## Appendix 10.2 Key Assessment Assumptions and Methodologies

| Assessment Methodologies | Assessment Assumptions | Limitations of Assessment Methodologies / Assumptions | Prior Agreements with EPD | |
|---|---|---|---|---|
| | | | EIA Study Brief Clause Reference | Relevant Documentation |
| **Ecological Impact** | | | | |
| The assessment follows the criteria and guidelines as stated in Annexes 8 and 16 of the EIAO TM and the EIA Study Brief No. ESB-158/2006<br><br>A literature review and ecological surveys were undertaken to establish ecological baseline conditions of the Assessment Area within 500m of the works site boundary. Ecological surveys, including terrestrial ecological survey, avifauna survey, herpetofauna survey, mammal survey, terrestrial insect survey and freshwater community survey were performed. Six-month ecological surveys were conducted from February to July 2006, covering both dry and wet seasons.<br><br>Impacts to the ecological importance of habitats/species, potentially affected by proposed works were evaluated in term of magnitude, scale and significance, following the guidelines stated in Annexes 8 of the EIAO TM. In this Project, potential impacts to natural woodland, and protected animal and plant species recorded in the Assessment Area affected by the soil nailing works were highlighted,<br><br>Necessary mitigation measures were identified and suggested. Residual ecological impacts were assessed, and ecological monitoring and audit requirements | No tree felling is required for this Project.<br><br>Individuals of plant species of conservation interest will be labeled on site prior to the commencement of works. It provides better protection to the protected plants during construction phase.<br><br>With effective mitigation measures, such as sand traps, silt traps, oil/grease separators and installation of outlet pipe above the slope, runoff and drainage water with high levels of suspended solids will be prevented from entering the nearby water-bodies.<br><br>Air as the flushing medium and permanent casing to the drillhole of soil nail will be used. The impact to the groundwater table is thus minimized.<br><br>Quiet powered mechanical equipment, insulating fabric for drill rigs and noise barriers will be applied. It minimizes the disturbance to habitats within and adjacent to the proposed works area, and the wildlife inhabiting.<br><br>Good site practices and effective control of dust meeting the APCO will be provided. It minimizes the construction dust impact to the vegetation within and in vicinity of the proposed works area.<br><br>Compensatory planting of suitable shrubs/herbs, including the Small Persimmon, will be provided on site after the construction phase.<br><br>Planting of. Chinese Fan-palm (*Livistona chinensis*) will be planted near the existing bat roost to provide suitable | The identified ecological sensitive receivers are based on site surveys conducted in February to July 2006.<br><br>It is assumed the proposed mitigation measures would be properly followed up and adopted on site. | Not required | Not Applicable |

| Assessment Methodologies | Assessment Assumptions | Limitations of Assessment Methodologies / Assumptions | Prior Agreements with EPD | |
|---|---|---|---|---|
| | | | EIA Study Brief Clause Reference | Relevant Documentation |
| were identified following the guidelines stated in Annexes 16 of the EIAO TM. | habitat for the Short-nosed Fruit Bat after the completion of landslide preventive works | | | |
| **Landscape and Visual Impact** | | | | |
| The baseline survey forms the basis of the LVIA, which include the evaluation of impacts in terms of magnitude, scale and significance, following the guidelines stated in Annexes 3, 10 and 18 of the EIAO TM and in accordance with EIAO Guidance Note No. 8/2002.<br><br>The assessment of landscape impacts would result from identification of the source of impact, their magnitude of change during construction and operation phases. The magnitude of change for landscape impact assessment would be determined by compatibility of the project with the surrounding, duration of impacts under construction and operation phases, scale of the impact and reversibility of change.<br><br>The assessment of visual impacts would result from identification of the source of visual impacts, their magnitude of change and sensitivity of the receivers during construction and operation phases. The magnitude of change for visual impact assessment would be determined by the compatibility of the proposed project with the surrounding landscape, impact duration during construction and operation stages, scale of impact | A Zone of Visual Influence/ Visual Envelope is established which approximately defines the extent of visual influence of the proposed works and the potential visual impacts. This is achieved by site visit and desk-top study of topographic maps and photographs, and preparation of cross-sections to determine visibility of the project from various locations.<br><br>Visually Sensitive Receivers (VSRs) who would be present at typical viewpoints and key views, and likely to be affected by the proposed works, are identified within the visual envelope. VSRs are defined as individuals or groups of whom are sensitive to changes in the visual environment. Residents, users of open space/recreational facilities, road users (private and public transport users), schools, tourists and people working within the visual envelope shall be considered as VSRs.<br><br>Po Shan Mansions, Piccadilly Mansion, Hatton Place, Hatton House, Wisdom Court, Skyline Mansion, Skyview Cliff, Medallion Heights, Haddon Court, University Heights, Emerald Gardens, Greenview Gardens, Kingsford Height, No. 21, 23, 24, 30 Po Shan Road, No. 41B and 43A Conduit Road, Alpine Court, Belmont Court, Scenic Garden, Villa Veneto, Richmond Court, Imperial Court, Realty Gardens, Peace Court, Dragonview Court, Kings Garden, Wah Sen Court, Kiu Sen Court, 1A Robinson Road were identified as residential receivers.<br><br>Users of the University of Hong Kong were identified as occupational receivers.<br><br>Walkers in Hatton Road Morning Trail were identified as recreational receivers.<br><br>Travellers on the Po Shan Road were identified as traveling receivers. | It is assumed that the proposed mitigation measures would be properly implemented during construction and operation phases.<br><br>The identified sensitive receivers are based on site surveys conducted in February 2007. | 3.4.2.5 (i) & (ii) | See Annex 10.2.3 |

| Assessment Methodologies | Assessment Assumptions | Limitations of Assessment Methodologies / Assumptions | Prior Agreements with EPD | |
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| | | | EIA Study Brief Clause Reference | Relevant Documentation |
| and distance of the source of impact from the viewer, reversibility of impact and potential blockage of the view.<br><br>Mitigation measures were identified and suggested. Residual landscape and visual impacts were assessed, and monitoring and audit requirements were identified following the guidelines stated in Annexes 18 of the EIAO TM. | No tree felling and construction access road would be required in the Project. | | | |
| **Construction Noise Impact** | | | | |
| To assess the potential noise impacts due to the Project, the noise sources and receivers were identified and the impacts were then quantified.<br><br>The plant list was derived from similar projects carried out by the Project Proponent.<br>Sound power levels of plants were made reference to Technical Memorandum on Noise From Construction Work other than Percussive Piling (GW-TM) and BS5228<br><br>Noise sensitive receivers (NSRs) were identified according to the criteria set out in the EIAO-TM.<br><br>The noise impact calculation follows methodology stated in GW-TM. | Residential noise sensitive receivers (NSRs) located along the section of Po Shan Road closest to the Project site were identified.<br><br>Representative NSRs identified were Po Shan Mansions Block A (N1 and N2), Hamilton Court (N3), Piccadilly Mansion (N4), No.21 Po Shan Road (N5) and No.53 Conduit Road (N6). Pok Fu Lam Country Park (N7) to the south of the Project site was also identified as NSR.<br><br>Quiet plant (Dump truck) is assumed to be adopted in Works Area B. Noise enclosure would be applied to mitigate the noise from air compressors, grouting machine and generator at Works Area A. Movable Noise barrier enclosure would be applied to mitigate the noise from concrete mixer at Works Area A. Noise sources in Works Area A is at about 15m to the closest NSR N1. Noise source in Works Area B is at about 51m to N1.<br><br>No more than 6 drill rigs would be operating at the same time in Works Areas E and F. No more than two drill rigs could be operating in Works Area E. Noise insulating fabric would be applied for drill rigs operating in Works Area E. The closest noise source in Works Area E is at about 38m to NSR N1. The closest noise source in Works Area F is at about 111m to N1<br><br>Air compressors, grouting machines, generator and | It is assumed that the recommended mitigation measures would be properly followed up and adopted on site.<br><br>The identified sensitive receivers are based on site surveys conducted in February 2007.<br><br>The construction programme of the concurrent project included in the cumulative impact assessment is based on information available in April 2007. | 3.4.3.2 (iii)(b) | See Annex 10.2.2 |

| Assessment Methodologies | Assessment Assumptions | Limitations of Assessment Methodologies / Assumptions | Prior Agreements with EPD | |
|---|---|---|---|---|
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| The results were then compared with the daytime noise criteria stipulated in the EIAO-TM. | concrete mixers would also be located at Works Area G. No mitigation measures were proposed as the Area is located at 300m or more to all the residential NSRs.<br><br>Please refer to Figure 5.1 for the locations of the Works Areas.<br><br>The concurrent and planned project included in the cumulative impact assessment is the project "Agreement No. CE 28/2004 (GE) Landslide Preventive Works at Po Shan, Mid-levels – Design and Construction" (under Environmental Permit EP-235/2005/A) which will also be carried out by the Project Proponent. | | | |
| **Water Quality Impact** | | | | |
| The construction activities to be involved and the potential pollution sources were derived from similar projects carried out by the Project Proponent.<br><br>The study area covers the Vitoria Harbour Water Control Zone and areas within 500m from the works site boundary.<br><br>The water quality impact assessment for the Project was carried out qualitatively and follows Annex 6 and Annex 14 of the EIAO-TM. | Water-bodies identified within the study area include a drainage culvert on the hillslope between Po Shan Mansions and Hamilton Court and a temporary stream to the east of the proposed works area. Both the drainage culvert and the stream lie outside the site boundary of the proposed landslide preventive works.<br><br>It is assumed that all site runoff and drainage arising from the works area would be properly treated by the use of sedimentation tank, and that the discharge standards as stipulated in the "Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters" would be met. The treated site runoff and drainage water is assumed to be discharged to the licensed point near the tunnel portal of the concurrent landslide preventive works at Po Shan under Agreement No. CE28/2004 (GE).<br><br>Air would be used as the flushing medium of the drilling equipment to avoid the groundwater being affected by the flushing medium. An outlet pipe extending above the slope surface would be installed to facilitate collection of discharge of air, water and grout from the drillhole inserted with soil nail during grouting.<br><br>The concurrent and planned projects to be included in the cumulative impact assessment are the "Agreement No. CE 28/2004 (GE) Landslide Preventive Works at Po | It is assumed that the recommended mitigation measures would be properly followed up and adopted on site.<br><br>The identified sensitive receivers are based on site surveys conducted in February to July 2006.<br><br>The construction programme of the concurrent project (under Environmental Permit EP-235/2005/A) included in the cumulative impact assessment is based on information available in 2007.<br><br>The construction programme of the concurrent project (under Environmental Permit EP-272/2007) included in the cumulative impact assessment is based on information available in the corresponding EIA Report. | 3.4.4.4 (x) | See Annex 10.2.2 |

| Assessment Methodologies | Assessment Assumptions | Limitations of Assessment Methodologies / Assumptions | Prior Agreements with EPD | |
|---|---|---|---|---|
| | | | EIA Study Brief Clause Reference | Relevant Documentation |
| | Shan, Mid-levels – Design and Construction" (under Environmental Permit EP-235/2005/A) which will also be carried out by the Project Proponent and the "Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage" (under Environmental Permit EP-272/2007) to be carried out by Drainage Services Department. | | | |
| **Air Quality Impact** | | | | |
| The construction activities to be involved and the potential pollution sources were derived from similar projects carried out by the Project Proponent.<br><br>Air sensitive receivers (ASRs) were identified according to the criteria set out in the EIAO-TM.<br><br>The baseline condition was made reference to the latest 5-year annual average TSP levels measured at the Central/Western Air Quality Monitoring Station.<br><br>The air quality impact assessment for the Project was carried out qualitatively and follows Annex 4 and Annex 12 of the EIAO-TM. | Representative ASRs identified were Po Shan Mansions, Hamilton Court, Piccadilly Mansion, Ching Yuen Garden, No.21, 23, 24, 30 Po Shan Road, No.53 Conduit Road and Pok Fu Lam Country Park.<br><br>It is assumed that the quantity of dust generated by the soil nail installation, soil nail and raking drain installation would be limited.<br><br>It is assumed standard dust suppression measures as stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practice recommended in Section 7.16 of the EIA Report would be implemented to mitigate the dust impacts on the ASRs in the vicinity of the construction sites.<br><br>The concurrent and planned project included in the cumulative impact assessment is the project "Agreement No. CE 28/2004 (GE) Landslide Preventive Works at Po Shan, Mid-levels – Design and Construction" (under Environmental Permit EP-235/2005/A) which will also be carried out by the Project Proponent. | It is assumed that the recommended mitigation measures would be properly followed up and adopted on site.<br><br>The identified sensitive receivers are based on site surveys conducted in February 2007.<br><br>The construction programme of the concurrent project included in the cumulative impact assessment is based on information available in April 2007. | Not required | Not Applicable |
| **Waste Management** | | | | |
| The construction activities to be involved and the potential amount of waste to be generated were derived from similar projects carried out by the Project Proponent. | It is assumed that good site practice, proper waste management and effective disposal meeting the Waste Disposal Ordinance and Waste disposal (Chemical Waste) (General) Regulation would be implemented. | It is assumed that the recommended mitigation measures would be properly followed up and adopted on site. | Not required | Not Applicable |

| Assessment Methodologies | Assessment Assumptions | Limitations of Assessment Methodologies / Assumptions | Prior Agreements with EPD | |
|---|---|---|---|---|
| | | | EIA Study Brief Clause Reference | Relevant Documentation |
| The assessment of waste management implications for the Project follows Annex 7 and Annex 15 of the EIAO-TM. | | | | |

# *Annex 10.2.1*

## *Letter for Seeking Prior Agreement on Key Assessment Methodologies*

(Figures enclosed in the letter are Figures 4.4.1 to 4.4.4 and 5.1of this Report and are omitted in this Annex)

**Maunsell Geotechnical Services Ltd**
20/F Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, N.T., Hong Kong
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T +852 2302 1013 F +852 2730 7110 www.maunsell.aecom.com

Your Ref: (9) in Ax(1) to EP2/H11/06
Our Ref: VLYC:dmtw:60016710 (51505)/04/04/MGS/0642

By Fax & Hand (Fax No.: 2591 0558)

Environmental Protection Department Branch Office
28/F., Southorn Centre
130 Hennessy Road
Wan Chai, Hong Kong.

Attn: Mr. Steve Li

18 May 2007

Dear Sir,

**Agreement No. CE 28/2004 (GE)**
**Landslide Preventive Works at Po Shan, Mid-levels –**
**Natural Terrain Risk Mitigation Measures**

**Environmental Impact Assessment (Draft)**

We are the consultants to the Planning Division of Geotechnical Engineering Office (GEO) of Civil Engineering and Development Department (CEDD) under Agreement No. CE28/2004(GE) to carry out design and construction of Landslide Preventive Works at Po Shan, Mid-levels. Further to the Study Brief (ESB-158/2006) issued on 17Nov06 (your ref. (19) in EP2/H11/Q/06), we would like to seek your agreement on the following items according to the requirements in the Study Brief:

(a) Assessment points for construction noise impact assessment as shown in Drawing 5.1 attached (Study Brief Section S.3.4.3.2(iii)(b) );
(b) Visual envelope and key groups of visual sensitive receivers to be included in the visual envelop as shown in Drawings 4.4.1 to 4.4.4 (Study Brief Section S.3.4.2.5(i)&(ii) ); and
(c) Concurrent and planned projects to be included in the cumulative water quality impact – "Agreement No. CE28/2004 (GE) Landslide Preventive Works at Po Shan, Mid-levels – Design and Construction" under Environmental Permit EP-235/2005/A (Study Brief Section S.3.4.4.4(x) );

If you need further information, please contact the undersigned or our project environmental consultant, Mr. Fred K. K. Ng at 31058511. Thank you for your kind consideration.

Yours faithfully,

Y. C. Lam
Project Engineer

Encl.

cc. CGE/Planning – Attn: Mr. Jerry Ho (w/e) (1 copy) (Fax No. 2714 0247)
cc. DPO/HK, PlanD – Attn: Mr. T.C. Cheng (w/e) (1 copy) (Fax No. 2895 3957)

# *Annex 10.2.2*

# *Documentation of Prior Agreement on Construction Noise Impact Assessment Points and Concurrent and Planned Projects to be included in Cumulative Water Quality Impact Assessment*

(14) in Ax(1) to EP2/H11/06
本號 REF:
來號 R REF:
電話 NO.: 2835 1142
專真 NO.: 2591 0558
電郵 MIL:
網址 EPAGE: http://www.epd.gov.hk

Environmental Protection Department
Branch Office
28th Floor, Southorn Centre,
130 Hennessy Road,
Wan Chai, Hong Kong.

環境保護署分處
香港灣仔
軒尼詩道
一百三十號
修頓中心廿八樓

6 June 2007

Maunsell Geotechnical Services Ltd.,
20/F Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road,
Shatin, N.T., Hong Kong.

**By Post & Fax : 2730 7110**
**(Total 2 pages)**

(Attn.: Mr. Y.C. Lam, Project Engineer)

Dear Sir,

**Landslide Preventive Works at Po Shan, Mid-levels –**

**Natural Terrain Risk Mitigation Measures**

**Draft Environmental Impact Assessment (EIA) Report - Agreement on Key Assumptions**

We refer to you letter of 18.5.2007 enclosing the following assumptions for our agreement:

(a) assessment points for construction noise impact assessment;
(b) visual envelope and key groups of visual sensitive receivers to be included in the envelope; and
(c) concurrent and planned projects to be included in the cumulative water quality impact assessment.

2. As advised by DPO/HK, PlanD vide his memo of 25.5.2007, copy attached, the proposed visual envelope and key groups of visual sensitive receivers as shown in item (b) above is acceptable. We have no objection to the proposed assessment points for construction noise impact assessment in item (a) above. Regarding item (c) above, please note that the project "***Drainage Improvement in Northern Hong Kong Island - Hong Kong West Drainage Tunnel***" should also be included in the cumulative water quality impact assessment.

3. Please be reminded that the above advisory comment are given to facilitate early focus and resolution of environmental issues in the EIA study and shall NOT be construed in anyway as to pre-empt or prejudice any statutory decisions to be made under EIA Ordinance or any other applicable legislation. Should you have any queries concerning the above, please contact me or Mr. Victor Yeung of this Department at 2835 1155.

Yours sincerely,

(Steve T.S. LI)
Environmental Protection Officer
for Director of Environmental Protection



C.C. w/encl. CGE/Planning, GEO, CEDD (Attn: Mr Jerry HO) Fax : 2714 0247
DPO/HK, PlanD (Attn: Mr T.C. Cheng) Fax : 2895 3957
AFCD (Attn: Ms Karrie WU) Fax : 2377 4427

Internal w/encl. S(MA)3, S(MA)4, S(MA)5, [IIKI Projects\Po Shan LPM EIA\Admin\07JUN06L1.doc]

# *Annex 10.2.3*

# *Documentation of Prior Agreement on Visual Envelope and Key Groups of Visual Sensitive Receivers*

Please quote our reference in future correspondence

Urgent by Fax

(3) (13)

**MEMO**

| | | | |
|---|---|---|---|
| *From* | DPO/HK, Plan D | *To* | DEP |
| *Ref.* | ( ) *in* HK-R/OTH/33 Pt. 30 | *(Attn :* | Ms. Steve T.S. LI |
| *Tel. No.* | 2231 4941 | *Your Ref.* | (1) *in* Ax(1) to EP2/H11/06 |
| *Fax No.* | 2894 9502 | *Dated* | 21.5.2007 *Fax No.* 2591 0558 |
| *Date* | 25 May 2007 | *Total Pages* | 1 |

**Landslip Preventive Works at Po Shan, Mid-Levels –**
**Natural Terrain Risk Mitigation Measures**

**EIA Study Brief No. ESB-158/2006**

I refer to your memo under reference and would like to advise that the visual envelop and the key groups of visual sensitive receivers as shown in item (b) of Maunsell Geotechnical Services Ltd.'s letter dated 18.5.2007 is acceptable.

(T.C. CHENG)
for District Planning Officer/Hong Kong
Planning Department

Internal
CTP/UD&L (Attn. : Mr. NG Shui-pui and Miss Winnie CHU)