

Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery

Project Profile

(prepared in accordance with
the Environmental Impact Assessment Ordinance (Cap. 499))

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Civil Engineering and Development Department

Project Profile

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Appendix 1 -

Layout Plan for Site Formation and Associated Infrastructural Works for Development of
Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery

1. BASIC INFORMATION

1.1 Project Title

- 1.1.1 Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery (comprising the Sandy Ridge Urn Cemetery and Sandy Ridge Cemetery).

1.2 Purpose and Nature of Project

- 1.2.1 As stipulated in the 2011-12 Policy Agenda, the Administration will conduct technical feasibility studies of shortlisted sites for columbarium development across the territory to increase supply of columbarium facilities. While Sandy Ridge Cemetery had been identified as a suitable site to develop the columbarium, crematorium and related facilities (C&C), it is necessary to carry out site formation and associated infrastructural works at Sandy Ridge Cemetery before taking forward the C&C development project.
- 1.2.2 To maximize the convenience to the public, it is planned to provide synergistic one-stop services at the Sandy Ridge Cemetery by providing crematorium and funeral parlour together with columbarium in the development. The proposed C&C facilities at Sandy Ridge Cemetery will be by far of the largest scale of similar public facilities in Hong Kong. It will be a place where loved ones can rest in eternal peace in a dignified manner, and where family members, relatives and friends can part with and mourn for their loved ones in reasonable privacy, and where visitors will find it pleasant to stay and admire the landscape and the greenery.
- 1.2.3 In March 2011, the Food and Health Bureau (FHB) engaged Civil Engineering and Development Department (CEDD) to conduct a Feasibility Study (FS) on the site formation and associated infrastructural works for the development of columbarium facilities providing at least 200,000 niches, a crematorium, a funeral parlour and a visitor service centre at Sandy Ridge Cemetery. The FS was substantially completed in September 2012. The FS recommended to commence the site formation works by phases with the handover of the formed land in 2019 at the earliest to suit the construction of building works of the C&C facilities for completion in 2022. We have formulated the layout plan of the site formation and associated infrastructural works for the C&C development.
- 1.2.4 The Project comprises the site formation and associated infrastructural works for the C&C facilities at Sandy Ridge Cemetery. The building works of the C&C facilities would be constructed under a separate project. Thus, the Environmental Impact Assessment (EIA) of the crematorium which is a designated project, would be conducted separately in future by the building works agents.

1.3 Name of Project Proponent

- 1.3.1 The Project Proponent is Land Works Division, Civil Engineering Office, Civil Engineering and Development Department of the Government of the Hong Kong Special Administrative Region.

1.4 Location and Scale of Project and History of the Site

- 1.4.1 The Project layout plan is shown at **Appendix 1**.
- 1.4.2 To the north of the Project site, across Shenzhen River, there are residential and commercial areas in Shenzhen. To the east lie the Man Kam To Boundary Control Point

(BCP) and San Uk Ling (an indigenous village), and to the south are rural settlements including that of Sha Ling. The existing Government, Institution or Community facilities including the Border District Police Headquarters also lie to the south. To the west lie Lo Wu Mass Transit Railway (MTR) Station, Lo Wu BCP and the hilly terrain of Tai Shek Mo west of the Ng Tung River. Sandy Ridge Cemetery is currently under the control of Food and Environmental Hygiene Department (FEHD).

1.4.3 Based on the recommendations of the FS, the works of the Project mainly comprises the following:

- (i) site formation of about 10 hectares of land for development of C&C facilities at Sandy Ridge Cemetery;
- (ii) associated environmental mitigation measures, landscaping works, geotechnical works, drainage and sewerage works, waterworks, roadworks including tunnel, viaducts and ancillary works to existing road network in the North District (e.g. road widening works at Choi Yuen Road, Sheung Shui) and other utilities services, etc.; and
- (iii) a pedestrian walkway between Lo Wu MTR Station and the columbarium facilities at Sandy Ridge Cemetery and associated works.

1.4.4 During festive periods, special bus service is proposed in the FS to operate between the Sheung Shui MTR Station and the pick-up / drop-off area at the Sandy Ridge Cemetery; and between the Yuen Long / Kam Sheung Road MTR Station and the pick-up / drop-off area at the Sandy Ridge Cemetery. At Sheung Shui, on-street pick-up / drop-off arrangement at Choi Yuen Road and San Wan Road respectively for visitors is proposed. The eastbound of Choi Yuen Road (about 400m in length) needs to be widened from 1-lane to 2-lane carriageway (i.e. widening by about 3m) to provide an additional traffic lane for bus stacking. At the Yuen Long / Kam Sheung Road MTR Station, the pick-up / drop-off arrangement for visitors is proposed to make use of the existing nearby public transport terminus / public transport interchange.

1.5 Number and Types of Designated Projects to be Covered by the Project Profile

1.5.1 The following elements of the Project are identified in the FS as Designated Projects (DPs) under the Schedule 2 of Environmental Impact Assessment Ordinance (EIAO):

- (i) River training/ diversion under the site formation works - a drainage channel or river training and diversion works which discharges or discharge into an area which is less than 300m from the nearest boundary of an existing conservation area [Item **I.1(b)** of Schedule 2, Part I of EIAO]
- (ii) Viaducts V1, V2, V3 and V4 – road bridges more than 100m in length between abutments [Item **A.8** of Schedule 2, Part I of EIAO]
- (iii) Road widening works at Choi Yuen Road, Sheung Shui – improvements to an existing district distributor road [Item **A.1** of Schedule 2, Part I of EIAO]

1.6 Name and Telephone Number of Contact Person

All queries regarding the Project can be addressed to:

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2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1 Project Implementation

- 2.1.1 It is proposed to implement the Project by employing consultants to undertake the detailed design, tendering and supervision of construction works of the Project (the Works).
- 2.1.2 The Works will be carried out by contractors to be appointed under various works contracts.

2.2 Project Time Table

- 2.2.1 The detailed design of the Works is targeted to commence in mid 2013 for completion in 2016. The Works programme is as follows:

Works	Completion
Site formation works	2019
Infrastructural works	2022

2.3 Interactions with Other Projects

- 2.3.1 The following projects may have interface with the Project:
- (i) Construction of a Secondary Boundary Fence and New Sections of Primary Boundary Fence and Patrol Road;
 - (ii) North East New Territories New Development Areas; and
 - (iii) Development of Organic Waste Treatment Facilities Phase II.

3. POSSIBLE IMPACT ON THE ENVIRONMENT

3.1 Noise

Construction Impacts

- 3.1.1 Potential noise impacts on noise sensitive receivers (NSRs) are associated with construction activities and powered mechanical equipment. The key construction activities which would create noise impacts are site formation works, roadworks, construction of pedestrian walkway, etc.

Operation Impacts

- 3.1.2 The increased traffic on Choi Yuen Road and Man Kam To Road (due to bus services connecting Sheung Shui / Yuen Long / Kam Sheung Road MTR Station and the Project site) during the festive days is identified as the potential source of impact during the operation phase.

3.2 Waste Management

Construction Phase

- 3.2.1 The types of waste generated during the construction of the Project include:

- excavated material from site formation works; and
- general refuse from workers.

- 3.2.2 The Project site is located at an undeveloped rural area. It is unlikely to have contaminated land within the Project site. Nevertheless, the possibility of land contamination would be examined in the EIA Study.

Operation Phase

- 3.2.3 No waste associated with the operation of the Project is anticipated.

3.3 Air Quality

Construction Phase

- 3.3.1 Dust is the key concerned air pollutant arising from the Works. The dust generating construction works would include excavation, filling, materials handling and trucks movement on main haul roads within the works area.

Operation Phase

- 3.3.2 For providing sufficient public transport for visitors during peak periods, more buses will be required for picking up visitors at Choi Yuen Road, Sheung Shui. Emissions from additional traffic on Choi Yuen Road would be a concern.

3.4 Water Quality

Construction Phase

- 3.4.1 Key concerns of the Project regarding water quality issues are mainly related to the potential construction run-off during the construction phase.

Operation Phase

- 3.4.2 Impact on the water quality is unlikely. Any possible impact would be investigated in the EIA Study.

3.5 Ecology

- 3.5.1 The potential ecological impacts arising from the Project are:

Construction Phase

- Direct habitat loss, particularly the loss of existing woodland resulting from site clearance prior to the site formation and infrastructural works;
- Habitat fragmentation and isolation resulting from Project site land-take, including potential restriction of wildlife utilisation of the area (i.e. transit, feeding and roosting);
- Potential impact on fauna species of conservation interest;
- Possible disturbance to the surrounding habitats and associated wildlife due to construction activities such as construction site run-off, inappropriate storage or dumping of construction materials, construction noise, etc.; and
- Possible indirect impacts on the Conservation Area (CA) mitigation wetlands should watercourses within the Project site and its vicinity be affected and carry pollutants into the wetland habitat.

Operation Phase

- Ecological barrier effect to birds imposed by the Project (especially the viaduct sections); and
- Impacts on surrounding habitats and associated wildlife due to uncontrolled human activities and disturbance during Project operation, particularly in the period of Ching Ming and Chung Yeung Festivals and including indirect impacts on the CA mitigation wetlands.

3.6 Landscape and Visual

- 3.6.1 The expected sources of landscape and visual impacts arising from the Project would include the following:

Construction Phase

- Construction of road system; and
- Widening of Choi Yuen Road.

Operation Phase

- Landscaping works (e.g. existing tree treatment, transplanted trees, planting on roadside, slopes, compensatory planting).

3.7 Cultural Heritage

Construction Phase

- 3.7.1 Due to large separation distance to the Project site, no potential impact on the low archaeological potential area of Yuen Leng Chai site is anticipated.

- 3.7.2 There may be potential construction vibration impact to the Grade 2 historic building (the Nam Hang MacIntosh Fort), four clan graves and one landscape feature. Removal of five clan graves may be required.

Operation Phase

- 3.7.3 Direct and indirect cultural heritage impacts during the operation phase are not expected.

4. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

4.1 General

- 4.1.1 The Project site is located to the east of Lo Wu MTR Station. It consists of a large number of graves on an expanse of vegetated terrain with no major building structures apart from the historical MacIntosh Fort. The existing topography of the Project site is hilly and undulating with a series of valleys and ridges. Sha Ling Road and Lo Wu Station Road are the only roads to connect the Project site with its surroundings, which are characterised by low-rise and low-density rural villages and agricultural land.
- 4.1.2 Choi Yuen Road is located next to Sheung Shui MTR Station and is in the close vicinity of Choi Yuen Estate and some residential buildings.

4.2 Noise

- 4.2.1 The representative noise sensitive receivers (NSRs) in the vicinity of the Project site include a number of existing village houses and Lo Wu Public School.
- 4.2.2 Some of the NSRs, e.g. Choi Yuen Estate, Choi Po Court and Yuk Po Court, are in close proximity to Choi Yuen Road. It is anticipated that they may be adversely affected by the traffic noise impact during festive periods.

4.3 Air Quality

- 4.3.1 Representative air sensitive receivers (ASRs), both existing and planned, in the vicinity of the Project site include offices, Lo Wu Public School, Livestock Waste Control Centre, Border District Police Headquarter and some existing village houses. The nearest ASR is located at least 250 m away from the Project site, significant air quality impact to the nearby ASRs due to the construction and operation of the Project is unlikely.
- 4.3.2 Residential developments, e.g. Choi Yuen Estate, Choi Po Court and Yuk Po Court, in close proximity to Choi Yuen Road would be potential ASRs subject to the impact of emissions from additional traffic during festive periods.

4.4 Water Quality

- 4.4.1 The Project may affect a number of water sensitive receivers (WSRs) inside and in the vicinity of the Project site. Potential WSRs are:
- (i) Shenzhen River;
 - (ii) Ng Tung River;
 - (iii) Wetlands in the CA near Yuen Leng Chai;
 - (iv) Watercourses within Sandy Ridge Cemetery;

- (v) Watercourses outside Sandy Ridge Cemetery; and
- (vi) Fish ponds (expected to be abandoned) south and east of Sandy Ridge Cemetery.

4.5 Ecology

- 4.5.1 A wetland with medium sized reed bed is located to the northwest of the Project site. To the north of the reed bed area are some ponds, on both sides of the Border Road. The reed bed together with the ponds, are gazetted as CA under the Draft Man Kam To Development Permission Area Plan No. DPA/NE-MKT/1. None of the proposed elements of the Project are located in the CA zone.
- 4.5.2 Based on the literature review and broad brush ecological baseline surveys conducted in May, July and November 2011 and July 2012 under the FS, habitats in the Project site and its vicinity mainly include woodland, plantation, shrubland, grassland, developed/ disturbed area and watercourse.
- 4.5.3 According to the findings of literature review, Many-banded Krait, a snake species listed as 'vulnerable' in China Red Data Book was found along Sha Ling Road. Outside the Project site and its vicinity, twenty-two bird species of conservation importance and wetland-dependant species were recorded at village and agricultural area south of Sandy Ridge Cemetery. In addition, two unidentified bat species were also recorded in Sandy Ridge area without exact location described.
- 4.5.4 In the broad brush ecological baseline survey, a total of one mammal species, thirty-nine bird species, thirty-four butterfly species, one damselfly species, eleven dragonfly species and three amphibian species were recorded. Among them four species of conservation interest were found, but none occurred within the Project Site.

4.6 Landscape and Visual

- 4.6.1 The Project is mainly shielded from visual sensitive receivers (VSRs) in the HKSAR. The natural topography acts as a visual barrier for most VSRs to the west, south and east as the level of formed land is not higher than the ridgeline for the most part.
- 4.6.2 Based on the latest aerial photos and field surveys, eleven Landscape Resources (LRs) and five Landscape Character Areas (LCAs) were identified in the Project site and its vicinity (i.e. within 100m buffer from works limits). The landscape and visual impact on the LRs and LCAs would be assessed in the EIA study.

4.7 Cultural Heritage

- 4.7.1 The Project site is located in the vicinity of Yuen Leng Chai site.
- 4.7.2 One Grade 2 historic building (the Nam Hang MacIntosh Fort), fifteen clan graves and one landscape feature have been identified in the Project site and its vicinity.

5. ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND ANY FURTHER ENVIRONMENTAL IMPLICATIONS

5.1 General

5.1.1 The EIA study will investigate those environmental impacts (both cumulative impacts and those arising from the Project) and propose the appropriate mitigation measures with the intention that site formation and associated infrastructural works under the Project would be environmentally acceptable. The residual impacts, if any, would be confined within the allowable limits. Environmental monitoring and auditing of potential impacts that may arise from implementation of the works proposed by the Project will be provided for the construction and operation phases. Subject to the findings of the EIA study, the following mitigation measures would be incorporated in the design and construction of the Project.

5.2 Noise

Construction Phase

5.2.1 EPD's Recommended Pollution Control Clauses for Construction Contract would be adopted in the contract specifications for the Project to ensure that the Contractor will implement good construction site practices to minimise noise generation.

Operation Phase

5.2.2 Detailed traffic noise impact assessment for the widening works at Choi Yuen Road, including investigation on the possible noise mitigation measures such as the use of low noise road surfacing (LNRS), noise barriers/enclosures, and the combination of LNRS and noise barriers/enclosures, and the evaluation of residual impact, if any, would be studied in detail during the EIA study.

5.3 Air quality

Construction Phase

5.3.1 Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulations and site good practices would be implemented to reduce the dust impact.

Operation Phase

5.3.2 Sufficient setback of the proposed roads from the ASRs would be considered.

5.4 Water Quality

Construction Phase

5.4.1 Mitigation measures would be carried out during the construction phase to prevent discharge of sediment laden site run-off and drainage into nearby WSRs. The measures include:

- Oily wastewater arising from construction site should be diverted to a petrol interceptor for compliance with the WPCO-TM;
- Appropriate mitigation measures as detailed in ProPECC PN 1/94 on construction site drainage should be adopted to control the pollutants in surface runoff from the construction site;
- Open stockpiles of construction materials and excavated materials (e.g. aggregates, sand and fill material) on site should be covered with tarpaulin or similar fabric during

rainstorms. Measures should be taken to prevent washing away of construction materials, soil, silt or debris into any drainage system and nearby WSRs;

- Drainage channels and silt removal facilities should be cleaned and regularly maintained to ensure their efficacy;
- Contractors should be required, under the contract specification, to ensure that site management is optimised and that the deposit of any solid materials, litter or waste does not occur in drainage channels or surface water;
- All fuel tanks and storage areas should be provided with locks and be located within bunds of a capacity equal to 110% of the storage capacity of the tanks;
- In case public sewerage connections are not available, portable toilets should be provided to collect sewage generated from the on-site work force and arrangements should be made with a contractor for its proper off-site disposal; and
- All surface drainage should be desilted before discharge.

Operation Phase

5.4.2 Impact on the water quality is unlikely.

5.5 Waste Management

Construction Phase

- 5.5.1 The reuse of inert excavated material would be maximised during the backfilling works where practicable, and surplus excavated material will be disposed of off-site at public fill reception facilities.
- 5.5.2 General refuse generated by the construction workers is expected to be in small quantity and would be stored and disposed of separately from general construction waste and chemical waste. The storage bins for general refuse would be provided with lids which should be kept closed to avoid odour and wind blown litter. The general refuse would be removed from the site regularly (at least once per day) and disposed of at landfills.

Operation Phase

5.5.3 No waste associated with the operation of the Project is anticipated.

5.6 Ecology

- 5.6.1 To minimise the Project's encroachment onto existing woodlands and its consequential ecological impacts on the flora and fauna species associated with this habitat, fine-tuning of the Project boundary would be carried out in the design.
- 5.6.2 Besides, efficient mitigation measures would be implemented, mainly including compensatory woodland planting, habitat reinstatement and using non-reflective and non-transparent materials to reduce the risk of bird collision.

5.7 Cultural Heritage

- 5.7.1 A detailed cultural heritage impact assessment would be conducted to evaluate the potential impacts and mitigation measures required, which would include detailed baseline condition survey and vibration impact assessment prior to the start of construction, and refinement of the design of relevant works during detailed design stage and cartographic and photographic records prior to clan graves removal if unavoidable. The assessment

would also define the vibration limit and evaluate if mitigation measures, such as vibration monitoring and settlement monitoring with regard to the MacIntosh Fort should be agreed with the Antiquities and Monuments Office.

5.8 Landscape and Visual

Mitigation Measures to be Incorporated in the Detailed Design

5.8.1 Adverse landscape impacts could be eliminated, reduced or offset to a large extent by intelligent detailed design and mitigation measures.

Construction Phase

5.8.2 The following general mitigation measures would be considered to alleviate the impacts for the construction phase:

- tree protection and preservation measures would be implemented;
- established trees of value are to be re-located where practically feasible;
- areas temporarily disturbed by the Project would be reinstated in order to restore the green ambiance or LR as existed before the commencement of the Project to blend in with the new environment as far as practicable;
- excavated topsoil would be conserved for re-use by the Project or other projects; and
- stockpiles of materials would be covered or be screened off by hoarding erected where possible to reduce undesirable views of the construction site.

Operation Phase

5.8.3 The following general mitigation measures are to be considered in the operation phase:

- compensatory woodland planting if the woodland cannot be avoided;
- compensatory planting where loss of plantation trees is unavoidable;
- amenity planting for open spaces;
- amenity planting for pedestrian walkway, roadside; and
- greening works and contour grading works on cut/fill slopes.

5.9 Severity, Distribution and Duration of Environmental Effects and Further Implications

5.9.1 Subject to assessments in the EIA study, noise impact due to Choi Yuen Road widening at operation phase would likely be the most severe impact. Effective control and mitigation measures will be identified to keep the impacts to acceptable level.

6. USE OF PREVIOUSLY APPROVED EIA REPORTS

6.1.1 There is no EIA report already approved under the EIA Ordinance. However, the following report is relevant and will be referred to in the EIA study:

- Construction of a Secondary Boundary Fence and new sections of Primary Boundary Fence and Boundary Patrol Road (EIAO Register ref. EIA-161/2008, approved on 8 Apr 2009)