Agreement No. CE 1/2013 (CE)
Site Formation and Associated Infrastructural Works for Proposed Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery – Design and Construction

Conditions and Recommendations - Response

	Comments received:	**Responses:**
(1)	**From : CEDD** **Date : 31 May 2016** **Recommendations of EIA Subcommittee on the EIA report on "Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery"** The EIA Subcommittee deliberated the EIA report on "Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery" on 20 May 2016 and recommended the full Council to endorse the EIA report with the following conditions and recommendations: **Conditions of Endorsement** The Project Proponent shall - The need for and extent of the road widening works	
(a)	In consultation with the relevant government departments, review the need for and extent of the widening of the existing Lin Ma Hang Road and Sha Ling Road with a view to restricting the carriageway to 6-metre wide, with the use of passing lane and / or passing bay where necessary and to provide pedestrian walkway on one side of the road only;	We have held a meeting and consulted with Transport Department (TD) and Hong Kong Police Force (HKPF) to review the need for and the extent of the widening of the existing Lin Ma Hang Road and Sha Ling Road. The salient points of the discussion are as follows: (a) For Sha Ling Road, TD required that the carriageway width must be at least 7.3m to meet the minimum standard under the Transport Planning and Design Manual (TPDM), in particular there are safety concerns as the maximum gradient of the widened Sha Ling Road is 7.5%, which is more than the desirable gradient (4%). (b) In view of the need for crowd management and control during festive periods and to handle unexpected events, HKPF required that footpaths on both sides of Sha Ling Road must be provided to segregate uphill and downhill pedestrian flows as Sha Ling Road is steep and the pedestrian movement is slow, in particular for grave sweepers carrying offerings. Segregated vehicular / pedestrian access to the columbarium must also be required. (c) For Lin Ma Hang Road, TD required that at least 7.3m wide carriageway must be provided to meet the minimum standard under TPDM for safe usage by double decker buses. The detailed justifications for widening of the existing Sha Ling Road and Lin Ma Hang Road are attached at

		Attachment 1. Meanwhile, from the environmental point of view, the woodland along Sha Ling Road is located near to the north of the village area near Sha Ling Road. The major habitat along Sha Ling Road is upland grassland as presented in the EIA Report. The current alignment will avoid 260,000m^3 (EIA Report Section 2.5.1.7) spoil but encroach onto a woodland of less than 0.01ha (Less than 1% of the total woodland loss). Further optimizing the width of Sha Ling Road would therefore have limited benefit in terms of area of woodland loss. In addition, habitat fragmentation is not anticipated as most of the non-volant terrestrial fauna access at the northern side of Sandy Ridge according to the ecological survey. According to the ecological survey findings, most of the areas along Lin Ma Hang Road has been disturbed. The current woodland loss along Lin Ma Hang Road is about 0.2ha and of low ecological value. In order to address concern for ACE Members to increase the woodland compensation, another 0.8ha area of land has been identified. Together with the original 0.6ha of woodland compensation, the total area has been increased to 1.4ha, which would be sufficient to compensate for the 0.2ha low value woodland loss along Lin Ma Hang Road. (Please see the response to (d) below.) Nevertheless, in view of EIASC members' concerns, the following actions would be taken: (1) For Sha Ling Road, a greening plan along Sha Ling Road would be prepared and submitted with a view to minimizing the impact of the proposed road widening works on the rural character of the area concerned. (2) For Lin Ma Hang Road, the width of the proposed footpath would be reduced as far as practicable subject to the actual site conditions, for example at locations with no pedestrian access to nearby villages or other points of interest.
(b)	Alternative methods of design and construction of the viaduct to span across the river course should be used such that no structures, both temporary and permanent, would affect or impact on the water course in the works area.	Noted. It should be noted that the design of the viaduct piers has avoided the seasonal watercourse and there will be no encroachment. The seasonal watercourse is shallower in gradient than those running off the hillside. It is largely dry with flows occurring only after periods of sustained rainfall. This seasonal watercourse is heavily vegetated with common herbs, dragonfly and butterfly species. The permanent or temporary works of the viaduct has been and will be designed to avoid the seasonal watercourse. The arrangement and photo of the seasonal watercourse can be referred to **Attachment 2**.
	<u>Ecological aspects</u>	
(c)	To include a Monitoring and Survey Plan for Golden-headed Cisticola as part of the Environmental Monitoring and Audit (EM&A) programme, which should include an Action Plan in	Noted. The EM&A Manual Sections 10.2.1.15 to 10.2.1.19 (**Attachment 3**) have mentioned the good site practices during construction phase such as delineation of works site and fence off areas with some ecological value and no on-site burning of

	response to any irregularities identified, to the Director of Agriculture, Fisheries and Conservation Department (DAFC) for approval.	wastes. Particular mitigation measures for species of conservation concern (including Golden-headed Cisticola) such as precautionary checks before vegetation clearance, conducting vegetation clearance during non-breeding season, setting up of exclusion zone from nests and monitoring of breeding territory etc. have also been included. Nevertheless, a detailed Action Plan will be submitted to AFCD for approval before the commencement of works.
(d)	To identify and quantify the area of woodland loss with moderate or high ecological value and provide at least 1:1 compensatory woodland planting and submit a detailed Compensation Planting Plan to the DAFC for approval. Suitable experts should be engaged to advise on aspects of plant species selection, planting scheme and schedule (including sourcing or nursery propagation of the required species), fire control, and post-planting monitoring and maintenance. Action targets should be set using percentage canopy cover formation for each planting plot to ensure effective woodland compensation in the long term.	While we consider the current compensation / enhancement scheme would have achieved the requirements under the EIAO, the comments from ACE members are well noted. Hence, another search has been conducted to identify any area in the vicinity that would be suitable for woodland enhancement. **Attachment 4** shows an area to the north of the site that would be suitable. This area is about 0.8ha in size with a terrain gradient of around 20 degree. The current habitat of this area is grassland and is located next to some existing plantation. Together with the recommendation of 0.6ha to be compensated / enhanced in the EIA, the total area of woodland to be compensated / enhanced will be increased from 0.6ha to 1.4ha. A detailed Compensation Planting Plan will be submitted to DEP / DAFC for approval prior to commencement of construction. The total area of woodland affected irrespective of their ecological value (i.e. including all woodland with "Low" and "Low to Moderate" value) is 1.2ha. The total area of 1.4ha of compensation / enhancement woodland have achieved a ratio of more than 1:1. If only those woodlands with "Low to Moderate" value are taken into account in the calculation of the compensation/enhancement ratio, the area of woodland that would be affected is 0.6ha. The total area of 1.4ha of compensation / enhancement woodland would achieve a ratio of approximately 2.3.
	<u>Recommendations</u>	
(e)	Effective and innovative measures to promote the use of green transport including the use of electric buses should be explored and implemented as far as practicable;	The bus companies in HK have been proactive in introducing e-buses in HK to abate air quality issue. A total of four models of e-buses have already been approved by Transport Department and under pilot test for some bus routes. It is expected that e-buses will become more popular in the future.
(f)	Effective measures should be explored to promote walkability and to encourage visitors to reach the columbarium, crematorium and related facilities on foot;	Noted. The proposed widening of Sha Ling Road is designed with new footpath on both sides to allow segregation of uphill and downhill pedestrian flow during festive periods. Signage will also be placed at suitable locations in Sandy Ridge Cemetery to guide the pedestrian.

(g)	For the purpose of further reducing traffic noise and to minimize the use of visually intrusive noise barriers, low noise road surfacing materials should be used wherever practicable;	Noted. The EIA Report has explored and recommended the use of low noise road surfacing materials to minimize the need for noise barrier. However, low noise road surfacing alone is not sufficient to meet the statutory noise performance. Hence, a series of noise barriers has been recommended as direct noise mitigation measures at concerned sections of Lin Ma Hang Road near San Uk Ling Village. For Sha Ling Road, the concerned section with proposed noise barriers would have an average gradient of about 6%. According to the Guideline Notes on Noise Reducing Road Surfacing by Highways Department, low noise road surfacing could only be applied on low speed road with the condition that it is not an inclined road. Hence, low noise road surfacing is not suitable for this section of Sha Ling Road and therefore noise barriers are recommended as direct mitigation measures at Sha Ling Road.
(h)	Surplus inert construction and demolition materials generated from the project should be re-used as far as practicable. Alternative construction sites in addition to the proposed sites at Tung Chung and the third runway of the Hong Kong International Airport should be explored for re-use of the excavated materials; and	Noted. We will liaise with other concurrent projects to explore the reuse of the surplus inert construction and demolition materials, e.g. Integrated Waste Management Facilities at Shek Kwu Chau, Development of Lok Ma Chau Loop, etc.
(i)	The effectiveness and hence the need of the proposed Grassland Reinstatement Plan for enhancing the ecological compensation of the grassland should be reviewed.	The Grassland Reinstatement Plan aims to mitigate for loss of upland grassland and maintain connectivity along the northern edge of the site. While hydroseeding would be one of the feasible options, the current Grassland Reinstatement Plan aims to recreate the vegetation community and structure as it currently exists on-site. The upland grassland within the EIA Study Brief Boundary were not only found to be important for Golden-headed Cisticola, but also supported a rich community of butterfly species. Given that certain area of upland grassland will be lost, it is considered that mitigation for this loss was desirable and that for the proposed grassland mitigation measures (based on the recreation of natural upland grassland using stored topsoils) to provide vegetation for maintaining connectivity, and measures to re-create the existing habitat were recommended. These measures are described in Sections 9.7.2.1 – 9.7.2.4 of the EIA (**Attachment 5**). Stockpiling of top soil for subsequent reinstatement is a common practice in Hong Kong. It is considered doing typical hydroseeding work and allowing natural grass invasion to take place is less likely to provide the habitat required.

Attachment 1

Justifications of Road Widening at Sha Ling Road

Currently, all the existing cemeteries are lacking of proper pick-up / drop-off spaces and the public transport services are not adequate to serve huge amount of grave sweepers during the festive period. Therefore, special traffic arrangement or road closure is implemented during festive period and most of the grave sweepers need to walk uphill to cemeteries. It is very harsh and tough for the grave sweepers to walk uphill. The circumstance is even worse for the grave sweeper carrying their offerings under the hot / adverse weather. Besides, the issue of more elderly people visiting the cemetery in view of aging population will further aggravate the situation. This has been experienced every year in the existing cemeteries. For example,

Junk Bay Chinese Permanent Cemetery	**Cemeteries at Chai Wan**
Number of niches, ossuary and coffin spaces : 121,470	Number of niches, coffin graves, urns and ossuaries : 204,437
• Lacking of spaces for providing proper pick-up/ drop-off spaces and only single deck buses operate on sub-standard access road with steep gradient. • Most grave sweepers have to walk more than 45 mins via Lei Yue Mun Road and Ko Chiu Road from MTR Yau Tong station or 50 mins from the MTR Tiu Keng Leng station	• Lacking of spaces for providing proper pick-up/ drop-off spaces and hence bus services are limited and not adequate to serve huge amount of grave sweepers. • The existing two-way road is needed to be narrowed down for one-way circulation to facilitate the crowd management. • However, most grave sweepers have to walk more than 40 mins uphill along the existing narrow footpaths with crowd management.
	

To avoid the unpleasant and discomfort experience of walking uphill, the design of the proposed columbarium development at Sandy Ridge will adopt special bus services to provide point-to-point access directly to the columbarium buildings from MTR stations. Most of the people will not need to walk a long distance and uphill. To realize this, a

large pick-up/drop-off area has been identified at Sandy Ridge Cemetery adjacent to the columbarium buildings located uphill.

Currently, Sha Ling Road is a substandard road with a width of about 3m. In order to allow the normal operation of the columbarium and crematorium / funeral parlour and the operation of special buses, the carriageway should need to be widened to at least 7.3m to meet the minimum standard under the Transport Planning and Design Manual (TPDM), in particular there are safety concerns as the maximum gradient of the widened Sha Ling Road is 7.5%, which is more than the desirable gradient (4%). The standard 7.3m wide carriageway can meet the Hong Kong Police Force (HKPF)'s requirement to allow alternative for emergency vehicles bypassing in case of emergency and unexpected events. In addition, it can provide a passing lane / emergency access next to the bus corridor, in case of break down of bus and blockage of a traffic lane.

There is no footpath at the existing Sha Ling Road. In view of the need for crowd management and control during festive periods and to handle unexpected events, HKPF required that footpaths on both sides of Sha Ling Road must be provided to segregate uphill and downhill pedestrian flows as Sha Ling Road is steep and the pedestrian movement is slow, in particular for grave sweepers carrying offerings. Segregated vehicular / pedestrian access to the columbarium must also be required.

Justifications of Road Widening at Lin Ma Hang Road

To address the concerns of North District Council members to avoid increase of the traffic burden of Sheung Shui and Fanling areas, it is proposed to divert some of the special buses to access the columbarium development at Sandy Ridge Cemetery via Liantang/ Heung Yuen Wai and Lin Ma Hang Road. There was also strong request for the hearses to avoid passing through the Sheung Shui area and Man Kam To Road with dense residential developments.

It is recommended in the endorsed Traffic Impact Assessment report that the special buses to/from the proposed pick-up/drop-off areas (i.e.: at MTR Fanling Station and Pak Wo Road near Flora Plaza) will use Liantang/ Heung Yuen Wai and Lin Ma Hang Road to access the columbarium development site.

The length of the existing Lin Ma Hang Road (between Ping Yuen River and Man Kam To Road) is about 1.4km. Currently, it is a sub-standard road with 6m wide carriageway for two-way traffic. In general, there is 1m to 1.5m wide footpath on one side of the road, while there is 1m to 1.5m wide footpath on both sides at a few locations. On both sides of this section of Lin Ma Hang Road, there are existing villages, namely Muk Wu Village, Nga Yiu Village, San Uk Ling Village.

Due to the safety reason, it is necessary to carry out improvement works to widen the carriageway of this section of Lin Ma Hang Road to at least 7.3m carriageway to meet the minimum standard under the TPDM. As there are local villagers living on both sides of Lin Ma Hang Road, it is proposed to provide 2m footpath on both sides of the road to enhance the safety of villagers.

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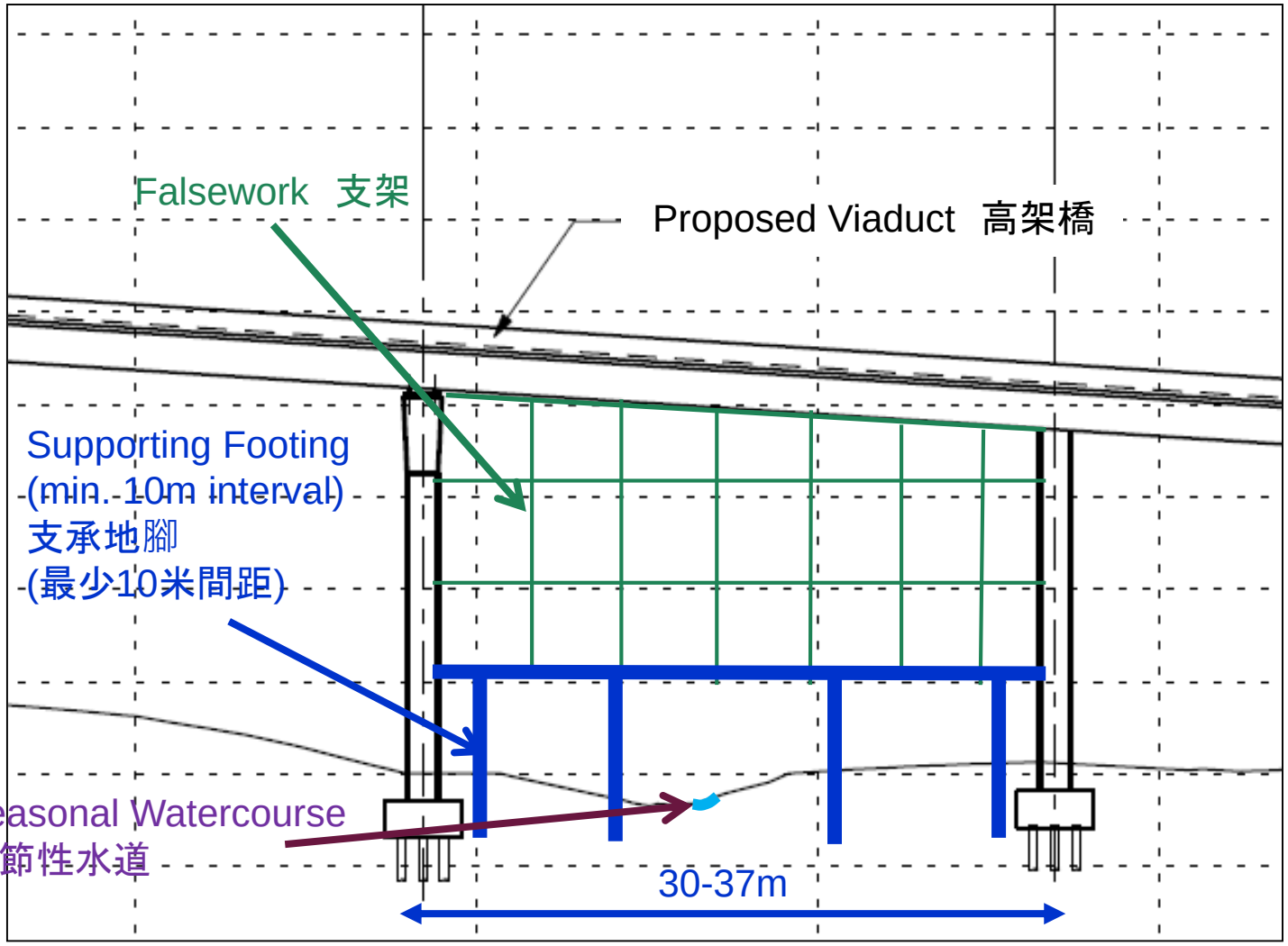
Attachment 2

Key Public Comments – Ecology 主要公眾意見－生態

Footings of the falseworks will be designed to avoid encroachment on the watercourse
支架的地腳設計會避免侵入水道



ARUP

Seasonal watercourse under viaduct

Attachment 3

10.2.1.14 Whilst disturbance-sensitive species, notably mammals, have been recorded in the Project boundary, many are nocturnal and there is a high availability of suitable habitats in other areas locally. The wet woodland/woodland complex to the west of the development has a good assemblage of mammals. No piling work will be conducted for the slope works close to this area and noise will be restricted to the construction of a retaining wall structure and backfill in order to create the slope. Works will be restricted to daytime and any construction lighting should be designed and positioned as to not impact on adjacent ecologically sensitive areas. It is therefore considered, through phasing of the site formation works and implementation of appropriate mitigation measures to address noise impacts (see Section 5 of the EIA Report) the potential disturbance impact on the individuals would not constitute significant impact on their population in Hong Kong and therefore the potential disturbance impact on these species is considered as minor.

Good Site Practices (Construction Phase)

10.2.1.15 In order to demonstrate ecological awareness and to minimise the risk of indirect impacts from water pollution, a series of good site practices should be adopted by site staff throughout the construction phase at each works site. Such measures include the containment of silt runoff within the Project boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal. Furthermore, to reduce the potential for hill fires appropriate measures should be adopted keep sources of fire (over heated machinery, hot works, smoking areas) away from areas of upland grassland. These are as follows:

- Put up signs to alert site staff about any locations which are ecologically sensitive and measures to prevent accidental impacts;
- Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses;
- Prohibition of soil storage against trees or close to waterbodies;
- Delineation of works site to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value;
- No smoking, hot works or sources of fire close to upland grassland;
- No on-site burning of waste; and
- Waste and refuse in appropriate receptacles.

Particular Mitigation Measures for Species of Conservation Concern (Construction Phase)

10.2.1.16 There will be a certain amount of vegetation clearance and tree felling required. Many of the trees affected are landscape species; these are often introduced exotic species, with little ecological value, and have been planted for aesthetic appeal and as part of the landscape rehabilitation scheme. The ecological impacts arising from the loss of these trees are not considered to be significant. However, some compensation planting and transplanting of trees will be required only for mitigating landscape and visual impacts (see Section 11 of the EIA Report).

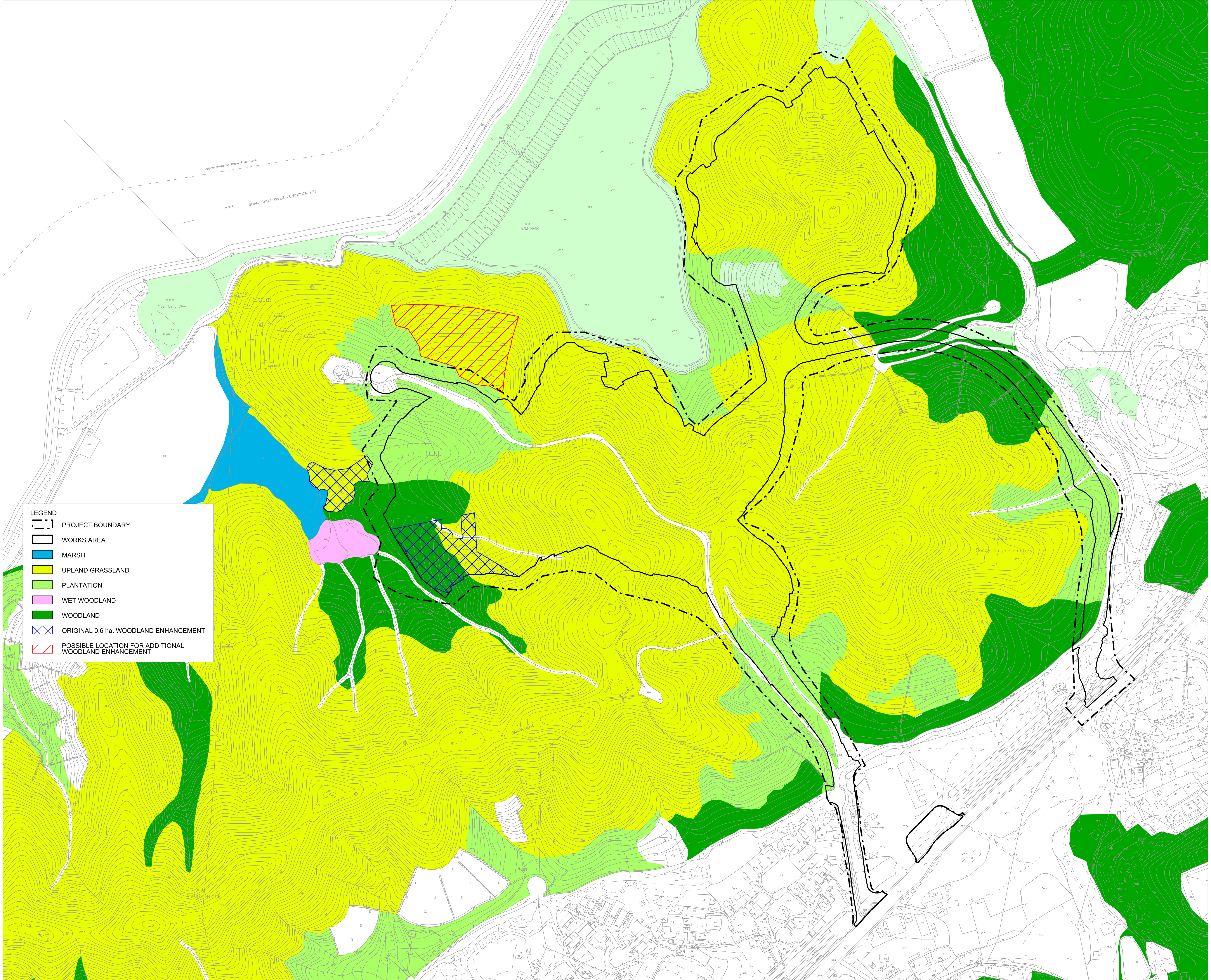
10.2.1.17 Suspected breeding of several bird species (including Chinese Francolin, Savannah Nightjar, Golden-headed Cisticola and Plain Prinia) was observed in the upland grassland. Nesting birds would be impacted by tree felling and vegetation removal including cutting of grassland. All nesting birds are protected under Cap. 170. Precautionary checks by a suitably experienced ecologist of the vegetation for the presence of nesting birds should be carried out in the breeding season (February to July) before vegetation clearance. These impacts can be avoided by conducting vegetation clearance during the non-breeding season (tentatively August-January) and phased through the project period to minimise impacts.

10.2.1.18 Surveys for breeding birds should follow those outlined for Territory Mapping Methods (Bibby et al. 2000). Areas proposed for vegetation clearance should be separated into plots, the size of which will dependant on the programme of works. Each plot will be walked at a slow pace and the route should approach 50m of every point of the plot and cover as much ground as possible. All birds and their breeding behaviour (including but not limited to direct sight records, calling or singing adults, adults giving alarm calls or other vocalisations which may have strong territorial significance, aggressive encounters between adults, carrying of nesting material, food or faecal sacs, direct observations of birds sitting on, or flushed from, nests) should recorded from these plots. "Pishing" or flushing of birds may help increase observations of breeding territories. These observations should be mapped as accurately as possible to build a picture of breeding territories within each plot, and subsequently the Project site, to aid works programmes. Where breeding territories have been confirmed, a suitable exclusion zone from the nest (distance dependant on species) should be set up (using appropriate demarcation fencing) to prevent unauthorised access or accidental disturbance. It should be noted that nest-finding can be extremely difficult and time consuming and a conservative approach may need to be adopted when providing an exclusion zone. These breeding territories should be monitored weekly until young have fledged and are no longer dependant, or territorial activities have ceased (e.g. through abandonment of nest); following departure from the nest, vegetation clearance can then proceed.

10.2.1.19 It is suggested that twice-weekly surveys be conducted, commencing within one hour of sunrise, in order to record new breeding territories and monitor any identified territories. Evening surveys may also be required to survey for territorial and breeding nightjars.

Mitigation for Impacts to Water Quality and Hydrology (Operational Phase)

Attachment 4



LEGEND
PROJECT BOUNDARY
WORKS AREA
MARSH
UPLAND GRASSLAND
PLANTATION
WET WOODLAND
WOODLAND
ORIGINAL 0.6 ha. WOODLAND ENHANCEMENT
POSSIBLE LOCATION FOR ADDITIONAL WOODLAND ENHANCEMENT
SHAM CHUN RIVER (SHENZHEN HE)
Sandy Ridge Cemetery

Attachment 5

Potential Impact	Impact Severity	Mitigation required
Indirect impacts on mammals species of conservation concern	Low	No
Indirect impacts on birds species of conservation importance	Low for Golden-headed Cisticola; Very low-low for other bird species	No
Indirect impacts on reptile species of conservation importance	Low	No
Indirect impacts on amphibians species of conservation importance	Low	No
Indirect impacts on dragonflies species of conservation importance	Low	No
Indirect impacts on butterflies species of conservation importance	Low	No
Indirect impacts on aquatic fauna species of conservation importance (Small Snakehead and Topmouth Gudgeon)	Low	No
Indirect impacts on aquatic fauna species of conservation importance (*Somanniathelphusa zanklon*, *Aquatica leii*)	Low to Moderate	Yes
Cumulative Impacts		
Construction and operational phase impacts in respect of habitats and species	Low	No

9.7 Mitigation Measures

9.7.1.1 Where potential ecological impacts are considered to be higher than of low significance, mitigation measures are required to reduce these impacts to acceptable levels. In accordance with the EIAO, these measures follow the principles of avoidance, minimisation and compensation (in that order of preference).

9.7.1.2 During the Project, both construction and operational phases, areas of low ecological value have been targeted as areas of development to avoid any impacts on ecologically sensitive areas.

9.7.2 Mitigation Measures for Permanent Direct Impacts

Mitigation for loss of Upland Grassland

9.7.2.1 A significant portion of upland grassland (approx. 10.4ha) will be lost as part of the work for the columbarium. Upland grassland is particularly important as both breeding and foraging habitats for the bird, Golden-headed Cisticola, and the rare butterfly, Small Three-ring. Orchids are also present in this habitat (see next section for more details).

9.7.2.2 As part of the development a series of cut and filled slopes will be required to stabilise the platform sections of the crematorium. It is proposed that by collection of topsoil or turves from the development area and storing these appropriately during the construction phase, these can be established on the stabilising slopes once constructed, in order to provide species diversity and composition to adjacent habitats. The area of reinstatement will be maximised and also subject to different constraints such as landscape requirements, but is anticipated to cover an area of approximately 0.9ha. Once the surface soils have weathered, natural colonisation and natural succession will produce grasslands of similar composition because of the proximity of a good seed source in the translocated turves and the other adjacent grasslands that were retained in situ.

9.7.2.3 A Grassland Reinstatement Plan will be prepared by a qualified ecologist/botanist with full details of the findings of a baseline grassland survey, the practical details and methodology of the physical excavation, transport and storage or turves/topsoil and their subsequent reinstatement once the receptor sites have been established, along with an implementation programme of reinstatement, post-reinstatement monitoring and maintenance programme.

9.7.2.4 The Plan should be submitted to and approved by EPD prior to construction. The approved reinstatement works will be supervised by a qualified ecologist/botanist with relevant experience in habitat reinstatement.

Flora Survey and Transplantation Plans

9.7.2.5 To mitigate for impacts to the flora of conservation importance including, but not limited to *A. sinensis*, Bamboo Orchid and Toothed Habenaria, vegetation surveys of impacted works areas should be conducted prior to any vegetation removal. The survey will ascertain the presence, as well as update the conditions, number, locations and habitat types of these species and other rare/protected plant species (if any) identified within construction works areas. The survey will determine the number and locations of the affected individuals of floral species of concern and evaluate the suitability and/or practicality of the transplantation. The survey will be conducted by a qualified ecologist/botanist. A Transplantation Plan will be prepared if needed as concluded in the Vegetation Survey Report.

9.7.2.6 A Transplantation Plan will be prepared by a qualified ecologist/botanist with full details of the findings of the comprehensive vegetation survey (including number and locations of the affected individuals, and assessment of suitability and/or practicality of the transplantation), locations of the receptor site(s), transplantation methodology, implementation programme of transplantation, post-transplantation monitoring and maintenance programme. The Plan should be submitted to and approved by EPD prior to construction. The approved transplantation works will be