HONG KONG CEMETERY

CONSERVATION MANAGEMENT GUIDELINES

PART I – BUILT AND NATURAL HERITAGE

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THE LORD WILSON HERITAGE TRUST

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Prepared for The Friends of Hong Kong Cemetery
By Property Conservation Company Limited in association with Cinotech Consultants Limited and Ir. A J Cooper
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1. EXECUTIVE SUMMARY

Concerns to have the Hong Kong Cemetery managed from a conservation perspective are not new. Dr. Solomon Bard noted in his *Study of Military Graves and Monuments: Hong Kong Cemetery* in 1991 the need for a pro-active conservation plan for the Hong Kong Cemetery and later Professor Nicholson confirmed in 2010 the heritage significance of the Cemetery in his book.

Over twenty-five years have passed since Dr. Bard's study, and many years since the HKSAR Conservation Policy was launched in 2007, when grading was given to over one thousand historic buildings in Hong Kong. Now, heritage conservation is being strongly promoted and our community has started to see the benefit of good building conservation and the reuse of historic buildings and sites for the enjoyment of the public. However, Hong Kong Cemetery so far has not been graded, memorials continue to fall and break, inscriptions that were difficult to read are now illegible. Engineers are doing their part by upgrading the slope features to ensure safety and cleansing contractors are carrying out their duties in cleaning and mosquito prevention to the best of their knowledge and limited resources.

It appears all concerned are waiting for the moment when this precious site will be graded. Once a site or building gains a heritage status only then do various government departments have a justification on spending and other conservation arrangement. The site deserves to be graded so that it will be managed with a conservation motive and taken care by conservation specialists.

The Guidelines begin with a brief *background of this study* in **Chapter 2**. Then through an understanding the *history of the Cemetery* in **Chapter 3**, proceeding to a review of the *buildings and structures* in **Chapter 4** to establish the *heritage significance* of the Cemetery. A *Geotechnical appraisal* is included in **Chapter 5**, to identify the problems facing the slope features on site. Then the focus is shifted to the *landscape* in **Chapter 6**, and further extended to *zoological appraisal* of the flora and fauna in **Chapter 7**. A brief *environmental protection appraisal* follows in **Chapter 8**, to identify the problems from the environmental viewpoint. Having reviewed all these aspects in these conservation management guidelines to the buildings, structures, historic landscape, natural biodiversity and future geotechnical improvements, a *final summary* and compilation is in **Chapter 9**. **Part II** of the Guidelines contains a detailed report on the maintenance of monuments and tombstones by Conservation Architect, Ken Borthwick.

These Conservation Management Guidelines hope to renew interest in the conservation of this unique Hong Kong urban site, which may lead to a proper appreciation of its historic value, as well as its value as an important site of natural diversity, so that positive action can be taken.

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2. BACKGROUND

2.1. Hong Kong Cemetery ("The Cemetery") is located on Wong Nai Chung Road in Happy Valley, Hong Kong. As shown in Figure 2-1, to the north is St Michael's Catholic Cemetery and the Muslim Cemetery. To the south is the Parsee Cemetery. Aberdeen Tunnel entrance portal cuts into the site on the south side. The uphill eastern boundary of the site follows Stubbs Road.

FIGURE 2-1 Location Plan (Not to Scale and for Identification Purposes only) Map data © 2017 Google

SIMPLY HISTORICAL OR HISTORIC?

Although the Hong Kong Cemetery is the oldest public cemetery remaining in Hong Kong, it has not yet been accorded any grading by the Antiquities Advisory Board .

2.2. The Cemetery is the oldest public cemetery remaining in Hong Kong but it has not yet been accorded any grading by the Antiquities Advisory Board; only the Chapel inside the Cemetery is confirmed as a Grade 1 historic building (in December 2009).

2.3. The Cemetery is managed by the Food and Environmental Hygiene Department (FEHD) of the Hong Kong Special Administrative Region Government (HKSARG) and little emphasis has been put on its heritage values, both built heritage and natural heritage. The Conservation Management Guidelines (the Guidelines) are focused only on the front section of the Cemetery, which is to be used as a pilot study. The objective of this report is to record and recognize the heritage values of the site, with the vision of proper care and management of this piece of land and promote its values to the wider public. It was initiated by the Friends of Hong Kong Cemetery ("FoHKC") and funded by the Lord Wilson Heritage Trust (LWHT).

2.4. These Guidelines focus only on the Study Area shown in Figure 2-2, covering the main entrance, central burial sections, the historic chapel and the historic landscape of the Cemetery. The Historic Appraisal, Geotechnical Appraisal, Landscape Appraisal, Zoological Appraisal and Environmental Protection Appraisal in the following sections were prepared based on this Study Area. This pilot scheme is hoped to form a basis for a more comprehensive report on the remainder of the Cemetery in the future.

2.5. These Guidelines were prepared by Property Conservation in association with Cinotech and Ir. A J Cooper and Architect K.J.R. Borthwick; together with the joint efforts of the FoHKC and Stuart Morton. They combined expertise from both built heritage and natural heritage conservation; using both local and overseas knowledge. With this unprecedented joint effort and valuation support of the LWHT, it is hoped to cultivate more public and specialist interests, as well as further research into this unique and forgotten site in Hong Kong.

FIGURE 2-2 Study Area of the Conservation Management Guidelines

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3. HISTORIC APPRAISAL

3.1. The Beginning

3.1.1. Hong Kong Cemetery was previously known as the Protestant Cemetery, Church of England Cemetery, Colonial Cemetery or Hong Kong Colonial Christian Cemetery at various times. The earliest Chinese name discovered was "紅毛墳" (Government Gazette, 1859) and it was renamed "Hong Kong Cemetery" in the 1970s (Ko, 2000:266).

3.1.2. Based on our research, it is believed that there was a cemetery in Happy Valley in the early 1840s. From The Cree Journals[1] (Levien, 1981), it records that a Commander Brodie was buried in the afternoon in the new cemetery in "Happy Valley", Hong Kong on 18 July 1841; and his friend Wilson, Adjutant of 18th Regiment, was buried in "Happy Valley" near Commander Brodie on 20 July 1841. There is a painting titled "Happy Valley", Hong Kong, in his journal (Figure 3-1).

CHRONOLOGY OF MAJOR EVENTS

1845
The Hong Kong Cemetery officially opened

1889
Some graves moved into the Cemetery from the old Wan Chai Cemeteries

1890s
The Cemetery was remodelled into a cemetery garden

1971
New quarters were built to replace the old office-cum-quarters building

1976
A piece of land was cut away from the Cemetery for the construction of Aberdeen Tunnel

[1] It was based on the personal journals of Edward Cree (1814-1901) who was a Surgeon of the Royal Navy. He travelled to Hong Kong, Macau, China and many other countries with the Royal Navy during the Opium War. The journals were complemented by Cree's contemporary paintings and sketches, which makes it more historically important.

FIGURE 3-1 Happy Valley, Hong Kong in 1841 (Levien, 1981: 90)

FIGURE 3-3 Wong Nai Chung Village, Happy Valley, c.1875 (Bard, 2002: 137)

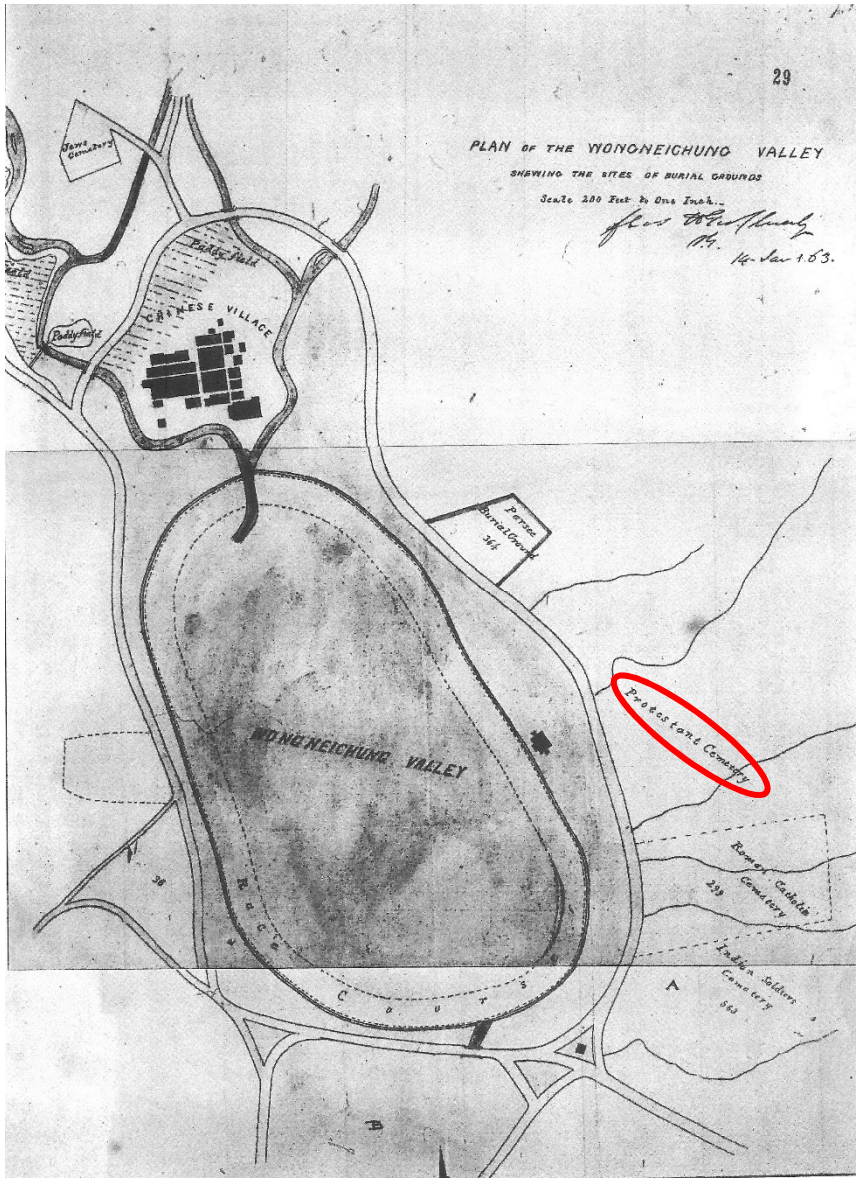


FIGURE 3-2 Plan of the Wong Nei Chung Valley (1853)

3.1.3. When compared with Figure 3-3, c1875 and the Colonial Office plan (Figure 3-2) c1853, it is believed that the village in Cree's painting was Wong Nai Chung Village and the burial ground for Commander Brodie is in front of Wong Nai Chung Village. It appears that the burial ground was on the right hand side of the painting, adjoining a wooded area; if this was the case, the burial could be close to the site of the present Cemetery, as shown in the 1853 plan. However, the exact location of these two burials is still unclear and their link with the present Cemetery remains unconfirmed.

3.1.4. This old burial ground is not mentioned in the official documents found, instead, the earliest public cemeteries recorded were two cemeteries opened in 1842 in Wan Chai. In view of the surging demand for burial sites due to the ravages of malaria, dysentery and other diseases at that time, the cemetery in Wan Chai were fully utilized within two years. In 1844, the Executive Council decided in the interests of public health to close them and they chose Happy Valley for the new cemetery. The former cemeteries in Wan Chai were later developed into today's "Sun, Moon, Star and St. Francis Streets". And the new Happy valley burial ground opened in 1845, became the foundation for the present Hong Kong Cemetery. Other burial grounds founded in the early days were located in Stanley and at West Point, mainly for the military use; these were located in the Army barracks area, with earliest records traced back to 1843; however, like the Happy Valley Cemetery, they were not officially designated as "cemeteries" until later years.

3.1.5. In 1889, those graves remaining in the old Wan Chai Cemeteries (Protestant and Roman Catholic Cemeteries), were moved to the Hong Kong Cemetery (Smith, 1985:18). It included Cree's Friend, "Brodie, Wm - 1841" as mentioned above. Interestingly, Commander Brodie was firstly "relocated" from the original Happy Valley burial ground to the old Wan Chai Cemeteries after 1841, he was later "moved back" to the present Happy Valley Cemetery in 1889 (Lim, 2011). His grave is recorded in the "Study of Hong Kong Cemetery Index of Persons Commemorated in Alphabetical Order" (Bard, 1997:57) and is now located in Section 11 in the Cemetery.

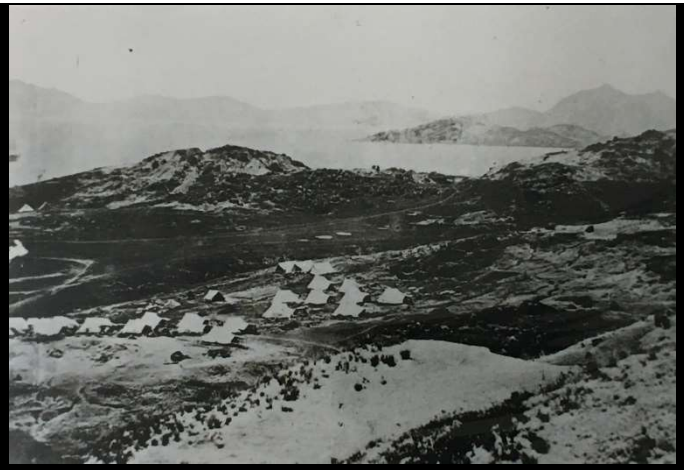


FIGURE 3-4 Happy Valley (PRO Ref: HKRS226-1-49-1)

The Mystery

According to Lim (2011:5-6) and Ha (2007), Happy Valley was once a pretty spot with trees and fields of rice. Then, soon after the British colony was first established, the Happy Valley farmland was taken over by garrison for an army camp. Later, Wong Nai Chung Valley (i.e. today's Happy Valley) and Central, due to the availability of flat land, were chosen to be developed into business centre and Government use respectively.
(Note: It is most likely that the burials in the old cemetery site were relocated to Wan Chai at this time.)

Wong Nai Chung Valley then attracted overseas merchants to build their houses and offices there; however; the former paddy-field drainage system was destroyed in the process, together with the newly disturbed earth and the topography of land, which led to the formation of a swampy mosquito-infested area. The place soon became notorious as a centre of fever and death, and became deserted and left as a site of crumbling ruins, overgrown with moss and weeds.

3.2. The Changes

3.2.1. Racing in Hong Kong began in 1846. Shortly after the opening of the Cemetery, the land in front of Wong Nai Chung Village was turned into a race course. In the beginning, horse race was only held once a year but it lasted for 30 days. After 1884, there was more frequent and regular racing there.

3.2.2. There were some paintings and photos capturing the Cemetery in the early days. As shown in a painting in 1866 (Figure 3-5), Figure 3-6 and Figure 3-7, the Cemetery was rocky and already filled with gravestones. There was much terracing, but was steeper with more open areas, with only few trees and shrubs.

FIGURE 3-5 The Cemetery and the Racecourse at Hong Kong (London News, 1866)

FIGURE 3-6 Colonial Cemetery c1890s (Hong Kong Museum of History)

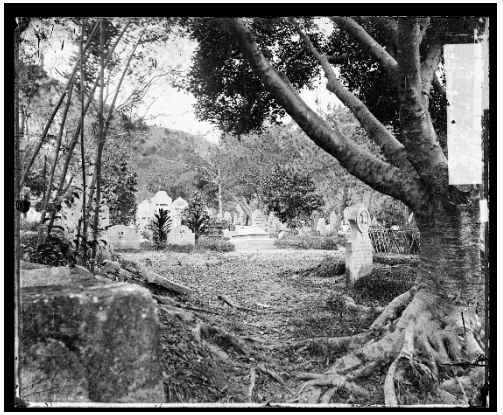


FIGURE 3-7 Cemetery, Happy Valley, Hong Kong. (Photograph by John Thomson, 1868/1871)

3.2.3. From other photos in the 1890s to 1910s (Figure 3-8 to Figure 3-10), it showed that the Cemetery has been remodeled in the style of a garden, with the presence of fountain, metal garden arch frame, many tall trees and stone pedestals.

3.2.4. The Botanical and Forestry Department[2] at that time, was responsible for the maintenance and improvement of the planting and landscape in Hong Kong, including Botanic Gardens, Blake Garden, West End Park, Government House Garden and the grounds at Mountain Lodge, as well as the Cemetery (Wright, 1908:136-137).

[2] *Charles Ford (during 1871-1902); Stephen Troyte Dunn (during 1903-1910); William James Tutcher (during 1910-1919) were Superintendents of the Botanical and Forestry Department and they had significant contribution to the research and record of flora and plants in Hong Kong (Desmond 1994)*

FIGURE 3-8 Hong Kong Cemetery in 1900 (Ko Tim-keung)

FIGURE 3-9 Looking towards the Cemetery Fountain in c1910 (Hong Kong Museum of History)

FIGURE 3-10 Looking west towards the Cemetery Fountain and the Monument behind in c1910 (Hong Kong Museum of History)

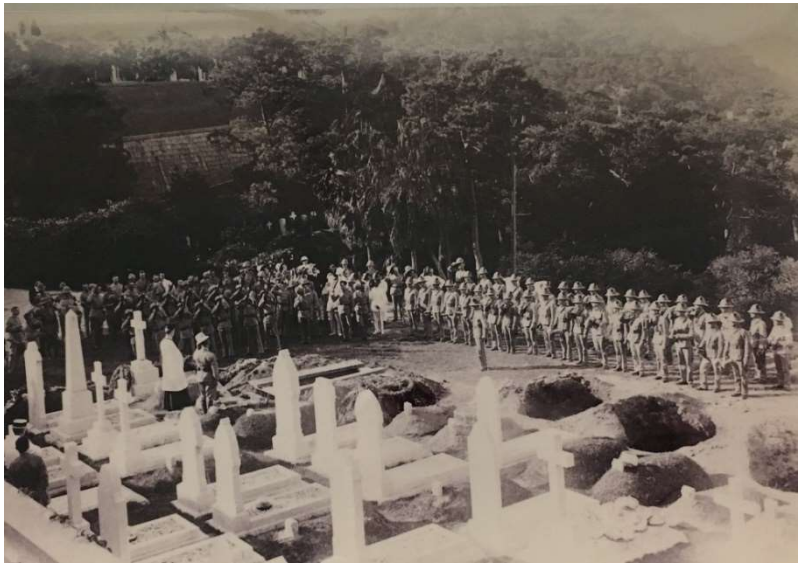


FIGURE 3-11 Funeral of Pte. Dennis 1915 (PRO Ref.; HKRS226-1-49-1)

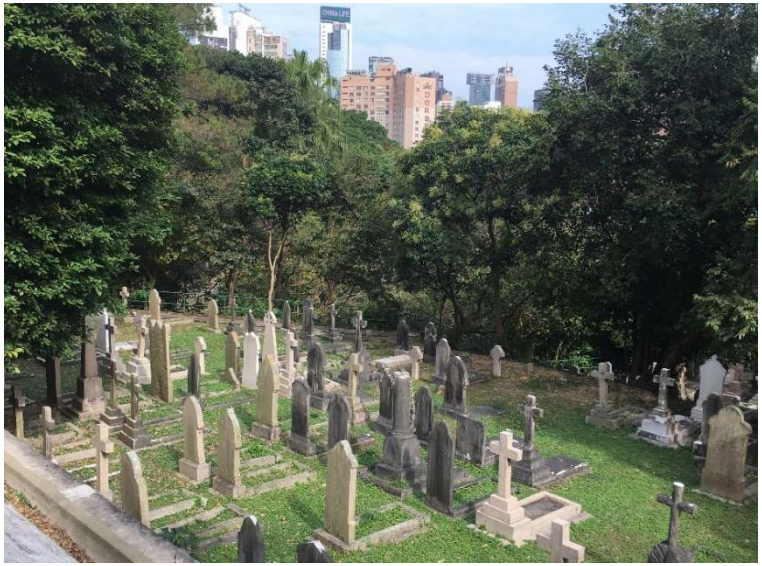


FIGURE 3-12 Photo with similar viewpoint to FIGURE 3-11, dated 2016 (Property Conservation)

3.2.5. Inside the Cemetery (Figure 3-11 and Figure 3-12), we can see that this section (S.16B) has more or less remained the same, and tombstones presented in 1915 remain there today. The trees have grown taller and bigger and there are now high-rise buildings in the distance (i.e. Causeway Bay). However, there are of course very few places in this fast-changing city that can retain their appearance over a century!

3.2.6. Outside the Cemetery, Hong Kong Jockey Club has developed considerably over time. In the 1946-1947 photos below, we can see the proximity of the Jockey Club to the Cemetery, which was then separated by a very narrow Wong Nei Chung Road. Figure 3-13 shows that the entrance of the Cemetery was on the same axis as the clock tower of the Jockey Club – it may have been purposely designed by the Club's architect to give a respectful and compatible view from the Cemetery.

3.2.7. Between the large Jockey Club stands, the entrance gate of the Parsee Cemetery (which adjoins Hong Kong Cemetery), can be seen in the distance (Figure 3-15).

FIGURE 3-13 The Royal Hong Kong Jockey Club, facing Happy Valley cemetery (Morrison, Hedda, 1946-1947; reproduced with permission of Harvard-Yenching Library, Harvard University)

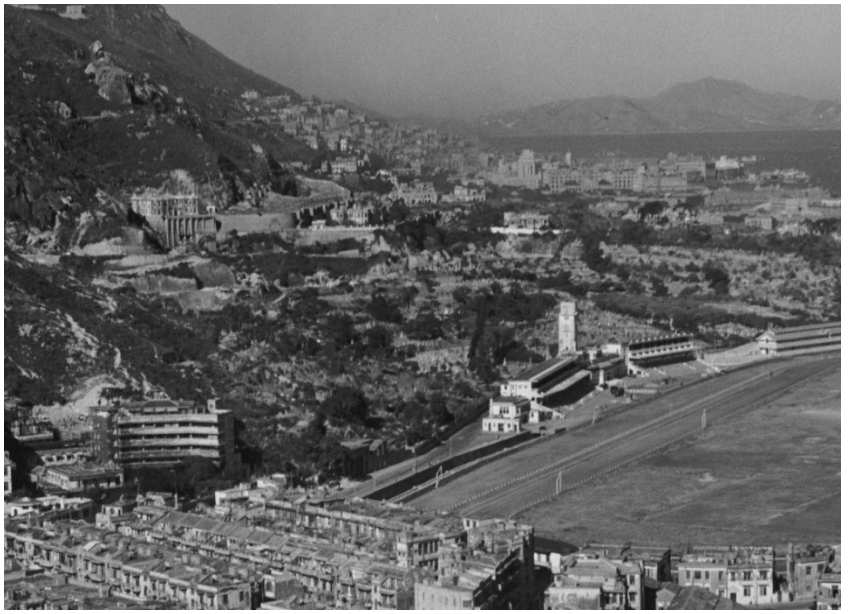


FIGURE 3-14 The racecourse with pre-war middle-class residences (Morrison, Hedda, 1946-1947; reproduced with permission of Harvard-Yenching Library, Harvard University)

FIGURE 3-15 Annual Review 1953 (PRO Ref: HKRS226-1-49-1)

3.2.8. The earliest plan from the Survey & Mapping Office was dated 1922, it showed the layout of the Cemetery before the Aberdeen Tunnel was built.

FIGURE 3-16 1922 (Survey & Mapping Office, Lands Department)

FIGURE 3-17 1935 (Survey & Mapping Office, Lands Department)

3.2.9. There was a Chapel, a cemetery office and four fountains. The layout has not significantly changed compared with the 1935 plan. At that time, the entrance of the Cemetery was along the axis towards the fountain (Figure 3-17).

3.2.10. The Cemetery office was a pitched roof building. Figure 3-18 is the only photo found showing the office and two old fountains (F-1 and F-3). In 1946-1947, the office building is shown as both office and quarters; it was about 15 feet height, built with brick wall, pan and roll tile roof on timber joist (Architectural Services Department, Drawing No. A48605B, 1969).

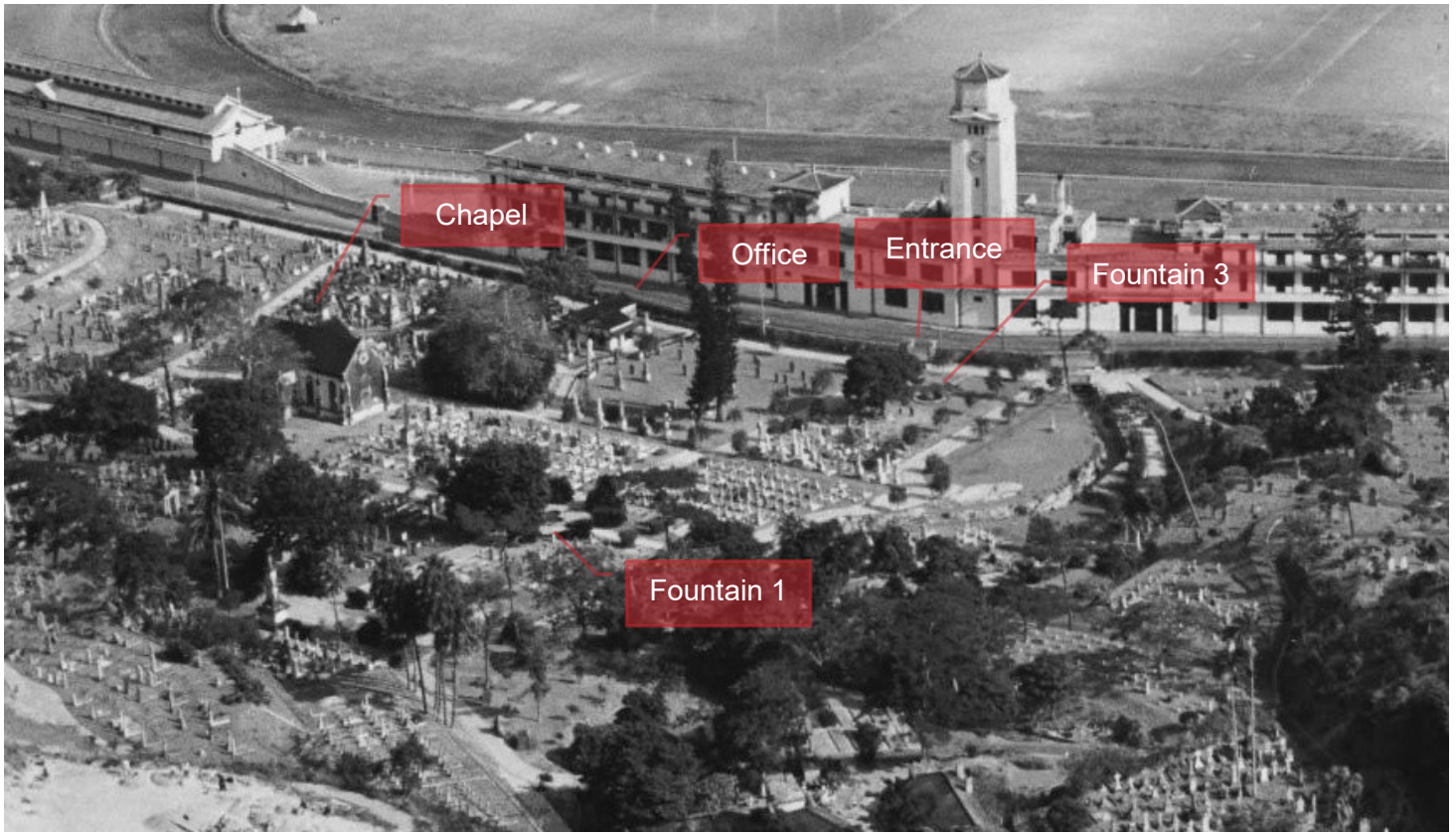


FIGURE 3-18 Old racecourse and cemeteries of Happy Valley, Eastern Districts, Hong Kong Island (Morrison, Hedda, 1946-1947; reproduced with permission of Harvard-Yenching Library, Harvard University)

3.2.11. From the aerial photo in 1945 (Figure 3-19) and 1949 (Figure 3-20), it can be seen that the Jockey Club opposite , was redeveloped during this period. Also, there are now three fountains shown, the one near to the entrance (F-4) has gone and that plot of land seems to have been resurfaced. One of the fountains (F-1) has a small central square accompanied with semi-circular bays on the four sides, the other two (F-2 and F-3) fountains were in circular shape.

FIGURE 3-19 Aerial Photo 1945 (Survey & Mapping Office, Lands Department)

FIGURE 3-20 Aerial Photo 1949 (Survey & Mapping Office, Lands Department)

3.2.12. The plots inside the cemetery was divided into about 50 sections and the same section numbering is still in use today.

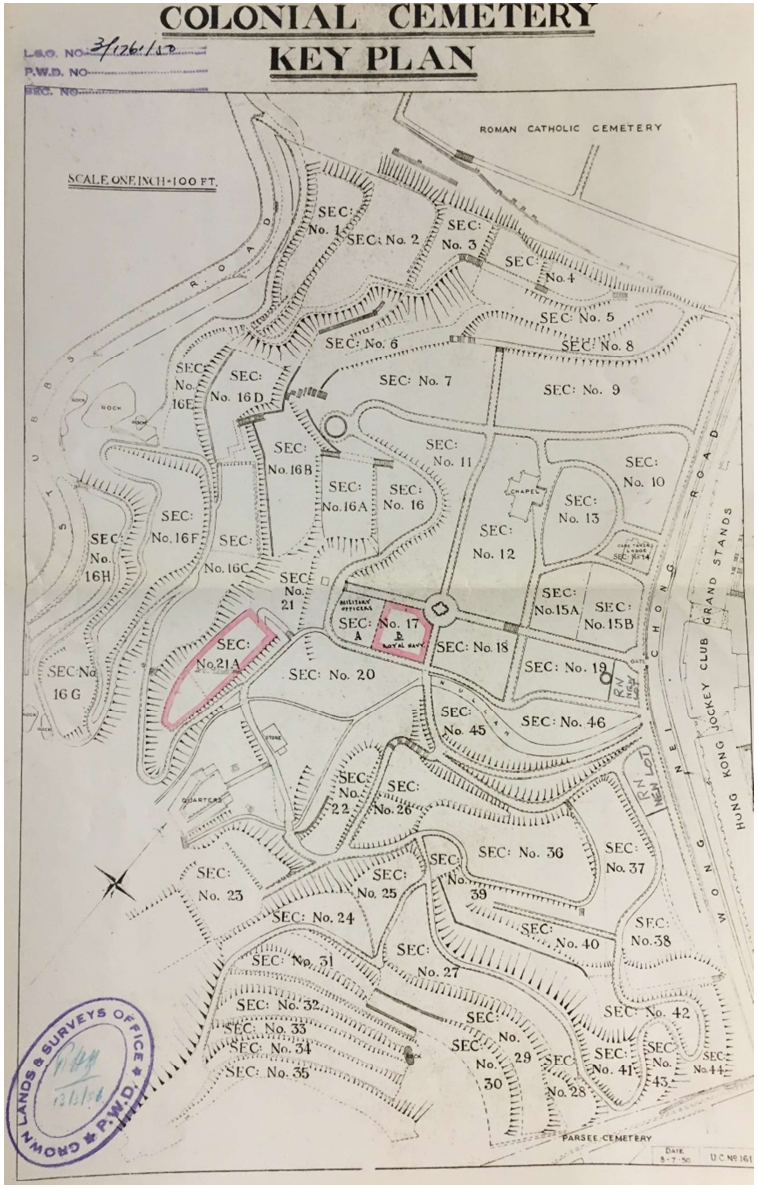


FIGURE 3-21 Colonial Cemetery Key Plan in 1950 (PRO Ref.:HKRS156-1-2469)

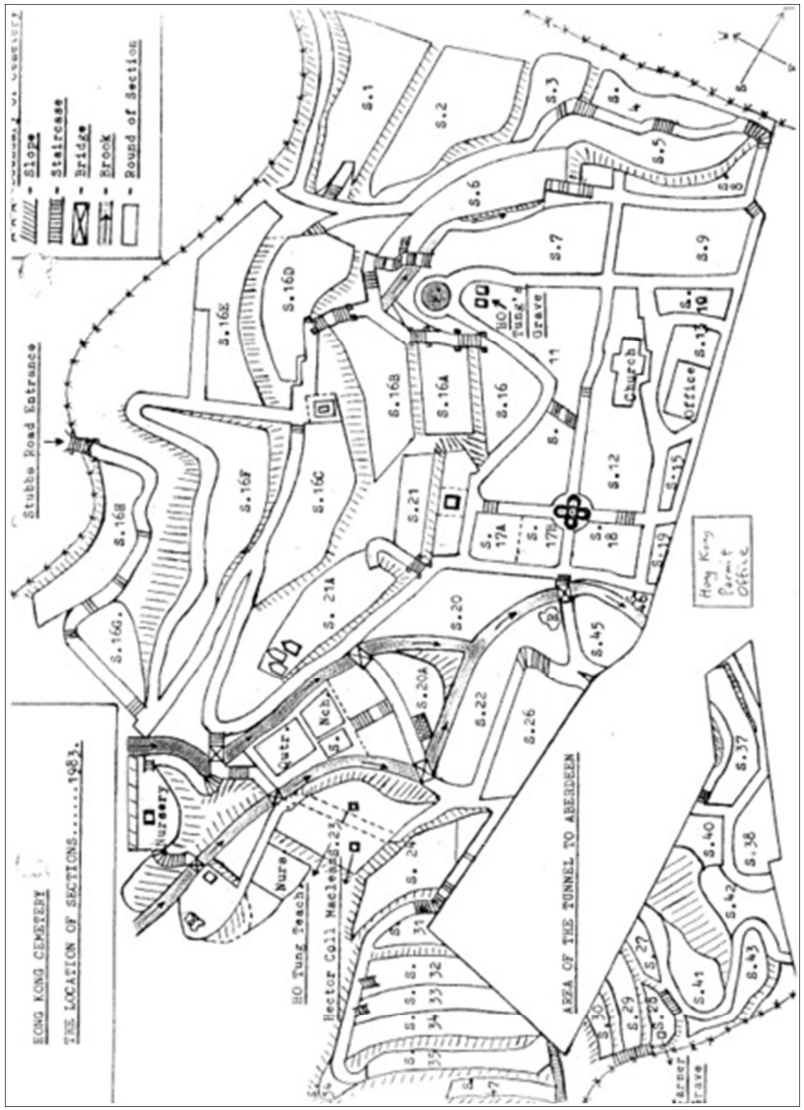


FIGURE 3-22 Locations of Sections (1983) (Source: Nelson (2009))

3.2.13. From the 1954 plan (Figure 3-24), there was a small store at the Southeast of the Chapel, in addition to the Chapel and cemetery office. The store had brick walls and a reinforced concrete roof (Architectural Services Department, Drawing No. A48605B, 1969). By comparing the two plans in 1959 and 1969 (Figure 3-25 and Figure 3-26), it is seen that the store was removed and a small square structure was added in front of the office, this small square structure was a latrine about 10 feet height, built with brick wall and reinforced concrete roof (Architectural Services Department, Drawing No. A48605B, 1969).

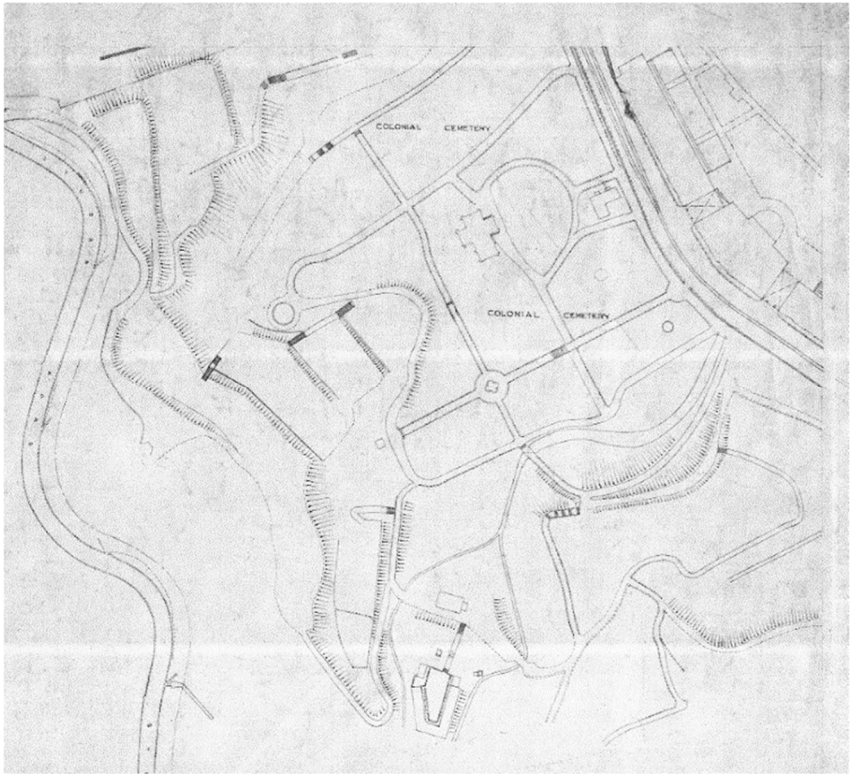


FIGURE 3-23 1935 (Survey & Mapping Office, Lands Department)

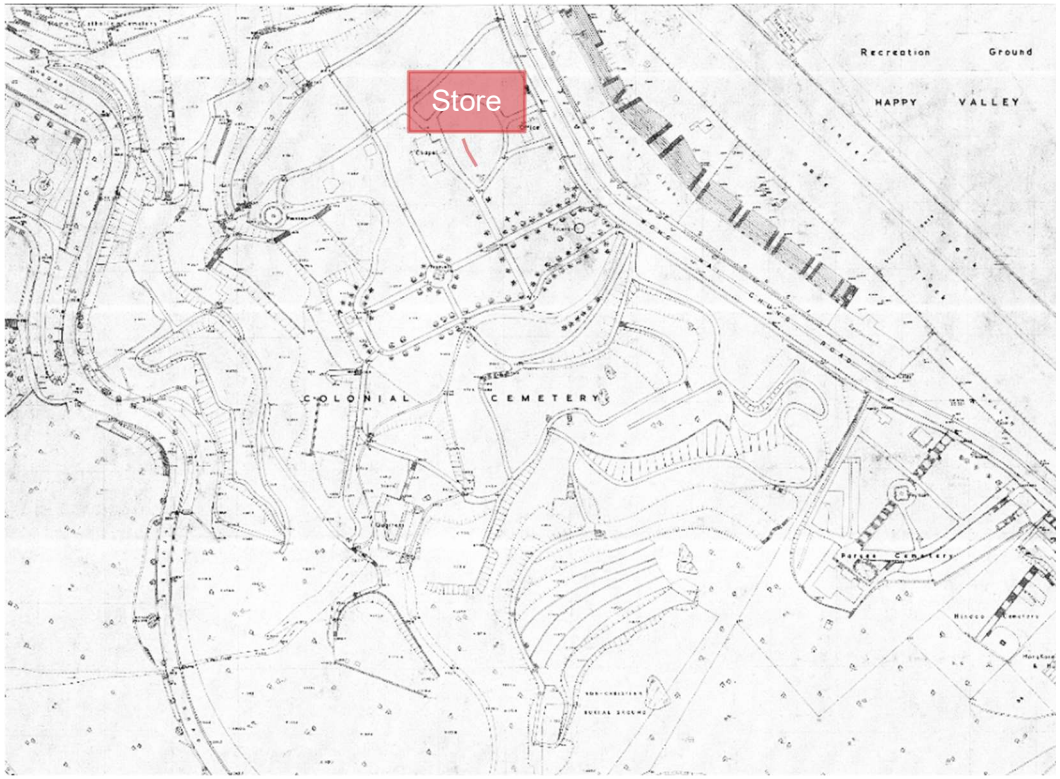


FIGURE 3-24 1954 (Survey & Mapping Office, Lands Department)

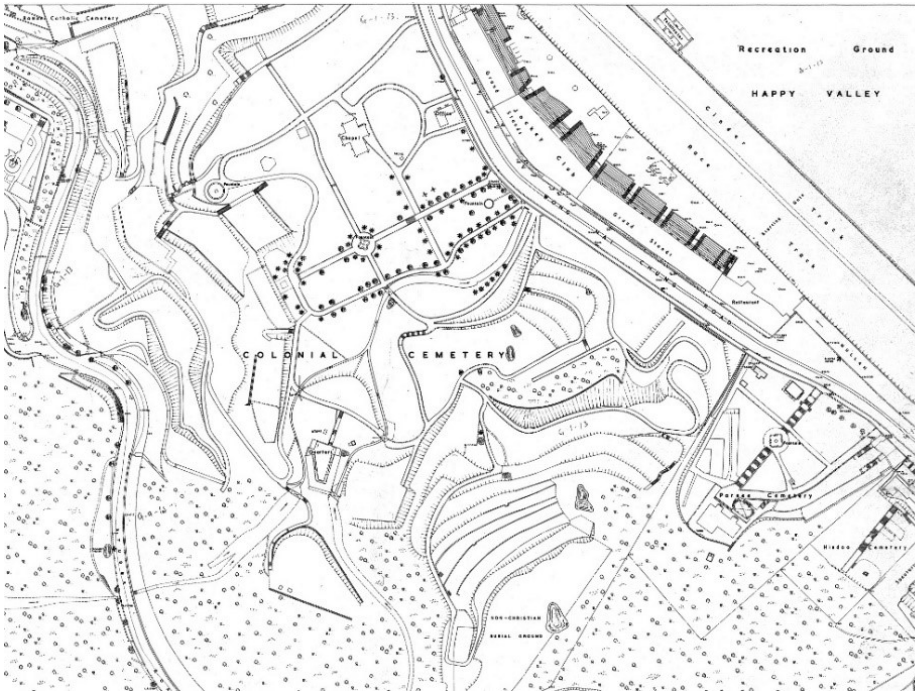


FIGURE 3-25 1959 (Survey & Mapping Office, Lands Department)

FIGURE 3-26 1969 (Survey & Mapping Office, Lands Department)

3.2.14. From this aerial photo in 1963 (Figure 3-27), it can be seen that the office has a pitched roof and the plot next to it was built up again.

FIGURE 3-27 Aerial photo 1963 (Survey & Mapping Office, Lands Department)

FIGURE 3-28 1971 (Survey & Mapping Office, Lands Department)

FIGURE 3-29 1974 Oct (Survey & Mapping Office, Lands Department)

3.2.15. Major changes occurred in the 1970s. In the 1971 plan (Figure 3-28), it is noted that a new quarters were built opposite the Chapel, it was intended to replace the office building which was subject to periodic flooding (PRO Ref.:HKRS70-2-187: 13 May 1970). In 1972 aerial photo (Figure 3-32) and 1974 plan (Figure 3-29), it can be seen that the office was demolished.

FIGURE 3-30 1975 (Survey & Mapping Office, Lands Department)

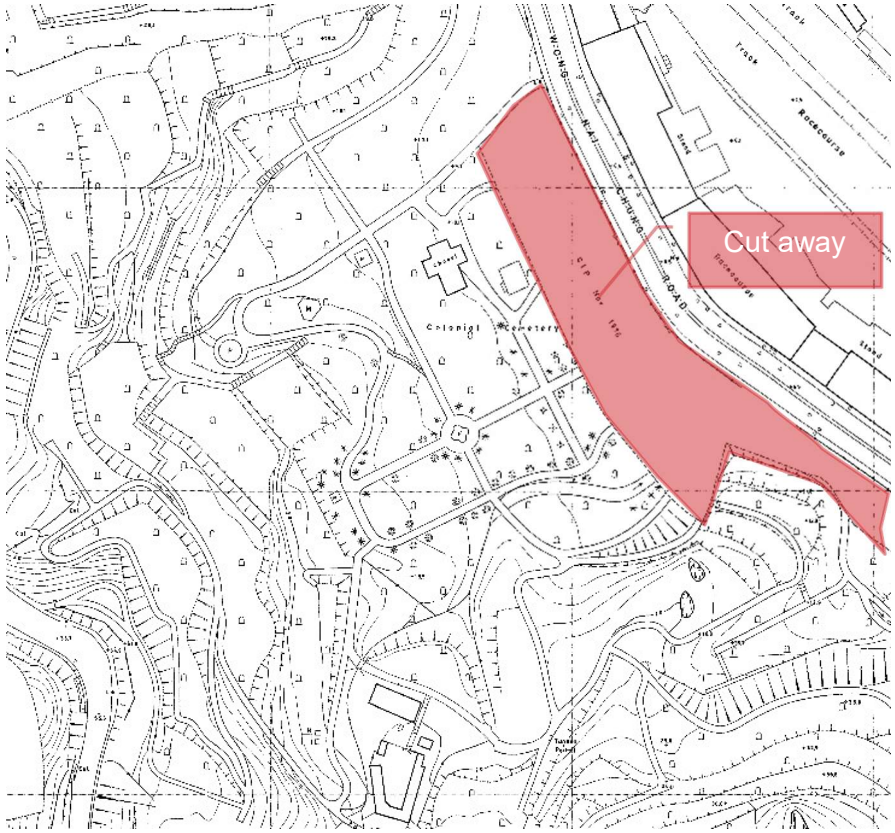


FIGURE 3-31 1976 (Survey & Mapping Office, Lands Department)

3.2.16. From the 1975 plan (Figure 3-30), it is noticed that the fountain (F-3) near to Wong Nai Chung Road was removed. In the 1976 plan (Figure 3-31), it is seen that a large section of land abutting Wong Nai Chung Road has been detached from the Cemetery site; this was for the Aberdeen Tunnel, which was built in 1976.

FIGURE 3-32 Aerial Photo 1972 (Survey & Mapping Office, Lands Department)

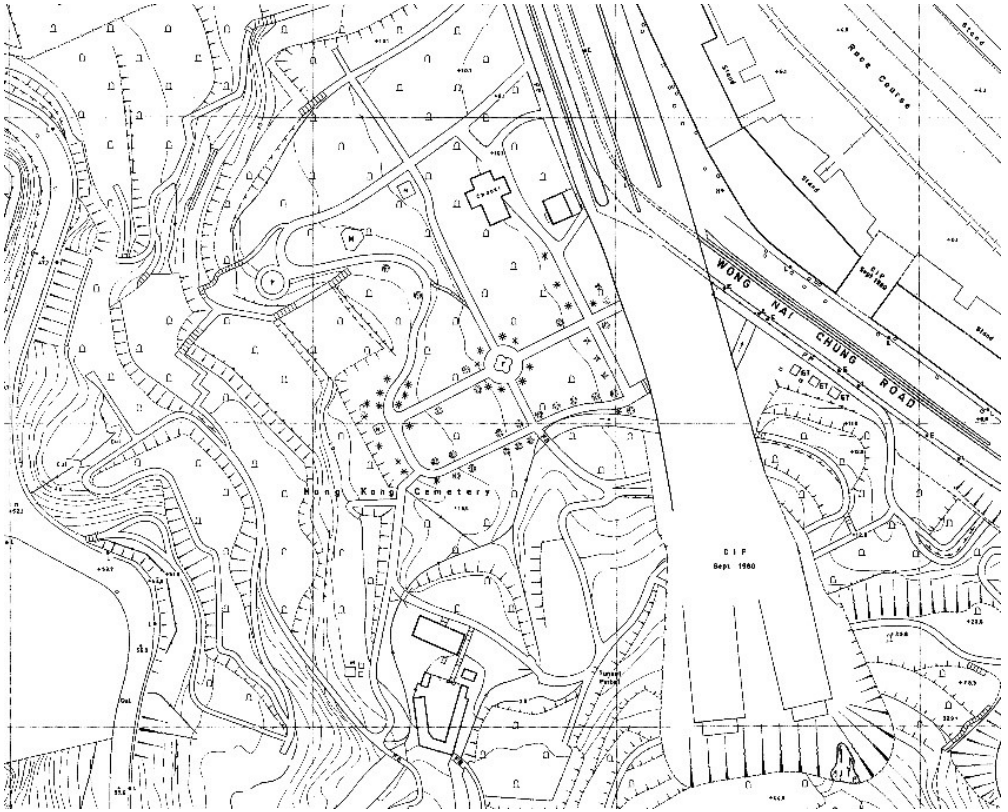


FIGURE 3-33 1980 (Survey & Mapping Office, Lands Department)

3.2.17. The Aberdeen Tunnel was built in 1976 and it considerably changed the entrance and the boundary of the Cemetery. The work caused more than 3,000 graves to be moved or consigned to the ossuary. It appears that, at this time the graves of officers in the armed services and merchant navy were relocated to different sections of the Cemetery, whereas graves of little known civilians were taken-up and their remains sent to the ossuary; this upset the previous balance between army, merchant navy and civilians graves (Lim, 2011:26). Unfortunately, during the move some of the burial information was lost, and only names and dates were recorded in the ossuary, while other, possibly valuation, information engraved on the headstones was not recorded.

3.2.18. A new ossuary (for the compact storage of the burial remains), was built Southwest of the Cemetery (Figure 3-34 & Figure 3-37) in 1975. There is a plaque recorded its establishment (Figure 3-35), namely:

"*The remains at niches nos. 1-187 were originally held in the former ossuary inside the Hong Kong Cemetery which was demolished in 1975 to make way for the construction of the Aberdeen Tunnel. The remains at niches Nos. 188-1123 were exhumed from their original graves inside this cemetery in 1975 also to make way for the construction of the Aberdeen Tunnel. All the above remains were places in this ossuary in 1983.*".

3.2.19. The former ossuary referred to above, was built in 1970-1971 near Section 39; it contained 470 niches was 76 feet long and and divided into 8 tiers (Figure 3-36) (PRO Ref.:HKRS70-2-187: 26 Oct 1970); since 1976, the area is occupied has become part of the Aberdeen Tunnel approach road.

FIGURE 3-34 The ossuary inside the Cemetery

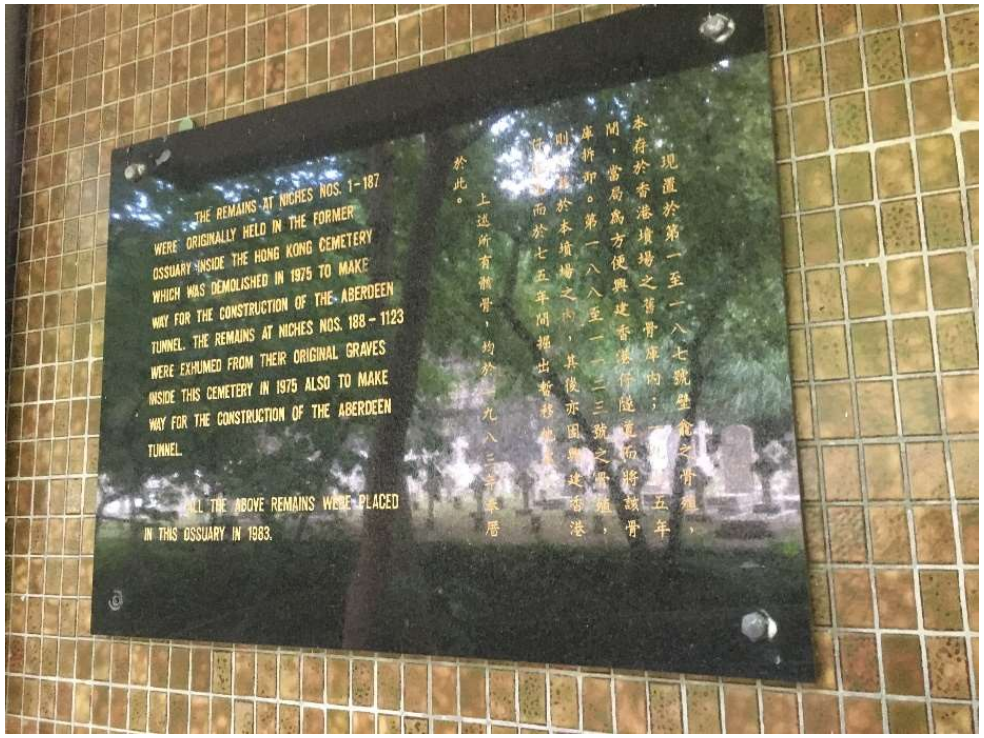


FIGURE 3-35 The plaque at the ossuary

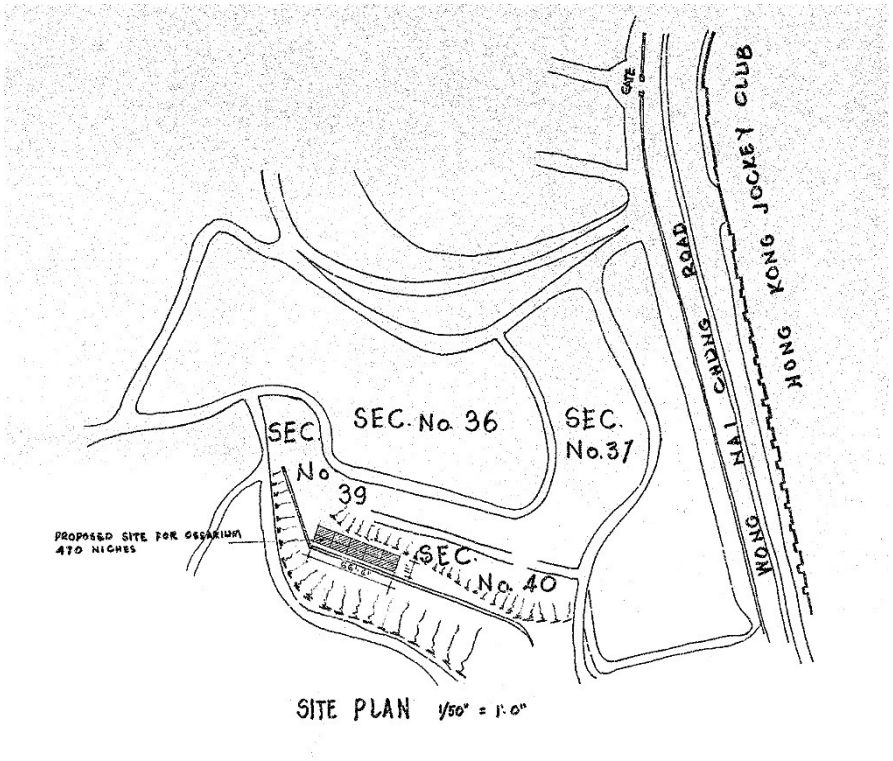


FIGURE 3-36 Location of the old ossuary. Extracted from Architectural Services Department (Drawing No. A49709)

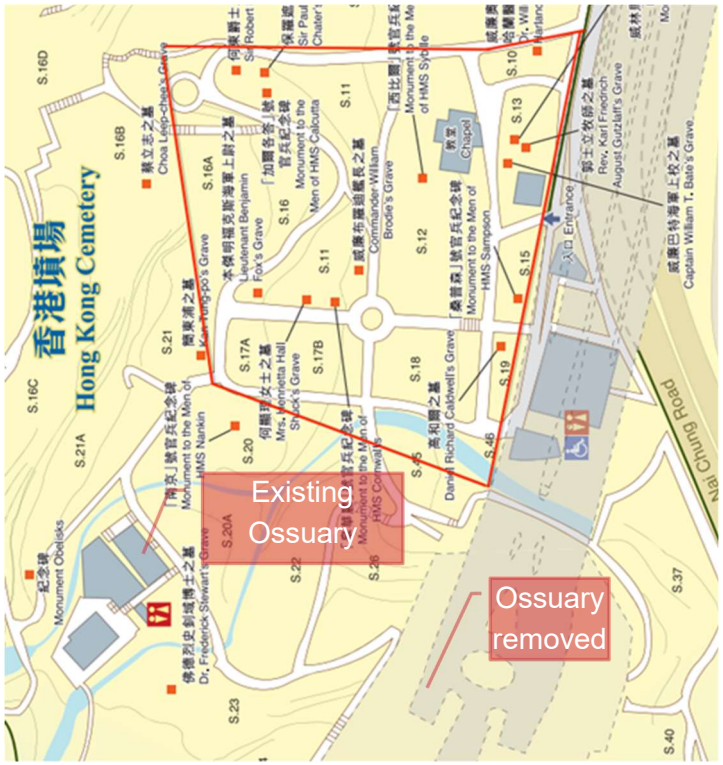


FIGURE 3-37 Location of the new ossuary. Existing Map of the Hong Kong Cemetery

FIGURE 3-38 2016 (Survey & Mapping Office, Lands Department)

FIGURE 3-39 A circular shaped paving was found at the old fountain place

3.2.20. Compared with the 2016 plan (Figure 3-38), the layout of the Cemetery has not changed, except that the site of fountain (F-2) at the West of the Chapel has now been paved over (Figure 3-39) and no trace of the fountain remains.

3.2.21. From the 1984 plans, it is noted that both fountains were still existing but no longer demarcated “F”; but the 1992’s plan, shows only one fountain (F-1) now remaining, and it still remains today at the same location.

3.3. The Early Management

The Authority

3.3.1. The cemetery was placed originally under the charge of the Colonial Chaplain, who kept a register of burials. Maintenance costs were born by the Government as a part of the Ecclesiastical Establishment vote. By the end of the 19th Century the Cemetery was placed under the jurisdiction of the newly created Sanitary Board (Smith, 1985:18 and PRO Ref. HKMS44). The Sanitary Board was renamed the Urban Council in 1936 and the duty to manage the Cemetery was finally taken over by the FEHD after the Urban Council was disbanded in 1997.

3.3.2. Based on records from the Public Records Office, it was not uncommon to have the graves and monuments rearranged. Old graves were exhumed to release land and allow further burials. Graves that were cleared were reinstated in another section of the Cemetery or else the remains were placed in the ossuary. There were monuments from the other parts of Hong Kong moved in to the Cemetery, including two from Happy Valley and one from Yaumatei, which were relocated to Section 21A.

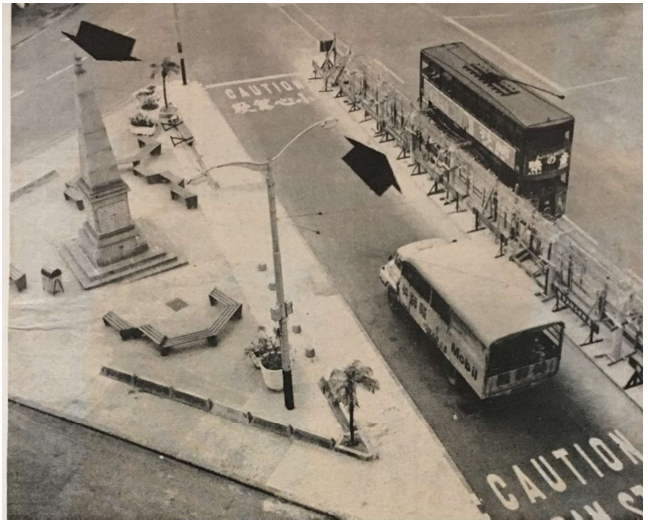


FIGURE 3-40 Obelisk in its origianl location. From Newspaper cutting (PRO Ref.:HKRS70-2-187: 3 Mar 1968)

FIGURE 3-41 Relocated obelisk monument for HMS Vestal

A WESTERNER'S COMMENT OF THE CEMETERY...

"an extremely beautiful spot, for all around is to be seen the rugged grandeur of nature's own handiwork; the free elemental play of stream and sky and mountain – a truly wonderful background, and a magnificent object lesson of the infinitude and vastness of things" (South China Morning Post 6 June 1913) from Smith, 1985:17.

3.3.3. As the responsibility for tombstone repair rests with the surviving relatives of the deceased, so that any headstones or memorials that are damaged by the typhoon, for example, would need any necessary repairs to be undertaken by the relatives themselves (PRO Ref. HKRS70-2-187). And from government correspondence, it clearly states that although the Cemetery site was *administrated* by the Urban Council, it did *not include* the maintenance of memorials (PRO Ref. HKRS156-1-3359).

The Burials

3.3.4. The Public Health and Buildings Ordinance (No. 1 of 1903) included a clause allowing separate sections of the Cemetery to be reserved for special groups, there were sections for "naval and military commissioned officer, civil servants, residents of more than twenty-one years standing, residents of more than seven years standing, children and destitute" (Smith, 1985:19).

3.3.5. Although the Cemetery was referred as "the Protestant Cemetery" in most 19th Century Government official documents, the Christian Cemetery Ordinance of 1909 allowed certain sections of the Cemetery to be used for the burial of any person 'professing the Christian religion' (Ko, 2000:266).

3.3.6. For deceased Chinese, an unofficial record showed that Chinese burials were not permitted in the Cemetery in the early days, they were not even allowed to enter the Cemetery at least until 1885 (Ko, 2000:247). However, Chinese was allowed to be buried in the Colonial Cemetery in the late 19th Century to early 20th Century, but there was dissatisfaction among wealthy Chinese, who requested a special section to be reserved for them in the Cemetery (Smith, 1985:19).

3.3.7. For Japanese, there were no cemetery designated for them in Hong Kong, so that the earliest Japanese burials were found intermingled with Christians burials until a special section was set aside for them and later, in the early 20th Century, their numbers increased significantly and Buddhist ceremonies were held at the grade side (including chanting and

A CHINESE VIEW OF THE CEMETERY...

As expressed by Mr Lau Chu-pak, a leader of the Chinese community, in a discussion concerning cemeteries at a meeting of the Sanitary Board in 1909. He quoted Confucius as saying that burial places should not resemble pleasure gardens, rather they should be in harmony with these who weep and mourn (Weekly Press 17 April 1909) from Smith, 1985:17.

burning joss sticks), this caused considerable annoyance among the western community, who considered the Cemetery was meant for the burial of Christians only. However, Governor Sir Frederick Lugard ruled that the Cemetery should no longer be a strictly Protestant cemetery and the Japanese burials were allowed to continue (Ko, 2000:255).

3.3.8. The practice of segregation continued and by 1951, there were the following 13 different categories:

(i) General; (ii) Residents of 7 to 19 years residence in Hong Kong; (iii) Residents who have been in Hong Kong 20 years or more; (iv) Children; (v) Paupers; (vi) Civil Servants; (vii) Police; (viii) Military, other ranks; (ix) Military officers; (x) Naval ratings; (xi) Naval officers; (xii) Clergy; (xiii) Japanese. However, the size of each reserved section was subject to the rate of usage by the specified group (PRO Ref.: HKRS156-1-2469: 22 Mar 1951).

The Landscape

3.3.9. There were complaints about the condition of the Cemetery in 1865 and an article in the China Mail (23 November 1865) stated that it was nearly full - for at that time there had been 3100 burials. The writer suggested that the Cemetery be made into 'an ornament and not a disfigurement'. Also, he thought it not proper that the Colonial Chaplain allowed his ponies loose to graze in the cemetery. Although he had no complaint about the grounds-keeper, Mr. Donaldson, who "kept things in order, reduce over luxuriant foliage and planted trees and shrubs in bare places". He also suggested that for "trifling cost the bare blank walls along the road could be made more ornamental". The south end of the cemetery, however, was unenclosed and as far as he knew, was unconsecrated. He suggested this remedy: "rising in a rapid slope, could be greatly improved if it were grassed and flowering shrubs planted". And instead of having the centre of the race course laid out and planted, he suggested that "we should rather see the cemetery beautified and cared for" (Smith, 1985:19). The writer made very specific suggestions to improve the landscape of the Cemetery and it showed the current European thinking in garden cemetery design.

3.3.10. Towards the end of 19th Century, the Cemetery was remodeled as a garden cemetery in the latest European fashion. This remodeling made the Hong Kong Cemetery very different from the other cemeteries in Hong Kong. It featured flowering trees, winding paths, spaciousness and a fountain in the Classical style. The idea was to replace the unsanitary condition associated with many other old churchyards and it was probably inspired by the Père Lachaise Cemetery near Paris founded in 1803 (Lim, 2011:20). A garden cemetery was seen by the designers as a "place for leisure and a walk among the flowers and butterflies to admire the beauties of God's work and to contemplate ones readiness to join ones ancestors".

3.3.11. As described by a newspaper in 1975 (PRO Ref. HKRS 70-6-201-1), the Cemetery was "spacious, with over 11,000 tombstones in over

30 sections, there were pine trees and other evergreen trees, the environment was nice. There were visitors coming for morning exercise and there were students coming to read".

3.4. The Engagement

Commonwealth Military

3.4.1. Between 1841 and 1969, there were approximately 1300 burials in the Cemetery for military personnel; and today, the Commonwealth War Graves Commission is committed to the maintenance and care of these graves. It contains 83 scattered Commonwealth burials of the First World War, 62 from the Second, together with 1179 'non-war' graves of serving military personnel, in various sections of the Cemetery (Commonwealth War Graves Commission).

Social Class

3.4.2. In terms of social class, those graves that have survived from the 19th Century are predominately from the middle and lower middle classes. Because, rich merchants and the top civil servants tended to eventually return to their home country, so that they left Hong Kong if they were seriously ill or retired from their jobs. Thus fewer successful merchants and government officials were buried in the Cemetery, as a proportion to the number of people who could be ascribed to the middle class (Lim, 2011).

Different Nations

3.4.3. There are 108 Russian graves in the Hong Kong Cemetery, the oldest dating back to the end of 19th Century, although the majority date from 1950-1970s. More than 60 burials were White Russian émigré who had firstly escaped to China after the Russian Revolution in 1917, then later fled from China to Hong Kong after the Chinese Communist Revolution in 1949; these included Father Dmitry, the first Orthodox priest in Hong Kong in 1934.

3.4.4. Since 2004, the Russian Orthodox Church in Hong Kong continues to hold regular services at the Cemetery on Holy Days according to the Orthodox Liturgical Calendar (i.e. about twice per year). These services are held either near the Russian graves in the Cemetery or else in the chapel (Figure 3-42 below).

FIGURE 3-42 A memorial service in the Cemetery (Saint Apostles Peter & Paul Orthodox Church in Hong Kong)

3.4.5. According to the interview with Father Dionisy (the current priest of the Russian Orthodox Church in Hong Kong), in 2008/2009, their Church requested Hong Kong Government for permission to use the chapel in the Cemetery as a permanent place for their religious services; however, permission was not granted.

3.4.6. In addition to Russians graves, there are 465 Japanese, who passed away from 1878-1975 and were buried in the Cemetery. The Japanese included sailors, merchants and young girls (often brought to Hong Kong and became prostitutes). In addition to the graves, there is a memorial "萬靈塔" erected in 1919 by a Japanese Charity Association in Hong Kong, which was relocated from So Kon Po in

1982. Next to the memorial, 25 Kawazu Sakura were planted in 2004 by the Hongkong Japanese Club (Figure 3-43), who formed a Cemetery Management Committee in 2000, since then they have held their own memorial service in March every year (Figure 3-44 below).

FIGURE 3-43 'Cherry Blossom Time' (The Hong Kong Japanese Club)

FIGURE 3-44 Memorial service for the Japanese buried in the Cemetery (Chan, 2014)

3.4.7. For many years, Hong Kong Cemetery was the only public cemetery in the SAR, and it has always been open to receive the deceased, irrespective of race or creed (Smith, 1985:24). Over time there have been arguments for portions of land to be reserved for different groups and annoyance due to different culture and practice. As time goes by, the disagreements have been settled and the Cemetery has come to peace. The Cemetery is proud that it **serves both the rich and the poor**; for those who can afford the burial tax, they received a gravestone with the decease's name engraved; while those who did not possess this sum, they received a basic numbered but unnamed granite markers. Also, there is **no national distinction** - British, Scottish, Swedish, Germans, Americans, Scandinavians, Dutch, Russians, Japanese, Chinese, Armenians, Eurasians are buried here. Finally, there is **no religious prejudice** - there were Protestants, Christians, Russian Orthodox, and Buddhist buried here.

3.4.8. The Cemetery provides a fascinating history of Hong Kong and South-East Asia generally, all of which may be discovered amongst the burials, for example: the history of White Russian refugees, Chinese revolutionaries, armed services, successful or unsuccessful businessmen and traders, civil servants and other workers who came to Hong Kong purposely or unwillingly and ended up died in this foreign ground, history of Hong Kong developing from an unhygienic and unsecure fishing village with many diseases and pirates.

4. BUILDINGS AND STRUCTURES APPRAISAL

4.1. Chapel

4.1.1. The Chapel in the Cemetery was designed as a 'mortuary chapel' (also known as a 'Chapel of Rest') and was built soon after the Cemetery was established. It is one of the earliest Western religious building remaining in Hong Kong; it was designed and built purposely for holding funeral services and it remains a picturesque and iconic structure of the Cemetery.

FIGURE 4-1 East and North elevations of the Chapel (Luc Carson)

FIGURE 4-2 West and South elevations of the Chapel (Property Conservation)

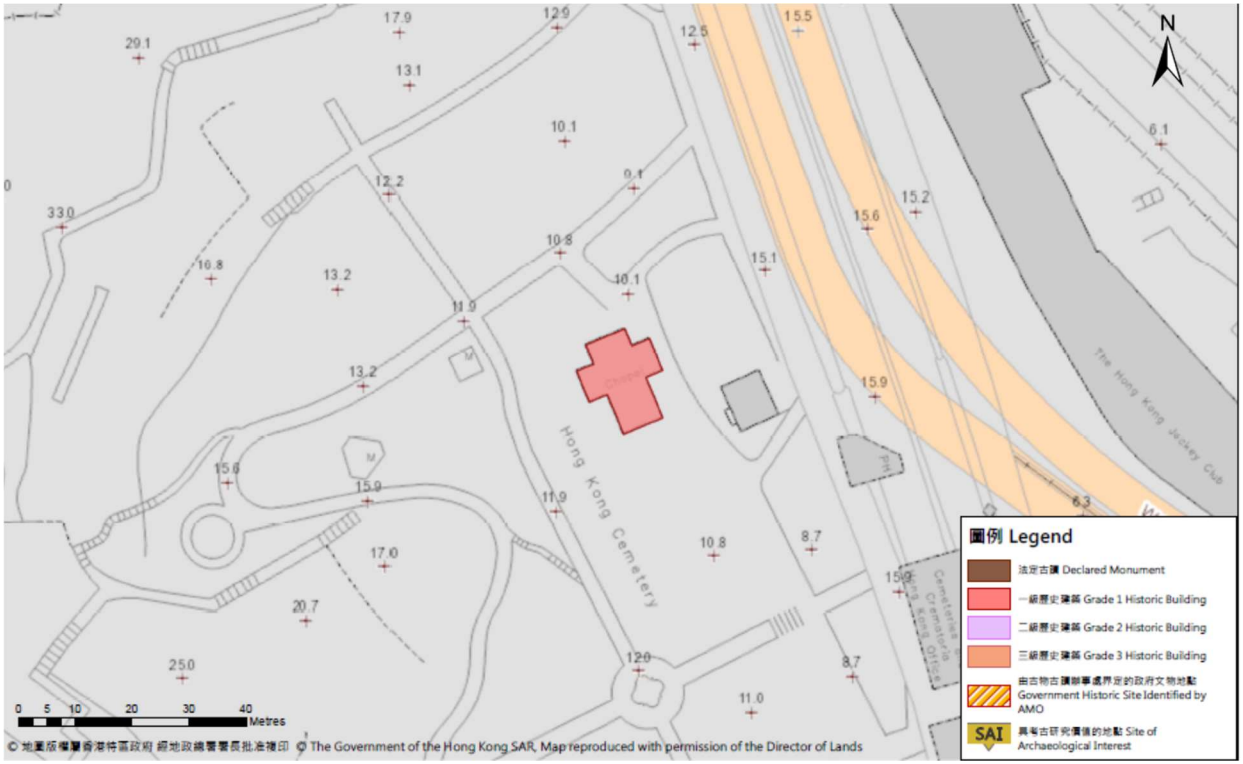


FIGURE 4-3 Orientation of the Chapel in the Cemetery (AMO)

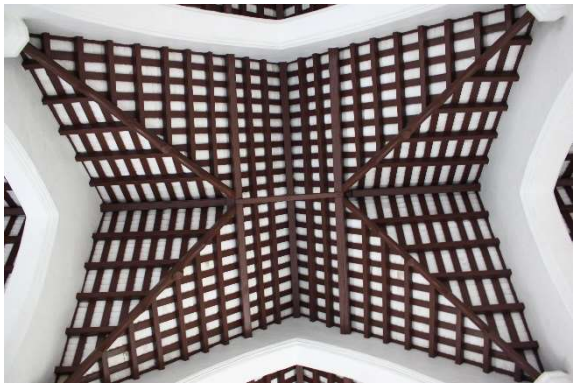
Architectural design

4.1.2. The Chapel is a single storey building with pitched roof and a traditional cruciform plan. It has coped buttresses, gable and walls, latticed windows and paneled hardwood doors, string course, masonry plinth and steps. The arches of the doors and windows are flat pointed with square-shaped label mouldings above (features of the Tudor Revival period). The East and West gables are symmetrical while the South and North gables have bullseye windows instead; there is latticed window on the South but not the North side. Internally, tall transverse Gothic arches support the roof structural; the roof is covered with Chinese clay tiles. Internal walls are plain plastered and painted white without many details, except for simple decorative mouldings on the columns. The floor is of grey and white chequered marble tiles and the woodwork was in natural hardwood or painted brown. There are a few electric lamps fixed on the columns. But, outside, there is small unsightly toilet on the West side (a later addition).






FIGURE 4-4 Exterior views of the Chapel





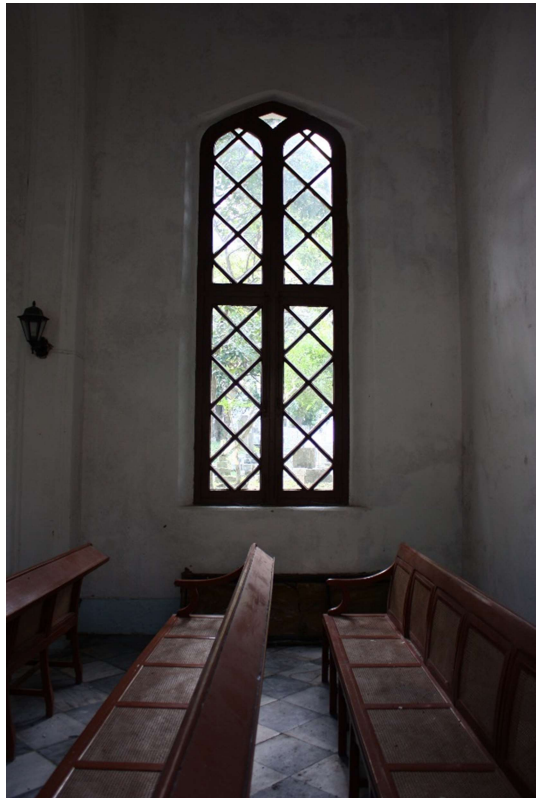



FIGURE 4-5 Interior views of the Chapel

4.1.3. There are two memorials plaques set on the North wall of the Chapel; one to the memory of Rachel Mary Hele Lampson (1886-1930). She was the wife of Sir Miles Wedderburn Lampson (1880-1964), a British diplomat (Dickinson, 2014); and her grave is in Section 16C in the Cemetery. The other plaque is dedicated to Charles Henry Eastwick Lodwick who died at sea in 1876 aged 20, and was the grandson of General Peter Lodwick, who served with H.M. Forces in India (Hange, 2015). A memorial niche is also set into the wall inside the Chapel.

FIGURE 4-6 Bronze memorial of Rachel Mary Hele Lampson in the Chapel (Property Conservation)

FIGURE 4-7 Marble memorial plaque to Charles Henry Eastwick Lodwick in the Chapel (Property Conservation)

FIGURE 4-8 A memorial niche in the wall of the Chapel (Property Conservation)

Historical development

4.1.4. According to records, the chapel was in process of construction as at 12 May 1845, for the reception of the dead and for shelter during funeral services and it was built with a sum of £241 (CO129/12 pp. 68-77). The following is a description of the building from the Report in CO129/12 pp 72-73 (but some of the handwriting cannot be identified and is marked in red below):

The Chapel is to be in the Tudor Style of architecture and is prepared to be constructed with foundations and plinth covered of stone. The steps and window sill also; the remaining portion of the walls will be of round brickworks, plaster inside and out to resemble free stone, drain and joints in regular courses. The doors, posts, and window frames are to be of hard wood, and the panels to mount of window, screen to restitute and vestry

of China fir. All grained and painted to imitate hard wood or oak. The roof is to be constructed with China fir, common rafters and couples 8x4 inches purlins, 3 inches in diameter placed 3 feet apart and projecting one foot xx over side walls. The latching set to gage of tiles 3 inches wide and half an inch thick. Wall plate 9x4 inches of hard wood. The whole to be covered with a double course of second 5 inch tiles, well and securely bolted and channeled. The fitting for the chapel will consist of reading desk for the Chaplain and xx and forms or seats for the audience or attendants at funerals. A table and chair will be provided for the vestry and locker for the deposit of such books and other articles that may be required. The interior doors will have substantiated English locks, and bolts and xx for xx and the other doors also of approved contraction. The xx will be filled with oyster shell placed diagonally which reduce the great glare from without and do away with the necessity for xx. The floor is to be tiled and painted.

4.1.5. The Chapel was built for holding funeral services, it was in a regular cruciform shape when it was built. There were four distinct areas, the Vestry, Porch, Altar and Benches.

4.1.6. Based on the layout and dimension of the original plans dated 10th March 1845 prepared in the Surveyor General (Figure 4-9), it can be seen that the Chapel retains much of its original appearance, while the altar used to be at the North side and the benches on the South; there were timber screens to separate the porch and vestry from the main space; the coffin was placed in the centre of the Chapel.

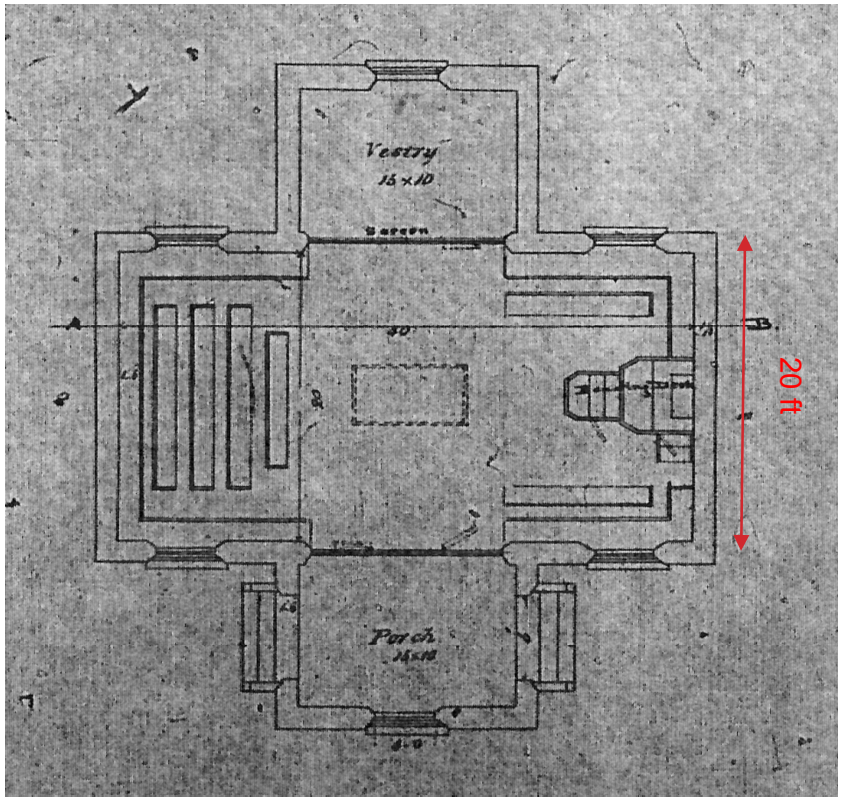


FIGURE 4-9 Design for the Chapel dated 1845 (CO129/74 pp.74)

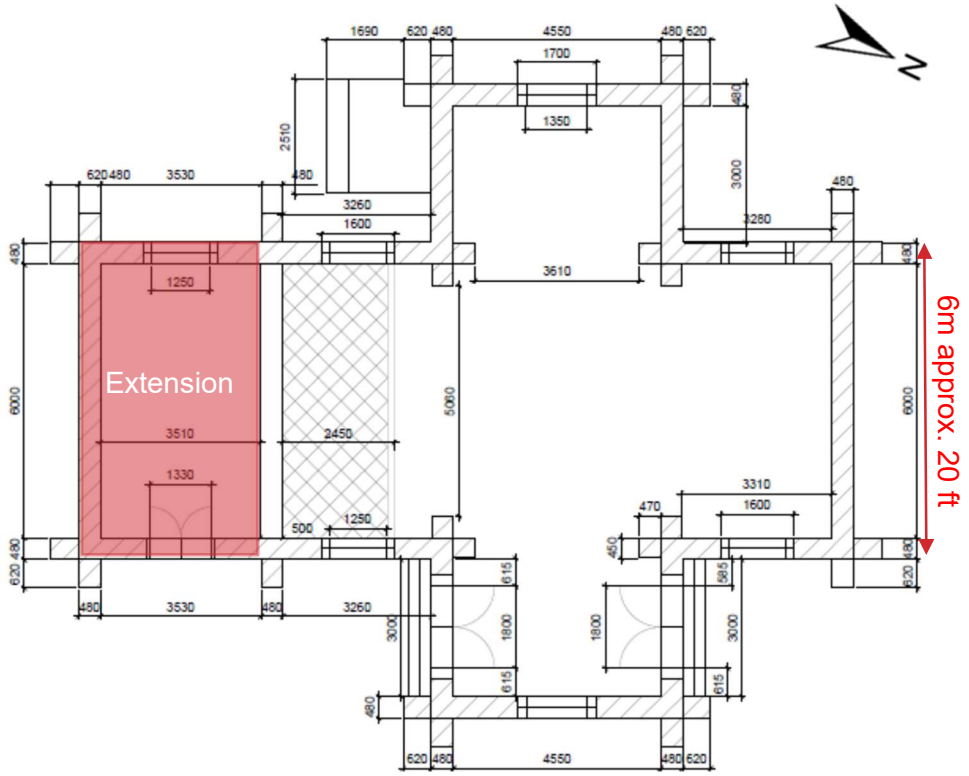


FIGURE 4-10 Layout Plan of the Chapel (Property Conservation 2016)

4.1.7. Colonial Office records in 1859 show that approval of a Report and Estimate of £683.14.2 was requested for the “Chapel in the Cemetery at the Wongnaichung Valley” (CO129/74 p.511). It noted that the existing building “having become entirely dilapidated and unfit for further use”. But, the full report and plan from the Surveyor General, claiming to be received under separate cover, has not yet been discoverd. However, by comparing the rough 1845 plans (Figure 4-9 and Figure 4-11) with the 1931 photos (Figure 4-12), it is noticed that the entrance at the left of the Porch was blocked; cope buttresses were erected at the corners, a triangular window inserted under the cross had been added (East elevation); also, the plaster moulding under the cross had been altered.

4.1.8. It is believed that major restoration was carried out in 1860, with re-roofing and some of the design changes. It is uncertain whether this should be considered as a complete ‘demolition’ or merely an ‘alteration’, because the general dimensions of the building outline, and window and door openings were all retained.

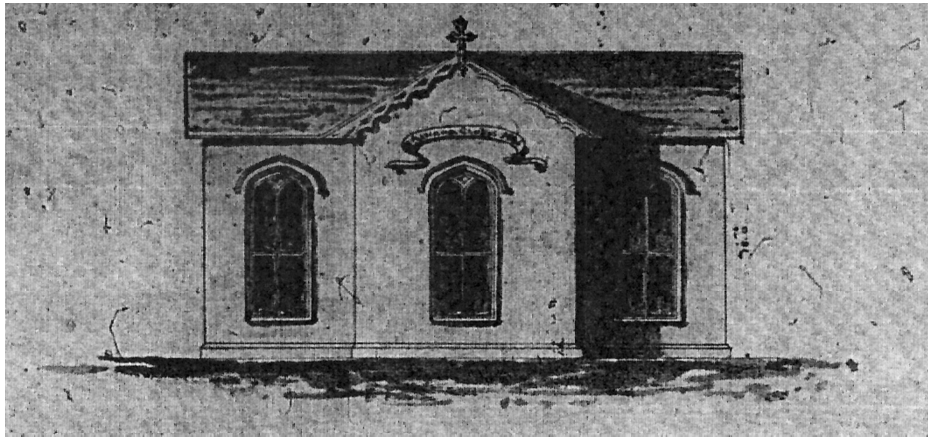


FIGURE 4-11 Design for the Chapel dated 1845 (CO129/12 pp.74) Assuming this is the East Elevation with the cross above the gable

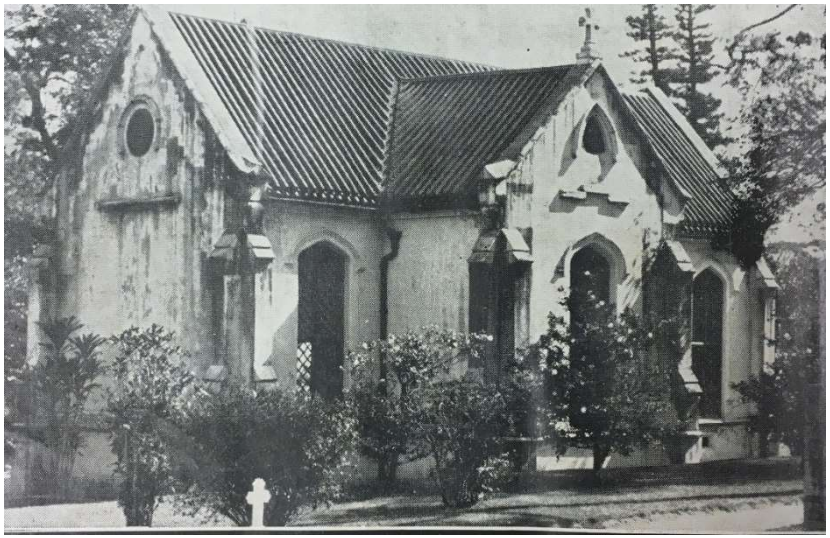


FIGURE 4-12 East Elevation in 1931 (Hong Kong Telegraph from PRO REF.HKMS61-1-128)

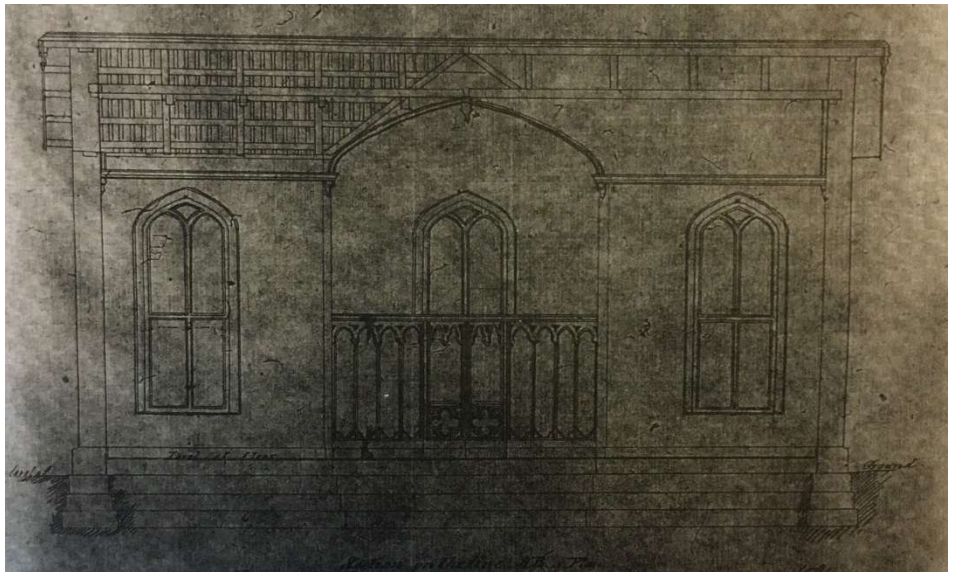


FIGURE 4-13 Design for the Chapel dated 1845 (CO129/12 pp 75) Section on the line AB in FIGURE 4-9

FIGURE 4-14 Interior view (Luc Carson)

4.1.9. In the 1930s, with a gradual reduction in the number of deceased requiring burial, the Chapel was only occasionally used in wet weather for burial services and its use as a mortuary chapel gradually decreased. Special permission was given by the Government, for the Chapel to be used as a place for general worship for a limited period and it was dedicated as 'The Chapel of the Resurrection' in March 1932.

4.1.10. To accommodate with this new use, some improvements were made by the Government, including: New furnishing to allow for about 40 attendees; A section of the floor raised to form a step up to the raised altar in November 1931 - the altar was relocated from the Lady Chapel at St. John's Cathedral.

4.1.11. By comparing Figure 4-15 and Figure 4-16, it was noticed that the existing marble floor tiles match the rest of the floor, therefore the "raised floor" in 1931 might have been a temporary addition and was later on removed. The design of the timber window frames now follow pattern of the 1931 design but it is different from the old one.

A CHAPEL IN A BURIAL-GROUND...

Many would be deterred from coming (to a church in the cemetery) owing to the surroundings, even though they constitute what is often spoken of as "the most beautiful cemetery in the world." It is to be remembered that the old Parish Churches of England, one of the glories of England, have in nearly every instance within their churchyards the town or village burial-ground (newspaper cutting in November 1931 from PRO Ref.HKMS61-1-128).

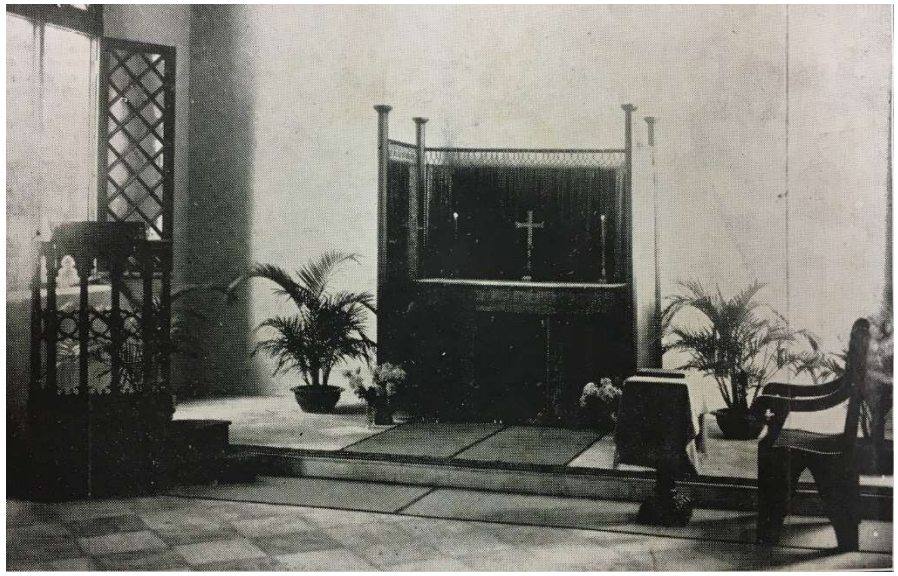


FIGURE 4-15 Raised floor and Altar inside the Chapel in 1931 (Hong Kong Telegraph from PRO Ref.HKMS61-1-128). The font is on the left hand side.

FIGURE 4-16 Raised floor and Altar table inside the Chapel in 2013 (Property Conservation)

FIGURE 4-17 Exterior of the Chapel in 1931 (Hong Kong Telegraph from PRO Ref.HKMS61-1-128)

FIGURE 4-18 Exterior of East end of the Chapel in 2016 (Luc Carson)

4.1.12. The expanded use of the Chapel was mainly for the convenience of Happy Valley and Causeway Bay residents who were unable to attend St John's Cathedral. From 2nd November 1931 to 9th February 1936, there were Sunday services in the Chapel. Originally, there was planned to be a weekly Sunday services (5:15pm-6pm) in the form of evensong, an address and Holy Communion (From 8am) on the first Sunday in each month. About 15 people attended the services at first, then they dropped to less than 10, and sometimes only one or two attended. Due to the climate, the service was suspended during the summer. From December 1933, services included a monthly Holy Communion; and the last record was in February 1936, when there were only 4 attendees [PRO Ref. HKMS61-1-128&129].

4.1.13. In Figure 4-17 and Figure 4-18, an extension can be seen at the East elevation, plus an entrance has been added to the South porch with its separate door. This new extension closely followed the original design and ornaments of the Chapel, so that without reference to the old plan, it is not obvious that it is not part of the original building. A photo dated 1946/1947 (Figure 4-19) clearly shows the completed extension, confirming this alteration was carried out between 1931 and before 1946/1947.

FIGURE 4-19 Old racecourse and cemeteries of Happy Valley, Eastern Districts, Hong Kong Island (Morrison, Hedda, 1946-1947; reproduced with permission of Harvard-Yenching Library, Harvard University)

4.1.14. Inside the new extension, the original bullseye window in the South wall was blocked, but the moulding and string course still exists on the same wall, confirming that this wall was an external wall of the main Chapel, prior to the new extension.

4.1.15. The extension comprises a single open space which appears to have been used for the temporary storage of coffin, for use by cemetery

workmen and their tools and as a store – reasons are its independent outside access with no direction connection to the main (no direct lit linked to the main Chapel), and vents near to the ground. Also, the floor is cement, unlike the expensive marble floor in the main part of the Chapel and floor drainage is provided for easy cleaning internally.

4.1.16. Regarding the existing small toilet block attached to the Chapel, it appears to have been built prior to 1963, based on the aerial photo; however, it is so small it cannot be identified clearly, therefore it is uncertain exactly when it was built. Nevertheless, it was not part of the original cruciform plan of the Chapel; also its red brick wall and concrete roof suggest it is of post-1930s.

4.1.17. In 1976, when a large number of old graves were exhumed, there was a special service in the Chapel conducted by the Dean of St. John's Cathedral (PRO: Ref. HKRS 70-6-201-1).

4.1.18. Besides the major identified changes, there has been routine maintenance carried out by the Architectural Services Department, in recent years, such as re-rendering of walls, re-roofing and replacement of woodwork.

FIGURE 4-20 Label-moulding on the South wall

FIGURE 4-21 String course to the same wall

FIGURE 4-22 Drains at the edge and vent at floor level

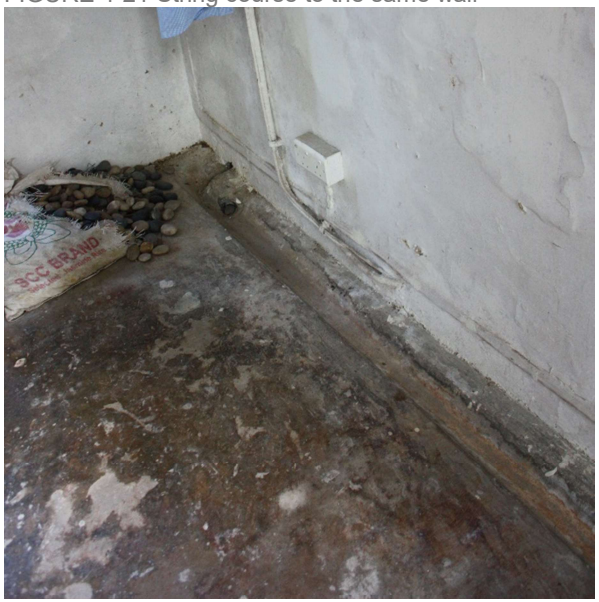


FIGURE 4-23 Drains at the edge of the cement floor

Management

4.1.19. In the 19th Century, the Cemetery was under the management of the Colonial Chaplain. By the end of the century, the cemetery was placed under the jurisdiction of the newly created Sanitary Board. Then with the restructures in Government, it is now under the management of FEHD.

4.1.20. A visit inside the Chapel can be arranged with the Cemetery Office, but it is no longer in active use and is usually locked and vacant.

4.1.21. Churches like the St. Andrew's Church and St. John's Cathedral are open to the public for most of the time, it is a place for worships and prayers. With the unique background as a mortuary chapel, and later as the Chapel of the Resurrection, the building retains an obvious valuable religious function, which unfortunately is no longer being appreciated or fully utilized.

4.1.22. Despite the close attention of the FEHD management and maintenance officers, the building is deteriorating from lack of careful and timely attention, for example, vegetation roots are growing inside the walls. Although regular painting may hide superficial problems, the fundamental issues have not yet been addressed, such as termite damage and rising damp. Also, the adjoining toilet block and an external water stand pipe, cause serious damp ingress through the original external wall, which worsens the overall dampness within the building and consideration should be given to its demolition. During the preparing of this guidelines, signs of termites damage was visible to the doors.

FIGURE 4-24 Tree root inside the wall

FIGURE 4-25 Timber door with signs of termite at the wooden cill

FIGURE 4-26 Use of water tap at the West side of the Chapel causes constant dampness to the historic wall

Meaning and Significance

4.1.23. The Chapel is the only graded structure in the Cemetery and was accorded Grade 1 by the Antiquities Advisory Board in 2009. The Board assessed its heritage values against six criteria, namely: historical interest, architectural merit, group value, social value and local interest, authenticity, and rarity. With this Grade 1 status, the Board recognized it is a building of "outstanding merit, which every effort should be made to preserve if possible".

4.1.24. Being originally constructed as a mortuary chapel, makes it an exceptionally rare building type in Hong Kong, with a long history dating from the 1850s. However, due to the inactive use and neglect, the 'social importance' of the Chapel has now diminished with only little connection with the local society; but this could be reversed with more attention management and regular reuse as a place for worship or for any other social benefit for the district.

4.2. Ex-Office Block

4.2.1. The ex-office block was built in 1970 and described as “IJ Grade Quarters”. It comprised an Office, Store, Lavatory, Changing and Waiting area on the Ground Floor, Quarter, Kitchen, Lavatory, Barrack, Mess[3] and Verandah on the First Floor, and a flat roof. The changing facility was for the clergy officiating at funerals; the quarters were for one Class II Foreman, and the barrack accommodation for two labourers (PRO Ref.:HKRS70-2-187: 13 May 1970).

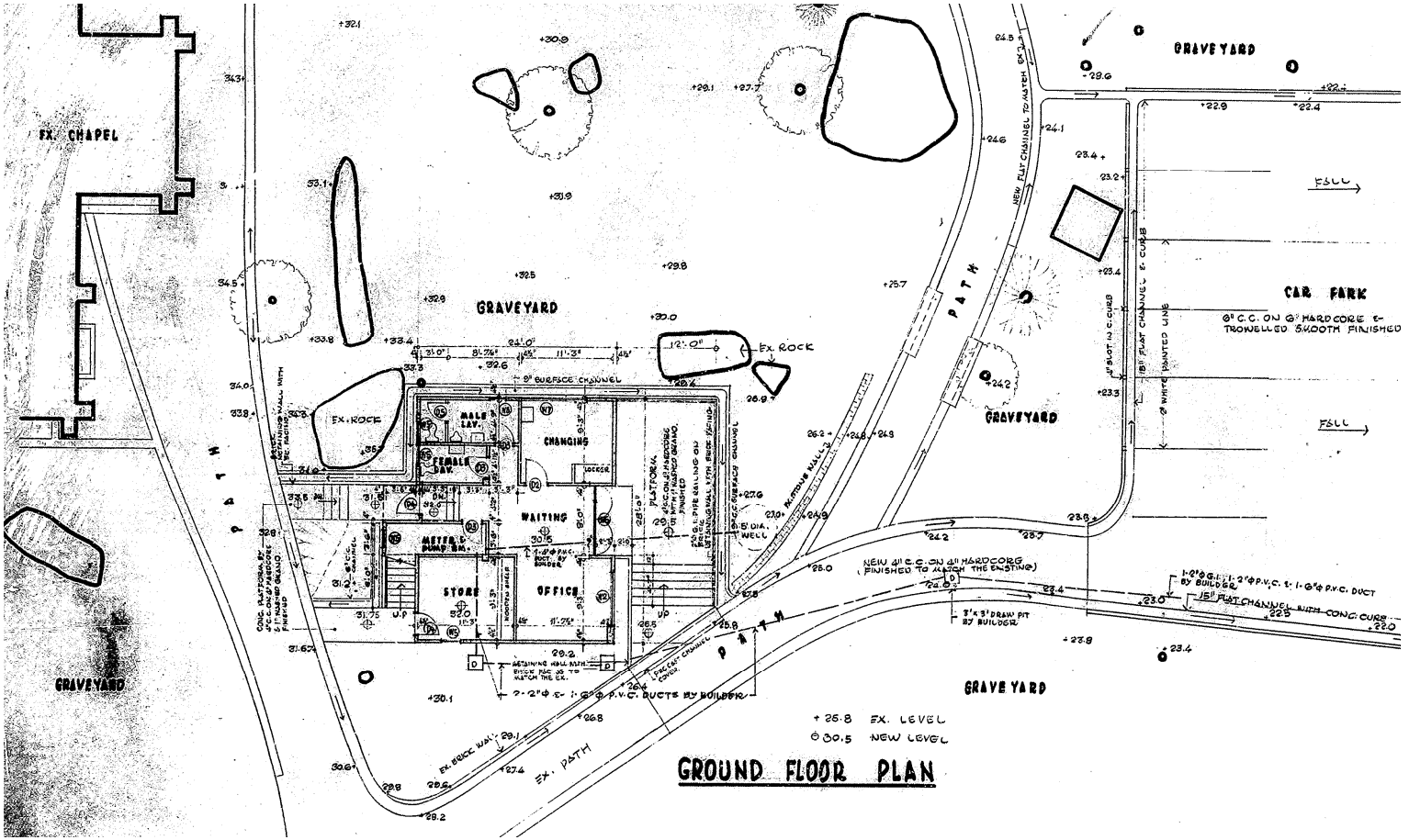


FIGURE 4-27 Extracted from Architectural Services Department (Drawing No. A53577, 1970)

[3] A mess or mess hall is an area where military personnel or members of other institutions, socialize, dine and live. From the Latin word, “mesa” is dining table.

Architectural design

4.2.2. The ex-office block is a reinforced concrete two-storey structure with external plaster, cement paint and steel windows. Its design is 'Functional Modernist Style', with some simple details suitable for the varies functions needed for routine management of the Cemetery. Its general appearance has remained unchanged over the past 40 years. Public access is not allowed into the building and the Cemetery workers sometimes use the canopy behind the staircase as a resting area after work periods.

FIGURE 4-28 East Elevation and Entrance (Property Conservation)

FIGURE 4-29 West and North Elevation (Property Conservation)

FIGURE 4-30 South Elevation (Property Conservation)

Drawings

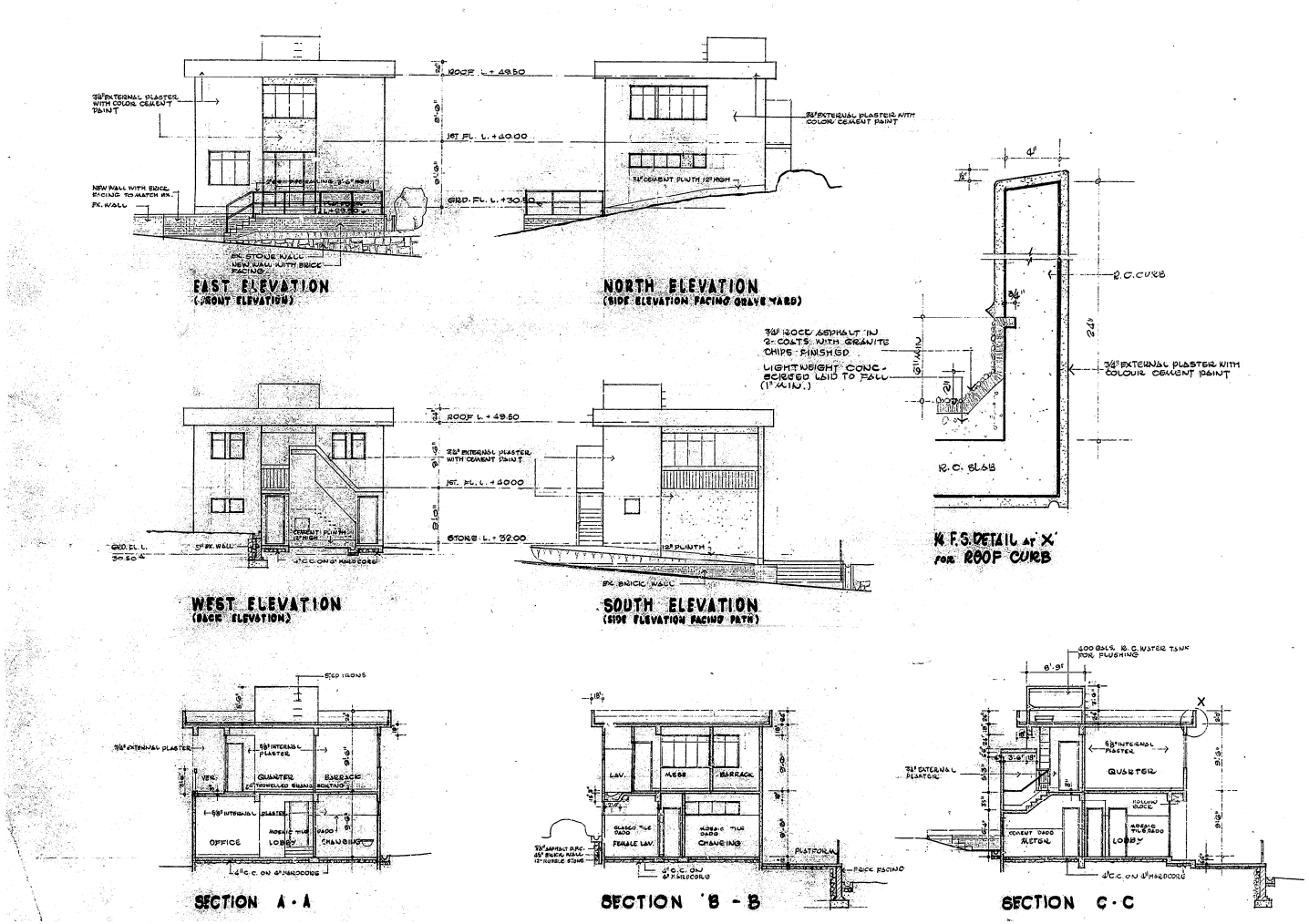


FIGURE 4-31 Extracted from Architectural Services Department (Drawing No. A/53578, 1970)

Meaning and significance

4.2.3. The ex-office is located at the entrance to the Cemetery, it is the first spot that visitors see on their arrival. Although it was not the first Cemetery Office to be erected there, it is a direct replacement for the first Cemetery Office when that was demolished to make way for the Aberdeen Tunnel c1975. Being located close to the Chapel, the Office Block has defined the area of Cemetery administration since the early days. The building is now used for miscellaneous storage and records; but it would provide a valuable revitalization opportunity if it could be converted into a visitor and information centre for the Cemetery.

4.3. Fountain

Architectural Design

4.3.1. At one time there were four fountains in the Cemetery, according to 1922 plan, but only one fountain now remains (Figure 4-32). This remaining fountain is set in a small central square with semi-circular bays on the four sides. The same pattern can be found at the Parsee Cemetery and Jewish Cemetery in Happy Valley. According to Nicholson (2010:6) “In the Bible (Genesis, Chapter 2, Verse 10) it states that, ‘A river watering the garden flowed from Eden, and from there it divided; it had four headstreams.’ The Happy Valley fountain designs are believed to represent the rivers flowing out of Eden to the four corners of the world.”.

4.3.2. Above the granite bowl, is a stone statue of a little angel (Figure 4-33) who spouted water from a water jar (but this is no longer in operation).

4.3.3. Next to the fountain, there were four granite pedestals carrying large pot plants; however, the pedestals still exist nearby, but are hidden in the undergrowth.

FIGURE 4-32 Remaining fountain in the Hong Kong Cemetery (Property Conservation)

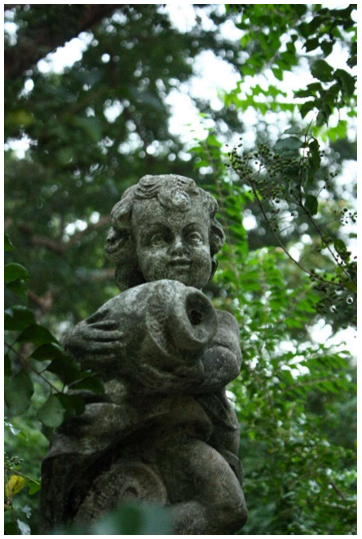


FIGURE 4-33 Stone angel (or cherub) (Property Conservation)

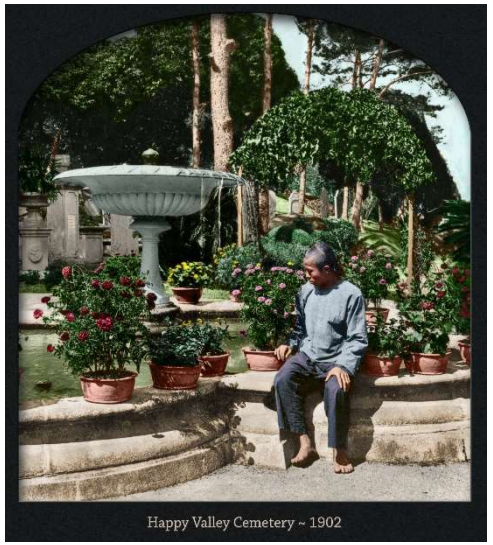


FIGURE 4-34 Hong Kong Cemetery on 1902 (Hong Kong Maritime Museum)

FIGURE 4-35 Pedestals next to the fountain (Property Conservation)

FIGURE 4-36 Hong Kong Cemetery in 1900 (Ko Tim-keung)

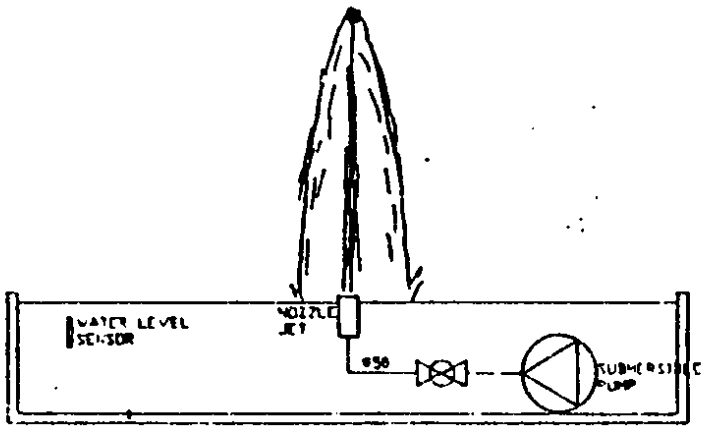
4.3.4. This is the oldest in-situ fountain known in Hong Kong and was probably installed when the Cemetery was remodeled into a 'garden cemetery' in the late 19th Century (Lim, 2011). Compared with the historic photo, the bowl of the fountain is the same but the nozzle outlet for the water spray has been replaced with a stone statue of an angel (or cherub).

4.3.5. But, it is no longer able to function as a fountain due to water supply defects. Photos from 2012 (Figure 4-37) and 2016 (Figure 4-38) show the fast rate of growth of the shrubs which now obscure the historic feature.

4.3.6. An Architectural Services Department plan (Drawing No. APB/16215R1) shows the proposed water supply for fountains F1 and F2. But the date of the drawing is unknown. As F2 was included in the proposal and the Aberdeen Tunnel was shown in the plan, it probably dates between 1976 to 1992. It shows the water supply to the fountain was from the Quarter's Toilet, to a pump at the base of the fountain (Figure 4-39).

FIGURE 4-37 Fountain in July 2012 (Property Conservation)

FIGURE 4-38 Fountain in November 2016 (Property Conservation)



SCHEMATIC DIAGRAM OF FOUNTAIN NO1 NTS.

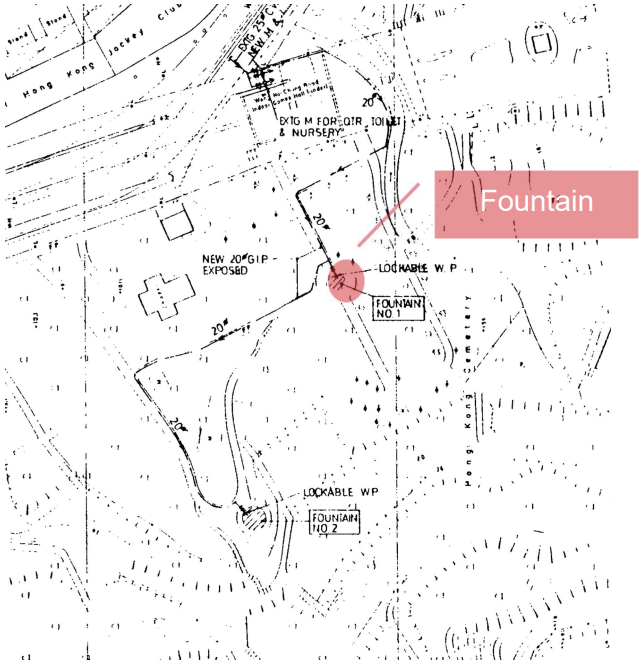


FIGURE 4-39 Extracted from Architectural Services Department (Drawing No. APB/16215R1)

Meaning and Significance

4.3.7. As a fountain was designed to be an essential feature of the upgraded historic landscape of the 'garden cemetery', it would be a valuable visual asset if it could be restored to working order. Both the Jewish Cemetery (Figure 4-40) and the Parsee Cemetery, display very attractive working fountains as a water feature to the overall landscape.

4.3.8. Now the fountain has become merely a planter, but it retains its prominent location as a "Crossroads" in the paths layout of the Cemetery and still provides an attractive landmark for visitors.

FIGURE 4-40 Fountain at Jewish Cemetery (Property Conservation, 2014)

4.4. Sundial

Architectural Design

4.4.1. There is an interesting ornament, which is believed to be a sundial, located close to the fountain (Figure 4-41). This is a pedestal design which is commonly found in large gardens as a decorative feature in a more simple form, but this one is of rather unusual design.

4.4.2. The ‘direction rod’ which causes the sun shadow, is in the shape of a Christian cross and it operates with two granite dials of hexagon shape; Roman numbers and scales are on the cross and an inscription in Greek lettering is around the ring under the cross. However, the actual operation of the sundial cannot be verified at present because it is obscured by trees and remains mostly in shadow.

FIGURE 4-41 Sundial

Historical Development

4.4.3. The sundial is not shown on the historical plans or aerial photos. But as a sundial can only function in open ground, it is possible that it has been relocated to the current location. This spot in Section 18 is close to William James Tutcher's grave. Tutcher (lived 1867-1920) arrived Hong Kong in 1891, and was Assistant Superintendent of the Botanical and Forestry Department since 1891 (Coak); he became their Superintendent from 1910-1919. Because, he supervised Hong Kong's public gardens, it is probably that he was very much involved in the remodeling and maintenance work of the Cemetery Garden. However, there is no evidence yet to confirm a firm connection between the sundial and Tutcher's nearby grave.

Meaning and Significance

4.4.4. The sundial is an interesting and unusual feature of the historic landscape of the Cemetery and probably dates from the 1890s, when the Cemetery was transformed to a 'garden cemetery'. Unfortunately, it does not operate at present, as it is usually shaded by trees. Further research is required to determine the history and operation of this interesting feature, together with specialist restoration – it could then provide a historic and scientific educational tool for student visitors.

4.5. Memorial and Headstones

4.5.1. A detailed report prepared by Architect K.J.R. Borthwick Arch., Dip. Arch. Cons. R.I.B.A., R.I.A.S. H.K.I.A. is at **Part II**. This reviews a sample of selected monuments and tombstones in the Cemetery with regard to :

(i) The individual or individuals commemorated;
(ii) The historic importance or interest of those commemorated;
(iii) Location of monument or grave;
(iv) Description of monument or grave; and
(v) Condition and recommended maintenance of the monuments and graves.

4.5.2. The selection was also influenced by important historical figures in Hong Kong, or those who made an impact on society. Others were selected in a more arbitrary manner on the basis of the form of the monument or grave, visual impact, sculptural form, symbolism or social history. Also noted was different types of damage found to monuments and graves and the recommended method of repair (this is based mainly on UK standards and may need some adaptation for Hong Kong).

Architectural Design

4.5.3. There is diversity in the style and design of the monuments or memorials, ranging from Neo-Gothic to Neo-Classical, Egyptian to Greek. The classical columns, obelisks, Christian crosses, stepped base, chest tombs, each carries its meaning and represent military or funerary symbolism.

FIGURE 4-42 Brigade of Royal Marines Monument situated at the top of the axis from the old entrance and fountain (Property Conservation, 2017)

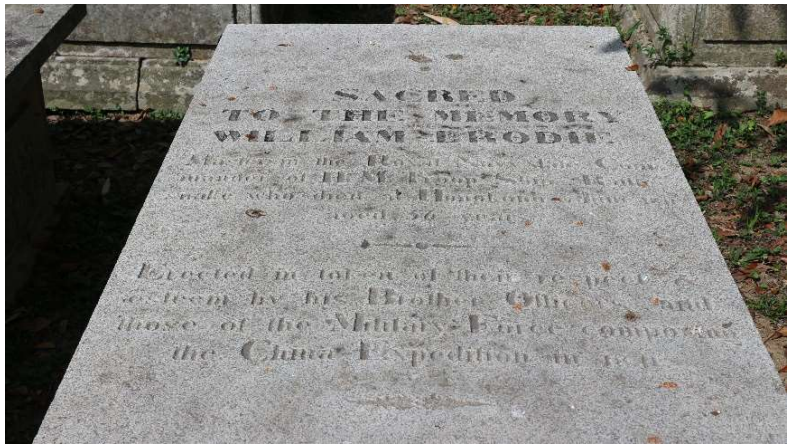


FIGURE 4-43 The chest tomb of Commander Brodie which is an important evident in tracing the historic of the Cemetery (Property Conservation, 2017)

FIGURE 4-44 Naval Monument to Officers and Men of H.M.S. Calcutta, one of the biggest monuments in the Cemetery, with many naval and funerary sculptures (Property Conservation, 2012)

Meaning and Significance

4.5.4. Many individual monuments and graves have considerable heritage value with regard to the person or persons commemorated or the historical event or circumstance which caused their demise, be it combat, combating plague, fever, aircraft crashes, or by rendering assistance in disasters such as typhoons or assassination. Tangible evidence of disaster or other catastrophes can be found on certain monuments, also there is evidence of those who helped to build and influence Hong Kong's development.

4.5.5. Many monuments in the Cemetery are over a hundred years old and provide valuable evidence of Hong Kong's history. Some are recommended to be graded in their own right, due to their architectural or sculptural qualities, plus their historical importance. At the same time, each historic monument and grave within the Cemetery can be considered as an important part of the Cemetery and should be preserved in-situ within its historic setting, in accordance with international charters.

4.6. Significance

Historic Value

4.6.1. The Cemetery witnesses the early development of Hong Kong, not only with its close links with Colonial history but also due to the territory's dependence and long associated connection with the sea and its pirates, shipwrecks and overseas trade.

4.6.2. The inscription on each monuments and headstone normally records the life of a person, together with the event that caused their death (e.g. an outbreak of disease). The categories and groups also records valuable demographic changes, which become a part of our historic archives, particularly in the 19th Century which are rare and limited.

4.6.3. In this fast-changing city, it is difficult to find a site which retains much of its character and spatial arrangement as it was in the late 19th Century.

Group Value

4.6.4. The region of Happy Valley is formed by a cluster of historic cemeteries including neighbouring Saint Michael's Catholic Cemetery, Muslim Cemetery, Jewish Cemetery and Parsee Cemetery. It has witnessed the multi-national development in Hong Kong, its engagement with different nations and their individual contributions to the development of this city.

4.6.5. The Chapel, the Quarters and the Entrance, all form the main structural / built heritage of the Cemetery. And although the Quarters are a replacement and the entrance is not the original, they still remain a focal point of the Cemetery entrance way and approach – by view from outside and which greet visitors entering into the Cemetery.

Spiritual Value

4.6.6. Graves of important figures in specific communities are still regularly visited. The site provides a suitable venue for deceased relatives from the world over to pay their respects and to learn more of the history of their ancestors.

Social Value

4.6.7. Hong Kong is a city of diversified cultures and the Cemetery still connects with different groups and nationalities, such as the Japanese and Russian communities. It has become one of their heritage roots in Hong Kong, as it marks the arrival and lives of the early founders, their stories, which all combine to leave a valuable tangible memory of the early days of Hong Kong and the region.

Natural Value

4.6.8. The formation of a 'garden cemetery' make this Cemetery unique in Hong Kong when first laid out and it still contains much of the original trees and landscapes; it also retains its quiet protected habitat, which is essential to nurture many species of birds, insects and reptiles.

Overall Significance

4.6.9. The existence of this mainly untouched piece of land in Hong Kong is now exceptional, for although there are other old cemeteries in Hong Kong, dating back to the 19th Century, the Hong Kong Cemetery remains the oldest. The burials are particularly significant in view of their diversified nationalities, religious and their wide span of dates. Due to this diversity, the site still connects to different ethnic and religious groups in Hong Kong and it records the roots of their ancestors. The concept of an early 'garden cemetery' also make the Cemetery unique. Over the many years of its existence, the natural habitats has matured to provide a rare example of an urban site containing considerable bio-diversity, interest and enjoyment.

5. GEOTECHNICAL APPRAISAL [BY A J COOPER]

5.1. Introduction

5.1.1. This section specifically deals with geotechnical aspects, as part of the Conservation Management Guidelines. It describes the topography of the site and some of the features (cut slopes, fill slopes, retaining walls or a combination of these), within the Cemetery as at 2016 and early 2017. It proposes improvements to methods by which upgrading works for slopes and retaining walls are carried out, in order to reduce their visual impact and hopefully lead to a more sympathetic approach to upgrading so that the results are more in keeping with the historic significance of the Cemetery.

5.1.2. The locations of the Cemetery and current study area are shown in Figure 5-1.

5.1.3. The Cemetery is currently managed by the Food and Environmental Hygiene Department (FEHD) of the Hong Kong Special Administrative Region Government (HKSARG). Maintenance responsibility for the slope and retaining wall features within the site lies with FEHD. The Architectural Services Department (ArchSD) of the HKSARG is the agent for carrying out maintenance on behalf of FEHD.

5.1.4. This section is written by Alan Jeffrey Cooper, who is an independent Geotechnical Engineering Consultant. He has worked in the construction industry since 1965, initially in the UK, then for 29 years in Hong Kong until January of 2011. He is now semi-retired. He obtained a Bachelor's degree in Civil Engineering, a Master's degree in Soil Mechanics and

GEOTECHNICAL FEATURES ARE MORE THAN JUST THAT...

While technical input is required for the safety of any slope in the Hong Kong Cemetery, there is more that needs to be considered. The drainage, the vegetation are also related and important. In addition to the engineering, the management, landscape design and expertise in conservation have a role to play in the keeping and maintaining of this site.

an MBA. He is a Member of the Hong Kong Institution of Engineers, (Civil and Geotechnical Divisions) and a Registered Professional Engineer (Civil, Geotechnical) in Hong Kong. His principal areas of expertise include slope stability, site investigation, laboratory testing, contract administration, quality assessment and providing advice with respect to both Geotechnical and Civil Engineering projects.

FIGURE 5-1 Cemetery Boundary and CMG Study Area

5.2. Information Sources

GEO Slope Information System

5.2.1. The Slope Information System (SIS) is a catalogue of information on 60,000 registered man-made significant slope features (cut slopes, fill slopes, retaining walls or combinations of these), identified in the HKSAR. It is maintained by the Geotechnical Engineering Office (GEO), Civil Engineering and Development Department and provides engineers as well as the general public with updated slope information through the slope safety website (http://hkss.cedd.gov.hk).

5.2.2. The available information on all features within the boundaries of the cemetery has been reviewed. A list of the features, with basic data extracted from the SIS, is in **Appendix B**. A more detailed description of each of the features within the study area is given in Section 5.4 and of other selected features within the cemetery in Section 5.5.

Other Documents

5.2.3. The web site 'Find a Grave' contains a plan showing the layout of plot sections dated 1983, subsequent to the building of the Aberdeen Tunnel (Figure 5-2). This layout remains largely unchanged today. Most of the slopes shown on this plan are referenced in the SIS, though some are too small to be included.

5.2.4. Google Earth was used to confirm the relation to adjacent cemeteries. The view in Figure 5-3 is looking west from Happy Valley. It shows the Parsee cemetery to the left, the Muslim and Catholic cemeteries to the right, and Stubbs Road above. Compared to the other cemeteries, the Hong Kong Cemetery has many more trees.

5.2.5. Topographic data has been obtained from the website of the Survey and Mapping Office (SMO) of the Lands Department of the HKSAR Government.

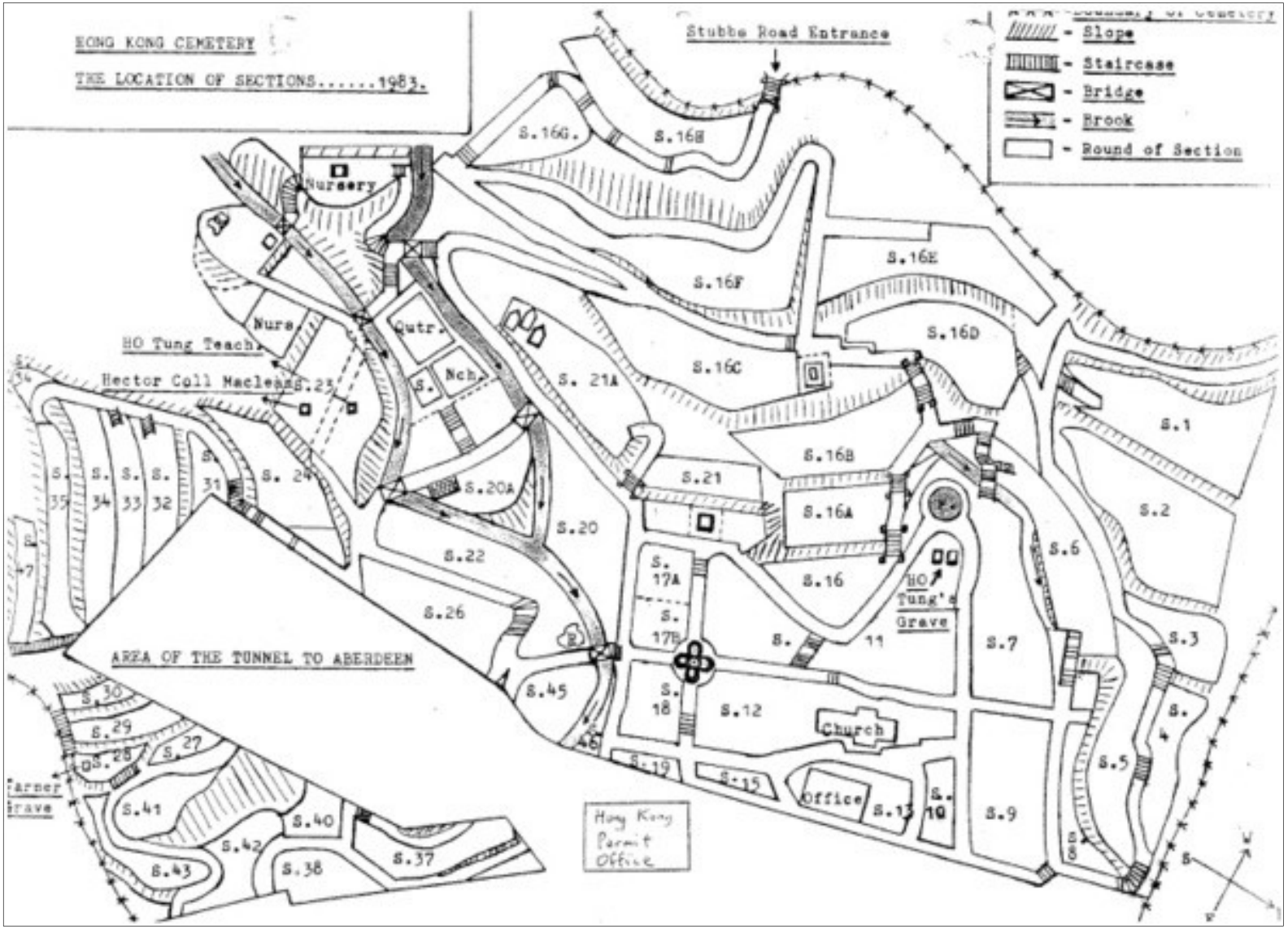


FIGURE 5-2 Locations of Sections (1983) (Source: Nelson (2009))

FIGURE 5-3 View of Cemeteries from the West (Source: Google Earth)

5.3. Technical Review – General Observations

Overview

5.3.1. The cemetery extends from Wong Nai Chung Road at an approximate elevation of +7mPD to Stubbs Road at approximate elevations between +50 and +66mPD. The overall slope angle varies considerably across the site, from about 12° to 17°.

5.3.2. Level platforms have been formed, mostly by cutting into the natural slope, leaving steep cut slopes or supported by retaining walls, collectively described as features.

Slope Records

5.3.3. Within the cemetery boundary, there are 57 such features listed in the SIS and one which is outside the boundary but is listed as being in the cemetery. They are shown on the plan in Figure 5-4 and listed in **Appendix B.**

5.3.4. Over the past 35 years, almost all features in the catalogue have been the subject of a site visit to collect basic information, known as a Stage 1 Study. This study recommended further study or no further study, and in some cases, immediate action. Features less than 3 metres total height would not be normally selected for further study.

5.3.5. Each entry in the SIS gives *Basic Information, Detail Information, Photo* and *Stage 1 Report* for the feature. For the listed features within the cemetery area, there are 9 without a Stage 1 Study (1 cut slope (C), 1 retaining walls (R), 2 fill slopes (F), 1 cut slope/retaining wall (CR) and 4 fill slope/retaining walls (FR)). For the rest, the Stage 1 Study has been completed and all but 7 recommended further study.

5.3.6. For those recommended for further study, such study is prioritised using criteria set out in a priority ranking system. This system has been modified several times; the current system is described in GEO Report No. 284, The New Priority Ranking Systems for Man-made Slopes and Retaining Walls (GEO, 2009).

5.3.7. The features in the cemetery would be low in priority. This is because the consequence of failure is low, since in most cases, there are no buildings threatened and little risk to life, and the features are relatively low in height. Upgrading would only be undertaken if failure or distress were noticed.

5.3.8. The area covered by the Conservation Management Guidelines is a relatively flat section, which slopes slightly upwards to the west. Only four features listed in the SIS are within this area.

Maintenance Responsibility

5.3.9. Maintenance responsibility for the cemetery, and therefore all features within it, lies with the FEHD, with the exception of a few associated with the Aberdeen Tunnel portal and along Stubbs Road. Though FEHD carries out general maintenance of vegetation (see below), since it has no expertise or capability to upgrade the features, ArchSD acts as its Agent in performing the task.

5.3.10. A particular problem with old features, particularly retaining walls, is that it is difficult to prove that they are stable, to the satisfaction of GEO, without detailed information about the soil conditions and soil strength parameters. The cost of investigation to establish these is often as much as the cost of upgrading works so the recommended further study is often deferred for low-priority features.

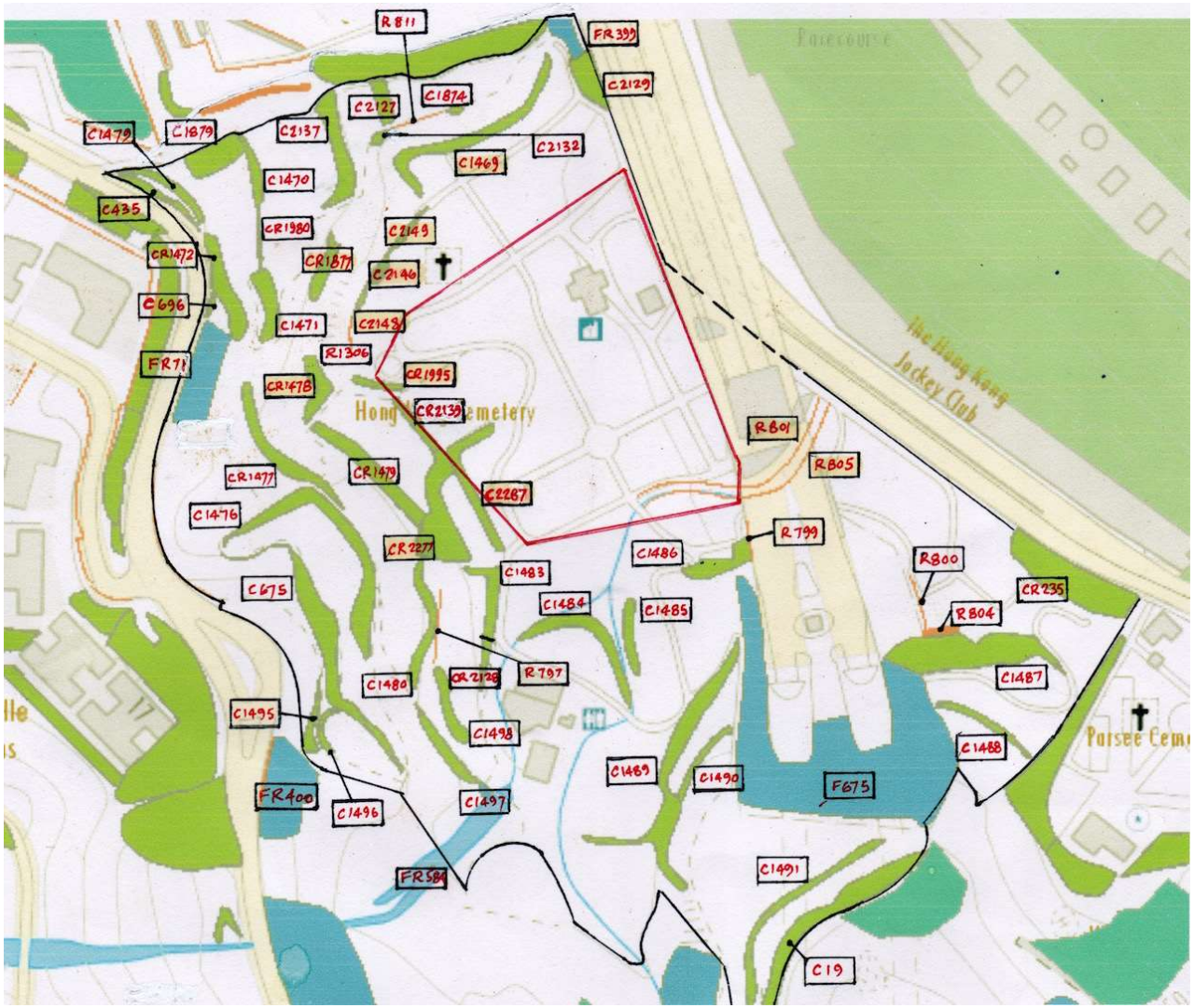


FIGURE 5-4 - Features Within the Cemetery Boundary

Notes: Fill slope 11SW-D/F675 and cut slope/retaining wall 11SW-D/C435, both shown as inside the cemetery boundary, are the responsibility of Highways Department (HyD).

Fill slope 11SW-D/FR400 shown as outside the boundary at bottom left is listed in the SIS as being within the cemetery, but responsibility is allocated to FEHD and HyD, with the agent for both being ArchSD.

Vegetation

5.3.11. Vegetation plays an important part in maintaining the stability of slopes in two ways:

- it prevents erosion by reducing the impact of raindrops and delaying the runoff of surface water, thus reducing peak flow rates; and
- the roots also reinforce the soil and help to prevent landslips.

5.3.12. It is evident that, until recently, FEHD workers have been trimming the surface cover very short and this is leading to erosion of the soil. In many places, the ground level is below the level of the drainage channels that are supposed to collect the runoff (Figure 5-5).

Drainage

5.3.13. Many of the drainage channels are in poor condition (Figure 5-6 and Figure 5-7). They have deteriorated further in the last year. Broken channels let water into the soil and increase the likelihood of failure. Some appear to have been constructed using a very thin layer of mortar. They should be repaired as soon as possible.

FIGURE 5-5 Erosion of Soil and Ineffective Drainage Channel

FIGURE 5-6 Channel in Jan 2016

FIGURE 5-7 Channel in Dec 2016

Specific Features for Review

5.3.14. Three features within the study area have been reviewed. These are cut slope 11SW-D/C2287 and retaining walls 11SW-D/R801 and 11SW-D/R805. There is a fourth feature partly within the study area, a cut slope/retaining wall CR1995 which is also reviewed.

5.3.15. Other features close to the study area have been reviewed. These are cut slope 11SW-D/C1469; and cut slope/retaining walls 11SW-D/CR2139 and 11SW-D/CR2227.

5.3.16. Numbers of all features reviewed are highlighted in yellow in Figure 5-4.

5.3.17. Within the study area there are also two features not listed in the SIS, which are also reviewed here. One is in need of some attention.

Other Features

5.3.18. The upgrading that has been done within the cemetery already can best be described as functional; aesthetically the results leave a lot to be desired. Cut slopes 11SW-D/C2146, 11SW-D/C2148 and 11SW-D/C2149 and cut slope/retaining wall features 11SW-D/CR1478, 11SW-D/CR1877 and 11SW-D/CR1995 are outside of the study area but are examples of recently upgraded features. As these features were reviewed for an earlier report, they have been included here for reference as examples of acceptable or poor upgrading works.

5.3.19. For ease of reading the following reviews, each review is placed on a separate page.

5.3.20. The Stage 1 Study report for each slop reviewed has been copied from the SIS and is in **Appendix C**.

5.4. Technical Review – Specific Features within Study Area

Cut slope 11SW-D/C2287

5.4.1. This feature is a vegetated cut slope with a maximum height of 3.2m and a length of about 54m. It is L-shaped on plan, with the longer leg being about 40m long. The slope angle varies, with a maximum slope of approximately 60º above it.

5.4.2. During visits in January and March 2016, it was noted that the vegetation had been trimmed very short and some erosion was observed. However, following concerned group's efforts to persuade FEHD not to trim the vegetation so diligently, the vegetation has grown to a reasonable cover, at least on the slope (Figure 5-8).

5.4.3. Provided that the vegetation is allowed to flourish, with only careful trimming, no work should be necessary on this slope.

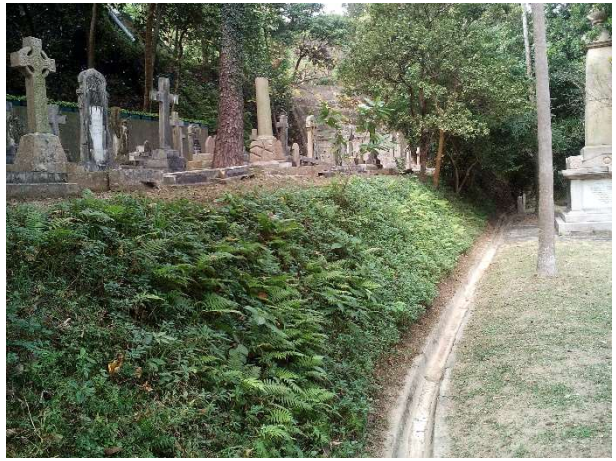


FIGURE 5-8 Before and After Views

Retaining walls 11SW-D/R801 and 11SW-D/R805

5.4.4. These features are both about 3.3m high walls, which form the sides of a sizeable drainage channel with flow control weirs at intervals (Figure 5-9). Maintenance responsibility for these walls should perhaps lie with Drainage Services Department (DSD) rather than Architectural Services Department (ArchSD).

5.4.5. In the Stage 2 Study Reports, both of the walls are described as being dry-packed random rubble walls with pointing in places, but photos in the reports show shotcrete on the walls, indicating that upgrading has been undertaken at some time.

5.4.6. No immediate action is required apart from trimming vegetation where tree roots might cause local deformation of the walls.

FIGURE 5-9 Views of the Walls

Cut Slope/Retaining Wall 11SW-D CR 1995

5.4.7. This feature is a 4.9 m high dressed block wall, with a 30º vegetated cut slope above it. The slope is approximately 2.5m high. Figure 5-10 is a photo from the Stage 1 Report in the SIS.

5.4.8. An unusual feature of this slope/wall is a large stepped channel on the slope, which empties into a vertical pipe and exits through a large arched opening at the base of the wall into another drainage channel. Judging by the appearance of blocks on the face, this arrangement was probably added well after the construction of the wall but before 1996, when the inspection visit for the Stage 1 Report was made.

5.4.9. The Stage 1 Report notes minor displacement of blocks near the crest at the east end and cracked and missing pointing at many locations, as well as a full height crack at the centre. This is not evident now, so maintenance work has probably been carried out.

FIGURE 5-10 Wall and Slope CR 1995 Showing Drainage Feature

Unlisted features

5.4.10. Near the main entrance, at the south-east corner of the study area, are two features which are not listed in the SIS, probably because they are too low to meet the listing criteria.

5.4.11. The first feature is a random rubble wall, about 1.3m high, which is in good condition. This is probably one of the earliest walls constructed in the cemetery, though the mortar infill almost certainly dates from much later (Figure 5-11). There are several trees growing near the crest; at present they have not caused damage to the wall but the wall should be monitored and action taken if any cracking is noticed in future.

5.4.12. The second feature is a low wall, less than 1m high, supporting a planter containing one large tree and a younger one (Figure 5-12). It shows significant signs of distress, possibly due to tree root growth, and is in danger of collapse. Remedial action is overdue.

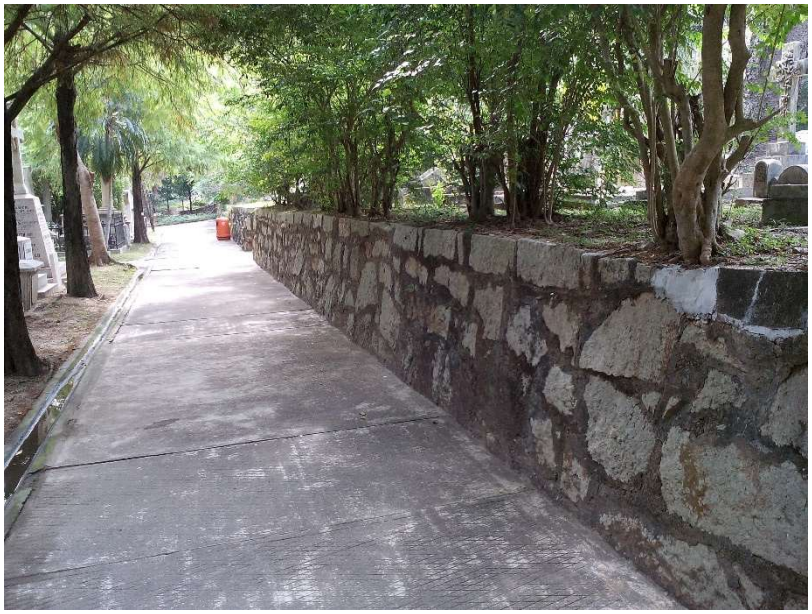


FIGURE 5-11

FIGURE 5-12

5.5. Technical Review – Specific Features outside Study Area

Cut slope 11SW-D/C1469

5.5.1. This slope is a cut slope about 5m high and 80m long, with a face angle of about 60º. It is outside of the study area but is included because fireflies have been seen in the vicinity.

5.5.2. According to the Stage 1 Study, it was covered entirely in shotcrete but this has recently been removed as part of “maintenance work” by ArchSD (Figure 5-13). Some vegetation had managed to take root on the face.

5.5.3. The channel at the crest is in good condition.

FIGURE 5-13 View of Slope

Cut slope/Retaining wall 11SW-D/CR2139

5.5.4. This feature is a wall about 30m long and 1.8m high with a slope above of about 1.6m height and 40º slope angle. The slope is mostly vegetated (Figure 5-14). At its southern end it abuts feature 11SW-D/CR2227 (see next section). At the northern end it continues as the side wall of a staircase but that part is not include in the feature as shown in the SIS.

5.5.5. Some repointing of the wall has been carried out. Less severe cutting back of vegetation is now evident and this will help prevent erosion of the slope.

5.5.6. No action is required to ensure stability.

FIGURE 5-14 Views of Wall

Cut Slope/Retaining Wall 11SW-D CR2227

5.5.7. This feature was upgraded in 2015 and is included as a prime example of poor design. It is a new concrete wall 2m high, with a slope above it, about 12m high and 50º average slope angle. The wall is 17m long but the slope is about 45m in length. The upgraded concrete retaining wall and cut slope above it are shown in Figure 5-15.

5.5.8. The treatment of the cut slope is satisfactory, apart from the crest channel. The wall appears to be mass concrete with an upstand at the front. There is a channel behind the upstand, which feeds into a plastic drainage pipe at the south end.

5.5.9. I understand that concerned group had asked for improvements to the aesthetics; the result was that the wall was painted khaki and some green plastic planters were placed on top of the wall, though these later disintegrated. They have now been replaced and filled with soil and some plants are growing (Figure 5-16).

5.5.10. At the top of the slope is a new crest channel (Figure 5-17) connecting to a catch pit and a down pipe (Figure 5-18). As the ground level of the platform behind the crest is about 1m below the level of the channel, the channel cannot fulfil its intended purpose of collecting runoff from the platform during heavy rain.

FIGURE 5-15 Upgraded Wall

FIGURE 5-16 'Improved' Wall

FIGURE 5-17 Crest Channel

FIGURE 5-18 Downpipe from Catchpit

5.5.11. The wall could have been designed to be more in keeping with the environment and the subsequent attempt to improve the look of the wall has been less than successful. The upstand at the front serves no useful purpose and the channel behind it, which feeds into a plastic drainage pipe at the south end, could easily have been placed within the wall rather than on the exterior where it is an eyesore (compare with the drainage arrangement in wall 11SW-D CR 1995 above). A stone facing would have helped it blend the wall in with older walls on the site.

5.5.12. The positioning of the crest channel is just ridiculous; it is placed on a ridge above the general ground level at the crest, so that it will only receive water falling directly on it. The platform behind the slope has no drainage and rainwater will pond there. The downpipe leading from the catchpit at the end of the channel is about 300mm diameter. It not only looks ugly; it is unnecessary as it will receive hardly any flow.

5.5.13. The crest channel, the ridge on which it sits, the catchpit and downpipe should be removed and a new channel should be constructed at the edge of the platform in order to collect runoff. A new catchpit and a stepped channel, more in keeping with the other drainage arrangements in the cemetery, should be constructed.

5.5.14. The wall upstand should be removed and the downpipe at its southern end should be replaced with a pipe within the wall. The wall should be faced with stone to match nearby walls.

Cut Slope/Retaining Wall 11SW-D CR 1478

5.5.15. This feature is a 2.3m high L-shaped dressed block wall, with a 40º vegetated cut slope above it. The slope is approximately 2.7m high (see Figure 5-19). The wall shows some signs of distress; joints have opened slightly and have been repointed.

5.5.16. Slight vertical rotation is to be expected in any wall after construction. This is necessary in order to reduce the pressure on the back of the wall from earth pressure at rest (k_0) to the active pressure (k_a).

5.5.17. When a wall is an external L-shape, as in this case, the rotation cannot happen without something giving. From Figure 5-19, it can be seen that the corner section has remained in place but shear cracks have opened between the straight sections on either side and the corner section. This is quite normal and further movement would not be expected. The cracks have been repointed, but the workmanship is poor.

5.5.18. The Stage 1 Report noted erosion behind the wall at the north end. This appears to have been addressed.

FIGURE 5-19 Wall and cut slope of CR1478

Cut Slope/Retaining Wall 11SW-D CR 1877

5.5.19. This feature is a 4.2 m high dressed block wall, with a 25º vegetated cut slope above it. The slope is approximately 2m high. The first photo in the Stage 1 Report in the SIS shows the wall (see Figure 5-20). It also shows a sizeable chunamed cut slope closer to the camera position but, surprisingly, no mention of this slope is made in the SIS.

5.5.20. The wall is in good condition and has drainage channels at both the crest and the base so there is no reason to take further action at present, apart from regular maintenance. This would consist of removing vegetation from between the blocks in the wall, repointing if necessary and ensuring that drainage channels are clear of debris before the rainy season.

FIGURE 5-20 Wall of CR1877 and Unreferenced Slope

Cut Slope 11SW-D C 2146

5.5.21. Feature 11SW-D 2146 is in the centre of a line of three cut slopes. It lies to the south-west of 11SW-D C2149 and C2148 lies to the north-east. In reality they should be considered as one slope.

5.5.22. The *Detail Information* in the Stage 1 Report states that the slope is a 3.6m high, 75º vegetated cut slope. The slope is approximately 2.5m high, cover is 40% vegetated, and 60% chunam but it has recently been upgraded (see Figure 5-21). The shape of the new granite block facing suggests that the upgrading followed a failure in the slope.

5.5.23. It appears that the slope was shotcreted before placing of the granite facing blocks and the shotcrete has covered most of the soil within the tree rings and even the tree trunks. This should be removed, otherwise the trees may die.

5.5.24. Whilst the granite facing blocks have a more pleasing appearance than shotcrete, and complement the surrounding environment, the treatment of the tree rings needs attention. The finishing of the base where it meets the drainage channel is poor in places.

FIGURE 5-21 Slope After Upgrading

Cut Slope 11SW-D C 2148

5.5.25. The *Detail Information* in the SIS states that slope is a 3.6m high, 75º cut slope. It also states that the slope is 80% vegetated, 10% bare and 10% chunam. However, the Stage 1 Report states that the slope has square rubble facing.

5.5.26. The slope is at the left of the upgraded section and is partly a bare slope and partly a masonry wall or facing (see Figure 5-22). It is unfortunate that it was not upgraded at the same time as 11SW-D C2146.

5.5.27. It is obvious that individual blocks in the masonry wall or facing have moved, opening up the joints in the masonry. These have been repointed (badly). The end of the wall or facing has not been treated at all.

5.5.28. If no action is taken, it is likely that erosion of the soil will lead to progressive failure of the wall blocks.

FIGURE 5-22 Cut Slope 11SW-D C 2148 Showing Wall and Soil Junction

Cut Slope 11SW-D C 2149

5.5.29. This slope is classified as a cut slope. The *Detail Information* in the SIS states that slope is a 3.6m high, 75º cut slope. It also states that the slope is 80% vegetated, 10% bare and 10% chunam. However, the photo clearly shows an area of masonry facing (Figure 23).

5.5.30. The slope appears to be in good condition but it is heavily vegetated which makes it difficult to assess properly.

FIGURE 5-23 Cut Slope 11SW-D C 2149

5.6. Summary and Recommendations

Summary

5.6.1. The cemetery platforms have been formed mostly by cutting into the natural hillside, with a few areas formed by filling, leaving mostly steep cut slopes, some of which have masonry facing. Retaining walls have been constructed to support some of the slopes. These are mostly of masonry block construction of unknown thickness.

5.6.2. Within the area selected for the CMG study, there are only four features which are listed in the SIS. Two form the walls of a nullah. The others are a cut slope in good condition and a retaining wall/cut slope, also in good condition. There are also two unlisted features, one of which is in need of attention.

5.6.3. Outside of the study area, there are many features, either slopes or retaining walls, or a combination of both. The Stage 1 Reports confirmed that most are in reasonable condition and, whilst further study has almost always been recommended, the risk of failure and consequences of such failure are low. Recent inspections in December 2016 confirm that most features are in reasonable condition.

5.6.4. Several of these features have been upgraded in the past. The aesthetic qualities of the upgrading leave a lot to be desired. Upgrading of slopes and retaining walls is carried out according to a priority ranking. The features within the cemetery are ranked very low, so immediate upgrading is not warranted.

5.6.5. Review of four features within the study area confirms that no immediate action is necessary. There are some minor items noted in the Stage 1 Reports, which appear to have been dealt with.

5.6.6. Some features lying outside of the study area were previously reviewed as part of a preliminary report. The results are included here for reference. Upgrading has been carried out on some of them, with mixed results.

5.6.7. Some drainage channels are in poor condition.

Recommendations

5.6.8. Trimming of vegetation, particularly in advance of the wet season, should be done sparingly. Vegetation should be allowed to grow sufficiently to provide good ground cover before the start of the wet season and help reduce erosion during heavy rain.

5.6.9. Architectural Services Department should be asked to consult relevant parties before designing upgrading works in order to agree a design more in keeping with the historical significance of the site.

5.6.10. The minor items noted in the Stage 1 Reports such as erosion at the end of a wall and cracked or missing pointing. These items should be checked and rectified if they have not been attended to already.

5.7. References

Nelson, Chris (2009) *Photo of Hong Kong Cemetery,* [Online], Available: http://www.findagrave.com/cgi-bin/fg.cgi?page=pif&PIcrid=2177241&PIMode=cemetery [14 March 2017].

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HONG KONG CEMETERY

CONSERVATION MANAGEMENT GUIDELINES

6. LANDSCAPE APPRAISAL

6.1. Soft Landscape [BY CINOTECH]

Background

6.1.1. The Hong Kong Cemetery was built in 1845 primarily for the British. With reference to a book The Happy Valley: A History and Tour of the Hong Kong Cemetery by Nicholson (2010), states that the landscape was established and maintained by Botanical and Afforestation Department. Inspired by a beautifully landscaped cemetery garden in Paris, the cemetery was largely decorated with ornamental planting. Together with the vegetated Aberdeen Country Park as backdrop, the Hong Kong Cemetery is now embraced in lush green environment.

6.1.2. With over a century-old effort in planting, the Hong Kong Cemetery is grown with a mix of native and exotic plant species. The Study Area was walked over to record the plant species grown in the core part of the cemetery (Figure 6-1).

WE HAVE HISTORIC LANDSCAPE IN HONG KONG...

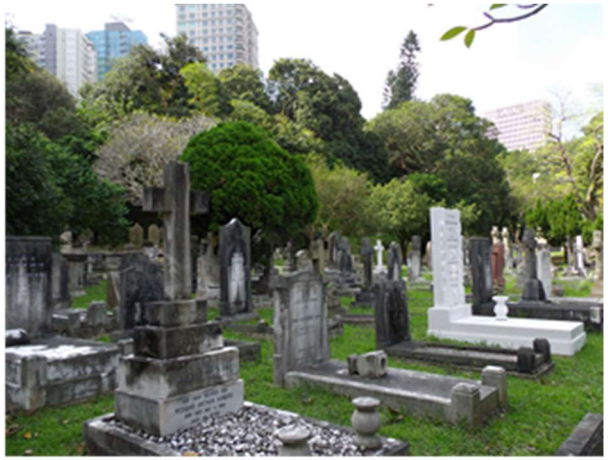
The beautiful landscape in the Hong Kong Cemetery is a result of 100-year planting effort. It is a combination of native and exotic species. Mature large trees in the cemetery form an impressive part of the landscape.

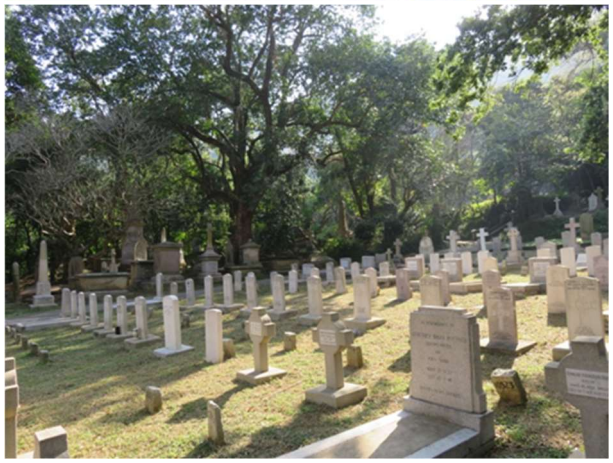
FIGURE 6-1 Study Area for Landscape

Summary of Landscaping

6.1.3. The location of the plants displays a traceable pattern. As the Study Area is the core part of the cemetery, this is where most mature ornamental plants can be found. The outer part of the cemetery is enclosed by typical secondary woodland structured by native trees, shrubs and herbs. This area shows little sign of human disturbance. The graveyard area is covered by regularly mowed turf and is cleared of fallen branches.

Table 1 Photographic Record of Core Regional of the Cemetery





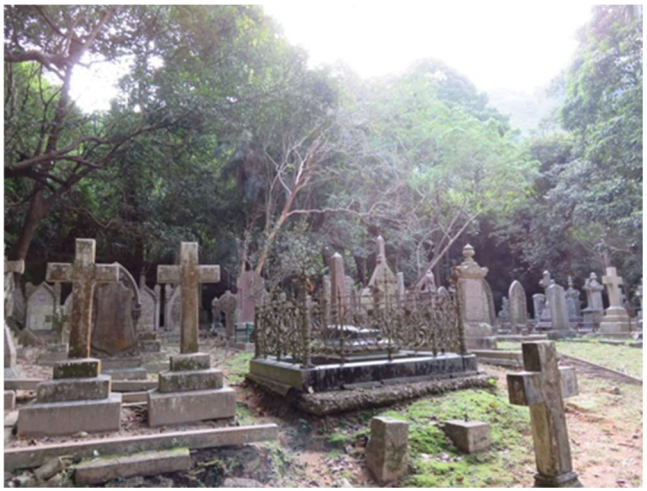
<u>The Core Region</u>
Graves are neatly placed on grass carpet. The turf is kept short to provide a clean and convenient walkway to the graves. Ornamental trees are planted along the edge of a demarcated section of the cemetery or in “planter”. Due to regular mowing, shrub is a rare sight in this region.

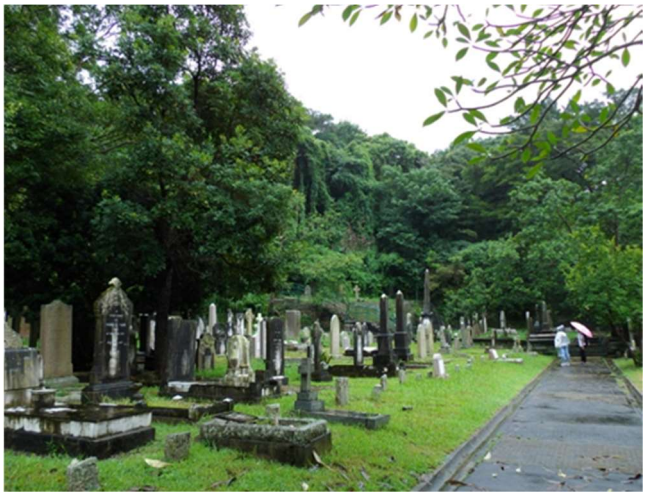
Table 1 Photographic Record of Core Regional of the Cemetery (Cont'd)

The Core Region

Broad-leaf trees dominated the landscape, with individual coniferous and palm trees occasionally grow in-between. A small patch of bamboo grows in the middle of the cemetery.

Table 2 Photographic Record of Outer Regional of the Cemetery





<u>The Outer Region</u>
Away from the core region, native trees become the backdrop of the cemetery. They are ecologically linked to the surrounding secondary woodland that embraces the cemetery.

6.1.4. Being a colonial cemetery, foreign ornamental plants (e.g. flowering plants, palms, and species with distinctive structures) comprises higher proportion. Fruit trees grown may be originated from eaten fruits disposed by grave sweepers, or intentionally planted to pay respect to the decreased. Chinese Red Pines are probably remnants of those largely planted by the Botanical and Afforestation Department (Nicolson, 2010). As the cemetery is situated at the foot of a hill, native species may naturally colonize unoccupied niche from

uphill or dispersed by frugivores.

6.1.5. Large trees with spreading crowns are the signature of the cemetery and are described in the next chapter. Species that are favoured in landscaping are shown in the table below:

Table 3 List of Commonly Found Plant Species

Chinese Name	English Name	Species Name
Small Tree & Shrub		
側柏	Chinese Arborvitae	*Platycladus orientalis*
龍柏	Dragon Juniper	*Juniperus chinensis*
雞蛋花	Frangipani	*Plumeria rubra*
Slope Cover		
三裂葉蟛蜞菊	Wedelia	*Wedelia trilobata*
華南毛蕨	Wood-fern	*Cyclosorus parasiticus*
Grass Cover		
酢漿草	Sorrel	*Oxalis corniculata*
短葉黍	Panic Grass	*Panicum brevifolium*
熊耳草	Mexican Ageratum	*Ageratum houstonianum*

Horticulture (Gardening)

Old and Valuable Trees

6.1.6. The Hong Kong Cemetery is renowned for its exhibition of large mature trees in a small beautifully landscape garden. According to "香港古樹名木", seven trees of over 100 years old were grown. There are also “younger” trees that have magnificent size and shape. These large trees satisfy at least one criterion of “Old and Valuable Trees (OVTs)” defined in Environment, Transport and Works Bureau Technical Circular (Works) No. 29/2004 Registration of Old and Valuable Trees, and Guidelines for their Preservation. However, only six were added to the OVT Register.

- Tree of large size (e.g. tree trunk diameter ⩾ 1m, measured at 1.3m above ground level)
- Tree of precious or rare species
- Tree of particularly old age (e.g. ⩾ 100 years old);
- Tree of cultural, historical or memorable significance; and
- Tree of outstanding form.

Table 4 Large Trees in the Cemetery

Chinese Name	English Name	Species Name	Chinese Name	English Name	Species Name
黃葛樹 (大葉榕)	Big-leaved Fig	*Ficus virens*	樹頭菜	Spider Tree	*Crateva unilocularis*
					
OVT Register No.: ARCHSD WCH/1 (Outside Study Area)			**Estimated Age:** 100 Years Old **OVT Register No.:** FEHD WCH/1		

Chinese Name	English Name	Species Name
異葉南洋杉	Norfolk Island Pine	*Araucaria heterophylla*

OVT Register No.: FEHD WCH/2

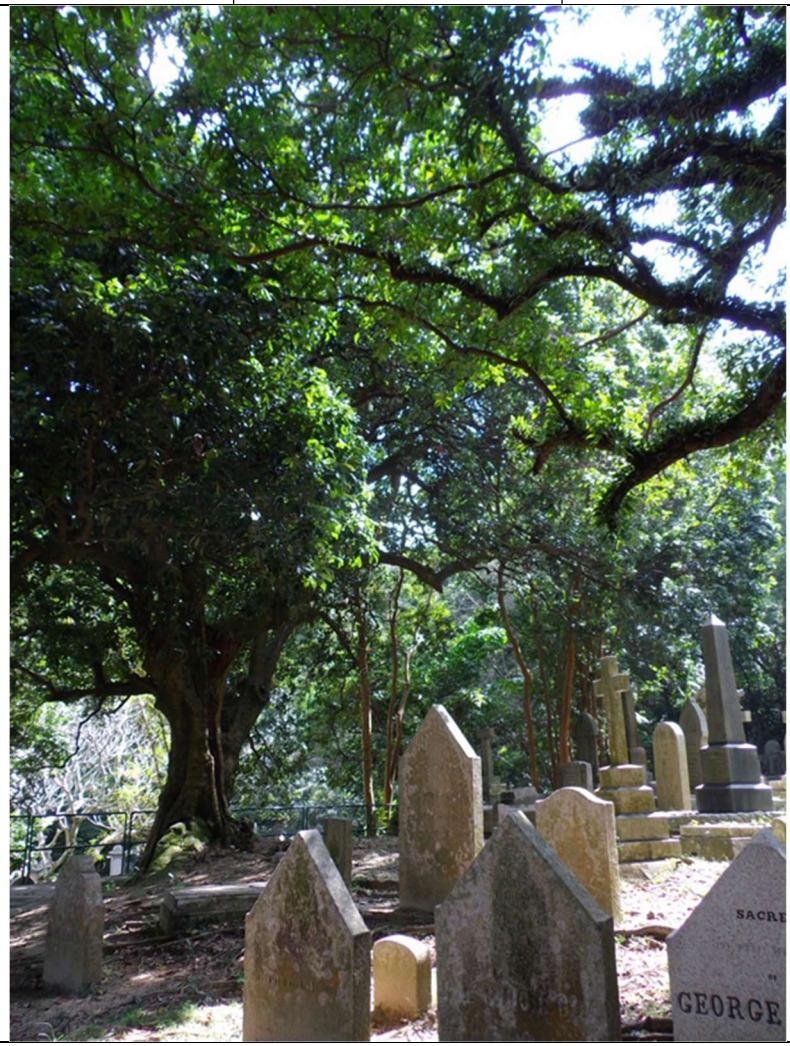
Chinese Name	English Name	Species Name
鐵刀木	Kassod Tree	*Senna siamea*

Estimated Age: 130 Years Old
OVT Register No.: FEHD WCH/3

Chinese Name	English Name	Species Name
桃花心木	West Indies Mahogany	*Swietenia mahagoni*

Estimated Age: 130 Years Old
OVT Register No.: FEHD WCH/4

Chinese Name	English Name	Species Name
荔枝	Lychee	*Litchi chinensis*

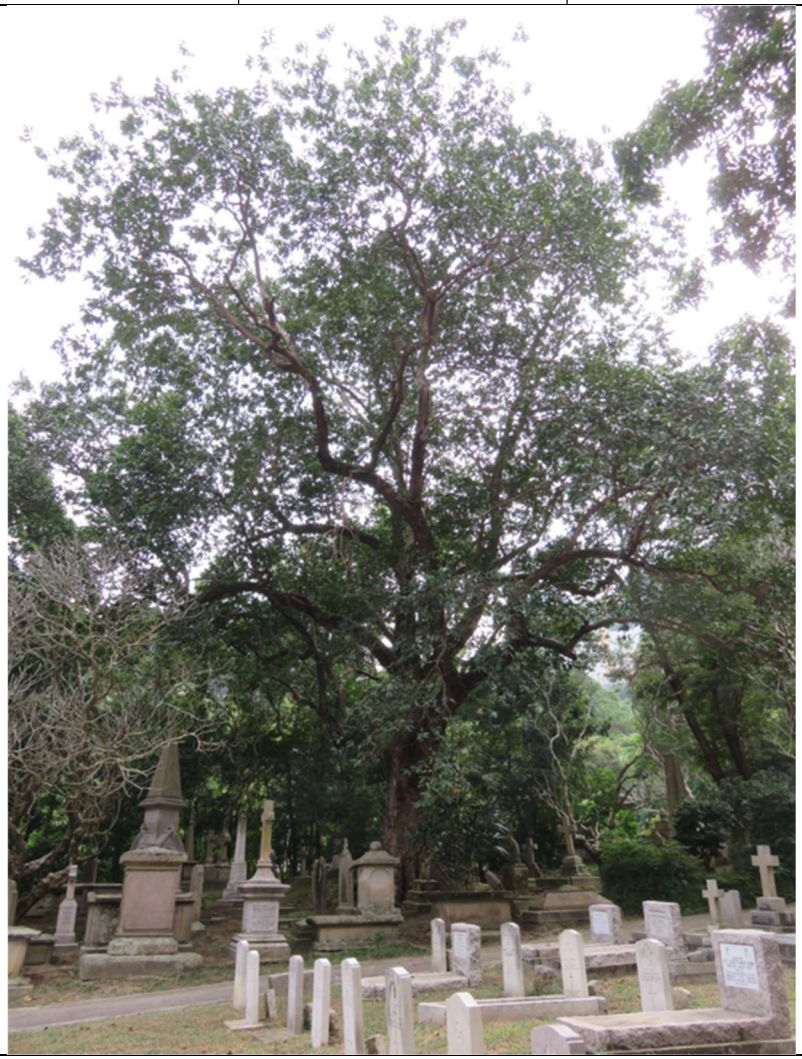


Estimated Age: 150 Years Old
OVT Register No.: FEHD WCH/5

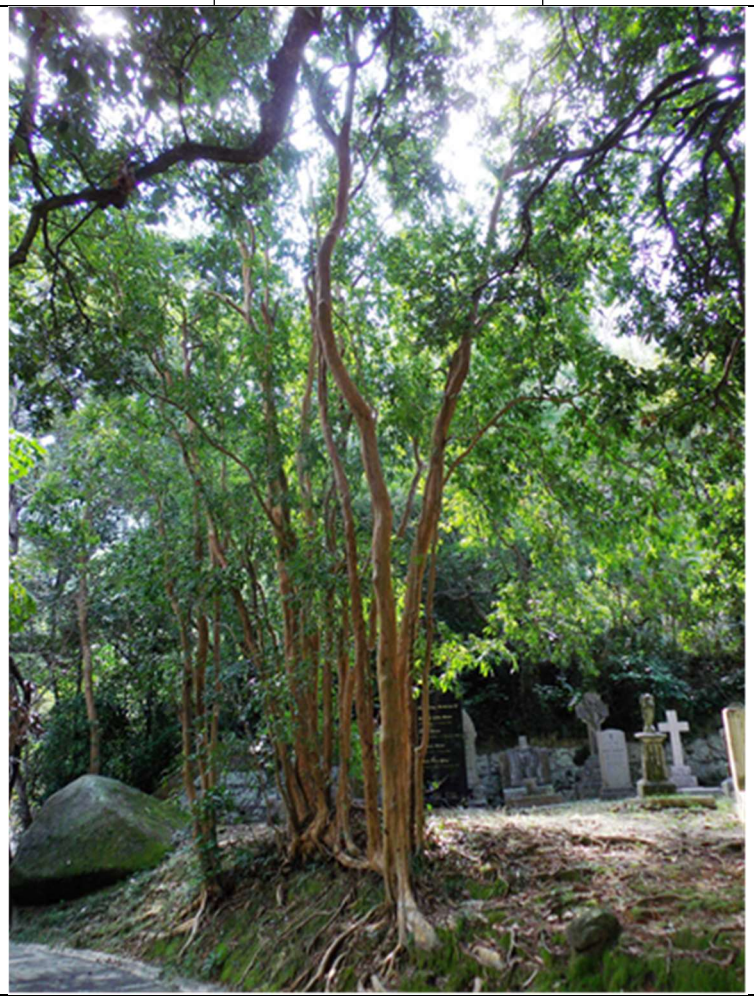
Chinese Name	English Name	Species Name
廣東刺柊	Scolopia	*Scolopia saeva*

Estimated Age: 150 Years Old

Chinese Name	English Name	Species Name
水翁	Lidded Cleistocalyx	*Cleistocalyx nervosum*



Estimated Age: 150 Years Old

Chinese Name	English Name	Species Name	Chinese Name	English Name	Species Name
黃牛木	Yellow Cow Wood	*Cratoxylum cochinchinense*	筆管榕	Japanese Superb Fig	*Ficus subpisocarpa*
					
Estimated Age: 100 Years Old			**Estimated Age: >72 Years Old** (Outside Study Area)		

6.1.7. These big trees scattered around the cemetery, but mostly located within the Study Area:

FIGURE 6-2 Location of Large Trees in the Cemetery

6.2. Hard Landscape

Old gate

6.2.1. There is another entrance to the Cemetery on Stubbs Road; however, that entrance is locked by a gate. The metal gate has two masonry posts and it appeared that the gate has been kept the same for many years. When compared with the historic gate in 1946-1947 at the main entrance (Figure 6 3), the entrance at Stubbs Road is of similar style. Although the profile of the metal gate cannot be traced, the masonry posts were intact.

FIGURE 6-3 The Royal Hong Kong Jockey Club, seen over the Happy Valley cemetery (Morrison, Hedda, 1946-1947; reproduced with permission of Harvard-Yenching Library, Harvard University)

FIGURE 6-4 Entrance gate at Stubbs Road (Luc Carson)

Historic paving

6.2.2. Part of the paving in the Study Area is of mesh pattern, it is the older style of paving found on site and it is less slippery. This pattern can be found around the fountain on site. While there are bits and pieces which have been replaced by modern cement paving and it can becomes very slippery during rainy days.

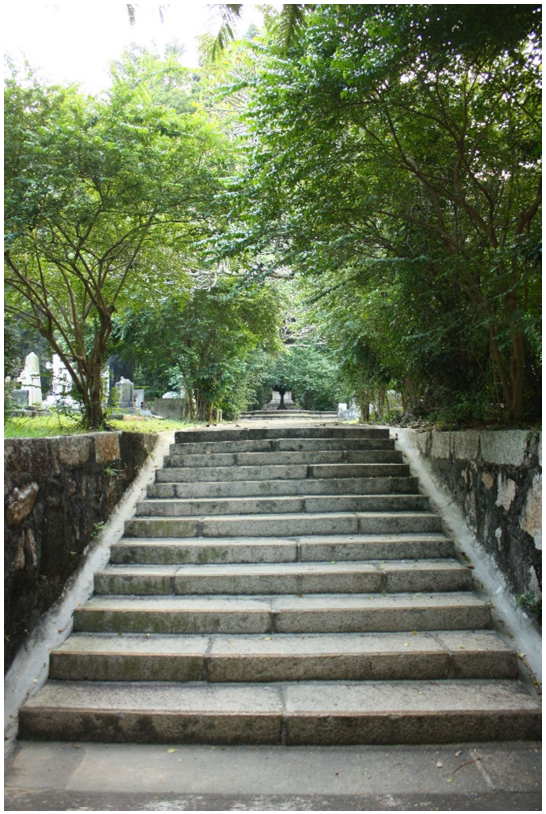
Retaining wall

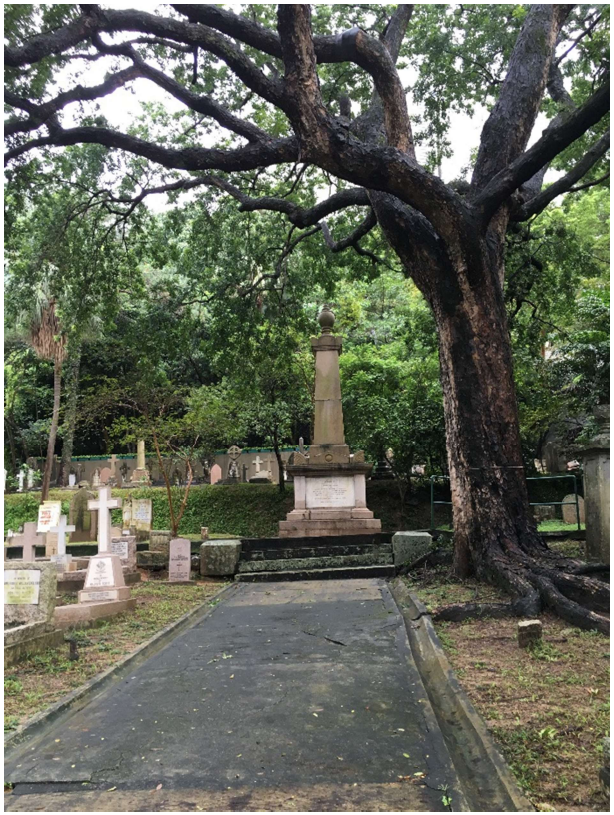
6.2.3. There are retaining wall near to the Chapel, which was built by masonry of irregular shape, it is believed to be a historic retaining wall which dated back to the early days. It forms along one of the main path connecting the Chapel and the fountain. However, due to its height of only about 1-1.5 meter, it seems that the strength and stability of it has not been taken care of. Besides, it is found that cement patches were used to fill in the gaps, it does not match with the historic stones and affect the aesthetic value of it.

Steps

6.2.4. There is a flight of stairs leading to the fountain and behind it, there is a few steps leading to the Monument. The steps are granite stones and the steps are painted yellow at the edge to alert the visitors. The steps leading to the Monument looks unstable, it may be caused by the roots by the big tree next to it.

6.2.5. This axis and steps were seen from the historic plan in 1922 and these were probably designed to lead from the entrance when the Cemetery was remodeled in the end of the 19th Century. These records the historic layout of the Cemetery and are important to the historic landscape.





Historic Bridge

6.2.6. Although the bridge is outside the Study Area, it is believed to be a historic structure that contributes to the landscape of the Cemetery. It is a small masonry bridge over the stream. The yellow spots on the masonry is lichen. The masonry bridge has been paved with modern cement and there is steel beam underneath, which should be installed to support the bridge at some point in time. The bridge is connecting to a handrail, luckily, the handrail was not drilled into the masonry surface and stop just before the bridge structure.

HONG KONG CEMETERY

CONSERVATION MANAGEMENT GUIDELINES

7. ZOOLOGICAL APPRAISAL [BY CINOTECH]

7.1. Background

7.1.1. The Hong Kong Cemetery is located at the foot of the Mount Cameron, which has a vast piece of secondary woodland that extends to Aberdeen Country Park. Despite groups of residential development are built on the hill, there remains an undisturbed stretch of woodland that ecologically links to the cemetery. As the Cemetery is rich in mature native and exotic trees and has little human disturbance, this encourages wildlife with high mobility (e.g. birds) to utilize habitats in the Cemetery and its vicinity.

Source: Google Map

BOTANICAL DIVERSITY

The botanical diversity of graveyards has been extolled by Botanical Recorder Paul R. Green in a visit he made to Knockanore Churchyard in 2006, where he found a variety of orchid species amongst the grass areas and interesting fern species on the stone walls.

The Hong Kong Cemetery is well-wooded and ecologically connected to the surrounding woodland, attracting mainly birds and butterflies. Invasion by exotic herpetofauna species was observed.

7.2. Ecological Survey Methodology

7.2.1. Ecological surveys were carried out to under fine weather in end of October, November and December 2016. The cemetery was walked through to record any observed birds, Lepidoptera (butterflies & moths), dragonflies, herpetofauna (reptiles and amphibians), mammals and firefly.

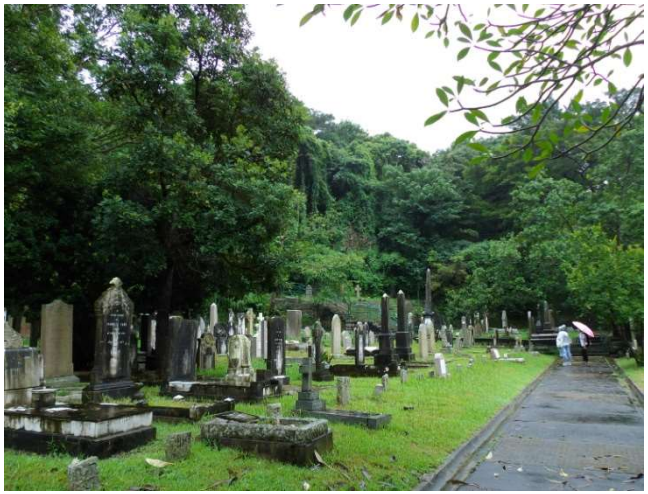
7.2.2. Observation was aided with a pair of 8 x 42 binoculars. Any traits observed, such as dung, feeding signs, footprints, burrows and dens were recorded, and tracks that were left by mammals were identified as far as possible. Potential breeding ground and microhabitats of herpetofauna, such as pools, water channels, crevices and fallen leaves, had been searched. Any eggs and tadpoles found were also recorded. Mating calls of frogs and toads, if heard, can assist in species identification as well. In streams, fish and shrimps were observed at bankside.

7.2.3. Two night-time surveys were conducted in October and November 2016 to study the activities of nocturnal species, such as herpetofauna, fireflies and moths. The search for herpetofauna followed the same protocol as daytime. The Cemetery was walked through to look out for flashing lights of fireflies after nightfall. For moth, a simple light trap was set up at woodland edge and near natural stream to attract moths for one hour.

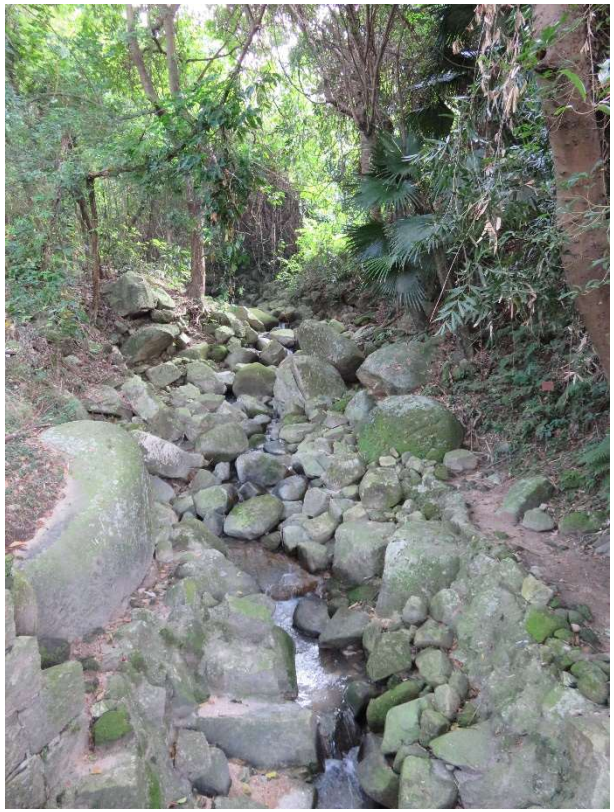
7.2.4. The following summarizes the survey findings and a list of species recorded is provided in **Appendix D**.

7.3. Habitats

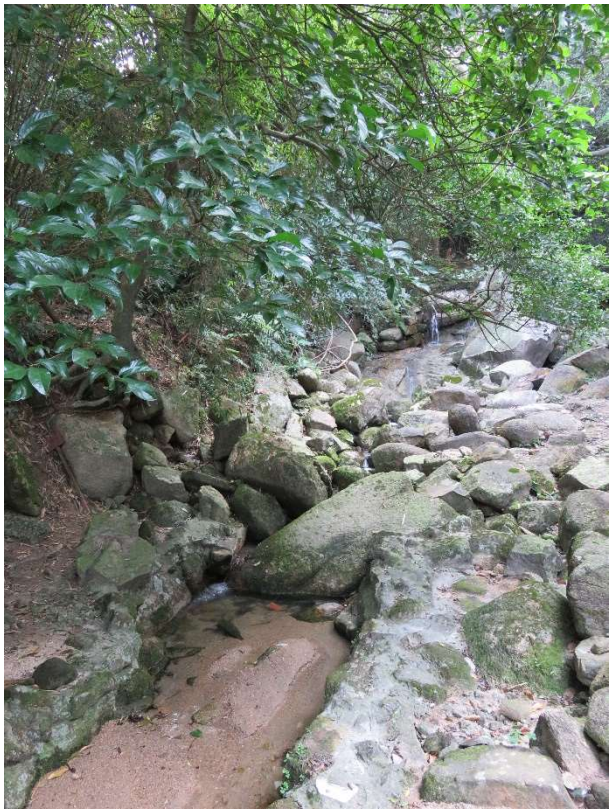
7.3.1. The Cemetery is a mix of developed land and secondary woodland. Two semi-natural streams flow in the southern part of the cemetery (see Figure 6-1). One of them has natural streambed laid with boulders. The bottom of the other stream is a mix of sandy substrate, bedrock, boulder and concrete. Both of them receive upstream water collected from concrete channels that cross the Stubbs Road. Downstream portions are modified into narrow concrete channels. They merge into a large drainage channel that eventually enters a culvert underneath Morrison Hill Road.



Developed Land & Secondary Woodland in the Cemetery (near section 6)



Eastern Semi-natural Stream with boulder bottom



Western Semi-natural Stream with sandy, rocky and concrete substrate

7.4. Avifauna

7.4.1. Twenty bird species were recorded in the surveys. Most of them are common and widespread in Hong Kong except Ashy Drongo *Dicrurus leucophaeus* which is a scarce winter visitor. Four of them are species of conservation importance. During the survey, large trees Lidded Cleistocalyx *Cleistocalyx nervosum* and Japanese Superb Fig *Ficus superba* produced abundant quantities of fruits/figs that birds happily fed on. Woodland species such as Olive-backed Pipit *Anthus hodgsoni* and Black-throated Laughingthrush *Garrulax chinensis* could be found. Therefore, presence of mature native trees and linkage to large woodland are important determinant of the ecological value of the cemetery.

7.4.2. As the survey was conducted during the transitional migratory period when passage migrants move on with their journey and wintering birds start to arrive, more birds are expected in the peak wintering season.

Yellow-crested Cockatoo
Cacatua sulphurea

Oriental Magpie Robin
Copsychus saularis

Spotted Dove
Spilopelia chinensis

Red-whiskered Bulbul
Pycnonotus jocosus

Daurian Redstart
Phoenicurus auroreus

Black-winged Cuckooshrike
Coracina melaschistos

7.5. Butterfly

7.5.1. Twenty-one butterfly species were recorded. Most of them are common and widespread in Hong Kong, while Blue Tiger *Tirumala limniace* and *Danaus chrysippus* are uncommon. The cemetery is attractive to butterflies as it is widely grown with nectar plants. Also, some plants may serve as larval food plant and therefore attracts butterfly to lay eggs. Unlike landscaped park, its proximity to woodland also attracts woodland species such as Rustic *Cupha erymanthis erymanthis* and Dark Brand Bush Brown *Mycalesis mineus mineus*.

Blue Tiger

Dark Brand Bush Brown

Great Egg-fly

Common Tiger

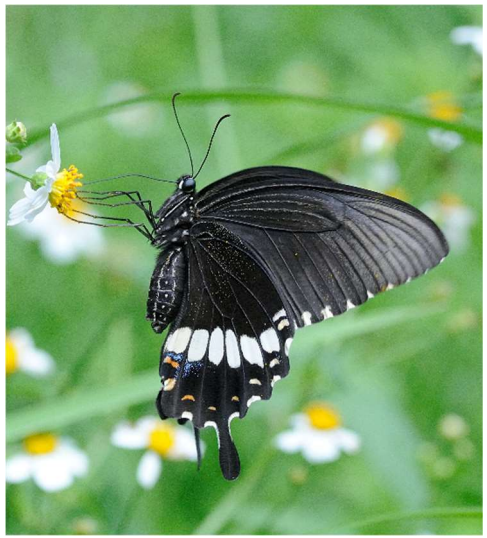
Punchinello

Maesa perlarius

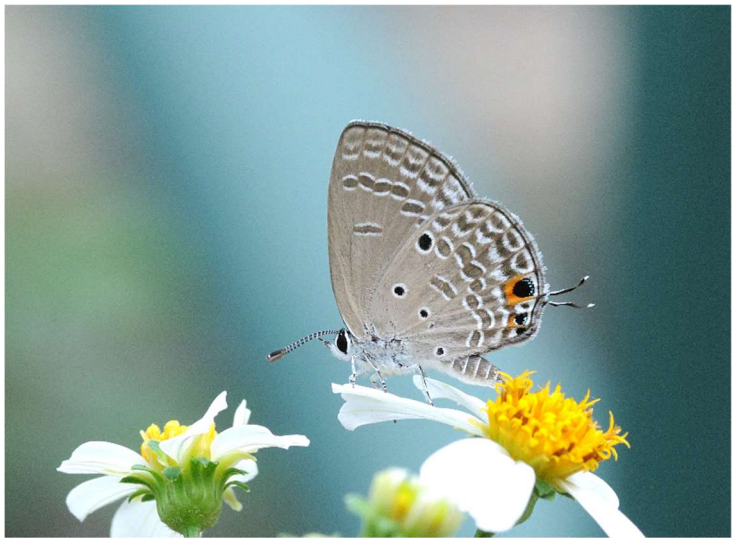
BUTTERFLY

"The Hong Kong Cemetery is not only a heaven for the deceased but also a paradise for the butterflies. A historic, one-year butterfly survey was conducted by Miss Sharon While and James CT Hui on 2016, one hundred and seventy-one years after the foundation of the Hong Kong Cemetery. A total of 84 species were recorded with 7 rare species and 5 uncommon. The finding of the Golden Birdwing, the biggest of the all the butterflies in Hong Kong SAR and being protected by the law, necessitates the updating of our records of Hong Kong butterfly.", James CT Hui.

Common Birdwing (James Hui)



Common Mormon (James Hui)



Plains Cupid (James Hui)

7.6. Moth

7.6.1. In daytime, hummingbird hawk moth was seen feeding on nectar. Occasionally, moths could be woken up from their sleep while walking on the turf and they quickly hid underneath another leaf. A few moths were seen flying at night, only one individual was attracted to the moth trap.



7.6.2. Ecologists from the Kadoorie Farm Botanical Garden and the Hong Kong Lepidopterist Society conducted butterfly and moth surveys in the cemetery on 1 October 2004. They successfully observed 19 butterfly species in daytime and trapped 28 moth species in 3 hours at night, of which three butterfly species and two moth species were considered rare in the territory. The current surveys were conducted in dry season when the most active season of insect has pasted. The low encounter rate may also be attributed to the insufficient brightness of the trap.

7.7. Herpetofauna

7.7.1. During night survey, one adult Chinese Water Dragon *Physignathus cocincinus* was found lying on a tree branch above a stream while a juvenile was hiding at stream bank. Over ten Greenhouse Frogs *Eleutherodactylus planirostris* were recorded throughout the cemetery at woodland edge and on turf grass. Both were exotic species that has naturalized in Hong Kong. The former is a common pet that may have been released when it grows too big to be kept indoor. The latter may have been introduced to Hong Kong accidentally with imported plants.

Chinese Water Dragon (Left: Adult, Right: Juvenile)

Greenhouse Frog

7.8. Mammal

7.8.1. Three mammal species were recorded in the cemetery. Short-nosed fruit bat (*Cynopterus sphinx*) roosted underneath the leaf of Chinese fan palm (*Livistona chinensis*). Pallas's Squirrel (*Callosciurus erythraeus*) ran across tree branches. Scats of Eurasian wild pig (*Sus scrofa*) were left on turf grass next to tombstone. They are common and widely distributed in Hong Kong. The first two species are protected under the Wild Animals Protection Ordinance (Cap. 170) in Hong Kong.

Pallas's Squirrel

Short-nosed fruit bat

Scats of Eurasian wild pig

7.9. Odonate

7.9.1. A common dragonfly species Common Blue Skimmer (*Orthetrum glaucum*) was found next to footpath of the cemetery away from watercourse.

HONG KONG CEMETERY

CONSERVATION MANAGEMENT GUIDELINES

8. ENVIRONMENTAL PROTECTION APPRAISAL [BY CINOTECH]

8.1. Human Disturbance

8.1.1. The operation of the Hong Kong Cemetery is currently managed by the Food and Environmental Hygiene Department (FEHD). The Cemetery is open to public and visitors can freely explore the area. With very few visitors on normal days, the main human activities will be maintenance works (e.g. mowing, cleaning) by FEHD staff and its contractors. The major grave sweeping activity concentrates on a few days during the Ching Ming, Chung Yeung Festivals and Remembrance Day (11th November). Therefore, the Cemetery is mostly tranquil with limited human disturbance.

8.1.2. There are regular safety patrols by FEHD staff around the Cemetery in both daytime and night time. Unless visitors act suspiciously, they will not be interrupted or checked by security guards. According to the Cemetery, pieces of logged wood were reported by FEHD staff. However, no tree felling was arranged by the landscape maintenance agent (the Leisure and Cultural Services Department). While the identity of the felled tree could not be confirmed, it was believed that the tree is a valuable species (e.g. Incense Tree *Aquilaria sinensis*) and therefore became poachers' target. The Cemetery is advised to increase the patrol frequency and to stay alert to activity of visitors and any changes in the environment (e.g. marked / damaged trees).

BRIEF NOTE

The environment of the Hong Kong Cemetery is affected by both internal and external factors, such as human disturbance from inconsiderate visitors, application of chemicals in landscape management and off-site water pollution.

8.1.3. Wong Nai Chung Gap Flyover and Wong Nai Chung Road in front of the cemetery have high traffic flow. Traffic noise and street lights outside the cemetery can also bring nuisance to wildlife.

8.2. Use of Pesticide

8.2.1. The hot and humid environments in the summer of Hong Kong are most amenable to the growth and survival of mosquito and midges. While getting mosquito bites can be pesky, some mosquitoes can carry disease and transmit them to human from the spread of diseases (e.g dengue fever carried by *Aedes albopictus*) Therefore, pest control measures should be carried out in order to prevent the widespread of mosquito-related diseases. Use of pesticide is a common control method. Excessive grass cutting to remove grass cover can lead to soil erosion. Also, using rocks, stones and other such debris to fill water collection points can lead to damage of the tree roots.

8.2.2. Mosquitoes and biting midges are the two prominent biting insects of concern. Mosquitoes lay eggs in standing water. Midge larvae can be found in water sources, moist sand, or other wet areas. They can thrive in a variety of locations and can successfully grow in numbers even when not in their natural habitat. Therefore, the removal of such environments can be difficult.

8.2.3. As thousands of mosquito larvae may exist in a single body of water, the use of larvicides on standing water and other water-containing receptacles can be proved to be far more effective. In the Cemetery, pesticide is currently applied in catchpits for control of mosquito breeding in view of the proximity to the Hong Kong Sanatorium & Hospital. Granular larvicides are sand granules that carry the pest-control active ingredients. A sticking agent is used to adhere the active ingredients onto the surface of the granules, but will become dissolved once applied to water to release the active ingredients into the infested body. Normally the active ingredient is released from the surface of the granular within minutes of contact with water, however, some granular formulations are designed to release the active ingredient over several hours to prolong the its availability for larvae control, even when they are applied to surface channels with occasional water flow. If non-specific larvicides is used in large quantity, this may kill other insects living in the same habitat. Organism in the stream may be affected if the excess leaks into stream.

8.3. Pollution in Streams

8.3.1. Two streams in the southern part of the cemetery are short in length and semi-natural. The upstream section is cut off by Stubbs Road and the water flows across the road by concrete channels. Odour was detected from the upstream water, suggesting that the water may have been polluted before entering the cemetery area. Downstream section is also channelized to increase flow rate for draining purpose.

Freshwater fauna cannot survive in bare concrete environment and may get washed away. Without a clean natural habitat in different stream sections, the stream in the cemetery is not expected to support high fauna such as fish and amphibians. This was reflected by inhabitance of large numbers of small shrimps found to be the most successful fauna in the stream (photo below), which were observed during the surveys.

HONG KONG CEMETERY

CONSERVATION MANAGEMENT GUIDELINES

9. CONSERVATION MANAGEMENT GUIDELINES [ALL PARTIES]

9.1. Conservation Management Guidelines to the Building Structures

Function

9.1.1. Historic buildings and structures included in this Conservation Management Guidelines refer to the Chapel, Ex-Office Block, Fountain, Sundial, Memorials and Headstones in the study area. Unfortunately, most of these features are not preforming their original functions. The Chapel ceased to be used as a mortuary chapel in 1931, and was converted to a regular place for worship and used for services for a few years. The Ex-office is locked and no longer serves as an office or quarter. The fountain is still a decorative structure but has lost its function as a fountain. The Sundial is blocked by tree. Some memorials and headstones have fallen apart, damaged by tree roots, fungi, while some inscriptions which recorded names, years and other information cannot now be read.

9.1.2. The Burra Charter advocates, we should take a cautious approach to change: and only do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible, so that its cultural significance is retained. We should make the buildings and structures usable and at the same time to retain their cultural significance.

PÈRE LACHAISE CEMETERY, PARIS

Opened on 21 May 1804, described as “The most hauntingly romantic walk in Paris.“ It contains graves of great writers and artist such as Chopin, Oscar Wilde, Musset, and Jim Morrison.

A website is available to act as a tourist guide with comprehensive information. There is also a route map for visitors, plus all graves and sculptures are listed with explanatory text.

- ✓ website
- ✓ mobile app
- ✓ grave map
- ✓ route map
- ✓ conservation centre
- ✓ virtual tour

- × tour guide or docent
- × picnicking
- × jogging
- × consuming alcohol

9.1.3. For example, the *Chapel* should be opened for occasional prayers and worship. It would be ideal if it could be managed by a religious body and use it as a place of worship. Given the background and location of the *Ex-office Block*, there is an opportunity for it to be turned into a visitor and information centre for the Cemetery. Being the only *Fountain* left on site, it should be revitalized and add water feature to the overall landscape. The *Sundial* should be properly restored so that it could become an interesting educational tool for student visitors. The *memorials and headstones* - their function is more than 'signpost' to mark the graveyard, each of them serves as a page of Hong Kong history, it records a person who once passed through Hong Kong, often far away from their homeland on a mission; it recorded those who once lived in Hong Kong and started their family or business; it records a great plague which killed so many lives; plus thousands of other stories. All the inscriptions should be recorded and tidied up for researchers' and for convenient public understanding.

Maintenance

9.1.4. All of our historic structures require active maintenance as per the following:

- Condition surveys should be carried out to identify the defects and problems, careful restoration should be planned
- Improper use of the site should be stopped to prevent further aggravation of the problem
- Review the current policy in managing the Cemetery, instead of delegating FEHD to run it as a modern functioning cemetery (i.e. with short tenure of burial ground, say 7 years and with new entry), this historic cemetery should be taken as a heritage site of both historic and natural significance. Expert teams should be delegated for special management duties, specialist contractors should be engaged in the building works as well as the garden works. This small team would complement the Permit Office on site, in order to assist FEHD in their very demanding tasks.

RECOLETA CEMETERY, BUENO AIRES, ARGENTINA

In 1822, Recoleta Cemetery became the first public cemetery in Bueons Aires.

It is a beautiful and tranquil place, with shadowed walkways and towering marble mausoleums rich in art deco, art nouveau, baroque and neo-gothic architectural styles, masonic symbols and powerful religious iconography. Over 90 of the tombs are listed as National Historical Monuments.

- ✓ promote by Bueons Aires' Tourism
- ✓ website
- ✓ grave map
- ✓ free guided tour available for booking

9.1.5. In the long term, the following recommendations are suggested:

- Careful restoration should be carried out to the Chapel to remediate the dampness on wall which lead to the growth of vegetation roots inside the wall
- Careful restoration should be carried out to revitalize the original function of the Fountain and Sundial
- Careful restoration should be carried out to the monuments and headstones
- Termite preventive measures should be carried out for the Chapel
- In case of complex structures, architects, structural engineer or surveyors are needed, all such professionals should be conservation-accredited by professional body
- Specialist conservators should be engaged to evaluate the condition of the materials, and carry out and supervise complex treatments
- Craftsmen and conservators with suitable experience should always be used

9.1.6. The repair and maintenance work towards memorials is not the same as that for historic buildings. We do not want to remove the "history" of any memorials and we need to respect the feelings of descendants, relatives or friends of the deceased. Its conservation or repair should be a logical process that involves professionals' inputs, it aims to

- reduce or remove the causes of deteriorations
- address any causes of structural instability
- to inspect larger or more sensitive structures
- provide physical security
- preserve as much as possible of the historic significance, design and original of the monument

9.1.7. There are no specific guidelines for the maintenance of memorials in Hong Kong, Part II of these Guidelines contains a detailed report on maintenance issues which should be referred; besides, reference is made to overseas practice. According to the 'Guidance for the Care, Conservation and Recording of Historic Graveyards' (O'Brien, 2011), maintenance involves the followings:

MONUMENTAL CEMETERY, MILAN

Opened in 1866, it is an outdoor museum with Italian sculptures varying from classical style, Art Nouveau, up to contemporary style.

It is the second most visited place after Duomo by tourists searching for Milan's treasures.

It presents itself as a pleasant place to visit, filled with inscriptions that invite visitors to remember those who have gone before, rich with information and accompanied by interesting artistic detail.

- ✓ promote by Milan's Tourism
- ✓ website
- ✓ grave map
- ✓ free guided tour available for booking

- keep all sculptural fragments, record their position and report finding to the conservators of the cemetery
- not use power washers, wire brushes, sandblasters or chemical cleaners as these methods enhances the process of decay and result in speeding up the loss of the inscription carved
- only clean with water by using a damp cloth and followed by gentle brushing
- avoid the removal of lichens and mosses from the surface of a memorial as these organisms can help preserve the surface from further deterioration
- not apply paint to gravestone inscriptions
- monitor tilting memorials over a period of time in order to ascertain if there is a health and safety issue or if the memorial is in imminent danger of collapse, only where there is an urgent health and safety issue, such as the fear of collapse should the memorial be reset in upright position
- re-erected memorials should never be set into a concrete base as this hard material will place stress on the softer memorial and will cause severe damage
- not remove the turf around the base of a memorial as this will undermine the stability of the memorial and the bare exposed soil become a breeding ground for briars and tree saplings that will grow up from the base and eventually envelop and may pull apart the memorial

9.1.8. There are more specific guidelines to the repair of ironworks, removal of graffiti etc. and thus the maintenance of memorial should leave to the hands of specialists.

9.1.9. It is suggested that measures can be taken to

- 'stock-take' the memorials that the committees or bodies who established them have been dissolved, then the Government or a "designated body" should take up the responsibility for repair. With clear structure and responsibility, it may be possible for this "designated body" to accept funds and donations for the repair and maintenance of the memorials

WESTWOOD MEMORIAL PARK, LOS ANGELES, USA

Established in 1905 by the state of California, with the earliest burials at the site dating back to the 1880s. It is the resting place of some of the entertainment industry's greatest names.

In 2002, the cemetery was designated as Historical-Cultural Monument. It was once a country graveyard and is now a beautiful cemetery tucked away in the heart of Westwood's business district as a serene oasis where families can continue with the tradition of ground burial or chose a crypt in the newly added Sanctuary of Prayer Mausoleum.

Modernised with

- ✓ remodelled chapel
- ✓ garden mausoleum
- ✓ indoor crypts
- ✓ private and semi-private bench estates
- ✓ cremation garden

- establish communication or obtain authorization for future maintenance for memorials that are still visited or with related responsible committee identified (e.g. Commonwealth War Graves Commission).

Interpretation

9.1.10. Short introductions to a few cemeteries around the world were provided at the right-hand side of this section. It is to suggest what can be done and experience overseas when their cemeteries are recognized as a heritage sites. Heritage assets not only belong to one city, it is a shared asset and it is to be passed on to our next generations.

9.1.11. As mentioned above, the Ex-office Block will be an ideal place to be turned into a visitor and information centre for the Cemetery, it can be aided with electronic means for interpretation and visitor experience. A 'visitor information venue' is recommended, which can serve as the starting point for gathering more information about the Cemetery.

9.1.12. Volunteers not only represent local involvement but also a major resource in carrying out some maintenance to a historic site, plus:

- carry out research into memorials and data entry
- help with regular monitoring of the memorials and the production and updating of condition surveys
- tackle some routine maintenance work such as pruning invasive vegetation

9.2. Conservation Management Guidelines to the Historic Landscape

Old and Valuable Trees

9.2.1. With over a century-old effort in planting, the Cemetery is grown with a mix of native and exotic plant species. Spreading crowns of trees are the signature of the Cemetery, the Old and Valuation Trees (OVT) in particular form an important part to the historic landscape of the site.

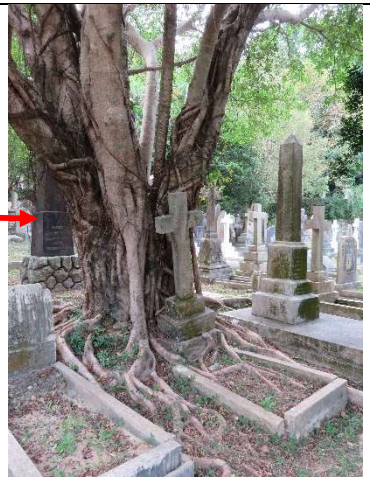
9.2.2. As mentioned in Section 6.1.6, only 6 out of at least 10 trees that satisfy the criteria of Old and Valuable Trees were added to the Register of Old and Valuable Trees. Registered OVT will have annual health check by Leisure and Cultural Services Department (LCSD) for early detection of health problems. The maintenance agent of the landscape for the Cemetery is LCSD who should be requested of take follow-up action when required, such as frequent disease treatment and tree pruning.

9.2.3. Construction works within the tree protection zone (area within the tree crown spread) of the OVT is prohibited without demonstrating to LCSD that sufficient tree protection measures will be in place. LCSD may approve the application (with conditions) for additional tree protection measures. Unless transplanting or felling is the only viable option or the tree is dead, removal of OVT is strictly forbidden and will not be approved by the authority.

9.2.4. While the other trees do not have the OVT status, they form an important part of the cemetery landscape and are worthy of the same level of attention and protection as the OVTs by the cemetery staff. In addition, the Hong Kong Cemetery may consider nominating the potentially registrable trees to the LCSD to assess the possibility of putting these trees into the OVT register.

Common Landscape Problem

Bare soil requiring turfing to prevent erosion



Aggressive growth of Ficus species

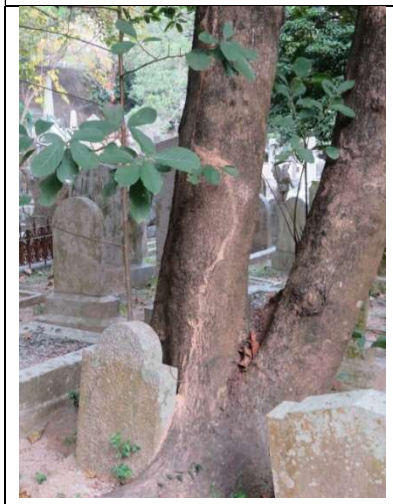
Pruning of dead branches required

Dead tree with leaked sap, growing next to footpath

Metal bar damaging tree roots

White Popinac *Leucaena leucocephala*

Wedelia 三裂葉蟛蜞菊 (*Wedelia trilobata*)



Sign of termite infection

Fungal infection

Wall behind the graves can be decorated with vertical greening

Landscape Maintenance

9.2.5. Landscape maintenance shall include preservation of existing landscape and growing of diverse species and forms of plant. The hard landscape including the memorials, the central axis along with the Fountain, the pathways, boundary walls and the terrace setting of the site forms the Cemetery's aesthetic and historic significance and therefore should also be conserved.

9.2.6. Regular and proper maintenance of existing plants and suitable establishment of new landscape are essential to **maintain** the natural scenery in Hong Kong Cemetery, as well as to protect the valuable monuments. The following are some recommendations:

- Plant with high species diversity to provide a complex ecosystem and to reduce the chance of mass disease/pest outbreak;
- Engage certified arborist to conduct regular plant health check in frequently visited area where plant failure may pose risk to visitors and graves;
- Prune/remove overgrown and poorly formed plants that grow aggressively near/on graves, such as those with leaning posture and dead branches;
- Trim low hanging branches that have shaded the graves – please see photo below;

- Decorative trimming or pruning shall be in line with the natural landscape and historic character;
- Identify diseased trees (e.g. severe wood decay and fungal infection) and provide treatment at early stage to increase chance of recovery;
- Minimize mowing near woodland edge to allow natural regeneration of native plants;

- Remove vegetation that grows on the grave, in particular *Ficus* species. Figs are favourite food of birds and bats. Birds may excrete when perching on graves and monuments or flying overhead and undigested seeds in droppings may grow on them. Roots of the seedlings may grow deep into the stone and break the graves if not controlled;
- Identify trees that have potential hazards or susceptible to typhoon damage and implement preventive measures;
- Avoid using mechanical mowing machine near graves to prevent accidental damage of the graves;
- Remove weed by hands to minimize accidental removal of plant to be preserved and to prevent damage to graves by machinery;
- Remove invasive vegetation (e.g. White Popinac *Leucaena leucocephala* and Mikania *Mikania micrantha*) before flowering period;
- Leave all hummocks in the ground, they may mark structural and archaeological features;
- Do not burn off vegetation, or use total spectrum weedkillers;
- Use of chemicals to facilitate the planting process should be avoided in order to minimize the damage to the historic artifacts and graves;
- For mosquito control, removal of stagnant water from any water containing receptacles should be restated as the primary pest-control measures as this should remove or permanently destroy mosquito/midges breeding sites. Potential repositories of water such as depressions or pits found in the Site should be filled to avoid accumulating unwanted water. If for practical reasons that the water-collecting body cannot be removed (e.g. surface channels), then larvicides should be applied to the water to prevent larvae from maturing into adult mosquitoes and thereby minimising the chance of having an infestation of biting mosquitoes/midges;
- Some sand granule formulations are designed to sustain for a long period by allowing the active ingredients to slowly seep into the concerning water. However, if the Site has already been infested with mosquitos/midges or their presence is becoming a nuisance, then treatments must be targeted directly onto the pests. For example, fogging could be used to treat adult mosquitoes that come into contact with the chemical droplets that are dispersed by the fogger. This is effective and quick for reducing the number of biting mosquitoes;
- The use chemical weed herbicide along with disease and insect sprays shall be adopted only when there is no other feasible option for the control of weed, disease and pest. Use registered pesticides (inclusive of insecticide, fungicide, herbicide etc.) that are target specific, low in toxicity, short residual activity and no resistance problem to minimize environmental impact. List of registered pesticides are available at the Agriculture, Fisheries and Conservation Department website: https://www.afcd.gov.hk/english/quarantine/qua_pesticide/qua_pes_pes/qua_pes_pes.html. Follow the application instructions on the labels;
- If termite infested wood was found, pruning must be carried out to arrest the spread of termites and the termite should be exterminated properly (e.g. treating them with boric acid or expose them to the sun). Once the termite colonies are cleared, precautionary measures should be taken regularly to prevent further termite outbreaks. Liquid termiticides can be sprayed, injected, or soaked to the soil around the base of the tree to shield the covered area away from termites, however, this method might be less

effective against Formosan termites as they can build aerial nests inside of the trees. Therefore, baiting system should also be considered to treat all possible termites. The device should be installed at where the tree is infected with termites, regular inspection should also be carried out to maintain its effectiveness. If the termite problem persists or the aforementioned measures become ineffective, then more advanced technology such as microwave termite control equipment may be considered in order to eradicate termite attack; and

- If slope work that requires vegetation clearance is involved, the slope shall be vegetated upon completion of the works following the *GEO Publication No. 1/2011 Technical Guidelines on Landscape Treatment for Slopes* issued by the Civil Engineering and Development Department. This guideline has recommended various successful landscape treatment methods to make the completed slope natural and ecologically sustainable.

9.2.7. With careful planning, actions can be taken to **enhance** the natural and heritage values of the Cemetery, such as:

- Engage landscape architect to systematically developing landscape plan that matches with the existing environment;
- Plant flowering shrubs that grow into a dense mass along planters at the boundary of the cemetery, which currently appears empty due to sparse planting of species with thin foliage;
- In addition to improving the amenity value, shrub planting can also act like hedges that screen Wong Nai Chung Road;
- Make the main entrance more appealing by adding more color and texture with the employment of flowers and shrubs to enhance more visual interest and make the entrance more welcoming and identifiable;
- Vegetate bare ground by growing turf, shrubs or trees that is compatible to the adjacent planting; and
- Common Lantana 馬纓丹 (*Lantana camara*) is a climbing shrub that produces flowers that change colour from yellow to pink. Wedelia 三裂葉蟛蜞菊 (*Wedelia trilobata*) is a perennial herb that is commonly used in slope stabilization. Despite being non-native, these species flower all year round and are attractive nectar plants to butterfly. However, they can grow aggressively if left unattended. Common Lantana can grow into a messy mass and visitors may accidentally get scratched by its thorns. Although they are not known to be invasive in Hong Kong, regularly trimming is recommended when they extend outside the intended planting area.

9.3. Conservation Management Guidelines to the Natural Biodiversity

Invasive Herpetofauna Species

9.3.1. The impact of alien herpetofauna species on the local ecology is not known. The Cemetery is recommended to engage an ecologist to fully survey the ecosystem and assess the diversity, profusion and behavior of the different organisms found on the site.

Enhance Biodiversity through Planting

9.3.2. By planting more flowers, it encourages the growth of butterflies and bees, which are pollinators and proved to be important to our natural environment and food cycle. Many landscape areas prefer exotic plants as a wide variety of growth forms and attractive flowers are available in the market.

9.3.3. While flowers can provide nectar for insects like butterflies and bees, butterfly larvae are highly selective of its diet. It is recommended to grow also native species to provide food plant to butterfly larvae. In addition, some exotic plant produces pods (e.g. Kassod Tree), capsules (e.g. West Indies Mahogany) and pines (e.g. Norfolk Island Pine) that local wildlife cannot eat. In contrast, some local species in the cemetery (e.g. Scolopia, Lidded Cleistocalyx, Chinese Fan Palm) produce fruits that birds and bats can enjoy. Therefore, a good balance between native and exotic species shall be maintained when enhancing landscape in the Cemetery.

9.4. Geotechnical Improvement

9.4.1. Vegetation plays an important part in maintaining the stability of slopes in two ways; (i) it prevents erosion by reducing the impact of raindrops and delaying the runoff of surface water, thus reducing peak flow rates; and (ii) the roots also reinforce the soil and help to prevent landslips. However, the heavy trimming of surface vegetation in the cemetery has leading to erosion of the soil.

9.4.2. The drainage is also underperformed, firstly because the soil has eroded and the ground level has become so low, even below the level of the drainage channels, which make the drains unable to collect the runoff; secondly, many of the drainage channels are in poor condition, broken channels let water into the soil and increase the likelihood of failure.

9.4.3. While trimming of surface vegetation, particularly prior to wet season, should be prevented, in some cases, trimming is needed where tree roots might cause local deformation of the walls and even dangers of collapse. It is considered that landscape expertise is required to overlook the tree management of the site, as the daily management could affect the safety and durability of the slope features.

9.4.4. The existing arrangement has overlooked some low retaining walls which is near to the entrance and vulnerable to collapse.

9.4.5. It was found that some previous slope upgrading works were done purely based on engineering point of view and showed no respect to the setting of the site or keeping with the environment. It has affected the heritage significance of the site as well as affecting the trees

growing there. Instead of spreading concrete over a large area, a stone facing would help to blend any new wall in with older walls on the site. And instead of putting shotcrete over the soil in a tree ring, trees should be left with enough soil to survive.

9.5. Conclusion

9.5.1. The value of Hong Kong Cemetery is surely undisputed. The site is regularly visited by professors, school children (as part of the curriculum), tourists and locals who wish to experience nature or explore the history displayed on the stones. A 10ha site which could be considered the largest and most varied 'outdoor museum' in the whole of Hong Kong.

9.5.2. Although the idea of garden cemetery was introduced in the late 19th Century, it has not always been fully appreciated as a beautiful landscape. The site has never gone through an assessment of its heritage value – let alone gaining any level of such a status whether it be Grade 1 to 3 or even monument status. These may be due to the strong traditional Chinese belief, which prefers to keep a distance with the dead and worries that any activity in the Cemetery will disturb the spirit and be disrespectful to the deceased.

9.5.3. However, an easy answer to blame superstitions should not prevent us from recognizing this historic site with rich heritage and natural values. Over a hundred of churches, temples and ancestral halls in Hong Kong have been graded historic buildings or even Declared Monuments. The awarding of heritage status would be a recognition of the site's significant architectural, historic and social values. Once gaining such recognition, proper conservation, specialist maintenance and management can be taken to protect the heritage. The monuments, buildings and other artefacts as well as their setting should be in a better position to be preserved to benefit the public and increase awareness of a green 'oasis' in urban Hong Kong.

HONG KONG CEMETERY

CONSERVATION MANAGEMENT GUIDELINES

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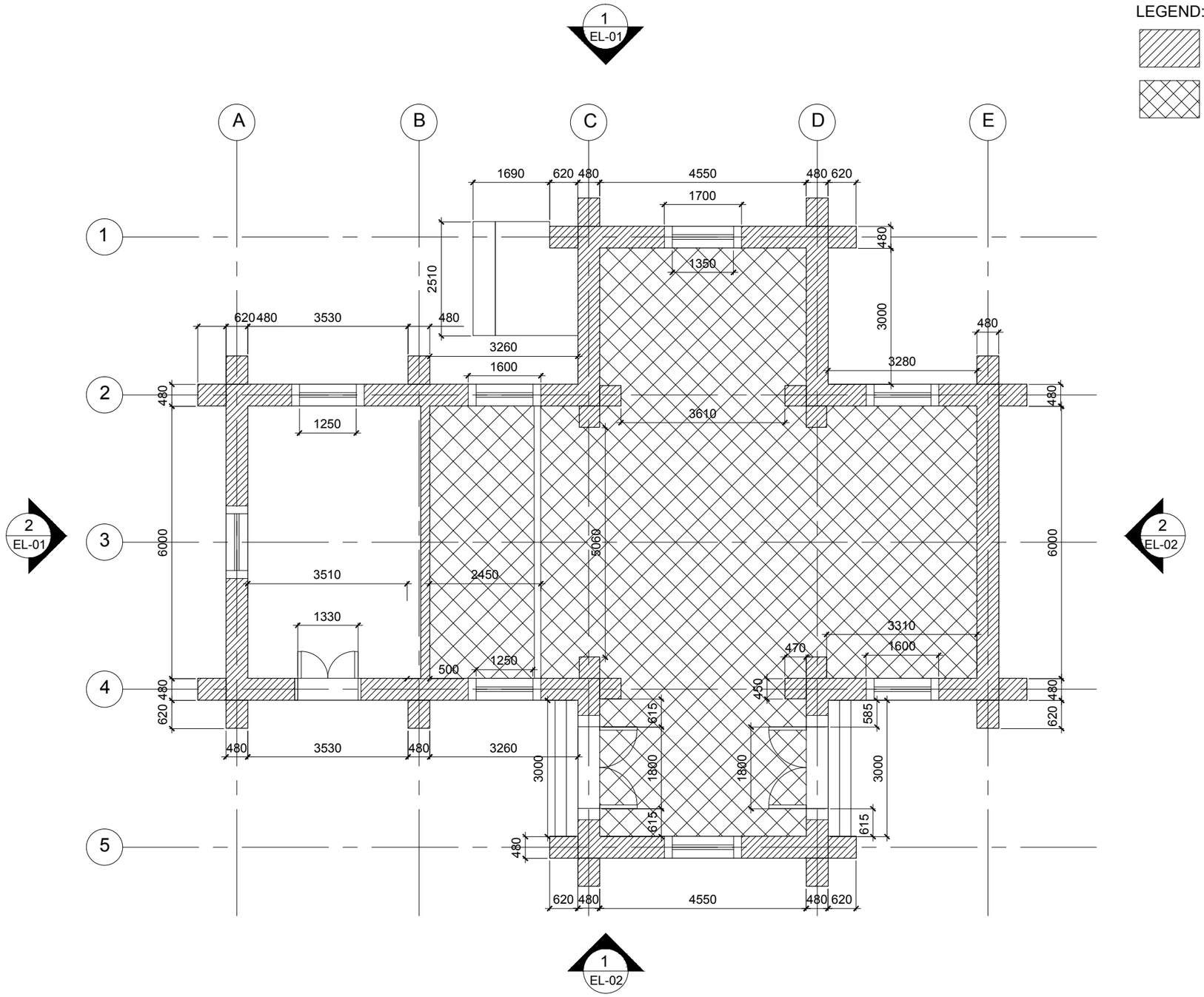
Appendix A

Layout Plan and Elevations



LEGEND:

WALL

360X360 MABLE FLOOR FINISH

NOTES :

REV.	DATE	DESCRIPTION

PROPERTY CONSERVATION 比恩顧問有限公司

PROJECT:

CHAPEL,
HONG KONG
CEMETERY,

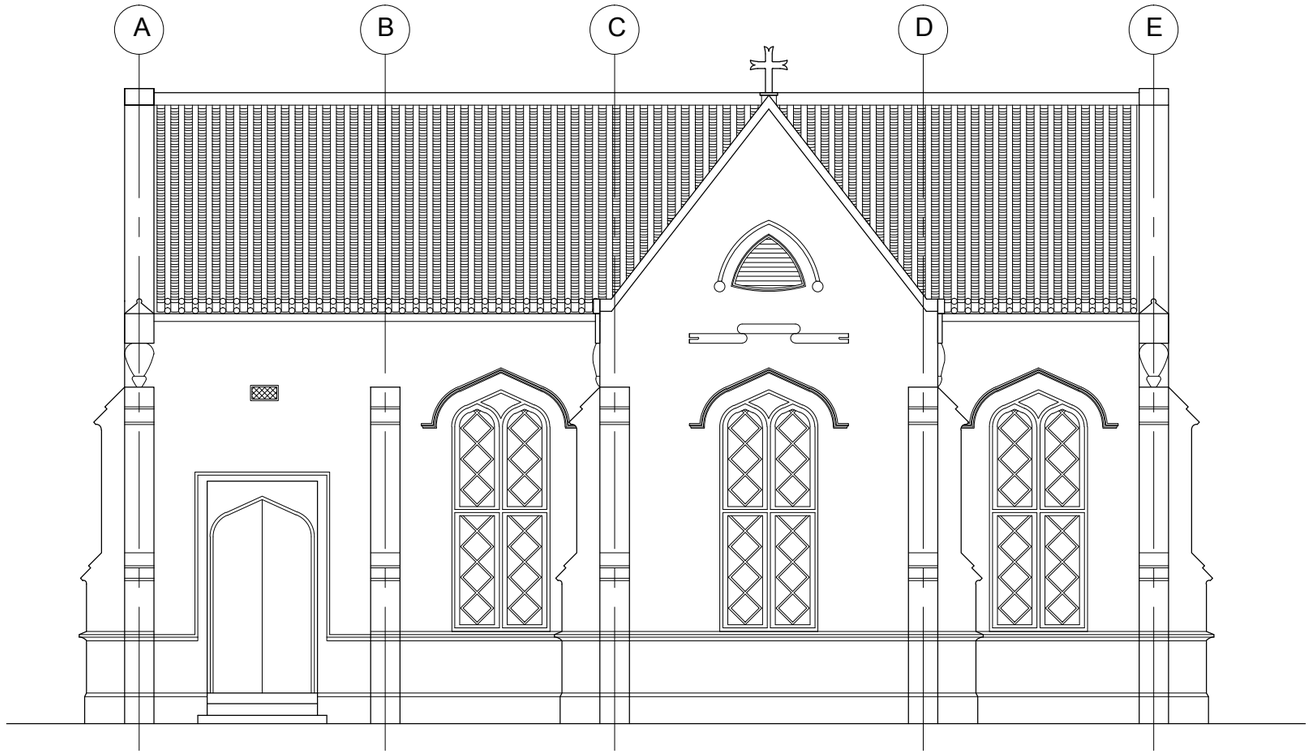
DRAWING TITLE:

LAYOUT PLAN

JOB NO.		DRAWN	
DATE	5/2017	CHECKED	
SCALE	1:100	APPROVED	
DRG. NO.	LP-01	REV.	

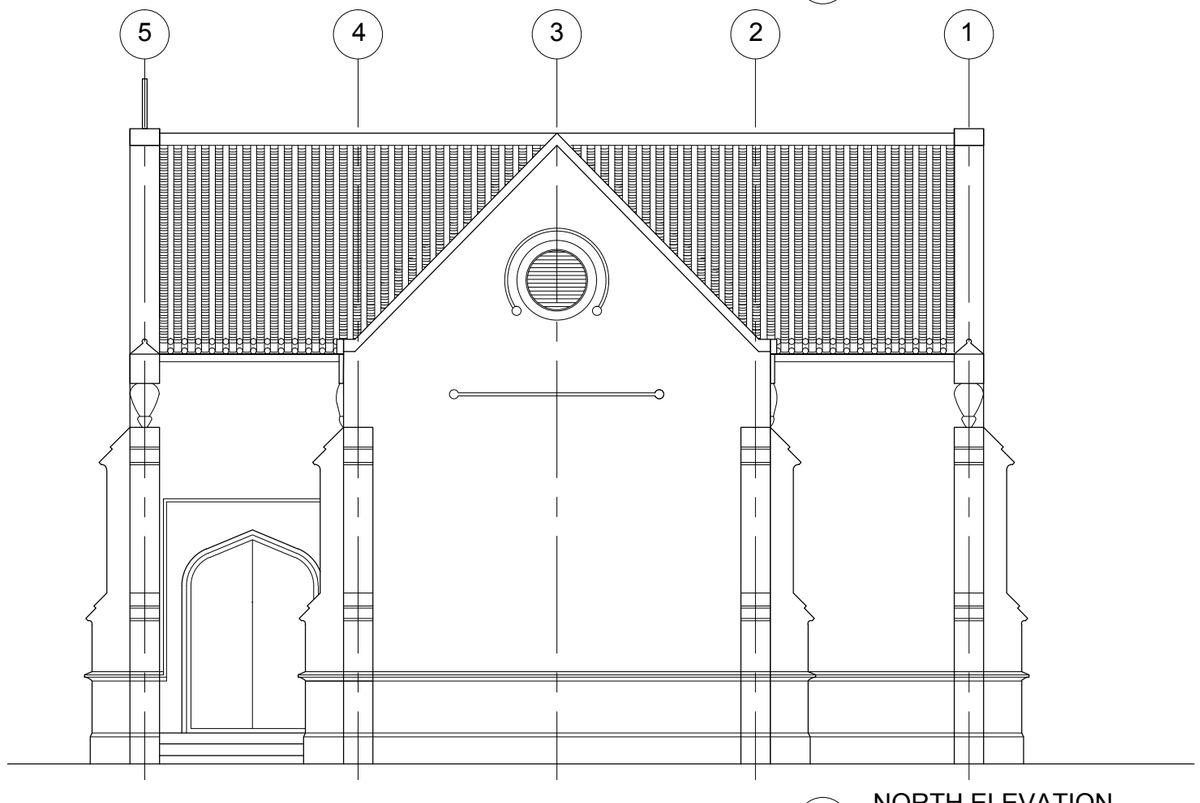
1 LAYOUT PLAN

SCALE 1:100



1 EAST ELEVATION

SCALE 1:100



2 NORTH ELEVATION

SCALE 1:100

NOTES :

REV.	DATE	DESCRIPTION

PROPERTY CONSERVATION 比恩顧問有限公司

PROJECT:

CHAPEL,
HONG KONG
CEMETERY,

DRAWING TITLE:

EAST AND NORTH
ELEVATION

JOB NO.		DRAWN	
DATE	5/2017	CHECKED	
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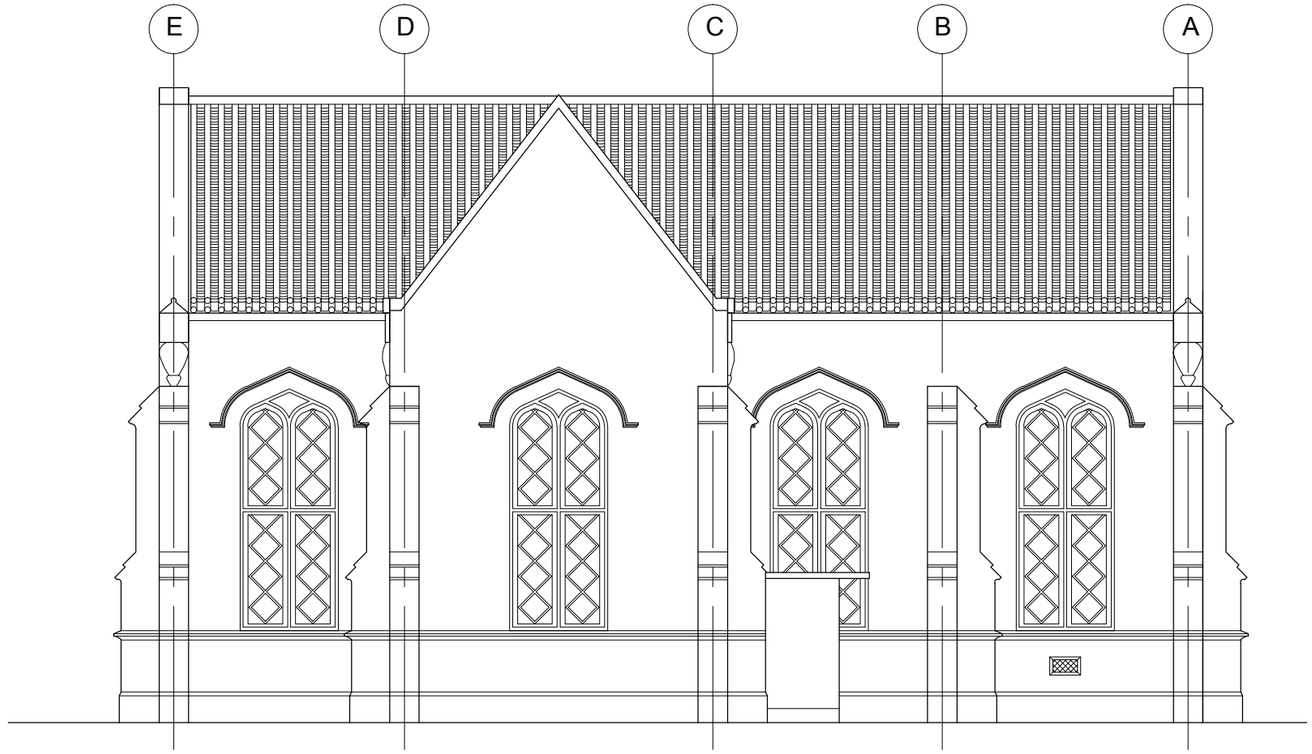
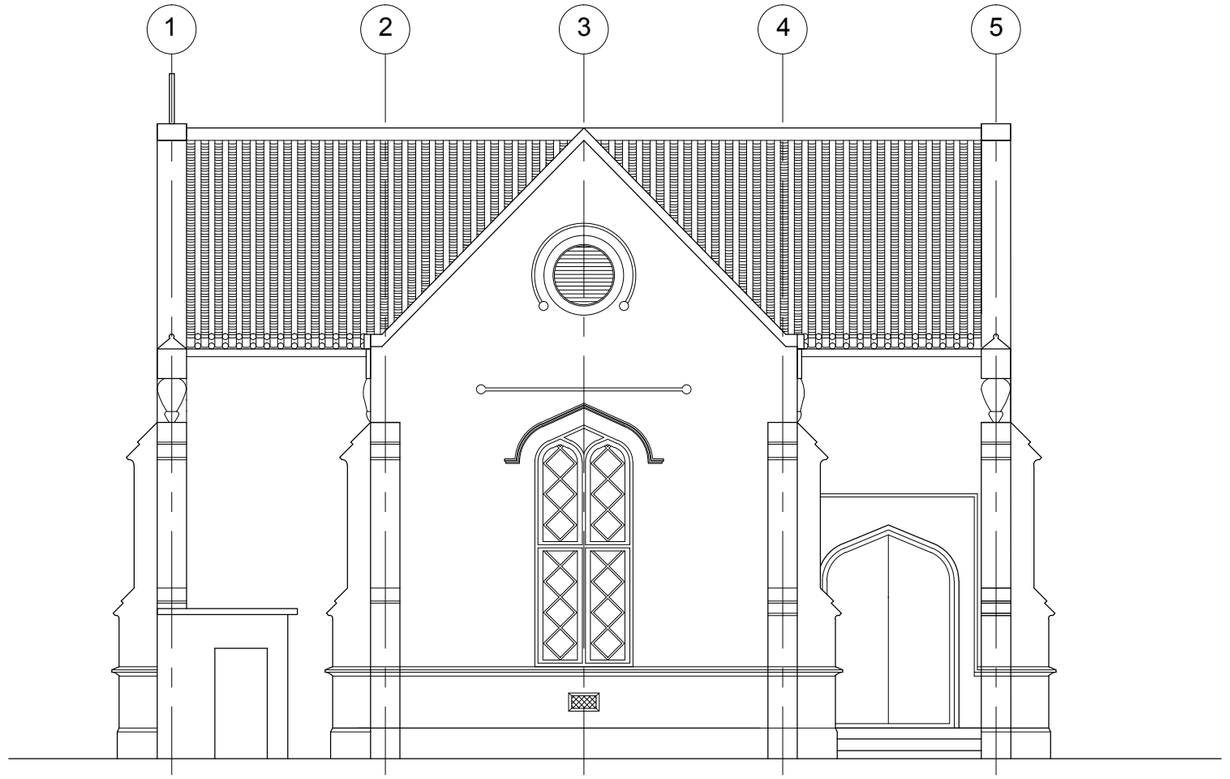


1 WEST ELEVATION

SCALE 1:100



2 SOUTH ELEVATION

SCALE 1:100

NOTES :

REV.	DATE	DESCRIPTION

PROPERTY CONSERVATION 比恩顧問有限公司

PROJECT:

CHAPEL,
HONG KONG
CEMETERY,

DRAWING TITLE:

WEST AND SOUTH ELEVATION

JOB NO.		DRAWN	
DATE	5/2017	CHECKED	
SCALE	1:100	APPROVED	
DRG. NO.	EL-01	REV.	

Appendix B

List of Slope and Retaining Wall Features

List of Slope/Retaining Wall Features Within Cemetery Boundary:
Cut Slopes (33)

Feature No.	Max Height	Length	Slope Av. Angle	Further Study?
11 SW-D/C19	12	120	60	No
11 SW-D/C435	*4*	*37*	*55*	*No*
11 SW-D/C675	13	95	65	Yes
11 SW-D/C696	*3*	*10*	*60*	*No*
11 SW-D/C1467	6.5	40	65	Yes
11 SW-D/C1469	5	80	60	Yes
11 SW-D/C1470	4	30	60	Yes
11 SW-D/C1471	4	35	55	Yes
11 SW-D/C1476	8.1	110	70	Yes
11 SW-D/C1480	3.5	50	50	Yes
11 SW-D/C1483	4.4	45	45	No
11 SW-D/C1484	3	65	40	Yes
11 SW-D/C1485	3.5	28	45	Yes
11 SW-D/C1486	4	38	45	Yes
11 SW-D/C1487	11	80	50	Yes
11 SW-D/C1488	4.5	40	65	Yes
11 SW-D/C1489	3.5	58	35	Yes
11 SW-D/C1490	4.1	33	40	Yes
11 SW-D/C1491	3.8	85	70	Yes
11 SW-D/C1495	3.5	36	60	Yes
11 SW-D/C1496	4.5	80	60	Yes
11 SW-D/C1497	7	37	50	Yes
11 SW-D/C1498	6	29	45	Yes
11 SW-D/C1874	4.5	5	70	Yes
11 SW-D/C1879	4	25	30	Yes
11 SW-D/C2127	3.5	20	50	Yes
11 SW-D/C2129	3.3	25	30	No
11 SW-D/C2132	8.2	5.3	55	Yes
11 SW-D/C2137	3	40	65	Yes
11 SW-D/C2146	3.5	12	65	Yes
11 SW-D/C2148	3.6	15	75	Yes
11 SW-D/C2149	3.5	20	70	Yes
11 SW-D/C2287	3.2	54	60	-

Note:

1. Responsibility for maintenance of cut slopes 11SW-D/C435 and 11SW-D/C696, both shown as inside the cemetery boundary, lies with Highways Department (HyD).

Cut Slope/Retaining Walls (11)

Feature No.	Max Height	Length	Slope Av. Angle	Further Study?
11 SW-D/CR235	8.3/3.5	50/50	55	-
11 SW-D/CR1472	7/4	40/20	70	Yes
11 SW-D/CR1477	3/2.2	60/45	40	Yes
11 SW-D/CR1478	3.2/2.8	30/30	40	Yes
11 SW-D/CR1479	2.7/2.7	72/72	50	Yes
11 SW-D/CR1877	2.5/4.2	22/22	25	Yes
11 SW-D/CR1980	1.2/3.4	24/24	40	Yes
11 SW-D/CR1995	2.5/4.9	21/21	30	Yes
11 SW-D/CR2128	3/1	15/15	40	No
11 SW-D/CR2139	1.8/1.6	30/30	40	Yes
11 SW-D/CR2227	12/2	45/17	50	Yes

Fill Slopes (2)

Feature No.	Max Height	Length	Slope Av. Angle	Further Study?
11 SW-D/F3	12	40	40	-
11 SW-D/F675	*30/11.5*	*200/120*	*35/27*	-

Fill Slope/Retaining Walls (4)

Feature No.	Max Height	Length	Slope Av. Angle	Further Study?
11 SW-D/FR71	*6.5/6*	*39/33*	*30*	-
11 SW-D/FR399	3.4/4.8/3.8	25/16/9	40	-
11 SW-D/FR400	*13/3*	*30/19.5*	*30*	-
11 SW-D/FR584	1.7/1.3	5/5	30	-

Retaining Walls (8)

Feature No.	Max Height	Length	Further Study?
11 SW-D/R797	7	25	Yes
11 SW-D/R799	*5*	*14*	*No*
11 SW-D/R800	4.5	22	No
11 SW-D/R801	3.3	86	Yes
11 SW-D/R804	4.5	15	Yes

Feature No.	Max Height	Length	Further Study?
11 SW-D/R805	3.3	86	Yes
11 SW-D/R811	4.9	18	Yes
11 SW-D/R1306	3.7	12	-

Notes: *Fill slope 11SW-D/F675 is inside the cemetery boundary, but is the responsibility of Highways Department (HyD).*
Fill slope/retaining wall 11SW-D/FR71 is inside the cemetery boundary, but is the responsibility of HyD.
Fill slope 11SW-D/FR400 shown as outside the cemetery boundary is listed in the SIS as being within the cemetery; responsibility is allocated to FEHD and HyD, with the agent for both being ArchSD.
Retaining wall 11SW-D/R799 is inside the cemetery boundary, but is the responsibility of HyD.

Appendix C

Stage 1 Reports for Slope and Retaining Wall Features Reviewed (from SIS)

11SW-D/C1469	11SW-D/CR1478	11SW-D/R801
11SW-D/C2146	11SW-D/CR1877	11SW-D/R805
11SW-D/C2148	11SW-D/CR1995	
11SW-D/C2149	11SW-D/CR2139	
11SW-D/C2287	11SW-D/CR2227	

BASIC INFORMATION

Location:	60m North-west of Chapel, Hong Kong Cemetery
SIFT Ref.:	11SW-15C/S 78
First Registration Date:	
SIFT Class:	C1
Data Source:	EI(Arch SD)
Approximate Coordinates:	Easting: 836521 Northing: 814829

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest:	Cemetery
Distance of Facility from Crest (m):	0
Facility at Toe:	Cemetery
Distance of Facility from Toe (m):	0
Consequence-to-life Category:	3
Remarks:	N/A

SLOPE PART

(1) Max. Height (m): 5 Length (m): 80 Average Angle (deg): 60

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 01-Sep-1998

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 24-Feb-2006
Data Source: EI(Arch SD)
Slope Part Drainage: (1) Position: Toe Size(mm): 151

Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 100 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 65 Spacing (m): 1.20

WALL PART

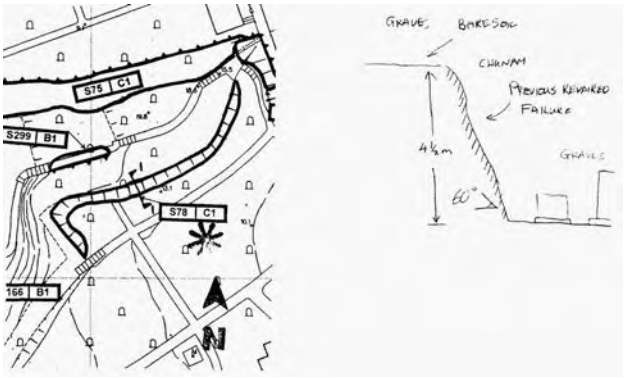
N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 21-Jun-1996
Weather: Some Rain
District: I



Section No: 1-1
Height(m): H1: 4 H2: 0
Type of Toe Facility: Cemetery

Distance from Toe(m): 0
Type of Crest Facility: Cemetery

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): 0
Type of Crest Facility: N/A

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: No signs of seepage Wall: N/A
Criterion A satisfied:	N
Sign of Distress:	Slope: Minor (mid-portion, at toe)
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	N
Note:	N/A
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

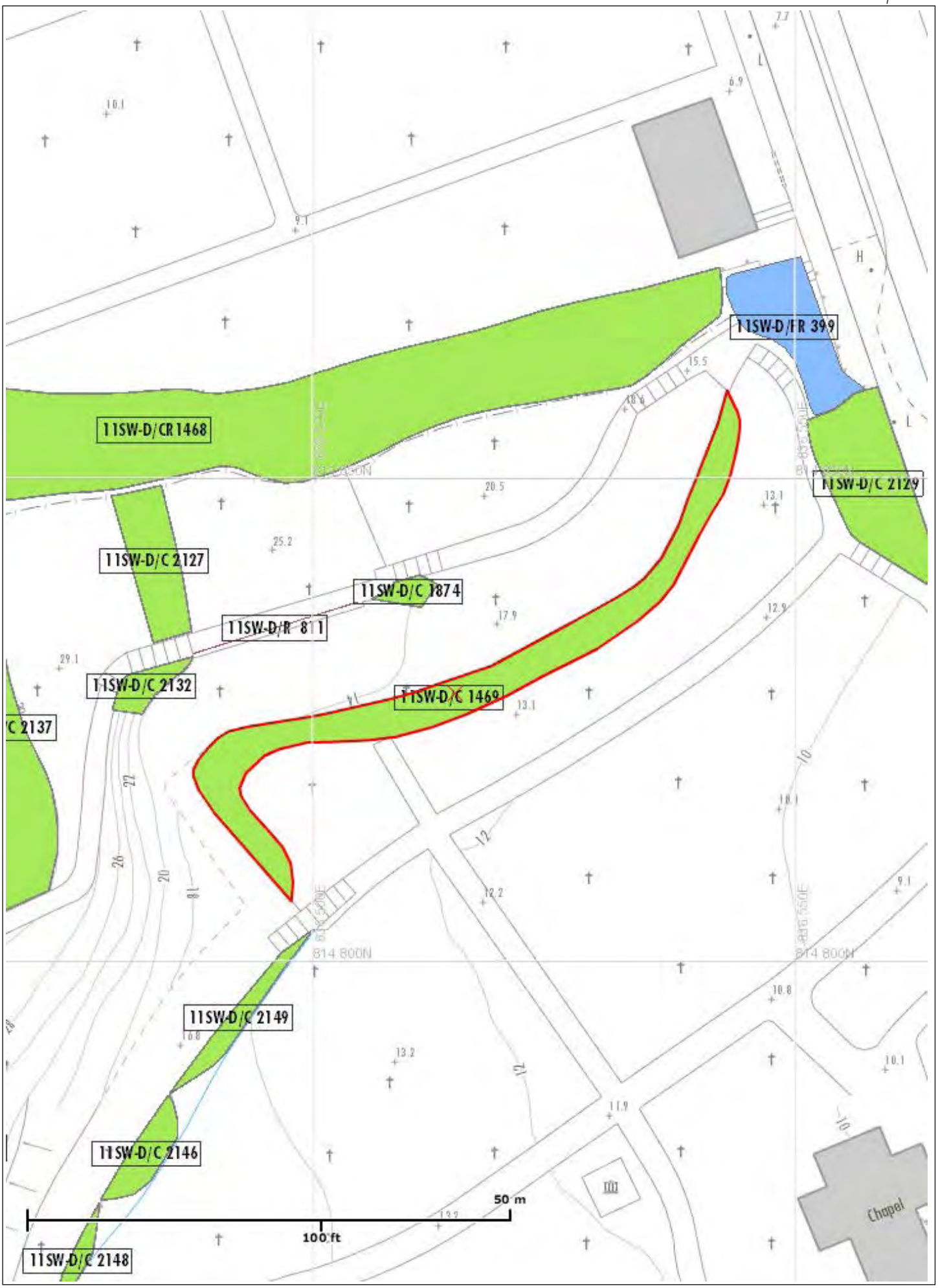
ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Private and Government

OTHER EXTERNAL ACTION

Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

PHOTO


11SW-D/FR 399
11SW-D/CR1468
11SW-D/C 2129
11SW-D/C 2127
11SW-D/C 1874
11SW-D/R 811
11SW-D/C 2132
11SW-D/C 1469
11SW-D/C 2137
11SW-D/C 2149
11SW-D/C 2146
11SW-D/C 2148
814 800N
50 m
100 ft
Chapel

BASIC INFORMATION

Location:	HONG KONG CEMETERY, HAPPY VALLY
SIFT Ref.:	11SW-15C/S168
First Registration Date:	04-Jul-2003
Ranking Score (NPRS):	0 (Notional)
SIFT Class:	C1
Data Source:	Agreement CE 60/2002 (GE)
Approximate Coordinates:	Easting: 836482 Northing: 814779

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest:	Cemetery
Distance of Facility from Crest (m):	0
Facility at Toe:	Cemetery
Distance of Facility from Toe (m):	0
Consequence-to-life Category:	3
Remarks:	N/A

SLOPE PART

(1) Max. Height (m): 3.50 Length (m): 12 Average Angle (deg): 65

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 19-Jan-2004

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 25-Oct-2002
Data Source: Agreement CE 60/2002 (GE)
Slope Part Drainage: N/A

Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 40 Chunam: 60 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil Geology: Decomposed granite
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

WALL PART

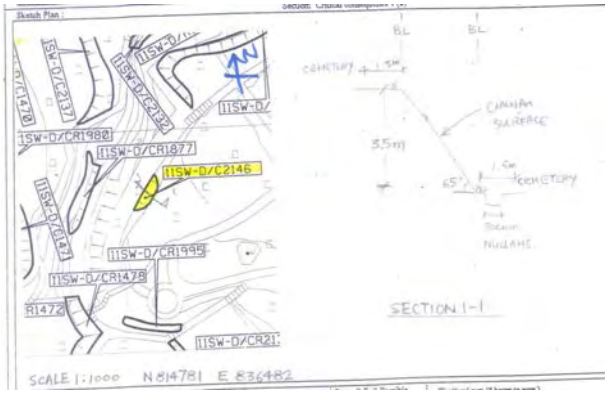
N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 25-Oct-2002
Weather: Mainly Fine
District: I



Section No: 1-1
Height(m): H1: 4 H2: 0
Type of Toe Facility: Cemetery

Distance from Toe(m): 0
Type of Crest Facility: Cemetery

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): 0
Type of Crest Facility: N/A

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: No sign of seepage Wall: N/A
Criterion A satisfied:	N
Sign of Distress:	Slope: None
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	N
Note:	N/A
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

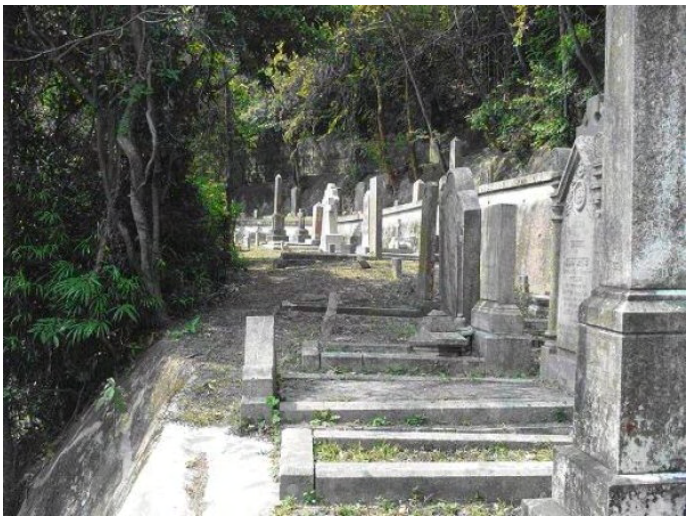
ACTION TO INITIATE PREVENTIVE WORKS

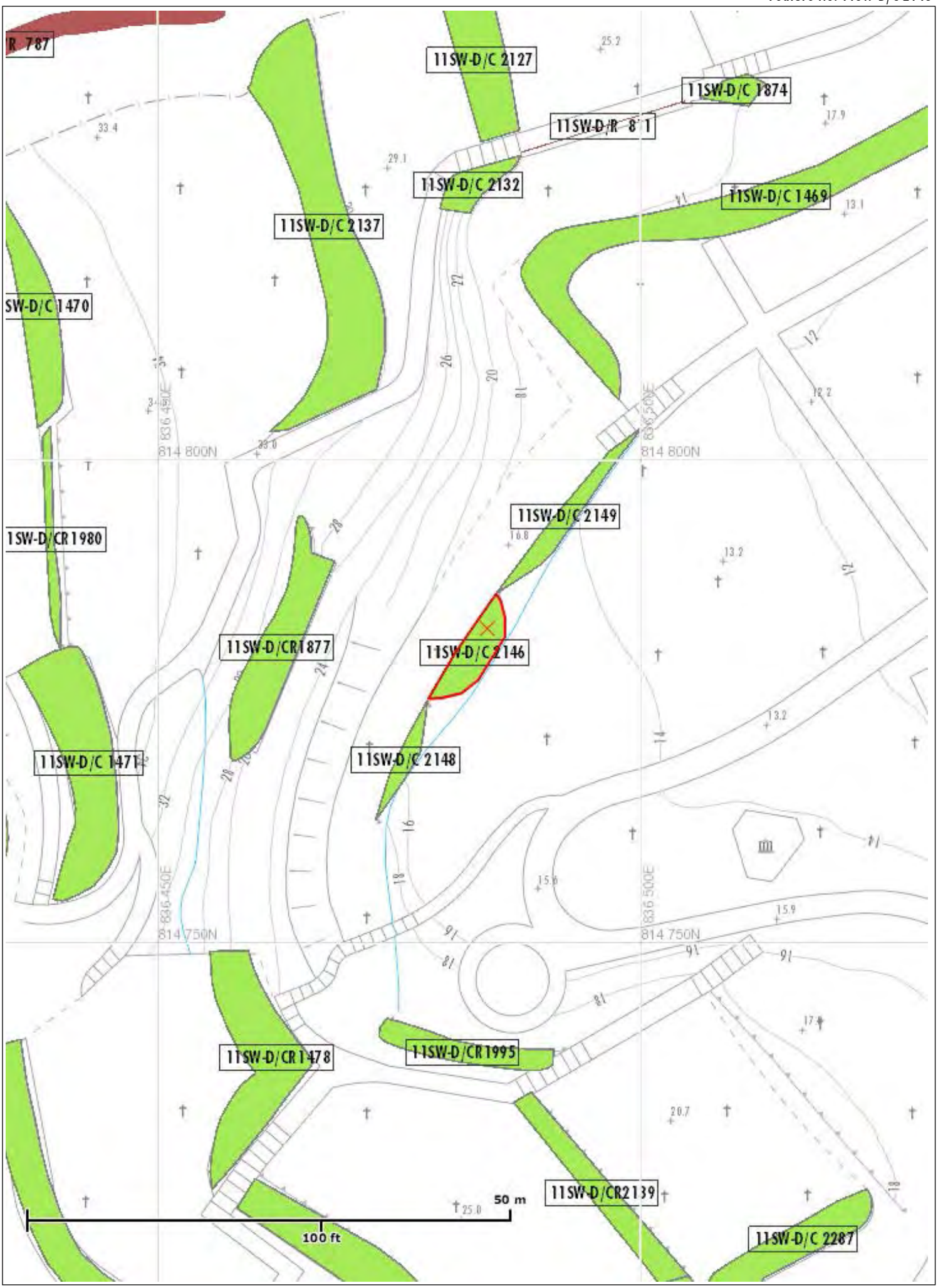
Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Private

OTHER EXTERNAL ACTION

Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

PHOTO

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11SW-D/C 1874
11SW-D/R 81
11SW-D/C 2132
11SW-D/C 1469
11SW-D/C 2137
SW-D/C 1470
836 450E
814 800N
836 500E
814 800N
11SW-D/C 2149
1SW-D/CR1980
11SW-D/CR1877
11SW-D/C 2146
11SW-D/C 1471
11SW-D/C 2148
836 450E
814 750N
836 500E
814 750N
11SW-D/CR1478
11SW-D/CR1995
11SW-D/CR2139
11SW-D/C 2287
50 m
100 ft

BASIC INFORMATION

Location:	HONG KONG CEMETERY, HAPPY VALLEY
SIFT Ref.:	11SW-15C/S282
First Registration Date:	
Ranking Score (NPRS):	0 (Notional)
SIFT Class:	C1
Data Source:	Agreement CE 60/2002 (GE)
Approximate Coordinates:	Easting: 836475 Northing: 814768

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest:	Cemetery
Distance of Facility from Crest (m):	0
Facility at Toe:	Cemetery
Distance of Facility from Toe (m):	0
Consequence-to-life Category:	3
Remarks:	N/A

SLOPE PART

(1) Max. Height (m): 3.60 Length (m): 15 Average Angle (deg): 75

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 19-Jan-2004

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 25-Oct-2002
Data Source: Agreement CE 60/2002 (GE)
Slope Part Drainage: N/A

Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 10 Vegetated: 80 Chunam: 0 Shotcrete: 10 Other Cover: 0
Material Description: Material type: Soil Geology: Decomposed granite
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

WALL PART

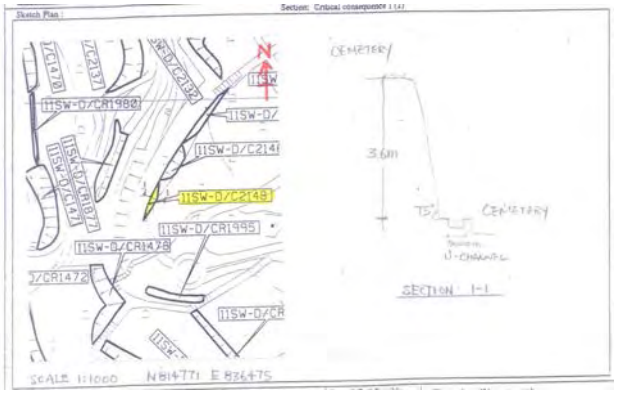
N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 25-Oct-2002
Weather: Mainly Fine
District: I



Section No: 1-1
Height(m): H1: 4 H2: 0
Type of Toe Facility: Cemetery

Distance from Toe(m): 0
Type of Crest Facility: Cemetery

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): 0
Type of Crest Facility: N/A

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: No sign of seepage Wall: N/A
Criterion A satisfied:	N
Sign of Distress:	Slope: None
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	Y
Note:	SQUARE RUBBLE FACING
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

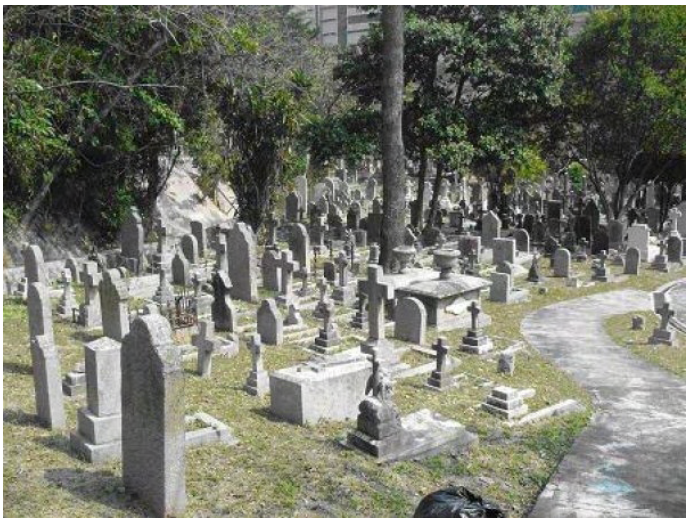
ACTION TO INITIATE PREVENTIVE WORKS

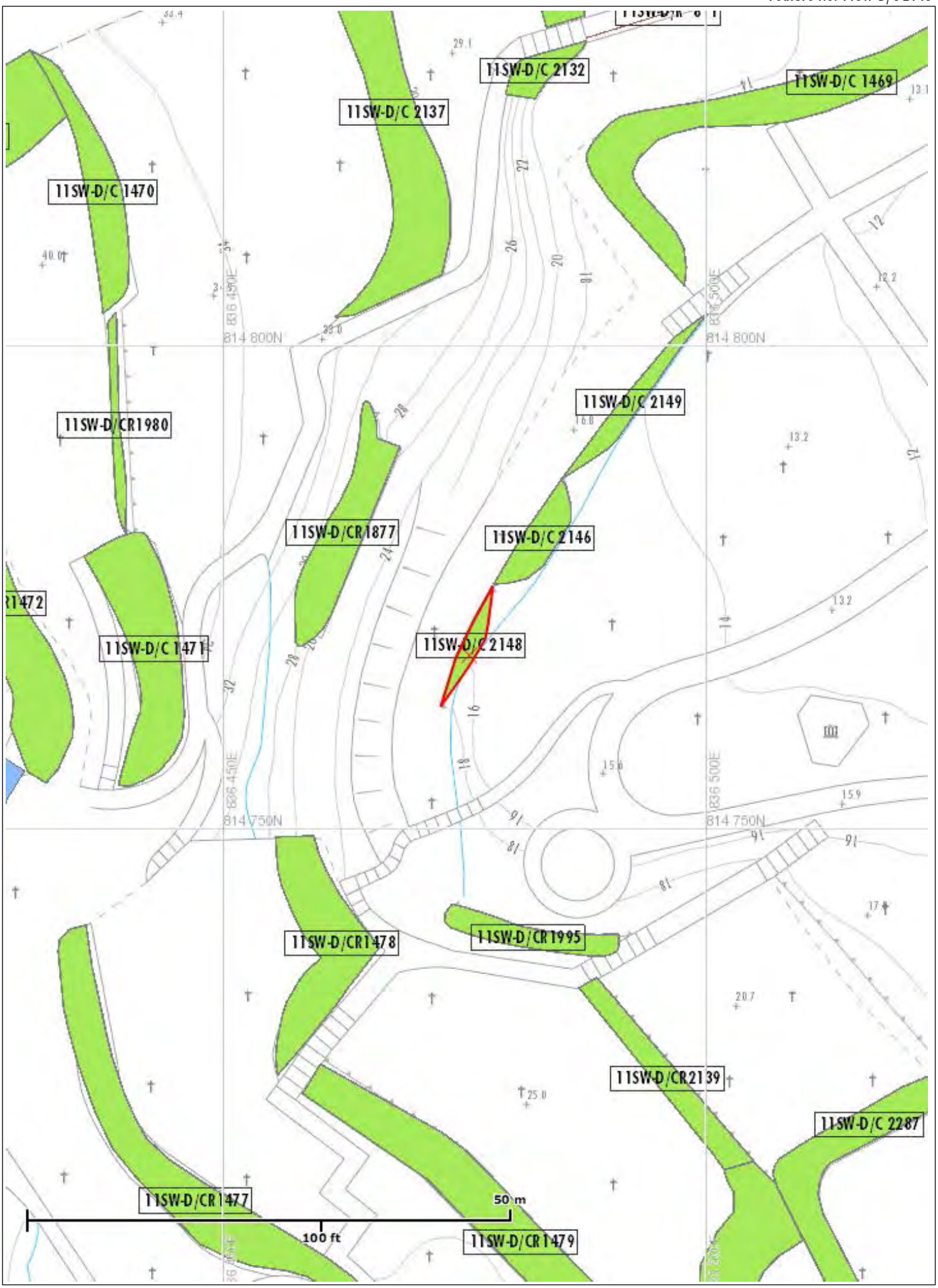
Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Private

OTHER EXTERNAL ACTION

Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

PHOTO

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11SW-D/C 2146
11SW-D/C 1471
11SW-D/C 2148
11SW-D/CR1478
11SW-D/CR1995
11SW-D/CR2139
11SW-D/C 2287
11SW-D/CR1477
11SW-D/CR1479
814 800N
814 750N
836 450E
836 500E
50 m
100 ft

BASIC INFORMATION

Location: HONG KONG CEMETERY, HAPPY VALLEY

SIFT Ref.: 11SW-15C/S283
First Registration Date:
Ranking Score (NPRS): 0 (Notional)
SIFT Class: C1
Data Source: Agreement CE 60/2002 (GE)
Approximate Coordinates: Easting: 836493 Northing: 814795

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Cemetery

Distance of Facility from Crest (m): 0
Facility at Toe: Cemetery

Distance of Facility from Toe (m): 0
Consequence-to-life Category: 3
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 3.50 Length (m): 20 Average Angle (deg): 70

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 19-Jan-2004

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 25-Oct-2002
Data Source: Agreement CE 60/2002 (GE)
Slope Part Drainage: N/A

Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 10 Vegetated: 70 Chunam: 0 Shotcrete: 20 Other Cover: 0
Material Description: Material type: Soil Geology: Decomposed granite
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

WALL PART

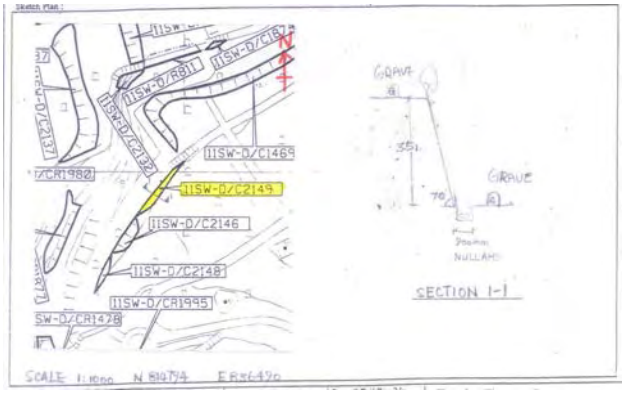
N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 25-Oct-2002
Weather: Mainly Fine
District: I



Section No: 1-1
Height(m): H1: 4 H2: 0
Type of Toe Facility: Cemetery

Distance from Toe(m): 0
Type of Crest Facility: Cemetery

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): 0
Type of Crest Facility: N/A

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: No sign of seepage Wall: N/A
Criterion A satisfied:	N
Sign of Distress:	Slope: Reasonable (mid-portion)
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	N
Note:	N/A
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

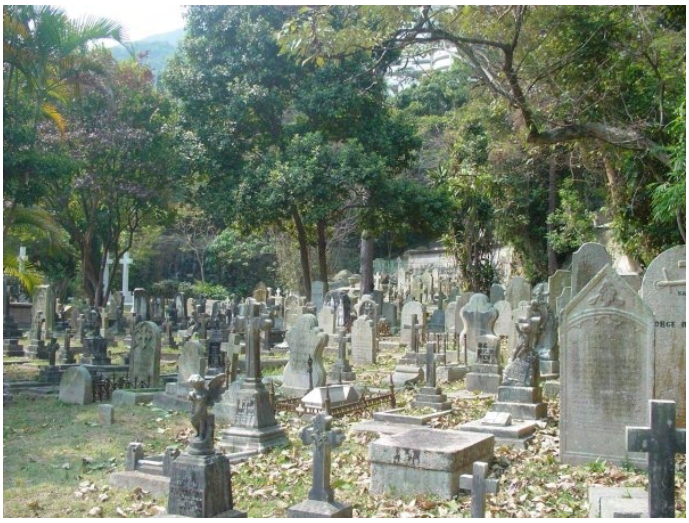
ACTION TO INITIATE PREVENTIVE WORKS

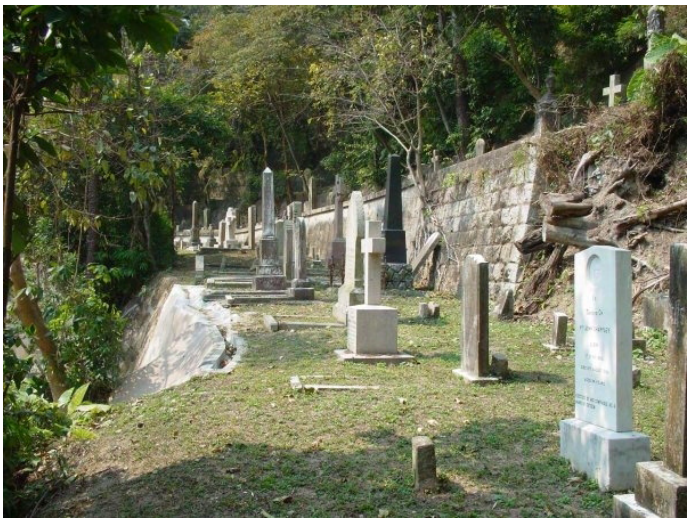
Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Private

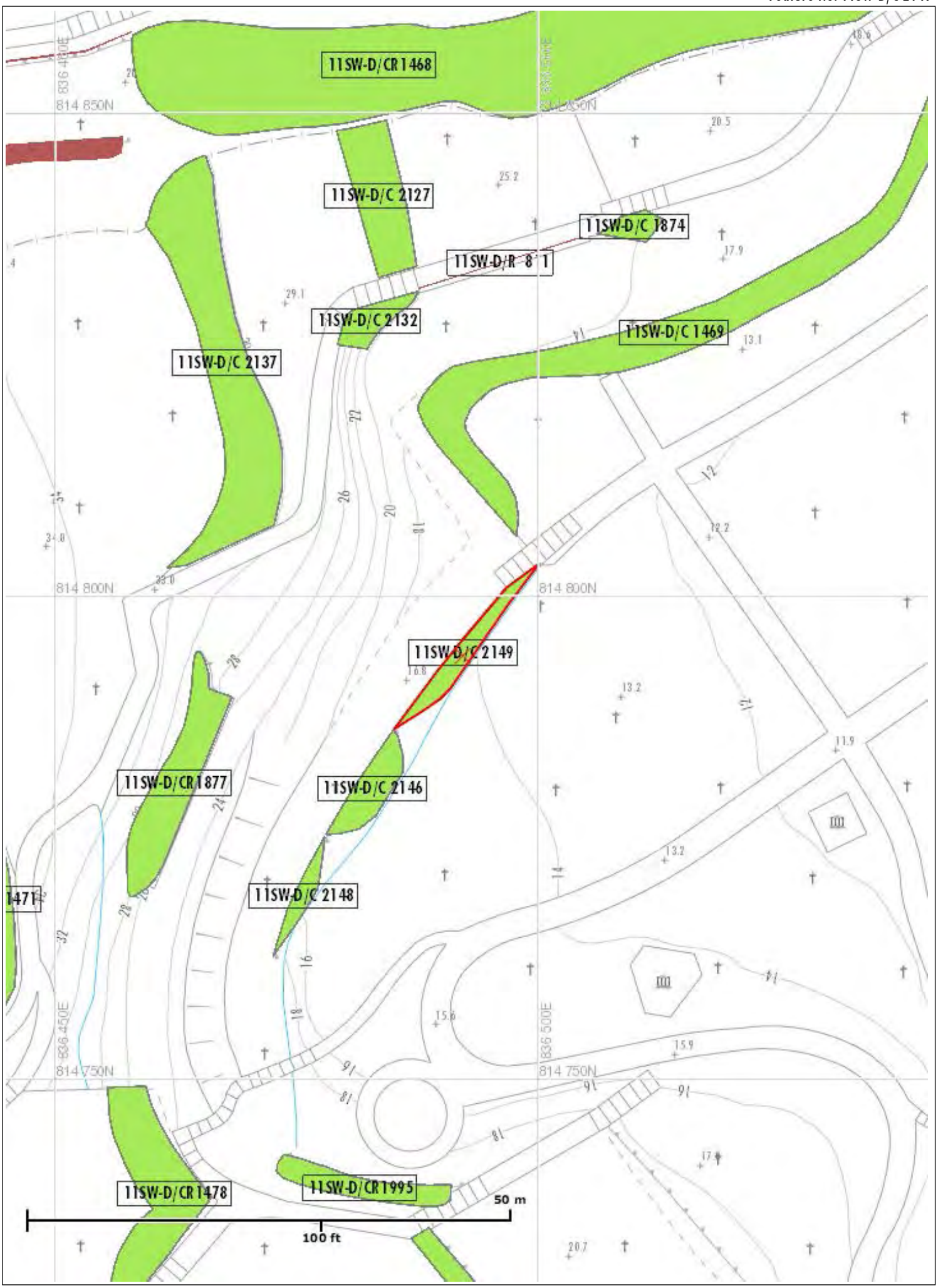
OTHER EXTERNAL ACTION

Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

PHOTO



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11SW-D/C 2127
11SW-D/C 1874
11SW-D/R 81
11SW-D/C 2132
11SW-D/C 1469
11SW-D/C 2137
11SW-D/C 2149
11SW-D/CR1877
11SW-D/C 2146
11SW-D/C 2148
11SW-D/CR1478
11SW-D/CR1995
814 850N
814 800N
814 750N
836 450E
836 500E
50 m
100 ft

BASIC INFORMATION

Location:	Hong Kong Cemetery, Happy Valley, Hong Kong
SIFT Ref.:	N/A
First Registration Date:	08-Sep-2013
SIFT Class:	C1
Data Source:	EI(Arch SD)
Approximate Coordinates:	Easting: 836514 Northing: 814704

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest:	Cemetery
Distance of Facility from Crest (m):	2.10
Facility at Toe:	Cemetery
Distance of Facility from Toe (m):	0
Consequence-to-life Category:	3
Remarks:	N/A

SLOPE PART

(1) Max. Height (m): 3.20 Length (m): 54 Average Angle (deg): 60

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 11-Sep-2014

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 20-Sep-2016

Data Source: EI(Arch SD)

Slope Part Drainage: (1) Position: Toe Size(mm): 225
(2) Position: On slope Size(mm): 225

Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)

Surface Protection (%): Bare: 0 Vegetated: 100 Chunam: 0 Shotcrete: 0 Other Cover: 0

Material Description: Material type: Soil Geology: N/A

Berm: No. of Berms: N/A Min. Berm Width (m): N/A

Weepholes: Size (mm): N/A Spacing (m): N/A

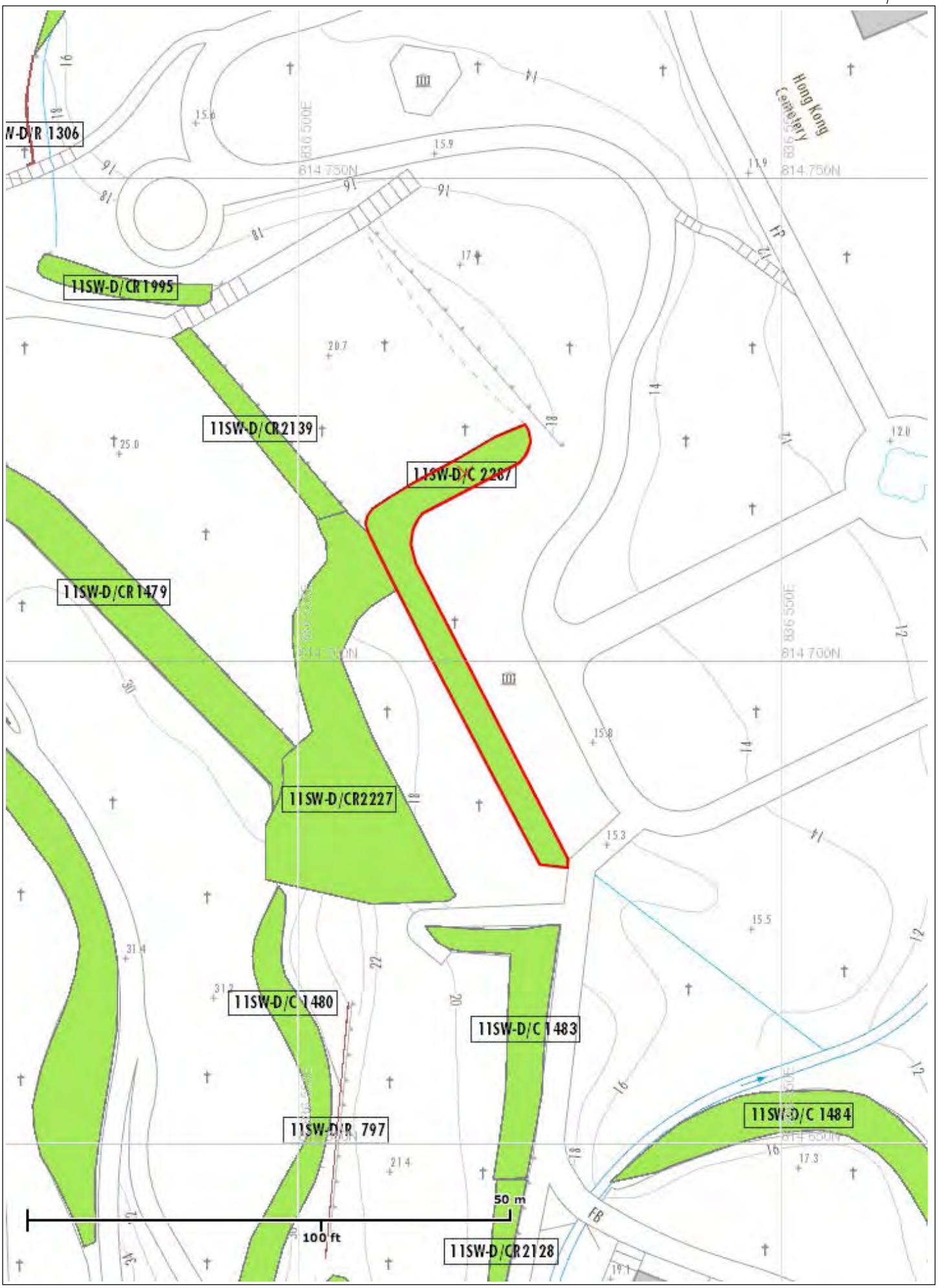
WALL PART

N/A

SERVICES

N/A

PHOTO


N-D/R 1306
11SW-D/CR1995
11SW-D/CR2139
11SW-D/C 2287
11SW-D/CR1479
11SW-D/CR2227
11SW-D/C 1480
11SW-D/C 1483
11SW-D/C 1484
11SW-D/R 797
11SW-D/CR2128
Hong Kong Cemetery
836 500E
814 750N
814 700N
50 m
100 ft

BASIC INFORMATION

Location: North of Lot S.16D, Hong Kong Cemetery, H.K.

SIFT Ref.: 11SW-15C/S165
First Registration Date:
Ranking Score (NPRS): 0 (Notional)
SIFT Class: C1
Data Source: EI(Arch SD)
Approximate Coordinates: Easting: 836462 Northing: 814740

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Cemetery

Distance of Facility from Crest (m): 0
Facility at Toe: Road/footpath with low traffic density

Distance of Facility from Toe (m): 0
Consequence-to-life Category: 3
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 3.20 Length (m): 30 Average Angle (deg): 40

WALL PART

(1) Max. Height (m): 2.80 Length (m): 30 Face Angle (deg): 85

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 01-Sep-1998

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 26-Jun-2012

Data Source: EI(Arch SD)

Slope Part Drainage: (1) Position: Crest Size(mm): 300
(2) Position: On slope Size(mm): 600

Wall Part Drainage: (1) Position: Downpipe Size(mm): 300
(2) Position: Toe Size(mm): 300

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 100 Chunam: 0 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

WALL PART

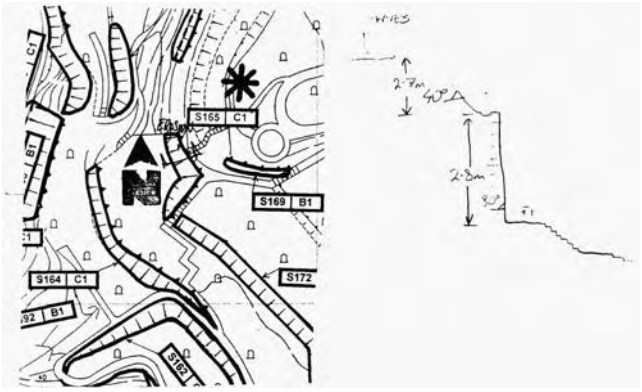
Wall Part (1)
Type of Wall: Wall Material: Masonry Wall Location: Wall at toe
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 85 Spacing (m): 1.40

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 28-Jun-1996
Weather: Some Rain
District: I



Section No: 1-1
Height(m): H1: 6 H2: 0
Type of Toe Facility: Road/footpath with low traffic density

Distance from Toe(m): 0
Type of Crest Facility: Cemetery

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): 0
Type of Crest Facility: N/A

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: No signs of seepage Wall: Signs of seepage
Criterion A satisfied:	N
Sign of Distress:	Slope: Minor (near crest, mid-portion) Wall: Moderate (near crest, mid-portion, at toe)
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	Y
Note:	DRESSED BLOCK FAIR CONDITION. BUT EROSION BEHIND WALL AT NORTH REVEALS LOOSE RUBBLE BEHIND.
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

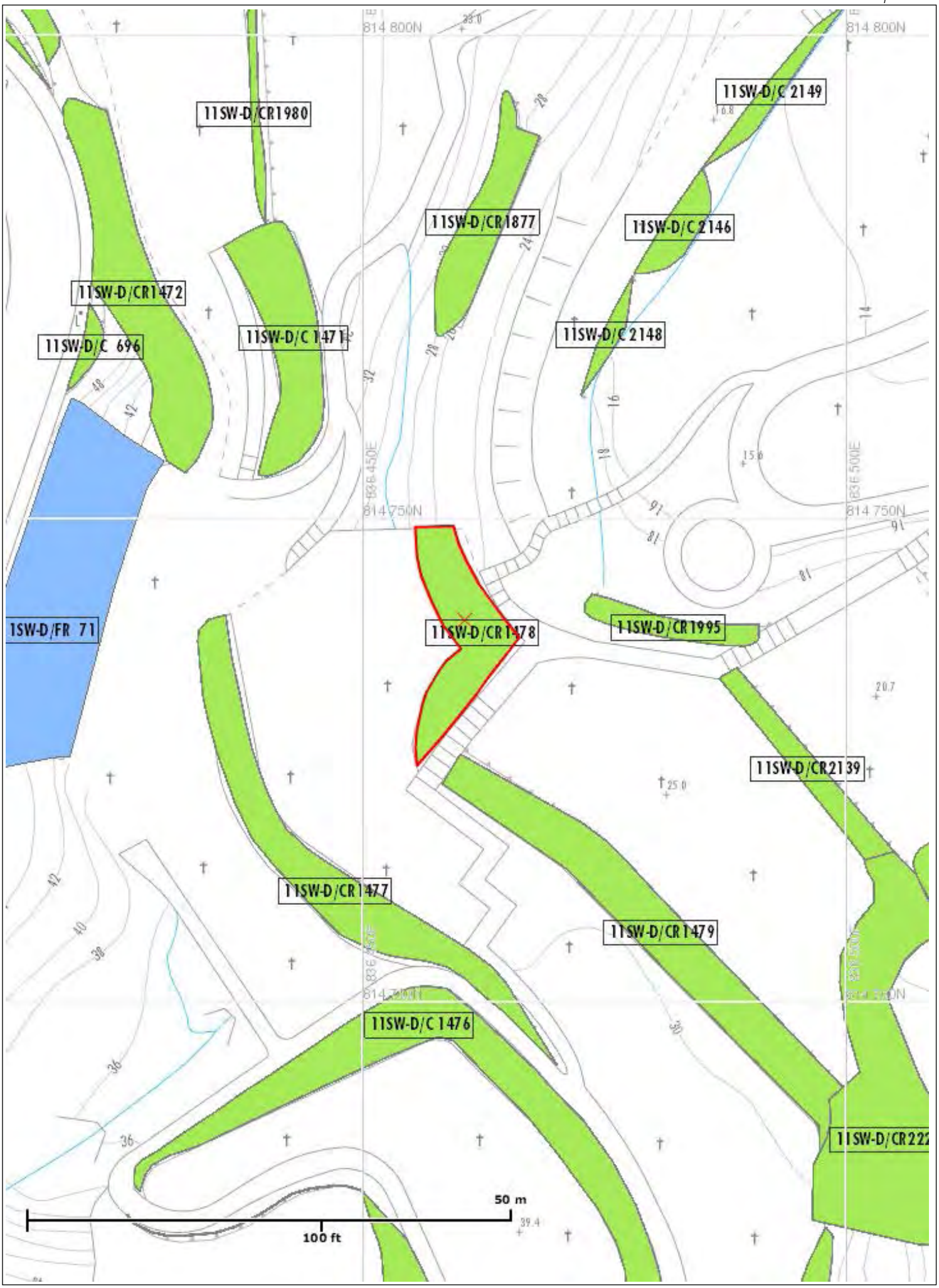
ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Private and Government

OTHER EXTERNAL ACTION

Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

PHOTO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11SW-D/C 2149
11SW-D/CR1877
11SW-D/C 2146
11SW-D/CR1472
11SW-D/C 696
11SW-D/C 1471
11SW-D/C 2148
11SW-D/FR 71
11SW-D/CR1478
11SW-D/CR1995
11SW-D/CR2139
11SW-D/CR1477
11SW-D/CR1479
11SW-D/C 1476
11SW-D/CR222
814 800N
814 750N
836 450E
836 500E
50 m
100 ft

BASIC INFORMATION

Location: 120m NW of Chapel at Hong Kong Cemetery, H.K.

SIFT Ref.: 11SW-15C/S166
First Registration Date:
Ranking Score (NPRS): 0 (Notional)
SIFT Class: C1
Data Source: EI(Arch SD)
Approximate Coordinates: Easting: 836463 Northing: 814780

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Road/footpath with very low traffic density

Distance of Facility from Crest (m): 0
Facility at Toe: Cemetery

Distance of Facility from Toe (m): 0
Consequence-to-life Category: 3
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 2.50 Length (m): 22 Average Angle (deg): 25

WALL PART

(1) Max. Height (m): 4.20 Length (m): 22 Face Angle (deg): 75

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 01-Sep-1998

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 11-Jan-2001

Data Source: EI(Arch SD)

Slope Part Drainage: (1) Position: Crest Size(mm): 251
(2) Position: Toe Size(mm): 251
(3) Position: On slope Size(mm): 251

Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)

Surface Protection (%): Bare: 0 Vegetated: 100 Chunam: 0 Shotcrete: 0 Other Cover: 0

Material Description: Material type: Soil Geology: N/A

Berm: No. of Berms: N/A Min. Berm Width (m): N/A

Weepholes: Size (mm): N/A Spacing (m): N/A

WALL PART

Wall Part (1)

Type of Wall: Wall Material: Others Wall Location: N/A

Berm: No. of Berms: N/A Min. Berm Width (m): N/A

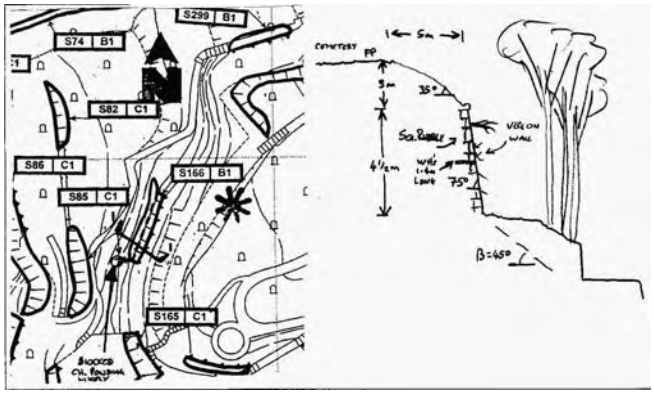
Weepholes: Size (mm): 65 Spacing (m): 2.20

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 15-Nov-1996
Weather: Mainly Fine
District: I



Section No: 1-1
Height(m): H1: 7 H2: 0
Type of Toe Facility: Cemetery

Distance from Toe(m): 0
Type of Crest Facility: Road/footpath with very low traffic density

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): 0
Type of Crest Facility: N/A

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: No signs of seepage Wall: No sign of seepage
Criterion A satisfied:	N
Sign of Distress:	Slope: None Wall: Minimal (near crest, mid-portion, at toe)
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	Y
Note:	N/A
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

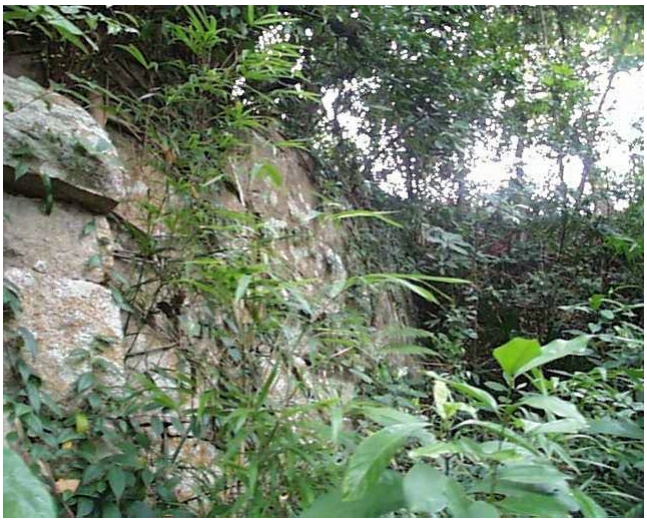
ACTION TO INITIATE PREVENTIVE WORKS

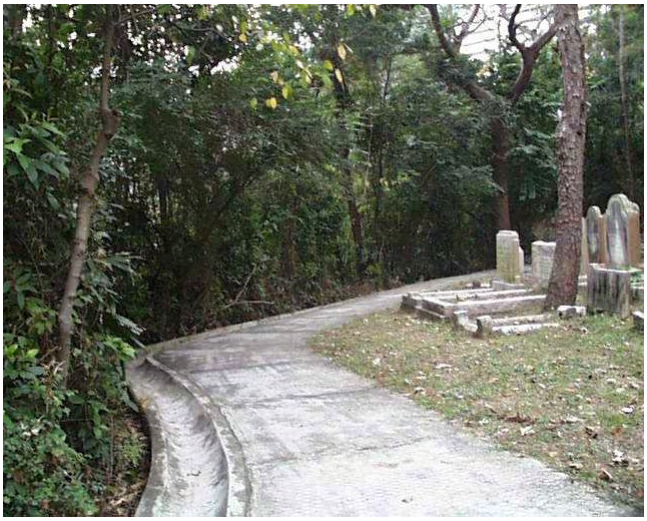
Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Private and Government

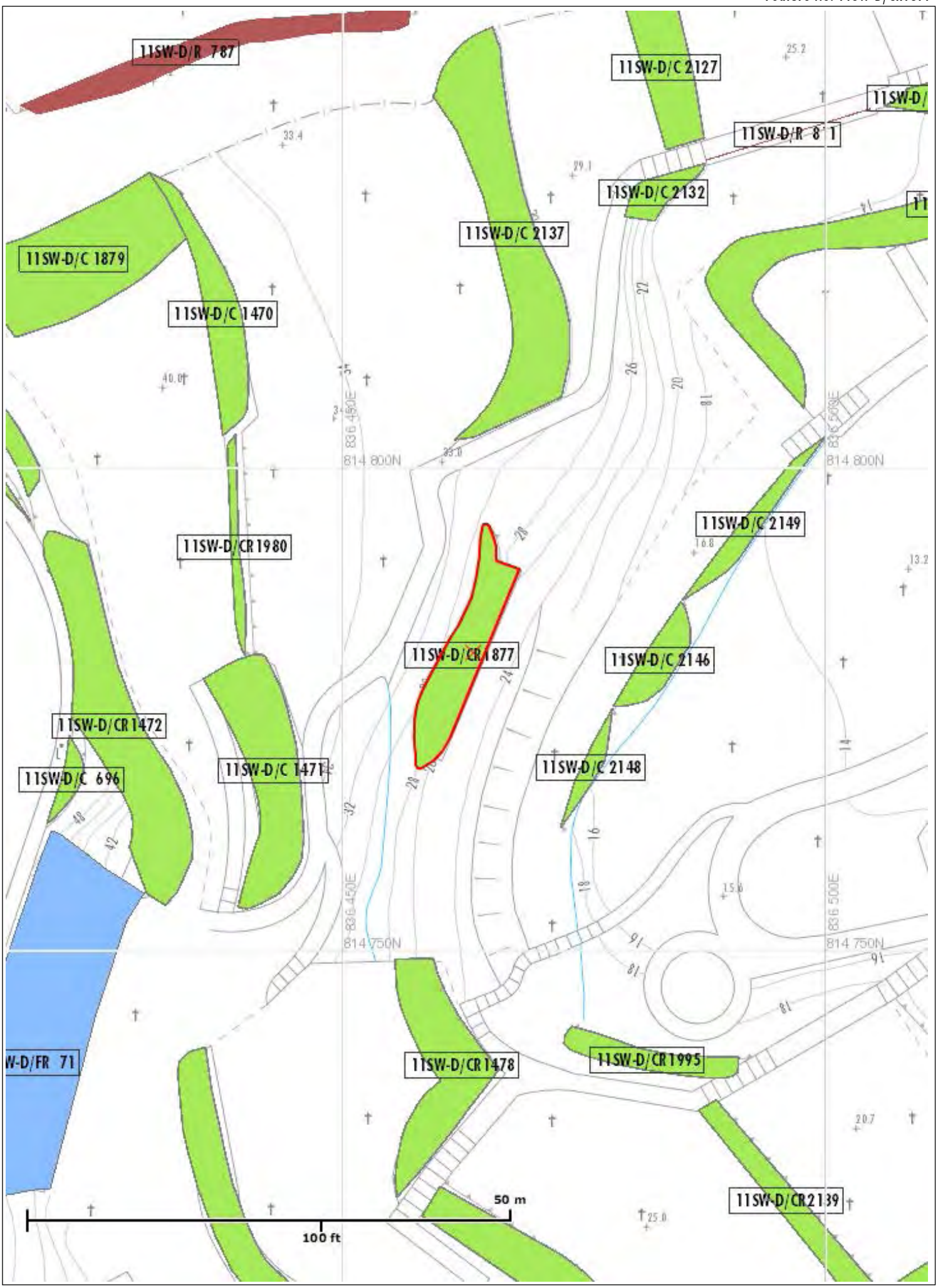
OTHER EXTERNAL ACTION

Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

PHOTO






11SW-D/R 787
11SW-D/C 2127
11SW-D/R 811
11SW-D/C 2132
11SW-D/C 2137
11SW-D/C 1879
11SW-D/C 1470
11SW-D/C 2149
11SW-D/CR1980
11SW-D/CR1877
11SW-D/C 2146
11SW-D/CR1472
11SW-D/C 696
11SW-D/C 1471
11SW-D/C 2148
11SW-D/FR 71
11SW-D/CR1478
11SW-D/CR1995
11SW-D/CR2139
814 800N
814 750N
836 450E
836 500E
50 m
100 ft

BASIC INFORMATION

Location: 40m SW of Monument & Chapel, H.K. Cemetery, H.K.

SIFT Ref.: 11SW-15C/S169
First Registration Date:
Ranking Score (NPRS): 0 (Notional)
SIFT Class: C1
Data Source: EI(Arch SD)
Approximate Coordinates: Easting: 836483 Northing: 814738

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Road/footpath with low traffic density

Distance of Facility from Crest (m): 0
Facility at Toe: Road/footpath with low traffic density

Distance of Facility from Toe (m): 0
Consequence-to-life Category: 3
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 2.50 Length (m): 21 Average Angle (deg): 30

WALL PART

(1) Max. Height (m): 4.90 Length (m): 21 Face Angle (deg): 85

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 01-Sep-1998

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 26-Jun-2012

Data Source: EI(Arch SD)

Slope Part Drainage: (1) Position: Crest Size(mm): 150
(2) Position: Toe Size(mm): 150

Wall Part Drainage: (1) Position: Toe Size(mm): 175

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 100 Chunam: 0 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

WALL PART

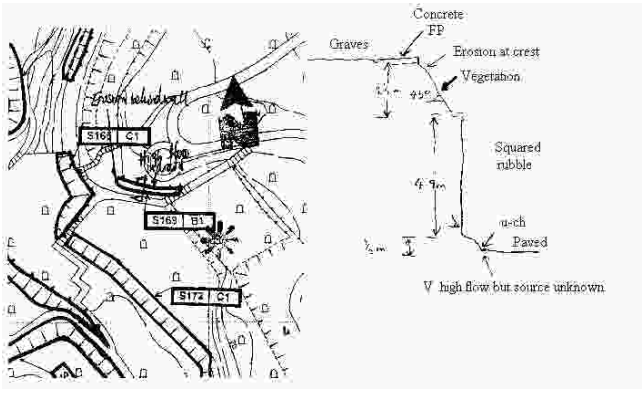
Wall Part (1)
Type of Wall: Wall Material: Others Wall Location: Wall at toe
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 85 Spacing (m): 1.60

SERVICES

(1) Utilities Type: Sewer/Drain Size(mm): 1200 Location: Crest Remark: N/A

STAGE 1 STUDY REPORT

Inspected On: 28-Jun-1996
Weather: Some Rain
District: I



Section No: 1-1
Height(m): H1: N/A H2: N/A
Type of Toe Facility: Road/footpath with low traffic density

Distance from Toe(m): 0
Type of Crest Facility: Road/footpath with low traffic density

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): N/A
Type of Crest Facility: N/A

Distance from Crest(m): N/A
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: No signs of seepage Wall: Signs of seepage
Criterion A satisfied:	N
Sign of Distress:	Slope: Minor (near crest, mid-portion, at toe) Wall: Moderate (near crest)
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	Y
Note:	Minor displacement of blocks near crest at east end. Cracking and missing pointing at many locations full height crack at centre.
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

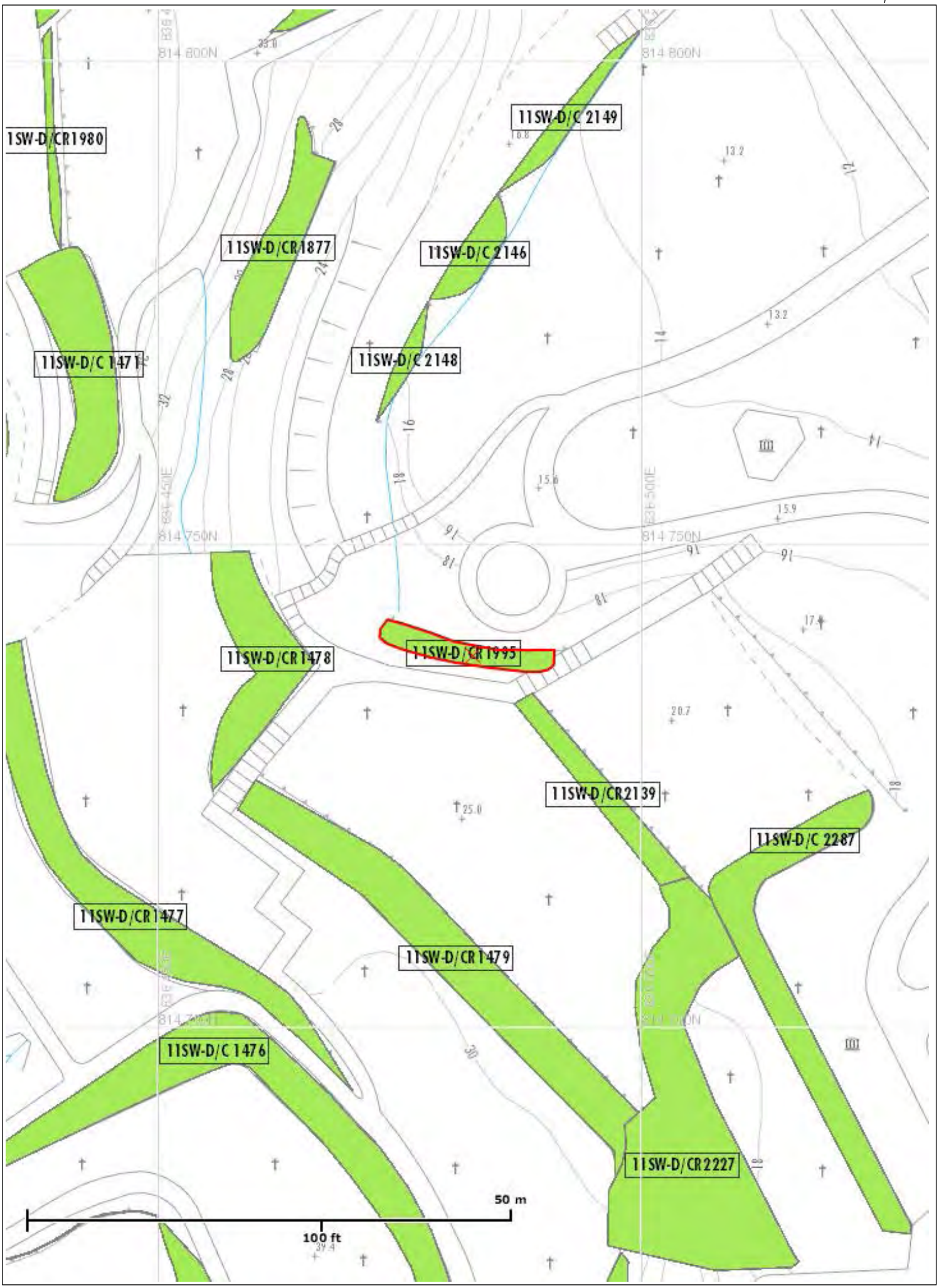
ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Private and Government

OTHER EXTERNAL ACTION

Check / repair Services:	Y
Action By:	DSD
Non-routine Maintenance:	N
Action By:	N/A

PHOTO


11SW-D/CR1980
11SW-D/C 2149
11SW-D/CR1877
11SW-D/C 2146
11SW-D/C 1471
11SW-D/C 2148
11SW-D/CR1478
11SW-D/CR1995
11SW-D/CR2139
11SW-D/C 2287
11SW-D/CR1477
11SW-D/CR1479
11SW-D/C 1476
11SW-D/CR2227
814 800N
814 750N
50 m
100 ft

BASIC INFORMATION

Location: HOM SW OF MOUNMENT AND SW OF CHAPEL, HONG KONG CEMETERY, HAPPY VALLEY

SIFT Ref.: 11SW-15C/S806
First Registration Date:
SIFT Class: C1
Data Source: Agreement GEO 4/2002
Approximate Coordinates: Easting: 836496 Northing: 814724

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Cemetery

Distance of Facility from Crest (m): 0
Facility at Toe: Cemetery

Distance of Facility from Toe (m): 0
Consequence-to-life Category: 3
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 1.80 Length (m): 30 Average Angle (deg): 40

WALL PART

(1) Max. Height (m): 1.60 Length (m): 30 Face Angle (deg): 80

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 13-Aug-2015

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 23-May-2014
Data Source: Agreement GEO 4/2002
Slope Part Drainage: N/A

Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 20 Vegetated: 80 Chunam: 0 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil Geology: Colluvium
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

WALL PART

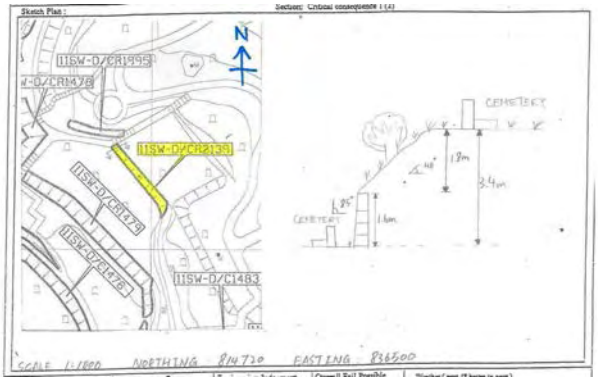
Wall Part (1)
Type of Wall: Wall Material: Others Wall Location: Wall at toe
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 23-Aug-2002
Weather: Mainly Fine
District: I



Section No: 1-1
Height(m): H1: 4 H2: 0
Type of Toe Facility: Cemetery

Distance from Toe(m): 0
Type of Crest Facility: Cemetery

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): 0
Type of Crest Facility: N/A

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: No sign of seepage Wall: No sign of seepage
Criterion A satisfied:	N
Sign of Distress:	Slope: None Wall: None
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	N
Note:	N/A
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

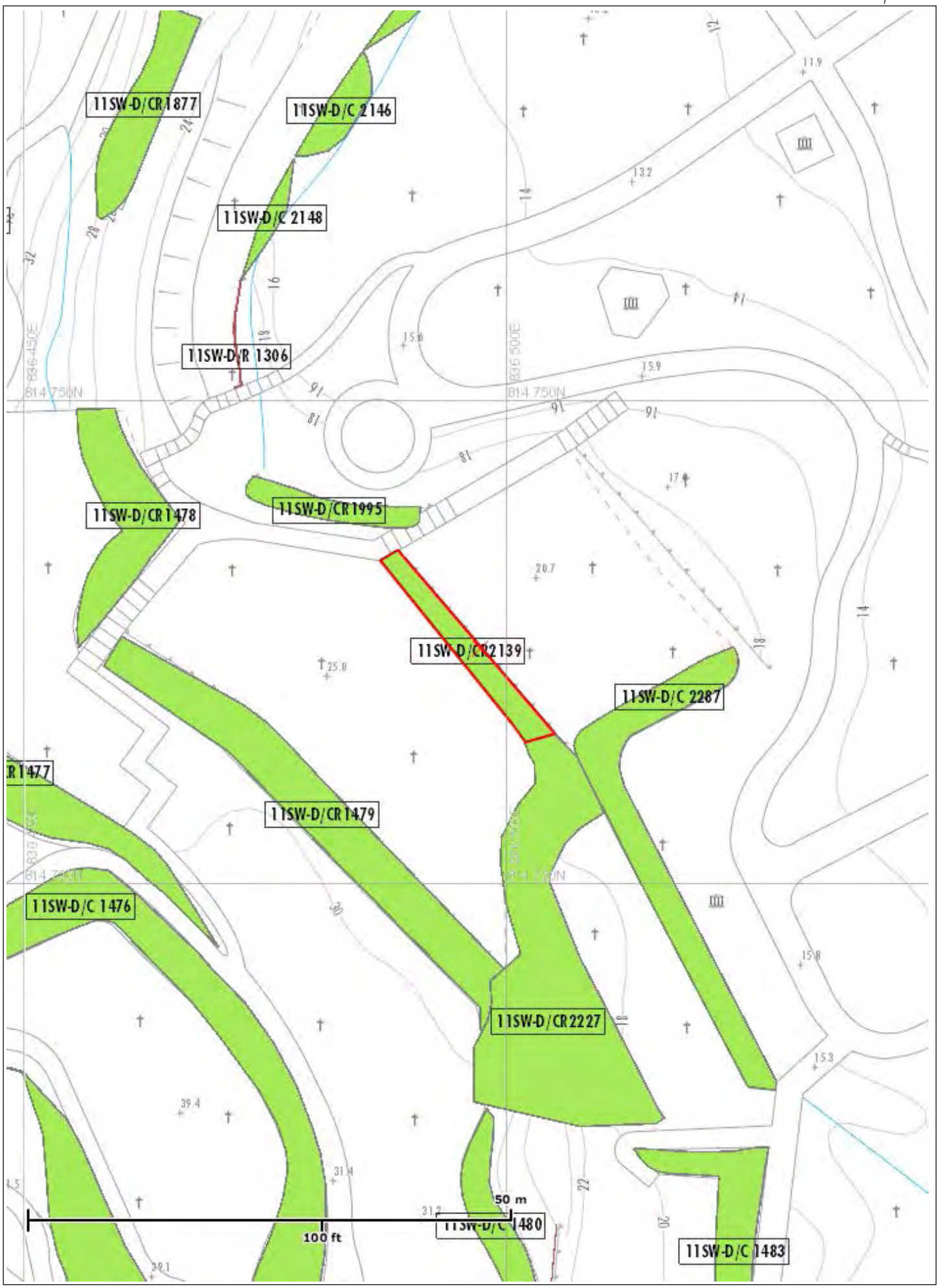
ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Government

OTHER EXTERNAL ACTION

Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

PHOTO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11SW-D/C 2146
11SW-D/C 2148
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11SW-D/CR1478
11SW-D/CR1995
11SW-D/CR2139
11SW-D/C 2287
11SW-D/CR1479
11SW-D/C 1476
11SW-D/CR2227
11SW-D/C 1480
11SW-D/C 1483
50 m
100 ft

BASIC INFORMATION

Location: Hong Kong Cemetery, Happy Valley

SIFT Ref.: N/A
First Registration Date:
SIFT Class: C1
Data Source: Project Office
Approximate Coordinates: Easting: 836503 Northing: 814694

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Cemetery

Distance of Facility from Crest (m): 0.10
Facility at Toe: Cemetery

Distance of Facility from Toe (m): 0.10
Consequence-to-life Category: 3
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 12 Length (m): 45 Average Angle (deg): 50

WALL PART

(1) Max. Height (m): 2 Length (m): 17 Face Angle (deg): 90

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 13-Aug-2015

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 19-May-2014

Data Source: Project Office

Slope Part Drainage:
(1) Position: Crest Size(mm): 225
(2) Position: Toe Size(mm): 300
(3) Position: On slope Size(mm): 225
(4) Position: Downpipe Size(mm): 300

Wall Part Drainage:
(1) Position: Crest Size(mm): 225
(2) Position: Toe Size(mm): 300

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 100 Chunam: 0 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil & Rock Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

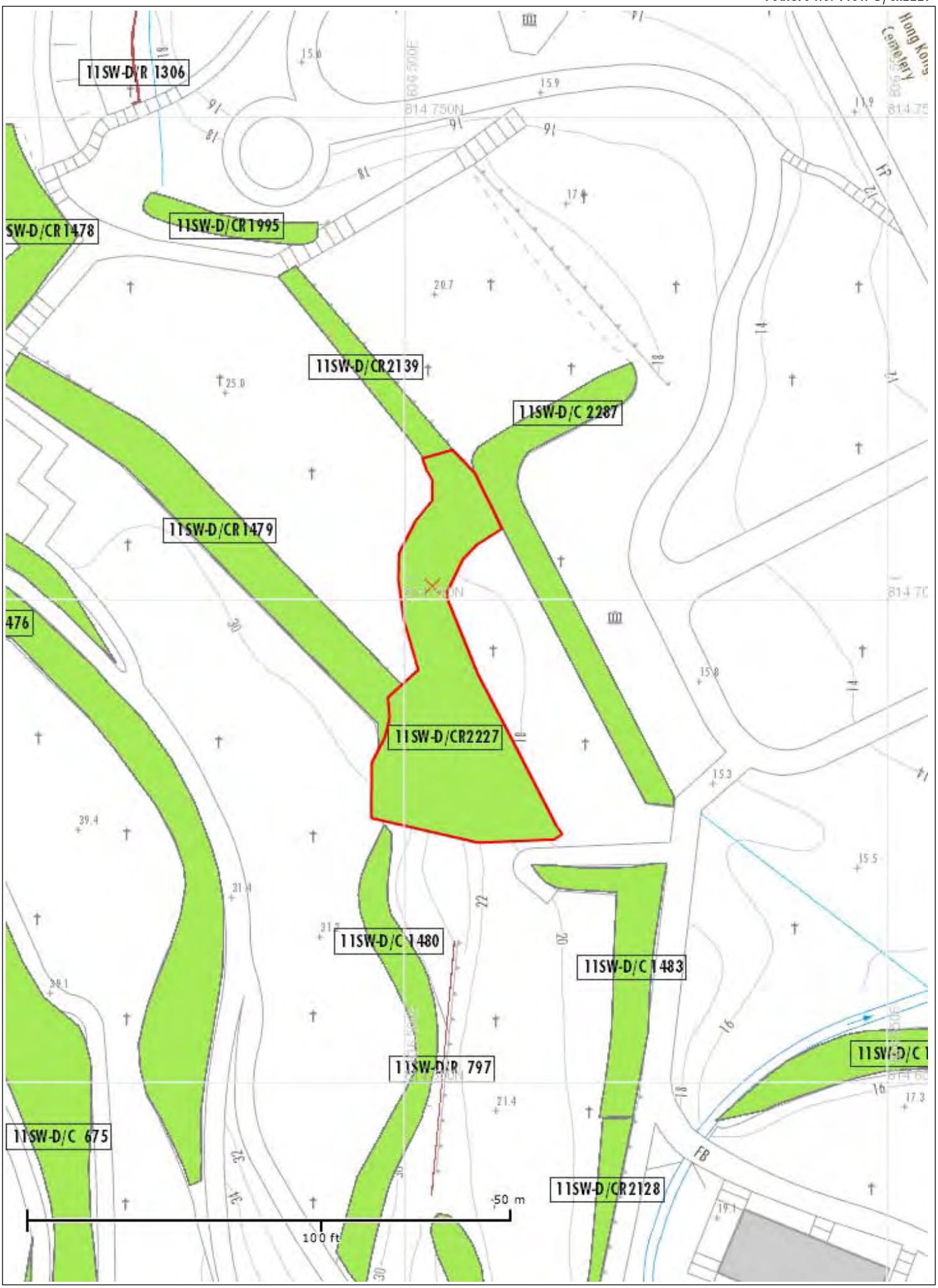
WALL PART

Wall Part (1)
Type of Wall: Wall Material: Concrete Wall Location: Wall at toe
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 75 Spacing (m): 1

SERVICES

N/A

PHOTO


11SW-D/R 1306
SW-D/CR1478
11SW-D/CR1995
11SW-D/CR2139
11SW-D/C 2287
11SW-D/CR1479
476
11SW-D/CR2227
11SW-D/C 1480
11SW-D/C 1483
11SW-D/R 797
11SW-D/C 675
11SW-D/CR2128
Hong Kong Cemetery
814 750N
50 m
100 ft

BASIC INFORMATION

Location: South of Management Office of Hong Kong Cemetery, H.K.

SIFT Ref.: 11SW-15C/S230
First Registration Date:
SIFT Class: B1
Data Source: EI(Arch SD)
Approximate Coordinates: Easting: 836610 Northing: 814702

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Lightly-used playground

Distance of Facility from Crest (m): 1
Facility at Toe: Remote area or abandoned facilities

Distance of Facility from Toe (m): 0
Consequence-to-life Category: 3
Remarks: N/A

SLOPE PART

N/A

WALL PART

(1) Max. Height (m): 3.30 Length (m): 86 Face Angle (deg): 80

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 01-Sep-1998

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 22-Dec-2000
Data Source: EI(Arch SD)
Slope Part Drainage: N/A

Wall Part Drainage: N/A

SLOPE PART

N/A

WALL PART

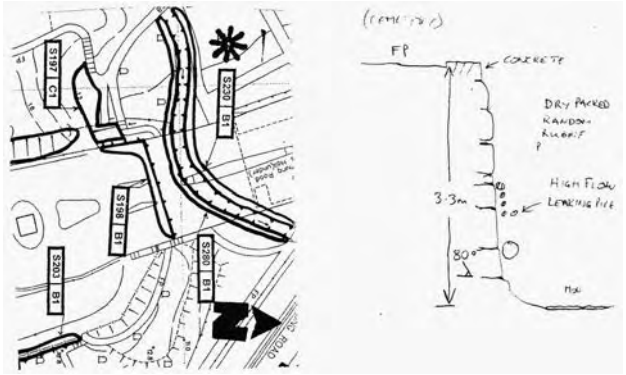
Wall Part (1)
Type of Wall: Wall Material: N/A Wall Location: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 65 Spacing (m): 2.20

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 12-Jul-1996
Weather: Some Rain
District: I



Section No: 1-1
Height(m): H1: 3 H2: 3
Type of Toe Facility: Remote area or abandoned facilities

Distance from Toe(m): 0
Type of Crest Facility: Lightly-used playground

Distance from Crest(m): 1
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): N/A
Type of Crest Facility: N/A

Distance from Crest(m): N/A
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: N/A Wall: Signs of seepage
Criterion A satisfied:	N
Sign of Distress:	Wall: Minimal (near crest, mid-portion, at toe)
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	Y
Note:	DRY PACKED RANDOM RUBBLE WALL + POINTING IN PLACES
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

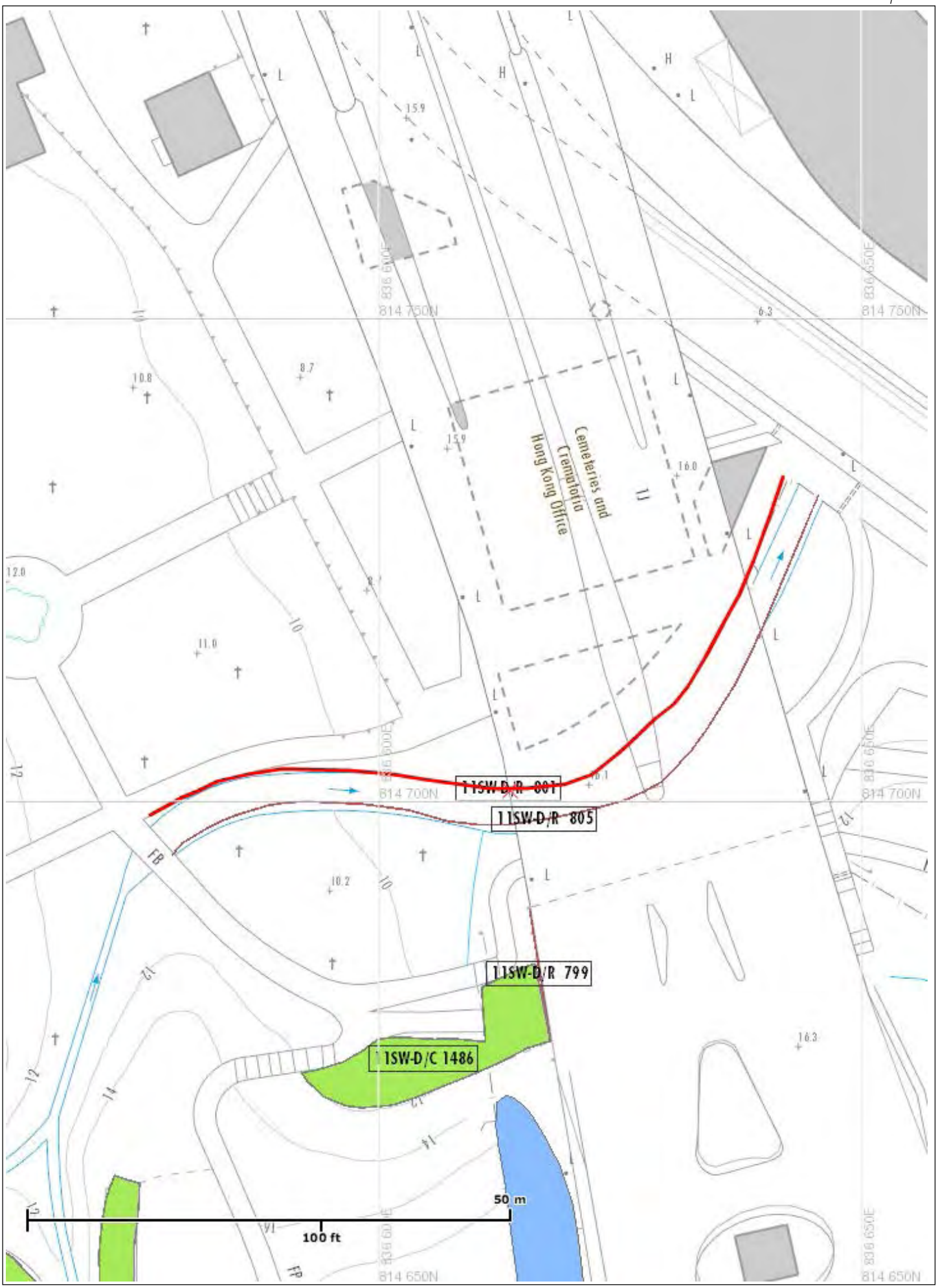
ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Private and Government

OTHER EXTERNAL ACTION

Check / repair Services:	Y
Action By:	WSD
Non-routine Maintenance:	N
Action By:	N/A

PHOTO


Cemeteries and Crematoria Hong Kong Office
11SW-D/R 801
11SW-D/R 805
11SW-D/R 799
11SW-D/C 1486
814 750N
814 700N
814 650N
836 600E
836 650E
50 m
100 ft

BASIC INFORMATION

Location: South of Management Office of Hong Kong Cemetery, H.K.

SIFT Ref.: 11SW-15C/S280
First Registration Date:
SIFT Class: B1
Data Source: EI(Arch SD)
Approximate Coordinates: Easting: 836591 Northing: 814700

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Cemetery

Distance of Facility from Crest (m): 0
Facility at Toe: Remote area or abandoned facilities

Distance of Facility from Toe (m): 0
Consequence-to-life Category: 3
Remarks: N/A

SLOPE PART

N/A

WALL PART

(1) Max. Height (m): 3.30 Length (m): 86 Face Angle (deg): 80

MAINTENANCE RESPONSIBILITY

(1) Government Feature Maintenance Party: Arch SD MR Endorsement Date: 01-Sep-1998

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 22-Dec-2000
Data Source: EI(Arch SD)
Slope Part Drainage: N/A

Wall Part Drainage: N/A

SLOPE PART

N/A

WALL PART

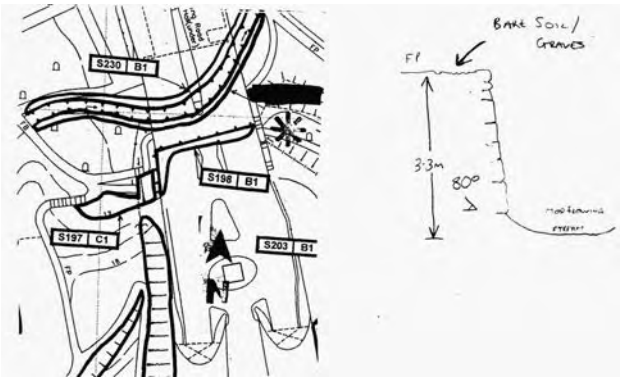
Wall Part (1)
Type of Wall: Wall Material: N/A Wall Location: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 65 Spacing (m): 2.20

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 12-Jul-1996
Weather: Some Rain
District: I



Section No: 1-1
Height(m): H1: 3 H2: 3
Type of Toe Facility: Remote area or abandoned facilities

Distance from Toe(m): 0
Type of Crest Facility: Cemetery

Distance from Crest(m): 0
Consequence Category: 3
Engineering Judgement: P

Section No: 2-2
Type of Toe Facility: N/A

Distance from Toe(m): N/A
Type of Crest Facility: N/A

Distance from Crest(m): N/A
Consequence Category: 3
Engineering Judgement: P

Sign of Seepage:	Slope: N/A Wall: Signs of seepage
Criterion A satisfied:	N
Sign of Distress:	Wall: Minimal (near crest, mid-portion, at toe)
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	Y
Note:	DRY PACKED RANDOM RUBBLE WALL \\& POINTING IN PLACES.
Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

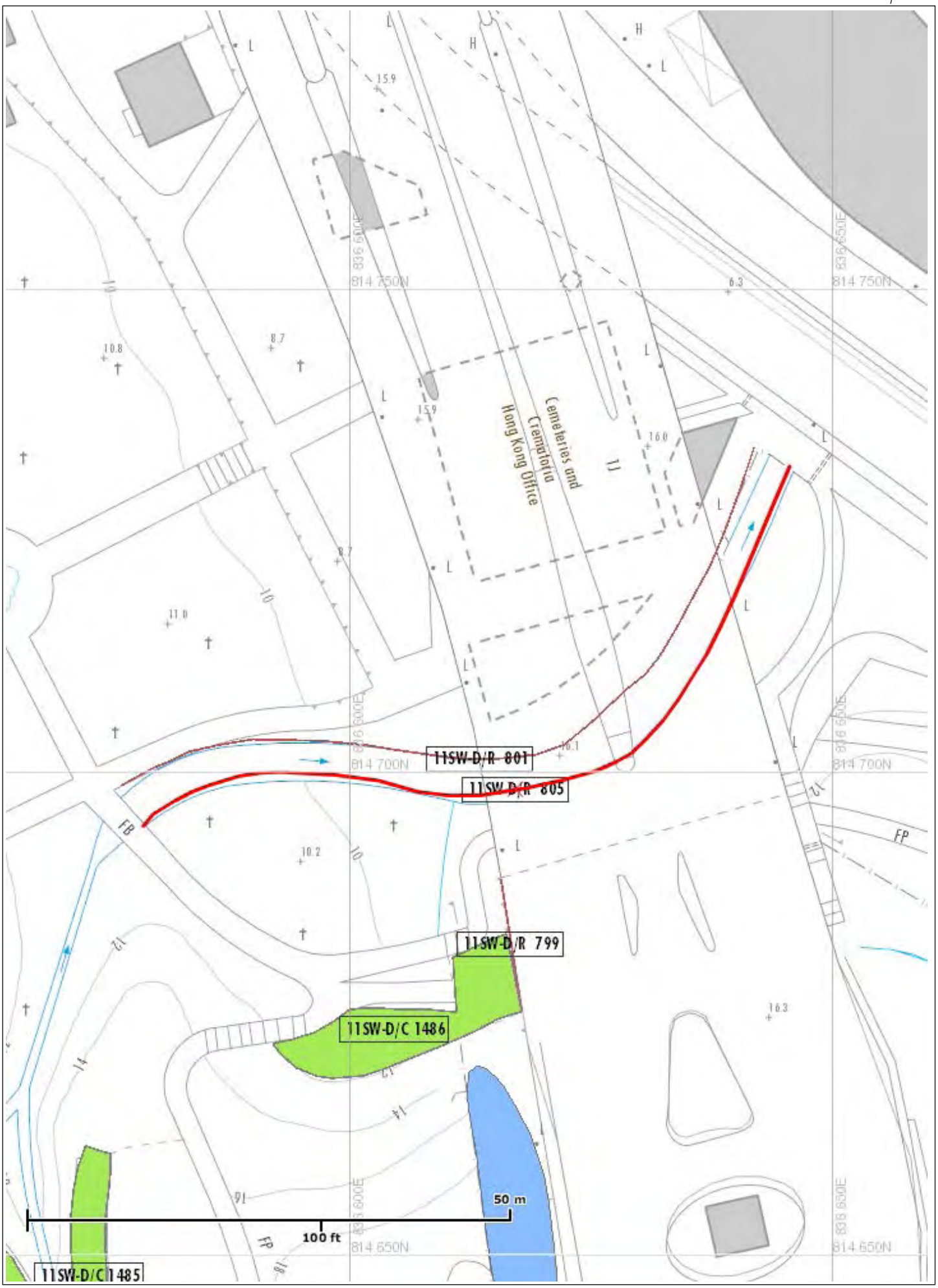
ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Private and Government

OTHER EXTERNAL ACTION

Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

PHOTO


11SW-D/R 801
11SW-D/R 805
11SW-D/R 799
11SW-D/C 1486
11SW-D/C 1485
Cemeteries and Crematoria Hong Kong Office
50 m
100 ft
814 750N
814 700N
814 650N
836 600E
836 650E
FB
FP

Appendix D

Species List of Animals

Species List

Chinese Name	Common Name	Species Name	Conservation Status	Distribution	Rarity	Remarks
Avifauna						
紅耳鵯	Red-whiskered Bulbul	*Pycnonotus jocosus*	-	Widely distributed in Hong Kong	Abundant resident	
大山雀	Cinereous Tit	*Parus cinereus*	-	Widely distributed in Hong Kong	Common resident	
珠頸斑鳩	Spotted Dove	*Spilopelia chinensis*	-	Widely distributed in Hong Kong	Abundant resident	
鵲鴝	Oriental Magpie Robin	*Copsychus saularis*	-	Widely distributed in Hong Kong	Abundant resident	
白頭鵯	Chinese Bulbul	*Pycnonotus sinensis*	-	Widely distributed in Hong Kong.	Abundant resident	
家鴉	House Crow	*Corvus splendens*	-	Distributed in some urban areas.	Resident	
小葵花鳳頭鸚鵡	Yellow-crested Cockatoo	*Cacatua sulphurea*	Cap. 586; Critically Endangered (IUCN Red List)	Found in Hong Kong Park, Pok Fu Lam, Happy Valley, Mong Tseng, Sai Kung, Ocean Park.	Common resident	
叉尾太陽鳥	Fork-tailed Sunbird	*Aethopyga christinae*	-	Widely distributed in Hong Kong	Common resident	
相思	Japanese White-eye	*Zosterops japonicus*	-	Widely distributed in Hong Kong	Abundant resident	
灰卷尾	Ashy Drongo	*Dicrurus leucophaeus*	Local Concern (Fellowes et al. 2002)	Found in Shing Mun, Tai Po Kau.	Scarce winter visitor	
麻雀	Eurasian Tree Sparrow	*Passer montanus*	-	Widely distributed in Hong Kong	Abundant resident	
長尾縫葉鶯	Common Tailorbird	*Orthotomus sutorius*	-	Widely distributed in Hong Kong	Common resident	
黑鳶 (麻鷹)	Black Kite	*Milvus migrans*	Cap. 586; Regional Concern (Fellowes et al. 2002)	Widely distributed in Hong Kong	Common resident	
黑喉噪鶥	Black-throated Laughingthrush	*Garrulax chinensis*	-	Widely distributed in woodland and shrubland throughout Hong Kong	Common resident	
褐翅鴉鵑	Greater Coucal	*Centropus sinensis*	Vulnerable (China Red Data Book Status)	Widely distributed in Hong Kong	Common resident	
北紅尾鴝	Daurian Redstart	*Phoenicurus auroreus*	-	Widely distributed in Hong Kong	Common winter visitor	
紫嘯鶇	Blue Whistling Thrush	*Myophonus caeruleus*	-	Widely distributed in shrubland and woodland throughout Hong Kong	Common resident	
樹鷚	Olive-backed Pipit	*Anthus hodgsoni*	-	Widely distributed in Hong Kong	Common passage migrant and winter visitor	
紅喉鶲	Red-breasted Flycatcher	*Ficedula parva*	-	Found in Po Toi and Shek Kong	Vagrant	
暗灰鵙鴝	Black-winged Cuckooshrike	*Coracina melaschistos*	-	Widely distributed in woodland throughout Hong Kong	Scarce passage migrant and winter visitor	
* All birds are Listed in Wild Animals Protection Ordinance (Cap.170)						
** Species listed as "Least Concern" in IUCN Red List was not shown in Conservation Status column						

Species List

Chinese Name	Common Name	Species Name	Conservation Status	Distribution	Rarity (AFCD Assessment)	Remarks
Butterfly						
黃粉蝶屬	-	*Eurema* sp.	-	-	-	
金斑蝶	-	*Danaus chrysippus*	-	Lung Kwu Tan, Tong Fuk, Tai Ho, Tung Chung, Pak Tam Chung	Uncommon	
幻紫斑蛺蝶	Great Egg-fly	*Hypolimnas bolina kezia*	-	Widely distributed throughout Hong Kong	Common	
環蛺蝶屬	-	*Neptis* sp.	-	-	-	
黃襟蛺蝶	Rustic	*Cupha erymanthis erymanthis*	-	Widely distributed throughout Hong Kong.	Very Common	
巴黎翠鳳蝶	Paris Peacock	*Papilio paris*	-	Widely distributed throughout Hong Kong.	Very Common	
網絲蛺蝶	Common Mapwing	*Cyrestis thyodamas chinensis*	-	Widely distributed in woodland area throughout Hong Kong	Common	
酢漿灰蝶	Pale Grass Blue	*Pseudozizeeria maha serica*	-	Widely distributed throughout Hong Kong	Very Common	
虎斑蝶	Common Tiger	*Danaus genutia*	-	Widely distributed throughout Hong Kong	Common	
青斑蝶	Blue Tiger	*Tirumala limniace*	-	Lung Kwu Tan, Tong Fuk, Tai Ho, Tung Chung, Pak Tam Chung	Uncommon	
小眉眼蝶	Dark Brand Bush Brown	*Mycalesis mineus mineus*	-	Widely distributed in woodland throughout Hong Kong	Very Common	
統帥青鳳蝶	Tailed Jay	*Graphium agamemnon agamemnon*	-	Widely distributed throughout Hong Kong	Common	
幻紫斑蝶	Common Indian Crow	*Euploea core amymone*	-	Widely distributed throughout Hong Kong	Common	
蛇目褐蜆蝶	Plum Judy	*Abisara echerius echerius*	-	Widely distributed throughout Hong Kong	Very Common	
遷粉蝶	Lemon Emigrant	*Catopsilia pomona pomona*	-	Widely distributed throughout Hong Kong	Common	
報喜斑粉蝶	Red-base Jezebel	*Delias pasithoe pasithoe*	-	Widely distributed throughout Hong Kong	Very Common	
玉帶鳳蝶	Common Mormon	*Papilio polytes polytes*	-	Widely distributed throughout Hong Kong	Very Common	
東方菜粉蝶	Indian Cabbage White	*Pieris canidia canidia*	-	Widely distributed throughout Hong Kong	Very Common	
鶴頂粉蝶	Great Orange Tip	*Hebomoia glaucippe glaucippe*	-	Widely distributed throughout Hong Kong	Common	
波蜆蝶	Punchinello	*Zemeros flegyas flegyas*	-	Widely distributed throughout Hong Kong	Common	
毛眼灰蝶	Lesser Grass Blue	*Zizina otis otis*	-	Widely distributed throughout Hong Kong	Common	
* Species listed as "Least Concern" in IUCN Red List was not shown in Conservation Status column						

Species List

Chinese Name	Common Name	Species Name	Conservation Status	Distribution	Rarity	Remarks
Mammals						
短吻果蝠	Short-nosed Fruit Bat	*Cynopterus sphinx*	-	Very widely distributed in urban and countryside areas throughout Hong Kong.	Very Common	
赤腹松鼠	Pallas's Squirrel	*Callosciurus erythraeus*	-	Fairly widely distributed, with the styani subspecies found in the New Territories (e.g. Tai Lam, Shing Mun and Tai Po Kau), and the thai subspecies found on the Hong Kong Island (e.g. Tai Tam and Pok Fu Lam)	Common	
野豬	Eurasian Wild Pig	*Sus scrofa*	-	Very widely distributed in countryside areas throughout Hong Kong.	Very Common	Scats observed
Odonates						
黑尾灰蜻	Common Blue Skimmer	*Orthetrum glaucum*	-	Widely distributed in streams, conduits, drainage channels, seepages and road gutters throughout Hong Kong	Abundant	
Herpetofauna						
長鬣蜥	Chinese Water Dragon	*Physignathus cocincinus*	-	-	-	Exotic
溫室蟾	Greenhouse Frog	*Eleutherodactylus planirostris*	-	-	-	Exotic
* Species listed as "Least Concern" in IUCN Red List was not shown in Conservation Status column						