Name of person undertaking inspection) of.....(Organisation) Signature: .....Date : ..... Due date of next inspection:..... Received by :.....(Name of owner or his/her authorised representative) of.....(Organisation) Signature: .....Date : .....					

<b>RECORD OF ROUTINE MAINTENANCE INSPECTION</b>				<b>(SHEET 3 OF 5)</b>	
<b>DEFENCE MEASURE REFERENCE NO.</b>					
<b>ADDITIONAL MAINTENANCE ACTION ITEMS SPECIFIC TO STEEL FLEXIBLE BARRIER</b>					
Maintenance Action Items	Action Required		Location Reference	Remarks (e.g. Works Completion Date)	
	No	Yes			
C1. Trim/remove undesirable trees from the barrier					
C2. Remove obstructions in energy dissipating device					
C3. Repair cracked concrete structures (e.g. concrete pad of anchor or foundation)					
<b>MAJOR DEFECTS AND ANOMALIES OBSERVED</b>					
Major Defects and Anomalies Triggering Special Follow-up Review	No	Yes	Location Reference	Remarks	
D1. Barrier affected by landslide/rockfall					
D2. Barrier affected by hill fire					
Items specific to steel flexible barrier					
D3. Severe rusting observed at main components of steel flexible barrier					
D4. Posts overturning upslope					
D5. Suspected missing barrier components					
D6. Upslope wire ropes slackened					
D7. Height of principal net less than Minimum Retaining Height (as specified in Maintenance Manual) due to excessive sagging of wire ropes or tilting of posts					
D8. Others					
<b>OTHER OBSERVATIONS / RECOMMENDATIONS (continue on separate sheets if necessary).....</b>					
<div style="margin-bottom: 10px;"> Inspected by:.....(Name of person undertaking inspection)  of.....(Organisation)  Signature: .....Date :..... </div> <div style="margin-bottom: 10px;"> Due date of next inspection:..... </div> <div> Received by :.....(Name of owner or his/her authorised representative)  of.....(Organisation)  Signature: .....Date :..... </div>					

<b>RECORD OF ROUTINE MAINTENANCE INSPECTION</b>		<b>(SHEET 4 OF 5)</b>
<b>DEFENCE MEASURE REFERENCE NO.</b>		
RECORD PHOTOGRAPHS (with descriptions, date and reference numbers as given on the site plan)		
Photo Ref.:	Description:	
Date:		
Notes: <ul style="list-style-type: none"> <li>(1) Add additional record sheets for photographs as necessary.</li> <li>(2) Record photographs showing the general view of each individual bay of the barrier (taken from the same vantage points as the last Routine Maintenance Inspection) should be provided.</li> <li>(3) Record photographs should show in detail areas where (i) general maintenance action items and/or (ii) observations triggering Special Follow-up Review are identified, and these should be annotated with descriptions.</li> </ul>		



## **Maintenance Requirements of Other Natural Terrain**

### **Hazard Mitigation Measures**

1. Natural hillsides do not require maintenance, and hazard mitigation measures do not normally result in substantial modification to the geometry and condition of the natural hillsides. If a hillside is substantially modified by earthworks (e.g. major regrading), it should be regarded as a man-made slope or retaining wall and should be maintained in accordance with the guidelines for man-made slopes and retaining walls<sup>39</sup>.
2. Natural terrain hazard mitigation measures can be broadly classified into two categories:
  - (a) Stabilisation Measures constructed on natural hillsides to prevent failure, e.g. concrete buttresses, soil nails, rock dowels / bolts, raking drains and retaining walls; and
  - (b) Defence Measures to contain landslide debris or boulder fall from the hillside above, e.g. check dams, earth bunds, rigid barriers and flexible barriers (including boulder fences).
3. In some circumstances, dealing with natural terrain landslide hazards involves use of other measures such as:
  - (a) provision of a buffer zone (e.g. an open space) between the hillside and developments or facilities; and
  - (b) incorporation of debris basins, sand traps, etc. as part of the drainage facilities<sup>40</sup>.

Unless specified otherwise by the designer, there are no maintenance requirements for such measures from the geotechnical point of view, apart from regular clearance of debris.

4. Certain types of Stabilisation Measures generally require little maintenance and it may not be cost-effective to arrange Routine Maintenance Inspections for them, as the construction of maintenance access may be extensive and costly, and may cause undesirable environmental impacts. Therefore, Routine Maintenance Inspections of the following Stabilisation Measures are normally

<sup>39</sup> Refer to item 6.1 – Maintenance Requirements for Natural Terrain Hazard Mitigation Measures – General of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

<sup>40</sup> Refer to item 6.7 – Other Measures of the “Geoguide 5 – Guide to Slope Maintenance” issued by the Geotechnical Engineering Office ([https://www.cedd.gov.hk/filemanager/eng/content\\_113/eg5\\_2023.11.pdf](https://www.cedd.gov.hk/filemanager/eng/content_113/eg5_2023.11.pdf))

not required unless specified by the designer:

- (a) soil nails;
- (b) rock dowels/bolts; and
- (c) concrete buttresses other than those  $\geq 3$  m high affecting and in close proximity to Consequence-to-life Category 1 facilities<sup>41</sup>.

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<sup>41</sup> Refer to footnote 39



Related Code of Conduct

## Property Management Services Authority

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First Edition in July 2024