Centennial Campus Project, The University of Hong Kong
Heritage Impact Assessment Report

on

Workmen's Quarters, Senior Staff Quarters and Treatment Works Building of the Former Elliot Pumping Station and Fliters in Pokfulam

prepared for

The University of Hong Kong

by

The Team Consultant

March, 2012

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Heritage Impact Assessment Report

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Part 1 – Introduction

1.1 Origin of the Project

The University of Hong Kong has celebrated its centenary in 2011. The implementation of the new '3+3+4' academic structure and a new four year curriculum will add 40% more students and 200 more teaching staff to the University's population by 2012. Consequently, expansion westward into the former Water Supplies Department (WSD) Elliot filters site was adopted, with the new section to be known as Centennial Campus. The site retains three historic buildings related to the activities of the WSD –

- Elliot Pumping Station and Filters, Workmen's Quarters (refer to as Workmen's Quarters in this report),
- Elliot Pumping Station and Filters, Senior Staff Quarters (refer to as Senior Staff Quarters in this report), and
- Elliot Pumping Station and Filters, Treatment Works Building (refer to as Treatment Works Building in this report).

Site plan of The University of Hong Kong showing the location of the Centennial Campus

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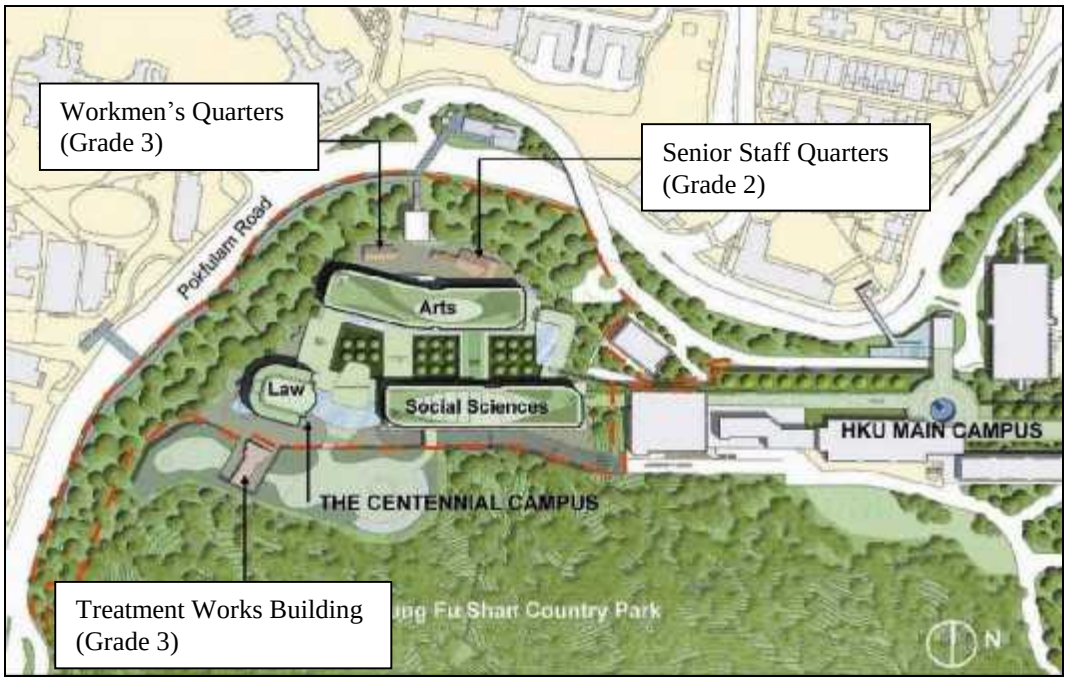
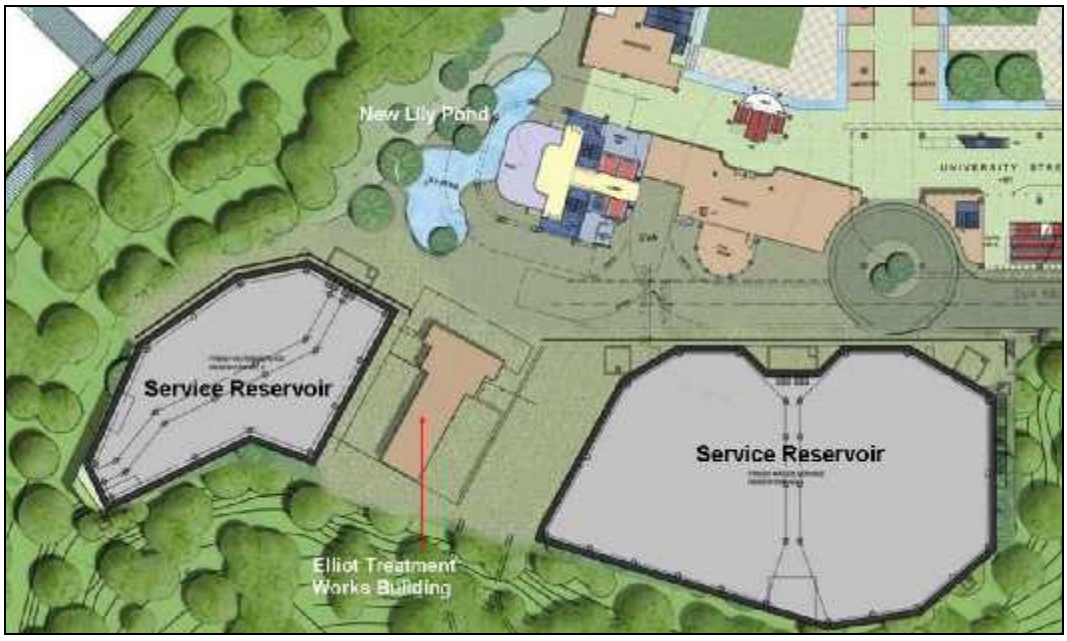
Part 1 – Introduction



Site plan of the Centennial Campus with the three historic buildings high-lighted



Location of the Treatment Works Building and the two fresh water reservoirs (service reservoirs in the plan)

The first two historic buildings will be adapted and integrated into the "entrance plaza" of the new Centennial Campus development, which will allow The University of Hong Kong to make the most of the opportunities presented by the history of the site and the historic buildings, and this Heritage Impact Assessment

Report (HIA report) examines the impact on these two historic buildings.

To reclaim the site for the Centennial Campus, the reservoirs at the Elliot filters site have to be relocated. The original two flush water reservoirs at both sides of the Treatment Works Building, built in 1995-6, were demolished and relocated to the new flush water reservoirs constructed inside the formed rock cavern at Lung Fu Shan. New fresh water reservoirs are built on the flush water reservoirs site, at both sides of the Treatment Works Building. The roof decks of the two fresh water reservoirs will be used as landscape decks for the use by the general public and the University members. With the agreement of WSD, two bridges spanning over the Treatment Works Building at façade and rear are proposed such that the facilities of the two landscape decks are connected and integrated with the campus buildings. This last part of this HIA report is to study the impact of the two proposed bridges on the Treatment Works Building. The Treatment Works Building, is still the property of Water Supplies Department and there will be no work to this building.

1.2 Particulars of the Three Historic Buildings

Elliot Pumping Station and Filters, Workmen's Quarters –

Year completed:	1918 – 1919.
Heritage status by AMO[1] :	confirmed a Grade 3 status on 22nd January, 2010.[2]
Proposed new usage:	As an information office for the University.

Elliot Pumping Station and Filters, Senior Staff Quarters –

Year completed:	1923 – 1924.
Heritage status by AMO:	confirmed a Grade 2 status on 18th December, 2009.[3]

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[1] The definitions of the grading by Antiquities and Monuments Office are as following –
- Grade 1 – Buildings of outstanding merit, which every effort should be made to preserve if possible.
- Grade 2 – Buildings of special merit; efforts should be made to selectively preserve.
- Grade 3 – Buildings of some merit; preservation in some form would be desirable and alternative means could be considered if preservation Is not practicable.

* The definitions of gradings are internal guidelines adopted by the Antiquities Advisory Board and the Antiquities and Monuments Office for the preservation of historic buildings.

from the website http://www.amo.gov.hk/en/built3.php, down-loaded on 20th September, 2011.

[2] The grading of Workmen's Quarters is Grade 3 in the "List of Historic Buildings in Building Assessment (as of 2 September 2011)" ("the List') as confirmed by Antiquities Advisory Board on 22nd January, 2010, (refer to item no. 734 in "the List"), from the website http://www.amo.gov.hk/form/AAB-SM-chi.pdf, down-loaded on 20th September, 2011.

[3] The grading of Senior Staff Quarters is Grade 2 in the "List of Historic Buildings in Building

Propose new usage:	As reception facilities for the University and display gallery and office for the University Press.

Elliot Pumping Station and Filters, Treatment Works Building –

Year completed:	1930 – 1931.
Heritage status by AMO:	confirmed Grade 3 status on 22nd January, 2010.[4]
Propose new usage:	To be decided.

1.3 Previous Studies on the Site and Historic Buildings

Cognizant of the cultural heritage value of the site and the historic buildings, the University has employed conservation and heritage consultant, McDougall & Vines[5], to undertake conservation study. A series of reports was prepared between late 2005 and 2007 –

- "*Water Supplies Department Buildings – Centennial Campus, Hong Kong University, Assessment of Cultural Heritage Value*", January, 2006,
- "*Centennial Campus Site, Hong Kong University, Recording and Interpretation*", March, 2006,
- "*Senior Staff Quarters Conservation Management Plan*", July, 2006,
- "*Workmen's Quarters Conservation Management Plan and Preliminary Interpretation Strategy*", January, 2007.
- "*Centennial Campus Site, Hong Kong University, Recording and Interpretation*", March, 2006, and
- "*Treatment Works, Centennial Campus Site, Hong Kong University – Conservation Management Plan*", August 2008.

1.4 Brief and Objectives of this HIA Report

This HIA report for the adaptive re-use of the Workmen's Quarters and Senior Staff Quarters has been prepared to identify the possible impact and mitigation

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Assessment (as of 2 September 2011)" ("the List') as confirmed by Antiquities Advisory Board on 18th December, 2009, (refer to item no. 296 in "the List"), from the website http://www.amo.gov.hk/form/AAB-SM-chi.pdf, down-loaded on 20th September, 2011.

[4] The grading of Treatment Works Building is Grade 3 in the "List of Historic Buildings in Building Assessment (as of 23 November 2011)" ("the List') as confirmed by Antiquities Advisory Board on 22nd January, 2010, (refer to item no. 754 in "the List"), from the website http://www.amo.gov.hk/form/AAB-SM-chi.pdf, down-loaded on 20th November, 2011.

[5] McDougall & Vines, Conservation and Heritage Consultants of 27 Sydenham Road, Norwood, South Australia 5067, Australia, (tel. (08) 8362 6399, fax (08) 8363 0121, and e-mail mcdvines@bigpond.com).

measures to the "character defining elements". The objectives of the report are –

- To establish the cultural significance of the two historic buildings.
- To formulate policies for the conservation of the two historic buildings.
- To provide the conservation guidelines for the character defining elements.
- To identify possible impact to the character defining elements according to the proposed new use and propose mitigation measures to alleviate adverse impact to the character defining elements.

This HIA report for the study of the two proposed bridges connection the two fresh water reservoirs spanning at the façade and rear of the Treatment Works Building has been prepared to identify the possible impact and mitigation measures to the setting and external views of the historic building. The objectives of the report are –

- To establish the cultural significance of the historic building.
- To formulate policies for the conservation of the setting of the historic building.
- To identify possible impact to the setting and propose mitigation measures to alleviate adverse impact.

So this HIA report is presented in five parts –

- Part A – Introduction,
- Part B – Cultural Significance and Conservation Policy,
- Part C – HIA on Adaptive Re-use of Workmen's Quarters and Senior Staff Quarters,
- Part D – HIA on Two Bridges Spanning Above the Façade and Rear at Treatment Works Building, and
- Part E – Appendices.

1.5 Structure of the HIA Report

The HIA report makes reference to the reports prepared by McDougall and Vines. The research on the history of the site and the three historic buildings, appraisal on the architecture and the statement of significance in this Heritage Impact Assessment Report are adopted from the studies from their reports.

Issues affecting decision-making of policies are then identified. The Conservation Policy is presented to deal with the philosophical and practical steps

necessary to conserve the cultural significance.

The assessment of the impact on the design proposals for adaptive re-use to the Workmen's Quarters and Senior Staff Quarters will be cross-referenced to the formulated conservation policy. The additions and alterations as necessitated in affecting the character defining elements are identified. The mitigation measures are then developed to alleviate effects of adverse impacts.

The assessment of the impact on the two bridges to the Treatment Works Building will be cross-referenced to the formulated conservation policy. The mitigation measures are then developed to alleviate effects of adverse impacts.

1.6 Definitions

The following definitions are quoted from Article 1 – Definitions (page 2) of *The Burra Charter, The Australia ICOMOS Charter for Places of Cultural Significance 1999 with associated Guidelines and Code on the Ethics of Co-existence* published by Australia ICOMOS, 2000 (ISBN 0 9578528 0 0), and is available for download at http://australia.icomos.org/wp-content/uploads/BURRA_CHARTER.pdf website – –

- "1.1 *Place* – means site, area, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views."
- "1.2 *Cultural significance* – means aesthetic, historic, scientific, social or spiritual value for the past, present or future generations."
- "1.3 *Fabric* – means all the physical material of the place, including components, fixtures, contents and objects."
- "1.4 *Conservation* (or conserve*)* – means all the process of looking after a *place* so as to retain its cultural significance."[6]
- "1.5 *Maintenance* (or maintain) – means the continuous protective care of the *fabric* and *setting* of a *place*, and is to be distinguished from repair. Repair involves *restoration* or *reconstruction*."
- "1.6 *Preservation* (or preserve) – means maintaining the ***fabric*** and of a ***place*** in its existing state and retarding deterioration."

[6] The words inside the brackets are added by the author of this report.

- "1.7 *Restoration* (or restore) – means returning the existing *fabric* of a *place* to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material."
- "1.8 *Reconstruction* (or reconstruct) – means returning a *place* to a known earlier state and is distinguished from *restoration* by the introduction of new material into the *fabric.*"
- "1.9 *Adaptation* (or adapt) – means modifying a *place* to suit the existing use or a proposed use."
- "1.10 *Use* – means the functions of a place, as well as the activities that may occur at the place."
- "1.11 *Compatible use* – means a *use* which respects the *cultural significance* of a *place*. Such a use involves no, or minimal, impact on cultural significance."
- "1.12 *Setting* – means the area around a *place*, which may include the visual catchment."
- "1.15 *Associations* – mean the special connections that exist between people and a *place*."
- "1.17 *Interpretation* – means all ways presenting the *cultural significance of a place*."

1.7 Limitations

The HIA report is based on the –

- design of the adaptive re-use design scheme to the Workmen's Quarters enclosed as Appendix 2 to this report,
- design of the adaptive re-use design scheme to the Senior Staff Quarters enclosed as Appendix 3 to this report,
- design of the two bridges connecting the two fresh water reservoirs enclosed as Appendix 6 to this report.

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Part 2 – Cultural Significance of the Three Historic Buildings

2.1 Preamble

In this section of the HIA report, the study on the history of the site and the three historic buildings, the architecture and the assessment of statement of cultural significance are extracted from the following reports prepared by McDougall & Vines, Conservation and Heritage Consultants –

- *Water Supplies Department Buildings, Centennial Campus Site, Hong Kong University, Assessment of Cultural Heritage Value,* January 2006 (referred to as the "McDougall & Vines report – WSDBuildings"),
- *Senior Staff Quarters, Centennial Campus, Hong Kong University – Conservation Management Plan*, July 2006 (referred to as the "McDougall & Vines report – SSQ" in this report),
- *Centennial Campus Site, Hong Kong University, Workmen's Quarters – Conservation Management Plan and Preliminary Interpretation Strategy*, January 2007 (referred to as the "McDougall & Vines report – WQ" in this report), and
- *Treatment Works, Centennial Campus Site, Hong Kong University – Conservation Management Plan*, August 2007 (referred to as the "McDougall & Vines report – TWB" in this report).

The page number in brackets after each sub-section heading is the page number of the text in the respective McDougall & Vines report.

2.2 "Establishing the Elliot Filter Beds" – History of the Site (page 2 to 5 of "McDougall & Vines report – WSDBuildings")

The site of Centennial Campus is currently known as the Elliot Pumping Station and Filters. The area was developed as part of the public water supply system at a similar time to the establishment of The University, and is variously referred to as West Point or Elliot [or Elliott] Filter Beds in Government reports.

In order to increase the water supply to the western end of the island, a service reservoir between the Pokfulam reservoir and the city, at West Point, was proposed in 1910-11 and filter beds were part of the project. However, as much of the land surrounding the proposed reservoir and filter beds had been designated for use for The University, space was a problem in this location [*AR1911, App P, para. 117*]. The Public Works report of 1912 [*AR1912, App P, para. 122*] then stated that:

> As mentioned in last year's Report, it was decided that, for lack of space, the necessary filter beds should be constructed on top of the

> service reservoir, which was to be located between the Students' Quarters and the residence of the Principal of the University, and plans and estimates were prepared accordingly. On further investigation and consideration of the matter, the conclusion was come to that the construction of these works, practically in the midst of the areas allotted to the University, would be likely, in course of time, to hamper the development of that institution and it was therefore decided that an endeavour should be made to find another site. The possibility of utilizing an area alongside the Pokfulam Road to the south-westward of Elliot Battery was under investigation at the close of the year.

In the following year's Public Works Report [*AR1913, App P, para. 121*] it was noted that:

> …a much more satisfactory site was available within the boundaries of the Battery and that there was a likelihood of the area in question being surrendered by the Military Authorities.

The year 1913 was a very busy one for Water Works construction and upgrading on Hong Kong Island. A new pumping station was constructed on Pokfulam Road, west of No. 1 Bridge, which included a pumping station, boiler-house, chimney shaft and quarters for Chinese staff [*AR1913, App P, para. 123*]. The earlier Bonham Road pumping station, which this new pumping station replaced, was handed over to The University. Negotiations over the "surrender" of the Elliot Battery site had not been completed by the end of 1913, but by the end of 1914, the new service reservoir and filter beds were well underway.

> The Public Works report of 1914 [*AR1914, App P, para. 119*] notes:
> **119**. ***Additional Service Reservoir, &c, West Point***. – The negotiations with the Military Authorities mentioned in last year's Report were concluded and resulted in the transfer to the Colonial government of a large portion of the area occupied in connection with Elliot Battery. This alteration in the site necessitated a re-arrangement of the works as originally designed and consequently a Contract for the work was not let until the end of September. The scheme includes 6 Filter Beds, each provided with a pre-filter, of an average area of about 880 square yards, besides a service reservoir with a capacity of about 5 million

> gallons. The service reservoir will be divided by a cross-wall so as to admit of one compartment being used whilst the other is being cleaned out. The work also includes the necessary re-arrangements and extensions of mains to connect the new works with the West Point Filter Beds, the Pokfulam Road Pumping Station and the City mains.
>
> The Contractor commenced work on the 19th October and by the end of the year the excavation was well advanced…

The construction of the Filter Beds at West Point, on the land excised from the Elliot Battery, continued through 1915 [*AR1915, App Q, para. 132*]. The work required diversion of part of Pokfulam Road and excavation of the service reservoir. In 1916 it was noted that the Military Authorities were granted some strips of colonial Government land in the vicinity in return for the Elliot Battery area.

The site proved difficult to excavate and a heavier retaining wall for the reservoir was needed, and completed by the end of 1916. Additional drains, conduits and pipes had also been installed by that time. A pipeline linked to the Tai Tam reservoir was also begun, as that reservoir was enlarged during 1916 to assist with water supply to the western districts. (During this year retaining walls on the University site also needed strengthening.)

The Public Works report of 1917 reported that the reservoir was ready for covering with concrete, and the amounts of reinforced concrete used were set out in detail, and the filter beds were all but complete by the end of 1917. A hydraulic motor house was erected over the pumping equipment during 1917-8, near to the Pokfulam Road pumping station. This meant that by 1918, an adequate and reliable water supply for the western side of the city was well in place, and by the end of 1919 it could be stated that:

> The Reservoir now feeds the Western District of the City. ...All liabilities were discharged before the close of the year.

Part 2 – Cultural Significance of the Three Historic Buildings

Extract from 1923 survey of Western District

Into the early 1920s the West Point (Elliot) slow sand filter beds and a number of others in the water supply system were regularly upgraded, 'thereby increasing their efficiency', and the reservoir was also repaired to improve reliability and capacity. During 1926, washing the filter bed sand was assisted by the installation of light rail tracks and trucks. Electrical work was installed and other maintenance was undertaken.

In summary, by this time the elements of the western district system included the Pokfulam reservoir, Pokfulam Road pumping station (coal fired), Elliot (West Point) Filter beds and service reservoir. The location of these elements can be seen on the 1923 map of the area (above).

During the 1930s the water supply system continued to expand and new water collection sites were added. On the Elliot Filters site, the brick building, now known as the Treatment Works was constructed during 1930-1 to increase the speed and capacity of the filtration system. Additional water supply from the Aberdeen Reservoir, newly constructed in 1929, was transferred to the Elliot Filters via an 18-inch pipe, for distribution to the Western District.

> The Public Works report of 1930 [*AR1930, App Q, para. 250 - 9*] notes: Filtration Plant – The Filtering Plant supplied by the Paterson Engineering Company arrived from England early in the year and a contract for the construction of the Filter Beds and Chemical House was let to Messrs. The Lai To Construction Co. on 30th June, 1930 for $36,777.25.
>
> By the end of the year the excavation had been completed and a commencement made with the concrete work in the inverts of the lower wash water tank and pure water and waste water channels.

The report for the next year [*AR1931, App Q, para. 285*] continues with a description of the works:

> …This plant which is one of the Paterson Rapid Gravity Type has been erected within one of the old slow sand beds at the Elliot Filter Beds… It consists of an Administration or Chemical House containing the chemical mixing and proportioning plant on the two upper floors and the pumps and compressors on the ground floor whilst the Upper Washwater Tank is carried on the roof. A covered operating gallery in which is situated all the automatic and hand controlling gear runs at right angles to the Chemical House….

This new rapid filtration system resulted in the removal of the original 1914 slow sand filter beds, and the construction of new concrete framed filter beds. (end of extract from "McDougall & Vines report – WSDBuildings")

2.3 "Staff Accommodation on the Site" – History of Workmen's Quarters

(page 5 of "McDougall & Vines report – WSDBuildings")

The initial establishment of the water supply infrastructure on the site, the filter beds and the service reservoir, which began in 1914, was essentially complete by the end of 1919, but additional construction also took place to provide accommodation for staff. As with all public works sites, accommodation provided at the Elliot Filter Beds was of two classes – separating the senior (usually British) public service staff from the Chinese workmen.

The 1918 Public Works report [*AR1918, App Q, para. 113*] notes that:

Quarters for watchmen, etc., were commenced before the end of the

year.

And then in 1919 [*AR1919, App Q, para 110*], as part of a detailed description of the Elliot Filter Beds it is noted that:

> The Quarters for the Chinese staff comprise a single-storied brick building with a Coolies' Room 14'0" x 24'0", a Watchman's Room 12'0" x 14'0", and an Office 12'0" x 14'0". Bathrooms, kitchens and latrine accommodation are provided. (end of extract from "McDougall & Vines report – WSDBuildings")

2.4 "Staff Accommodation on the Site" – History of Senior Staff Quarters

(page 5 of "McDougall & Vines report – WSDBuildings")

In recording the next major works on the site, the Public Works report of 1923 [*AR1923, App Q, para. 96*] notes the beginning of work on the 'Overseer's Quarters, Elliot Filter beds', under the listing of Public Works Extraordinary on Hong Kong island.

> This work consisted of the site formation for, and the erection of, a two-floor building, each floor containing a four-roomed flat with Servants Quarters adjoining.
>
> The contract which amounted to $38,990.70 was let to Messrs. Chan Tack & Co. in June and the work commenced.
>
> The typhoon in August caused considerable damage and delay, but subsequently the work proceeded satisfactorily, and by the end of the year the site preparation was practically complete.

The next year the following additional notes were made [*AR1924, App Q, para. 96*] on the building's construction:

> Early in the year, the site preparation was completed including the necessary retaining wall along the top of the site. It was found necessary to make this wall considerably longer and higher owing to the soft nature of the soil. In levelling the site, an outcrop of first quality grey granite was struck which was quarried and used for the erection of the quarters at a slightly lower total cost than would have resulted by the use of brick-work.
>
> Expenditure on the building, to the end of 1924, was $35,964.27.

The 1925 Public Works report [*AR1925, App Q, para. 97*] notes for the 'Overseer's Quarters, Elliot Filter-Beds' that:

The buildings were completed and occupied in early January.

Unlike a number of other works, particularly accommodation quarters, no architect was named as being involved in the design and construction of this building, so it is assumed that the design was drawn up in the Government Architectural Office. (end of extract from "McDougall & Vines report – WSDBuildings")

2.5 **"Later Developments" – History of Treatment Works Building** (page 6 of "McDougall & Vines report – TWB")

With the constant upgrade of public water supply infra-structure, little remains on this site if the initial elements apart from the accommodation buildings and the 'chemical house'. The services reservoir is intact but substantially upgraded.

The original 1913 Pokfulam Road pumping station was demolished in 1987 and replaced with the current Elliot Fresh Water and Salt Water Pumping Station. The 1930s filter beds were removed for the creation of Elliot No. 1 and 2 Salt Water Service reservoirs in 1995-6. Additional staff quarters were constructed adjacent to the Senior Staff Quarters in 1985. The Treatment Works were decommissioned in 1993. (end of extract from "McDougall & Vines report – TWB")

2.6 **Summary Chronology** (page 6 of "McDougall & Vines report – WSDBuildings")

- 1910-11 : West Point service reservoir site first considered, suggested location in middle of proposed Hong Kong University site.
- 1912 : Elliot Battery site to west of University land considered more appropriate location.
- 1913 : Pokfulam Road pumping station constructed (same location as current Elliot pumping station).
- 1914 : West Point (Elliot Battery) service reservoir and sand filter beds constructed.
- 1916 : Reservoir walls strengthened.
- 1918-19 : Workmen's Quarters constructed.
- 1923-24 : Overseer's (Senior Staff) Quarters constructed.

- 1929 : Aberdeen Reservoir constructed and linked to Elliot site.
- 1930-31 : Treatment Works (Filtration) Building constructed – rapid feed gravity system.

(end of extract from "McDougall & Vines report – WSDBuildings")

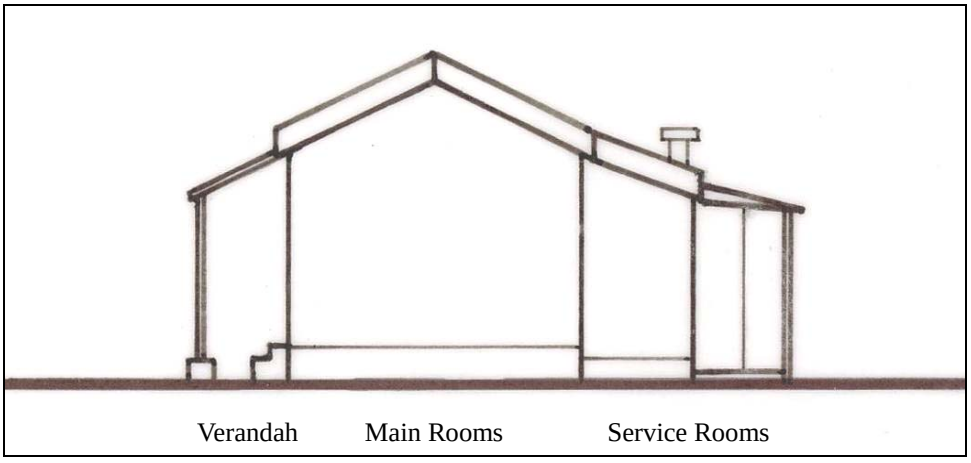
2.7 **Architectural and Comparative Analysis – Workmen's Quarters** (page 6 and 7 of "McDougall & Vines report – WQ")

The Workmen's Quarters were constructed in 1918-9. The design would appear to come from the Government Architectural Office, and was described in the Public Works report of 1919 [*AR1919, App Q, para. 110*], as follows:

> The Quarters for the Chinese staff comprise a single-storied brick building with a Coolies' Room 14'0" x 24'0", a Watchman's Room 12'0" x 14'0", and an Office 12'0" x 14'0". Bathrooms, kitchens and latrine accommodation are provided.

(a) Elevation form and massing –

The Workmen's Quarters is a simple shed like structure with a gable ended ridged roof over a rectangular room arrangement, with an almost symmetrical rear addition covered by a skillion roof. The front elevation is sheltered by a verandah which is an extension of the main roof pitch. There is an additional rear structure containing two latrines. The building is oriented east-west with the front facing south and the rear set above the steep slope down to Pokfulam Road.



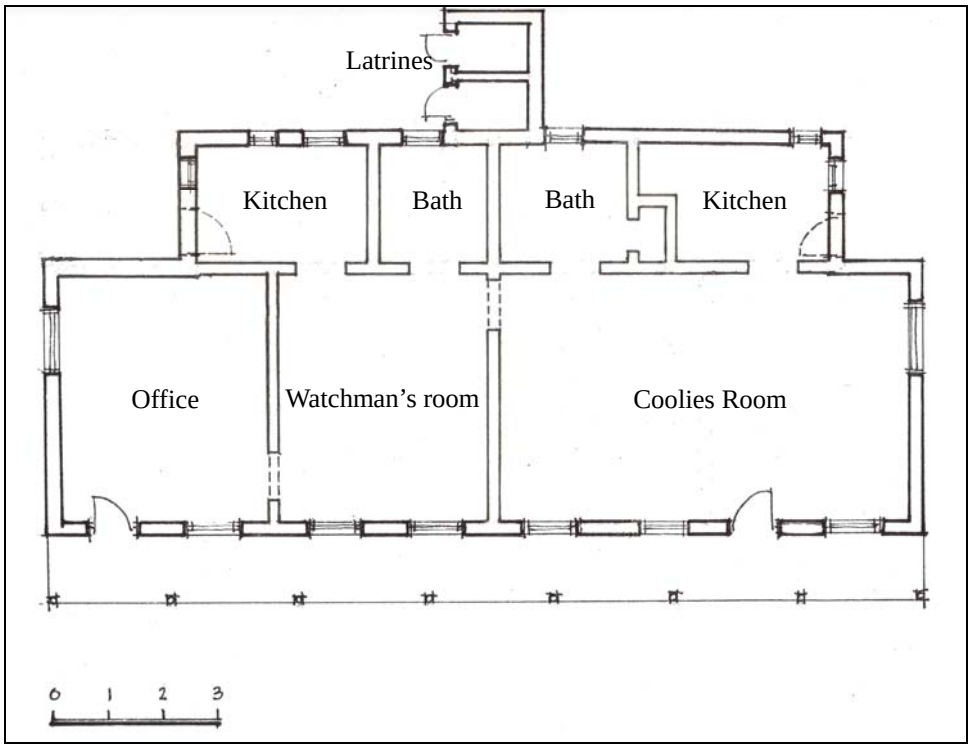
Cross Sectional Sketch

Part 2 – Cultural Significance of the Three Historic Buildings

(b) Plan Form –

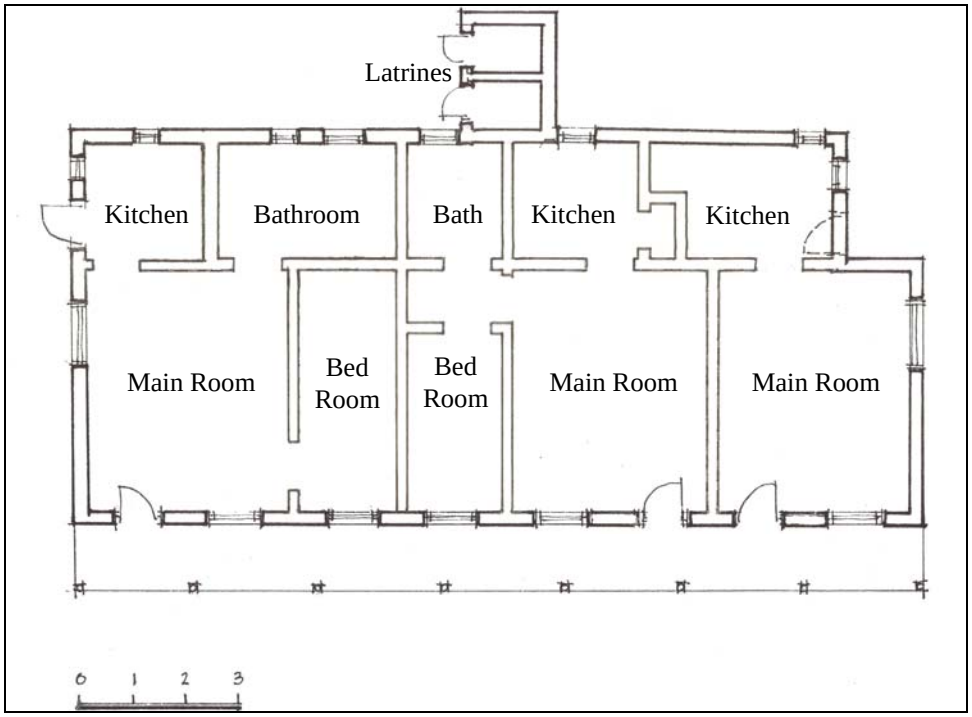
The Workmen's Quarters, which was originally a dormitory type arrangement was converted to three separate small flats by the insertion of partition walls and basic internal kitchen and bathroom facilities. The original configuration of the rooms can be determined by close inspection of the interior walls, and comparison of the original and current arrangements is shown on the sketch plans below.

The two original door openings to the front elevation reflect the room arrangement inside as described in the Public Works report of 1919, with the coolies' room at the eastern end connected to the watchman's room in the centre of the building. The office was accessed through a separate door at the western end of the front (south) elevation. The service rooms were added to the north of the basic rectangle, under a separate skillion roof form, and the access to them was from the main rooms. There are no doors in the rear elevation and only one door at each end of the skillion section. There may have been access to the office from the watchman's room. The two chimneys evident externally served the internal kitchen areas.



Original floor plan (based on 1918 PWD description)

Part 2 – Cultural Significance of the Three Historic Buildings



Internal configuration 2006

(c) Changes –

In order to convert the building to three flats, an additional door was created from an existing window opening in the front elevation and two additional walls were constructed internally. Doors and windows were closed off and an additional room created on the north west corner of the building. Toilets and tiled floors and walls were added to the bathroom areas. More recently, a tenant has installed a metal framed mezzanine level in the western flat main room.

During the 1910s and 1920s the Public Works reports have descriptions of similar small staff accommodation buildings being constructed, such as the Quarters for Sextons at the Mt. Caroline cemetery [*AR 1913, App P, para.114(a)*]. This was a brick building of five rooms with a tiled roof and basic facilities and verandah. It would seem to be of a similar design to the workmen's quarters at the Elliot Filter Beds site, and the usual standard of accommodation for Chinese workers. The coolies quarters which were constructed at Tai Tam Tuk reservoir are also believed to be similar, and WSD staff have confirmed this. (end of extract from "McDougall & Vines report – WQ")

Part 2 – Cultural Significance of the Three Historic Buildings

2.8 Architectural and Comparative Analysis – Senior Staff Quarters (page 5 of "McDougall & Vines report – SSQ")

"The Senior Staff Quarters were constructed in 1923-4. The design would appear to have come from the Government Architectural Office.

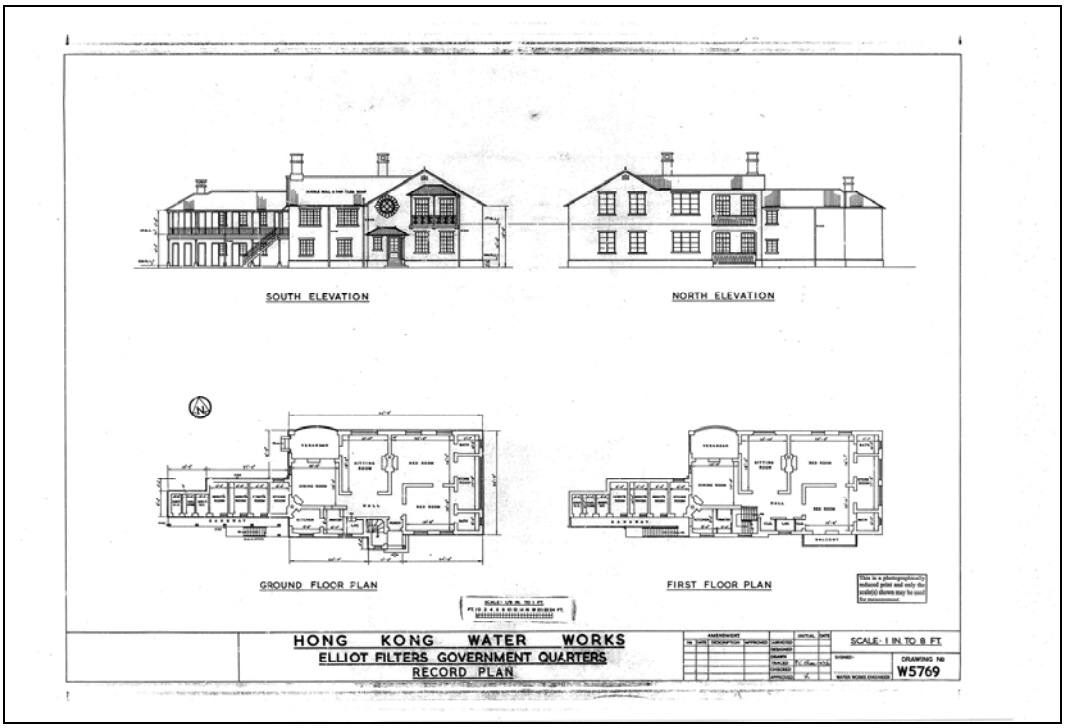
The Senior Staff Quarters is a two storey granite residence with pan-and-roll tiled roof and a narrow masonry wing to the side. Although it is designed with the appearance of one large house, the building is actually divided into two flats, one to each floor, and servants' rooms are located at both levels in the side wing. The front porch entrances provide access to each flat. The front elevation has a cantilevered verandah at the upper level with pairs of French doors opening onto it and pairs of windows below. Both the porch and balcony roofs have distinctive extended curved 'horned' ends to the hip ridges, which provide some local architectural reference. All windows and doors have timber louvred shutters. The rear elevation provides balconies at both levels. The retaining wall above Pokfulam Road is constructed of the same granite, quarried on site.

The Arts and Crafts classification for the style of this residence is appropriate as the building design is not based on the Edwardian Classical style used for many buildings of the late nineteenth and early twentieth centuries in Hong Kong. Rather, this residence reflects the colonial domestic architecture used throughout the British empire, based on a variation of the Bengali bungalow with some reference to the 'hand-made' qualities of the Victorian/Edwardian Arts and Crafts style. The use of rough and honed granite for the walls and multi paned casement windows adds to the craftsman-like finishes typical of the work of many Arts and Crafts architects.

There are other buildings in Hong Kong (and indeed other colonies) of this general style and period, which this building can be identified with as part of an important set of (usually) residences, generally designed by the Government Architects Office. These include the early example of Island House, Tai Po (1904) through to Fan Ling Lodge in the 1930s. These residences are usually termed 'bungalows' although they range in scale from modest to substantial. Many of the major Government public works which required senior staff accommodation in the first three decades of the twentieth century were provided with bungalows similar to this one at the Elliot site, and these are noted in the Public Works reports. Generally, they were of two storeys and built in red brick, or stone when available. By the

1920s, the Arts and Crafts style itself had noticeable transitional qualities as the design trend was to turn to Art Deco, and this is evidenced in the simple but elegant internal details of this dwelling. It is also an interesting example of the use of reinforced concrete and other contemporary materials and details in an essentially traditional bungalow form. (end of extract from "McDougall & Vines report – SSQ")

A drawing of the Senior Staff Quarters retrieved from the archive of WSD is shown below.



2.9 Architectural and Comparative Analysis – Treatment Works Building

(page 6 to 8 of "McDougall & Vines report – TWB")

(a) Form and Massing –

The Treatment Works building is constructed in two interlocking sections, a front four level 'tower" and a rear two level gallery. This form creates a very compact and tectonic structure, designed to meet the functional requirements of the water treatment processes. As a result the building is simple and utilitarian in its arrangement. Some articulation has been added to the exterior in the treatment of the columns as pilasters and the addition of plaques to the horizontal panels of the top level of the walls.

Part 2 – Cultural Significance of the Three Historic Buildings

The design is functional and expresses the stages of the process within the structure, with the equipment spread over three levels, and the control mechanism located in the projecting wing.

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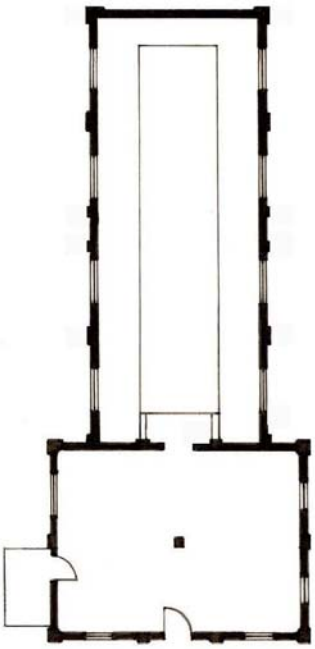
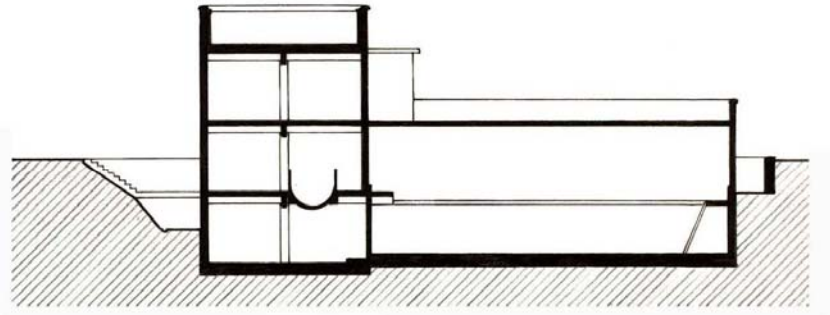


Indicative plan at First Floor level showing linked sections of building



Longitudinal cross-section showing levels within both sections of the building

• HONG KONG UNIVERSITY • TREATMENT WORKS CONSERVATION MANAGEMENT PLAN • 2007 •
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(b) Changes –

Physical inspection of the building indicates that a number of changes have been taken place over time to upgrade the equipment and facilities within the building as processes for water purification changed. The main change to the internal elements of the building was the installation of the dividing wall in the galleried rear section to create enclosed rooms across the width and depth of the two-level gallery. These rooms were used as offices and mess rooms at the upper gallery level, and store rooms in the lower level. These partition walls were constructed of simple timber stud materials and did not affect the structure of the building. A concrete floor slab was laid across the gallery level between the two side walkways.

Other internal changes include the installation of walls to create discrete areas for the application of chloride and fluoride into the water as part of the treatment system. Toilets and washroom facilities were added on the ground floor and first floor. The ground floor toilets being an extension to the building structure itself, and the first floor ones integrated into the existing building envelope. A plant room/switch room was added to the open roof area of the gallery, although the date for this is not clear as no working drawings have been sighted for this work.

Since the building has been decommissioned, a large amount of the equipment has been removed, but the major elements such as the lime storage tank on the first floor and the mixing tank on the second floor remain. There is also a large amount of plant and machinery on the ground floor which has not yet been removed. Some minor changes have also occurred to windows and doors, ….. (end of extract from "McDougall & Vines report – TWB")

2.10 Statement of Cultural Significance – Workmen's Quarters (page 8 of "McDougall & Vines report – WQ")

The Workmen's Quarters is a simple brick structure constructed in 1919. It forms a typical part of the facilities provided on Government properties, particularly water works sites. Essentially, it is externally intact but has undergone some internal modifications.

The building is a representative example of frequently repeated Chinese workmen's quarters on Government sites.

Notably, it does reflect the strict hierarchy of employment and relative standards of facilities provided within the Hong Kong Public Service. (end of extract from "McDougall & Vines report – WQ")

The appraisal by Antiquities and Monuments Office is enclosed as Appendix 5 to this report.

2.11 Statement of Cultural Significance – Senior Staff Quarters (page 6 of "McDougall & Vines report – SSQ")

The Senior Staff Quarters is a two storey stone residence constructed in 1923-4. It forms a typical part of the staff facilities provided on Government properties, particularly water works sites. It is essentially intact both externally and internally.

The Senior Staff Quarters is an excellent example of the colonial bungalow/Arts and Crafts style of residential architecture of the 1920s in Hong Kong. Architecturally it presents a unified design externally, while internally it retains its unusual floor plan reflecting the two separate residences incorporated into one dwelling. It is constructed of granite quarried on the site.

The quality and scale of the architectural work on this building, in comparison to the simple nature of the Workmen's quarters, is indicative of the status of senior staff, and it does reflect the strict hierarchy of employment and relative standards of facilities provided within the Hong Kong Public Service. (end of extract from "McDougall & Vines report – SSQ")

The appraisal by Antiquities and Monuments Office is enclosed as Appendix 5 to this report.

2.12 Statement of Cultural Significance (page 10 of "McDougall & Vines report – TWB")

The Treatment Works was constructed in 1930-311. It is reinforced concrete post and beam structure with brick infill walls, and has associated tanks and filter beds attached to each side of the building. It formed an essential part of the water supply purification process for the Western District and technologically it represents on important stage in the constant upgrading of the treatment processes in the early

twentieth century.

The treatment works building and the filter beds are essentially intact, although it is some years since they have been operational. The building has undergone minor internal modifications. (end of extract from "McDougall & Vines report – TWB")

The appraisal by Antiquities and Monuments Office is enclosed as Appendix 5 to this report.

2.13 Character Defining Elements – Workmen's Quarters

(a) Building form and internal layout –

- single-storey,
- simple plan form, and
- original room layout and layout of main rooms.

(b) Roof –

- roof form,
- including the double layer pan and double layer roll tiling (雙筒雙瓦),
- granite coping on top of the gable wall,
- brick chimney, and
- the exposed timber roof truss structural supporting system.

(c) External red facing brickwork.

(d) Façade verandah –

- the open colonnade,
- the upper end of the battens "grooved" into the red facing brickwork,
- cast iron eaves gutter and rainwater downpipe, and
- cast iron pillar and granite pillar base.

(e) Window –

- timber window,
- vertical iron anti-burglar bars, and
- granite lintol and cill.

(f) External door –

- timber door, and
- granite threshold and step.

2.14 Character Defining Elements – Senior Staff Quarters

(a) Building form and internal layout –

- the two-storey main building with the two-storey servant annex at west side,
- the nearly identity layout plan on ground and first floor,
- original room layout in main building, and
- the "small" size room layout in servant's annex.

(b) Roof –

- form,
- including the double layer pan and double layer roll tiling (雙筒雙瓦),
- hip ridges with "ox horn" end,
- roof eave projection,
- cast iron eaves gutter and rainwater downpipe, and
- three granite chimney stacks.

(c) Masonry external wall.

(d) Façade verandah –

- roof covering,
- hip ridges with "ox horn" end,
- cast iron eaves gutter and rainwater downpipe, and
- cast iron pillar.

(e) Façade verandah at servant's annex –

- roof covering,
- the eaves gutter and cast iron rainwater downpipe,
- cast iron pillar, and
- the exterior reinforced concrete staircase with balustrade which is the sole staircase to first floor for servant's use.

(f) Rear verandah –

- timber suspended false ceiling with pattern grille at the four corners, and
- granite block pillar and corbel.

(g) Entrance porch –

- timber suspended false ceiling with pattern grille at the four corners,
- granite pillar,
- granite flooring, and
- timber external door and the original door ironmongeries.

(h) Interior –

- internal timber staircase,
- timber suspended false ceiling with pattern grille at the four corners and the curve cornice.

(i) Timber window, French widow and jalousies –

- timber window,
- French window, and
- jalousies.

(j) Timber internal door –

- timber door, and
- timber door with glazing panel.

(k) Fireplace.

2.15 Character Defining Elements – Treatment Works Building (on setting and external views of the building only)

(a) The form and shape of the building –

- filter beds on both sides attached and linked into the building,
- elevations and wall materials (concrete post and beams and red facing brickwork), including the location, configuration and divisions of the steel windows, and the location of the door openings, and
- the parapeted roof form and roof tank.

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Centennial Campus Project, The University of Hong Kong
Heritage Impact Assessment Report

Part 3 – Conservation Policy

> "Heritage bears witness to the development of our city and is a valuable and unique asset of our community. In a civilized and developed society like Hong Kong, our citizens aspire for richness in life through links to our past and building a sense of identity through preservation of our historic buildings"[1]

3.1 Workmen's Quarters and Senior Staff Quarters, Conservation Objective – Revitalisation

These two historic buildings will be assigned a new usage when integrated into the new Centennial Campus development, thus the conservation approach is "adaptive re-use". "Adaptive re-use of a heritage building may be defined as modifying a building for other use, other than its original use, such as from a residential home to an exhibition hall or a tea house for public access."[2] The objective follows the spirit of "Revitalising Historic Building Through Partnership Scheme" by the Development Bureau, Hong Kong SAR Government, i.e. –

> Through good adaptive re-use of our historic buildings, we aim to give these buildings a new lease of life for the enjoyment of the public.[3]

"Adaptive re-use of buildings is often the only way that the historic and aesthetic values can be saved economically and heritage buildings brought up to contemporary standards. Generally speaking, as most of the heritage buildings were built long time ago, their design and facilities provided usually do not comply with current standards and requirements. Certain degree of alterations is usually required if new facilities are to be installed or if the buildings are to be adapted for re-use other than their original use. Structural strengthening may be required if the new use demands a greater loading requirement."[4]

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1 From "Revitalising Historic Buildings Through Partnership Scheme, Batch II" pamphlet – 'Importance of Heritage Conservation', published by Development Bureau.

2 Buildings Department. *Practical Guidebook on Compliance with Building Safety Requirements for Adaptive Re-use pf and Alteration and Addition Works to Heritage Buildings under the Buildings Ordinance (Interim Edition).* Hong Kong: Buildings Department, June 2009, p.7.

3 From "Revitalising Historic Buildings Through Partnership Scheme, Batch II" pamphlet – 'Adaptive Re-use of Government Owned Historic Buildings', published by Development Bureau.

4 Buildings Department. *Practical Guidebook on Compliance with Building Safety Requirements for Adaptive Re-use of and Alteration and Addition Works to Heritage Buildings under the Buildings Ordinance (Interim Edition).* Hong Kong: Buildings Department, June 2009, p.2.

3.2 The Approach to Meet Current Statutory Requirements for Workmen's Quarters and Senior Staff Quarters

The Workmen's Quarters was built in 1918-19, and the Senior Staff Quarters in 1923-23 by Water Supplies Department, which could not satisfy the current legislations. The statutory requirements that generally could not be met are –

- "Provision of Means of Escape", (code: *The Code of Practice for the Provisions of Means of Escape in Case of Fire 1996*),
- "Fire Resistance Construction", (code: *Code of Practice for Fire Resisting Construction 1996*),
- "Fire Services Installation", (code: *Code of Practice for Minimum Fire Service Installation and Equipment*),
- "Universal Accessibility", (code: *Design Manual – Barrier Free Access 2008*),
- "Structural Loading Requirements", (code: Chapter 123B Building (Construction) Regulations),
- "Protective Barrier", (code: Chapter 123B Building (Construction) Regulations), and
- "Provision of Sanitary Fitments", (code: Chapter 123I Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations).

The approach to meet current statutory requirements follows the view of the Development Bureau towards "Revitalization Historic Buildings Through Partnership Scheme, Lai Chi Kok Hospital", which states "…it will be a complex issue to strike a balance between maintaining the architectural authenticity of historic buildings and complying with the current statutory requirements under the Buildings Ordinance….

(a) As long as the site allows and there are technically feasible solutions within reasonable cost, the proposal should aim to comply with the statutory building control requirements through suitable modification works subject to essential features being preserved; and

(b) Every effort should be made to preserve the façade of the historic buildings. Addition and alteration works, if necessary, should be undertaken at the back or other less visually prominent location of the buildings concerned. The original external facades of the buildings should clearly left unaltered and must not be disturbed: i.e. no major external additions or alterations to the premises will be allowed, unless permitted under these Conservation Guidelines. External redecoration is restricted to colours that are compatible

with the age and character of the buildings and the paint system is to be reversible……"[5]

It is necessary to maintain a balance between the "conservation" and the changes that are essential to meet the statutory requirements, so the "Practical Advice" from *Practical Guidebook on Compliance with Building Safety Requirements for Adaptive Re-use of and Alteration and Addition Works to Heritage Buildings under the Buildings Ordinance (Interim Edition)* (referred to as the "Practical Guidebook" in this report) is taken as the "guidance to resolve some obvious problems that may be encountered in complying with current building safety requirements while taking care on the objectives of heritage conservation".[6] The "Practical Advice" covers –

- Structural issues (paragraph 5.2 of the "Practical Guidebook"),
- Fire safety issues (paragraph 5.3 of the "Practical Guidebook"),
- Protective barrier (paragraph 5.4 of the "Practical Guidebook"), and
- Barrier free access (paragraph 5.5 the of "Practical Guidebook").

3.3 Meeting Other Requirements for Workmen's Quarters and Senior Staff Quarters

In addition to the improvement works for statutory requirements, there are addition installations for modern comfort needs, such as air-conditioning. The main equipment, i.e. air-conditioning outdoor cooling unit, may not be able to accommodate in the existing building, it is recommended to house these additional facilities in the adjacent new building.

3.4 The Reference International Conservation Standards for Adaptive Re-use of Historic Buildings

Different countries have different names given to "revitalisation", but with the same underlying spirit. In U.S.A., the term "rehabilitation" is used in lieu of "revitalisation". The "Secretary of the Interior's Standards for Rehabilitation" and the "Guidelines for Rehabilitating Historic Buildings – Alterations/Additions to Historic Buildings" quoted in Appendix 6 are taken as the reference for the development of the Guiding Principles and the Conservation Guidelines for Character

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5 Development Bureau, Hong Kong SAR Government. *Revitalising Historic Buildings Through Partnership Scheme, Lai Chi Kok Hospital, Resource Kit*. p. 16.

6 "Practical Guidebook", p.22.

Defining Elements. (The "Secretary of the Interior's Standards and Guidelines for Rehabilitation" has been downloaded from the website: http://www.nps.gov/history/hps/tps/standguide/rehab/rehab_index.htm, and enclosed as appendix to this report for easy reference.)

3.5 Conservation – the Management of Change

For the adaptive re-use of the Workmen's Quarters and Senior Staff Quarters, there will be changes to both the exterior and interior, the layout and the building fabric, and meanwhile maintaining the cultural significance of the building. The following section states the "conservation policy" aims to provide a set of guiding principles for planning designing addition and alteration work for the adaptive re-use of these two historic buildings. The "conservation guidelines" for the building components and fabric are given in Section 5 and 6 of this HIA report.

3.6 Conservation Policies and Guidelines for Workmen's Quarters and Senior Staff Quarters

3.6.1 Future usage –

The following policies and guidelines are for guiding the future use of these two historic buildings.

(a) Policy 1 –

The original and new usage of these two historic buildings are as following –

Workmen's Quarters –

- original use – office and residential, and
- new use – information office of The University.

Senior Staff Quarters –

- original use – residential, and
- new use – reception of The University and exhibition gallery and office of the University Press

The new use though not totally compatible wit the original usage, but which would allow general public to assess and appropriate the two historic buildings are considered appropriate.

(b) Policy 2 –

The cultural significance of these two historic buildings should be interpreted in the two historic buildings. Information on the history and architecture of the two historic buildings should be displayed in the building.

3.6.2 Building Form –

The following policies and guidelines are for guiding the future treatment to the building form to retain the cultural significance of these two historic buildings.

(c) Policy 3 –

The building form should be preserved as far as possible.

Guidelines:

- The main façade should be preserved and no major addition is allowed on the facade of the two historic buildings.
- Any addition to the side and rear should have minimal visual impact to the two historic buildings.
- Any addition to the side and rear should be of light-weight construction and reversible. In particular, the external wall building fabric should not be disturbed.
- The rear verandah of the Senior Staff Quarters can be enclosed to suit the new usage.
- Acceptance of historical changes – "The traces of additions, alterations and earlier treatments to the fabric of a place are evidence of its history and uses which may be part of its significance. Conservation action should assist and not impede their understanding."[7]

(d) Policy 4 –

The façade of the two historic buildings should be preserved.

Guidelines:

- No addition is allowed to cover up the main facade of the two historic buildings.
- The open colonnade of the façade verandah of the Workmen's Quarters should not be enclosed.
- The façade of the Senior Staff Quarters servant's annex should be preserved.
- It is not necessary to re-open up the later altered "enclosed verandah" on the side and rear of Senior Staff Quarters.

3.6.3 Building Components and Fabric –

The following policies and guidelines are for guiding the future conservation

[7] Extract from "Notes of 'Article 3 – Cautious Approach' of Burra Charter".

treatment for existing building components and fabric for retaining the cultural significance of the two historic buildings.

(e) Policy 5 –

The original external wall building fabric and the external windows should be preserved.

Guidelines:

- The vertical anti-burglar bars to the windows may be removed, if necessary to suit the new usage.
- It may not be necessary to replace the later added steel windows in the Senior Staff Quarters by timber windows, as they are part of the history of the changes in the building.

(f) Policy 6 –

The internal layout should be preserved.

Guidelines:

- A limited number of openings can be formed at the internal walls to suit the new usage and statutory requirements without affecting the structural stability of the building.

3.6.4 Addition and Alteration Works Necessary for Compliance with Statutory Requirements –

The following policies and guidelines are for guiding the design of new addition and alteration works that are necessary for compliance with statutory requirements.

(g) Policy 7 –

Existing reinforced concrete staircase should be improved as "means of escape" staircase to Senior Staff Quarters, if practical.

Guidelines:

- The improvement works shall follow the style of the existing staircase.
- If is it necessary to re-construct, the architectural style of the new staircase shall follow the existing.

(h) Policy 8 –

Addition works for complying for "means of escape" to Senior Staff Quarters shall be compatible but visually distinguishable from the existing building

fabric, and such addition shall be reversible without causing extensive damages to the building fabric when removed in future.

Guidelines:

- The recommendation from "Paragraph 5.3 Fire Safety Issues" of the "Practical Guidebook" shall be referred to as the guiding and directing principles.
- Addition of a new means of escape inside the building is not feasible since it will take up a significant percentage of the usage space.
- It is recommended to add means of escape staircase outside the building at a non-predominant position, and the opening form for connection with the building should be at locations where the elevation has been altered.
- The existing staircase at the servant's annex should be improved to become the means of escape staircase.

(i) Policy 9 –

New provisions for meeting the requirements for "universal accessibility" shall be added in the less obstructive locations of the Senior Staff Quarters.

Guidelines:

- The recommendation from "Paragraph 5.4 Barrier Free Access" of the "Practical Guidebook" shall be referred to as the guiding and directing principles.
- If a wheelchair platform is to be added for access to the first floor, it is recommended that the lift be added at the interior of the building, because if the wheelchair platform is added at the exterior of the building, the bulky external enclosure is un-proportional to the external elevation and may create undesirable visual impact.

3.6.5 Provision of Building Services Installation –

The following policies and guidelines are for guiding future additions, up-grading and improvement of building services and utilities to suit the user requirements for adaptive re-use.

(j) Policy 10 –

New utilities provision and building services installations shall be placed at less predominant locations.

Guidelines:

- New provisions for utilities purposes, e.g. electricity meter room, air-conditioning plant rooms and water tanks, shall be housed in the adjacent new building, as practicable as possible.
- It is recommended that the installation of new building services pipework and ductwork servicing the building should be provided at the rear elevation or other less visually prominent location where practicable.
- The number and size of openings form for passing of pipes, conduits, trunking and ducts inside the buildings should be kept to a minimum (for both).
- These openings should only be made in last predominant positions.

(k) Policy 11 –

New fire fighting services installation, e.g. sprinkler heads and hose reels, shall be carefully placed to minimize visual impact on the historic feeling of the building.

(l) Policy 12 –

It is recommended to provide the toilets that are necessary to satisfy the current sanitary fitment requirements in the adjacent new building.

3.6.6 Integration Between the Old and the New –

The following policies and guidelines are for guiding future design of new addition and their integration with existing historic building fabric.

(m) Policy 13 –

The cultural significance of the two historic buildings shall not be affected by any new addition. Any new addition is to be designed to integrate yet distinguishable from the historic building.

(n) Policy 14 –

The new addition shall be detached from the existing building as practical as possible, and at where the new interface with the old, they should be distinguished from each other.

3.7 Documentation for Adaptive Re-use of Workmen's Quarters and Senior Staff Quarters

The whole process of "adaptive re-use" of these two historic buildings should

be documented in the form of a conservation report.

3.8 Conservation Policy for Treatment Works Building

3.8.1 Preamble –

This section presents the conservation policy of the setting and external views of the Treatment Works Building. In this section, the conservation policies are extracted from the report, *Treatment Works, Centennial Campus Site, Hong Kong University – Conservation Management Plan*, August 2008, prepared by McDougall & Vines (referred to as the "McDougall & Vines report – TWB" in this report), and the page number in brackets after each sub-section heading is the page number of the text in the respective "McDougall & Vines report – TWB". The conservation policy for the preservation and adaptive re-use of this historic building is not provided because this HIA report only covers the two bridges spanning on top of the façade and rear of the historic building.

3.8.2 General Conservation Policies (page 14 of "McDougall & Vines report – TWB")

(a) Industrial Scale and Qualities –

Background: The Treatment Works was built as the water treatment plant for the Elliot site in 1930-1, and its scale and detailing reflect this. Little has changed to the exterior or interior structure and appearance of the Treatment Works since it was constructed.

Policy: The simple symmetrical nature of the original plan and basic industrial detailing of the building as originally constructed should be retained in any re-development of adaptation of the site. The original appearance of the water treatment plant should be reinstated where possible, reflecting the manual operation of the works, rather than the later automated electrically driven systems.

Implementation: Remove later elements, including the central walls in the operating gallery to reinstate the full gallery length. Retain all the original qualities and elements of value, as delineated in the analysis of cultural significance in Section 3.2 above (section 3.2 refers to the)

(b) Setting and Context –

Background: The Treatment Works building was constructed as a standalone building on top of earlier filter beds. The later above ground reservoirs were constructed some thirty years after Treatment Works building itself.

Policy: The context and setting of the Treatment Works should be enhanced within the new development of the site. It should form an attractive and integral part of site planning. Views to and from the building should be maintained or created in the new Centennial Campus development. Public access should be provided through paths and links to the campus and also to the park and walking trails behind within the development.

Implementation: Reassess the setting and landscaping around the building. Remove concrete paving and consider the use of granite paving to visually link the building and its retaining wall to the other historic buildings. Allow sufficient cartilage around the building and sufficient separation from the proposed new reservoirs.

3.9 The Reference International Conservation Standard for Conservation of the Setting of a Building

The Burra Charter (quoted in section 1.6 of this report) is adopted as the reference for the conservation standard, especially reference is made to Article 8.

Article 8 – Setting

Conservation requires the appropriate visual *setting* and other relationships that contribute to the *cultural significance* of the place.

New construction, demolition, intrusions or other changes which would adversely affect the setting or relationships are not appropriate.

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Part 4 – Management Plan

4.1 Requirements for the Addition and Alteration Works for Workmen's Quarters and Senior Staff Quarters

The specifications for the addition and alteration works in the tender document and all instructions issued during construction should follow the mitigation measures recommended in the endorsed Heritage Impact Assessment report. The carrying out of the addition and alteration works should be in strictly accordance with the specifications and the recommendations of the mitigation works in the endorsed Heritage Impact Assessment report.

The Architect and the Conservation Consultant shall carry out periodic check to ensure that all the addition and alteration works are in accordance with the specifications. The full time clerks-of-works, the front-line supervisor of the project, shall be briefed by the Conservation Consultant of the conservation requirements before the commencement of the project, and to bring him to fully aware of the requirements of the endorsed Heritage Impact Assessment report.

4.2 Requirements for the Construction of the Two Bridges Spanning Across The Treatment Works Building

The Treatment Works Building (including the building and the filter beds at both sides) shall be protected during the construction of the bridges. Requirements for the protection work shall be included in the contract for the construction of the bridges. The carrying out of the protection work should be in strictly accordance with the recommendations of the mitigation works in the endorsed Heritage Impact Assessment report.

The Architect and the Conservation Consultant shall carry out periodic check to ensure that the historic building is protected in accordance with the requirements during the construction of the bridges. The resident engineer and full time clerks-of-works, the front-line supervisors of the project, shall be briefed by the Conservation Consultant of the protection requirements before the commencement of the project, and to bring them fully aware of the requirements of the endorsed Heritage Impact Assessment report.

4.3 Deviation from the Heritage Impact Assessment of this Report

For any deviation from the recommendations of the Heritage Impact Assessment of this report and any change of the proposed works, Antiquities and

Monuments Office's further endorsement should be sought.

4.4 Documentation of the Adaptive Re-use of Workmen's Quarters and Senior Staff Quarters and the Construction of the Two Bridges Spanning Across Treatment Works Building

Photo record and measured drawings shall be prepared in accordance with the "Antiquities and Monuments Office, Requirements for Photographic Survey of Historic Buildings (as at March, 2010)" and "Antiquities and Monuments Office, Requirements for Cartographic Survey of Historic Buildings (as at March, 2010)" respectively and submitted to Antiquities and Monuments Office for consideration before commencement of any addition and alteration work.

Photo record and measured drawings of the building fabric and component to be disturbed as stated in Section 7 – Heritage Impact Assessment, Workmen's Quarters and Section 8 – Heritage Impact Assessment, Senior Staff Quarters of this report shall be prepared before the commencement of any construction work.

Photo record and all record drawings shall be prepared in accordance with the Antiquities and Monuments Office (AMO) requirements stated above, after completion of the construction work and submitted to AMO.

All study reports, e.g. endorsed Heritage Impact Assessment report, conservation plan, record drawings, conservation report, and maintenance manual shall be properly filed and made available for inspection by personnel for maintaining the building.

4.5 Interpretation of The Three Historic Buildings

Interpretation boards introducing the history and architectural character of the Workmen's Quarters and Senior Staff Quarters shall be prepared and display in predominant locations in the buildings or adjoining landscape areas. Interpretation should also be prepared for the architectural features which have been restored or altered, e.g. fireplaces in the Senior Staff Quarters.

Interpretation boards introducing the history and original setting of the Treatment Works Building shall be prepared and display in predominant locations at the bridges.

4.6 Long Term Operation of Workmen's Quarters and Senior Staff Quarters

A conservation report shall be prepared upon completion. The conservation report and maintenance manual shall be submitted to the Antiquities and Monuments Office for record purpose before the re-occupation of the historic buildings.

The conservation report describes the project from the planning stage to completion and records all the interventions to the historic buildings. The photo record of the completion of the project and progress photo shall be part of the report.

A "maintenance manual" shall be prepared by the Conservation Consultant for the building management upon completion of the project. Since this manual is prepared for the front line staff of the operator, the preserved "character defining elements" of the buildings shall be described with photos and locations to make the users fully aware of these features. The maintenance manual will set out the guidelines for the building management and future maintenance of the building including the historic building fabric of the building. The guidelines cover the standards and the frequency of inspection for up-keeping the historic fabric of the building, including the "character defining elements". The maintenance manual will also subject to be annual review in the first three years by the building management and the Conservation Consultant.

The maintenance manual for the building will prepared by the Conservation Consultant, Architect and Structural Engineer for the part on building fabric and structure, whereas the building services installation part by the Building Services Engineer.

****

Part 5 – Conservation Guidelines for Workmen's Quarters

5.1 Roof

(a) Roof form –

- The roof form shall not be changed.

(b) Roof covering –

- From the condition survey, there are leakages on the roof.
- The "double layer pan and double layer roll" (雙筒雙瓦) Chinese tile roof shall be replaced with similar construction.
- The granite coping on top of both side of gable wall shall be preserved (not to be taken down) and protected during replacement of the roof tiling.
- The granite coping shall be cleaned, and the defective pointing to be removed and the joint re-point with 1:3 lime sand mortar.

Granite coping

Granite coping on top of west gable wall

Granite coping on top of east gable wall

Granite coping

(c) Bick chimney –

- The red facing brickwork shall be cleaned, and the defective pointing removed and the joints re-pointed with 1 : 3 lime sand mortar.

(d) Timber main roof structure –

- The soffite of the roof is covered either by timber panels fixed at the soffite of the tiling or suspended false ceiling, and after taking down part of the covering it is found that the timber roof members have been infested by termite.
- The timber roof structure including the timber roof trusses, purlins and battens shall be replaced, if found to be defective. Such replacement work may have difficult in satisfying the statutory requirements, early consultation with Building Authority is recommended. (Paragraph 1.4 in the *Practical Guidebook*).
- The replacement shall follow the existing construction, i.e. the size, spacing, and details of the joints, etc.

<table>
<tr>
<td> 
Suspended false ceiling at the east end room</td>
<td> 
Exposed timber roof truss at the west end room</td>
</tr>
<tr>
<td> 
Timber purlin supporting the battens at the rear service room</td>
<td> 
Timber purlin supporting the battens at the rear service room</td>
</tr>
</table>

Part 5 – Conservation Guidelines for Workmen's Quarters

5.2 External Red Facing Brickwall

(a) Removal of later additions and alterations that are detrimental to the heritage value of the building and making good –

- Canopies have been added surrounding the building except at the verandah (façade), these later added canopies shall be carefully removed without creating additional damages to the red facing brickwork.
- The holes shall be carefully fill up with repair mortar. The repair mortar is recommended to be 1:3 lime / red brick fines mortar, and mock ups shall be prepared before the final decision for the mix and the type of red brick fines and other aggregates for the repair mortar.
- After the removal of the canopies, it may be necessary to added eaves gutter to the rear pitch of the roof. The size, shape and material of the eaves gutter and rainwater downpipe shall follow the existing at the verandah.

Later added canopy at west elevation

Later added canopy at east elevation

Later added canopy at rear elevation, west side

Later added canopy at rear elevation, east side

- All conduits, light fittings, electric meter cabinet and water pipes fixed on the wall shall be carefully removed without creating additional damages to the red facing brickwork, and the holes to be repair as recommended above.

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Electric meter cabinet fixed on façade

Conduits and light fitting fixed on façade

East elevation

Rear elevation, east part

(b) Repair to the red facing brickwork –

- The red facing brickwork has been repair by patching up or the openings filled up. It may not be necessary to remove all these previous works.

Previous patching repair at east elevation

An opening being blocked up at the rear elevation, east part

- Part of the red facing brickwall at the rear (west side) has been painted white. The white paint shall be removed and the damaged bricks and pointing (if any) to be restored.

	
West part of rear elevation painted white, view from east side	West part of rear elevation painted white, view from west side

- It is recommended that a close examination be carried to the red facing bricks including the previous repair works to identify the damaged / deteriorated bricks to be repair and the inappropriate/detrimental previous repair work to be removed.
- The method of repair the red facing brick is to be determined after the close examination, different repair approaches may be necessary for different extent of repair work and the availability of matching red facing bricks.
- The defective pointing shall be removed and the joints re-pointed with 1 : 3 lime sand mortar.

5.3 Façade Verandah

	

(a) Roof covering and timber roof structure –

- Similar to the main roof, the "double layer pan and double layer roll" (雙筒雙瓦) Chinese tile roof shall be replaced with similar construction.
- The timber purlins and battens have been infested and shall be replaced.

- The timbers battens are supported by the timber purlin on the open side and the red facing brickwork cornice on the wall side. Care shall be taken when taking down and installation of new battens in order to minimize any damages to the brick cornice.

The red facing brickwork cornice

The timbers battens are supported by the timber purlin on the open side and the red facing brickwork cornice on the wall side

- The upper end of the batten at both end are "tongued" into the red facing brickwork and this details shall be recorded and replicated (not to be changed) in the replacement.

Upper end of batten "tongued" into bricks

The batten at the west end

The batten at the east end

Upper end of batten "tongued" into bricks

(b) Cast iron eaves gutter and rainwater downpipe –

- The eaves gutter including the brackets shall be repair, and to be replaced if beyond repair.
- The paint on the rainwater downpipes and brackets shall be removed, and these components properly primed and re-painted.

(c) Cast iron pillar and granite pillar base –

- The paint on the cast iron pillars shall be removed, and the pillars properly primed and re-painted.
- The granite pillar base shall be cleaned and it is not necessary to repair the minor damages and irregularities, i.e. wear and tear, and chipped corners.

Cast iron pillar (lower part) and rainwater downpipe

Granite pillar base

(d) Flooring –

- The original cement sand screed flooring which reflected the "hierarchy" of the building can be changed to match the new usage, but the material should be of a "rustic" appearance.

5.4 Window

(a) Window and vertical iron security bars –

- From site inspection, the condition of the windows and frames are in a very poor condition and beyond repair, and the upper part of two of the windows at the facade have been modified for installation of window type air-conditioning unit, they are to be replaced.
- Care shall be taken when taking down the window frame and installation of new window frame in order to avoid any damages to the brick window jambs.
- The window at the west end of the façade has not been modified (for installation of window type air-conditioning unit), thus it is recommended to take this window as the prototype (size, detailing and construction) for replication.
- The colour of the window can be changed.
- The vertical iron anti-burglar bars can be removed to match the new usage.

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 Windows at facade	 Windows at façade, east part
 Windows at façade, west part	 Windows at façade, central part
 Window at west elevation	 Windows at east elevation

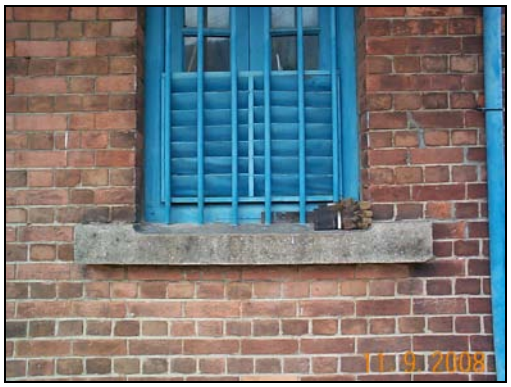
(b) Ironmongeries –

- The existing ironmongeries shall be salvaged and re-used as practicable as possible.
- Missing and defective ironmongeries may be replaced with brass ironmongeries.

	
Window at west elevation	Windows at east elevation

(c) Granite lintol and cill –

- The granite lintol and window cill shall be cleaned and it is not necessary to repair the damages, i,e. chipped corners.
- Care shall be taken when taking down the vertical iron anti- burglar bars (if these bars are to be taken down) to avoid any damages to the granite components. The holes shall be filled with 1 : 3 lime / granite fine mortar.

	
Granite window lintol	Granite window cill

	
Granite door lintol	Granite door threshold and step

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5.5 External Door

(a) Door –

- From site inspection, the condition of the doors and frames are in a very poor condition and beyond repair, they are to be replaced.
- Care shall be taken when taking down the door frame and installation of new door frame in order to avoid any damages to the brick door jambs.
- The doors at the central part and west part of the façade have been replaced. The door at the east part of the façade may be the original door, thus it is recommended to take this door as the prototype (size, detailing and construction) for replication.
- The colour of the door can be changed.
- The ironmongeries, e.g. pull handle, shall match the style of the building.

 Door at façade east part to be taken as prototype door	 Original window changed to door shown by the holes in the granite lintol after removal of the iron vertical security bars

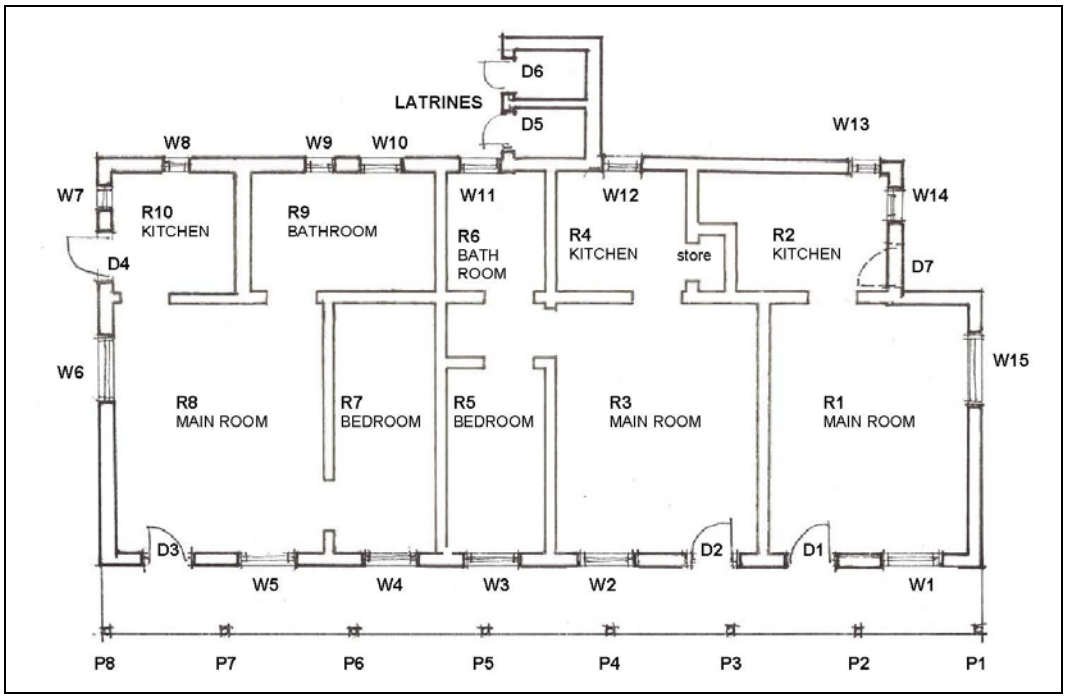
(b) Granite lintol, threshold and step –

- The granite lintols, thresholds and step shall be cleaned and it is not necessary to repair the minor damages, i.e. chipped corners.
- The damaged granite lintol due to the removal of the iron vertical security bars shall be properly repair, by carefully removal of any left in iron, and fill up the holes with 1 : 3 lime / granite fine mortar.

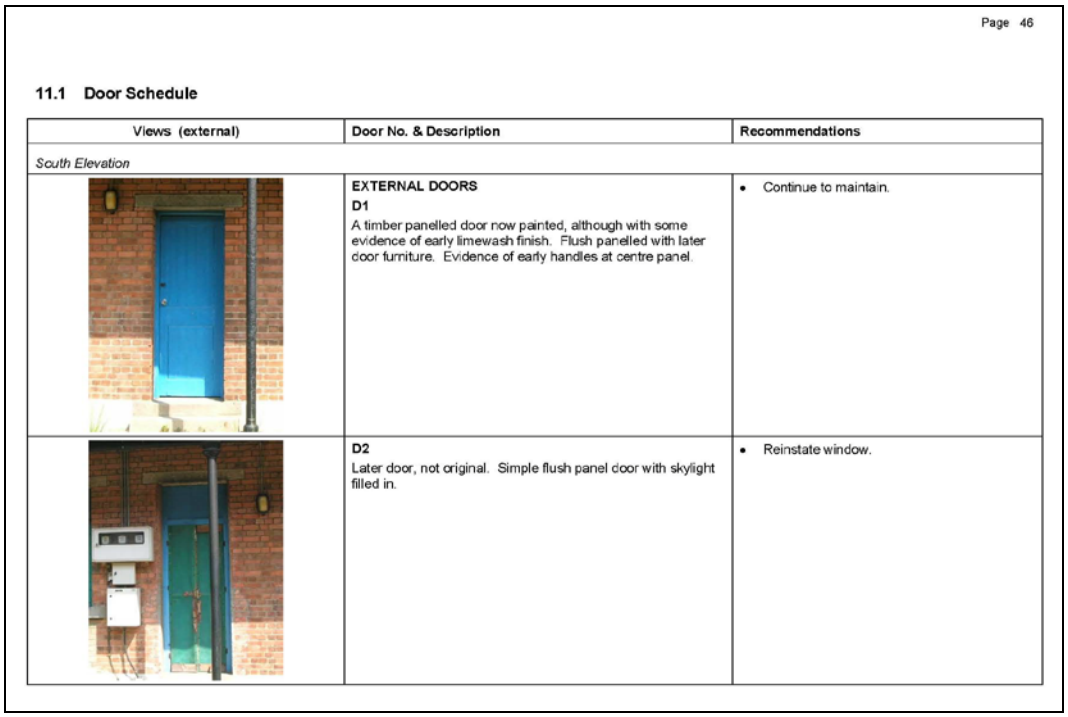
5.6 Door and Window Condition Survey

(a) The "door schedule and window schedule" from pages 46 to 56 of the report, *Centennial Campus Site, Hong Kong University, Workmen's Quarters – Conservation Management Plan and Preliminary Interpretation Strategy*, January 2007 prepared by McDougall & Vines (referred to as the "McDougall

& Vines report – WQ" in this report) is added as annex to this part. The assessment to the conditions of the timber doors and windows in the schedule were carried out in 2007 and the present conditions are worse than stated.



Ground floor plan indicating the door mark and window mark (not to scale)
(from page 45 of the "McDougall & Vines report – WQ")



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11.1 Door Schedule

Views (external)	Door No. & Description	Recommendations
South Elevation		
	EXTERNAL DOORS **D1** A timber panelled door now painted, although with some evidence of early limewash finish. Flush panelled with later door furniture. Evidence of early handles at centre panel.	• Continue to maintain.
	D2 Later door, not original. Simple flush panel door with skylight filled in.	• Reinstate window.

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Views (external)	Door No. & Description	Recommendations
	**D3** Original opening, but later flush door. No original door furniture.	• Replace with door to match D1.
West Elevation		
	**D4** Part of later addition. Not original.	• Do not retain.

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Views (external)	Door No. & Description	Recommendations
North Elevation		
	**D5 & D6** Doors to outdoor privies. Solid timber doors with heavy metal finishes and simple door pulls.	• Retain external privies and doors.
East Elevation		
	**D7** This is a doorway which has been filled in. Granite steps and sill still exist.	• Reinstate door if required, or re-finish in more appropriate smooth render as a clear indication of original door.

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11.2 Window Schedule

Views (external)	Window No. & Description	Recommendations
South Elevation		
	**W1** Casement windows each with a four pane light. Solid frame and tongue mouldings to edgings. Granite sill and lintol. Six 15mm diameter iron security bars fixed in granite. Later louvres to bottom section of window. No visible window joinery.	• Retain and repair all original joinery • Remove later louvres.
	**W2** Originally four paned casements. Upper two panes have been cut out to allow for installation of external air-conditioning unit and top half of four iron security bars have been cut off for the installation of the air-conditioning unit. Later nylon fly screen nailed to an outer frame. There is evidence of deterioration of paintwork and timber to this window. It is missing some upper glazing bead mouldings.	• Reinstate all missing elements to match original • Remove temporary screens

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Views (external)	Window No. & Description	Recommendations
	**W3** The upper two panes of casements have been removed for air-conditioning unit and four of the security bars have been cut down. The eastern casement seems to have been reinstalled upside down. There is evidence of deterioration of joinery and missing glazing beading.	• Repair or remake window casements to match original • Install in correct configuration
	**W4** A later window installed in original opening after the removal for use as a door. Similar joinery has been used in the casements. New spiral rods have been installed in the concrete sill and granite lintol.	• This window will require replacement with appropriate joinery and sill and grilles.

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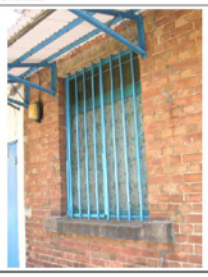
Views (external)	Window No. & Description	Recommendations
	**W5** As for window W1. W 5 and W1 are the most intact of the windows on the southern elevation. Deterioration of paint finishes. All moulding seems intact.	• Retain and repair all original joinery
West Elevation		
	**W6** Four paned casements with upper light of single panes. This eastern window is wider than the windows on the south elevation with 8 security bars. The top granite lintol is cracked at the northern end. Joinery appears intact. Later flywire screens have been installed, nailed to the timber frame. The sill requires cleaning. The glazing beads to this window are simple quarter round rather than lambs tongue. The window framing may have changed at some time.	• Retain and repair all original joinery. • Investigate appropriate method to repair granite lintol, if necessary • Remove temporary fly screens

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Views (external)	Window No. & Description	Recommendations
	**W7** A non-original window to a later corner addition.	• Remove.
North Elevation		
	**W8** As for window W7.	• Remove

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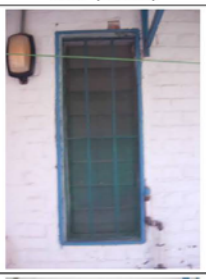
Views (external)	Window No. & Description	Recommendations
	**W9** A simple louvred window with metal frame, security bars installed, probably later addition. Glass louvres.	• Remove
	**W10** Possibly a later opening in original wall, but sill made to match granite sill. Simple metal framed glass louvres.	• Investigate possible date of installation. Retain if original.

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Views (external)	Window No. & Description	Recommendations
	**W11** Original window with granite lintol and sill, and five security bars. Timber window frame remains, but later metal framed glass louvres have been installed.	• Retain opening. Reinstate joinery to match original timber details
	**W12** Original window with granite lintol and sill as for window W11.	• Retain opening. • Reinstate joinery to match original timber details

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Views (external)	Window No. & Description	Recommendations
	**W13** Narrow original window with granite lintol and shaped sill. Retains timber window framing and three security bars, although the base of the bars has corroded leaving minimal attachment to the stone. The timber frame remains, but later louvres have been installed.	• Retain and repair all original joinery • Reinstate details to match original timber joinery
East Elevation		
	**W14** Narrow original window with granite lintol and shaped sill. Retains timber window framing and three security bars. The timber frame remains, but later louvres have been installed.	• Retain and repair all original joinery • Reinstate details to match original timber joinery

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Views (external)	Window No. & Description	Recommendations
	**W15** Wide double hung casement window with four paned lights in timber frame, eight security bars set in granite lintol and sill. Framing of the casements is different moulding to the front windows, being squarer, with no lambs tongue beading. The southern casement is in bad repair, but the northern casement is in good condition.	• Repair or remake window casements to match original • Install in correct configuration

****

Part 6 – Conservation Guidelines for Senior Staff Quarters

6.1 Roof

(a) Roof form –

- The roof form shall not be changed.

(b) Roof covering –

- From the condition survey, there is severe leakage on the roof.
- The "double layer pan and double layer roll" (雙筒雙瓦) Chinese tile roof shall be replaced with similar construction.
- The features at the end of the hip ridges, i.e. the "ox horn" end, shall be preserved during the re-roofing work, and if it is not possible to preserve the "ox horn", they should be re-constructed with similar construction.

	
Roof water leakage at the ceiling of the corridor at first floor	Roof water leakage at the ceiling of the toilet at first floor

	
The "ox horn" at the end of the hip ridge at the roof to the entrance porch and the first floor balcony	The "ox horn" at the end of the hip ridge at the roof to the entrance porch and the first floor balcony

(c) Timber roof structure –

- The soffite of the roof is covered by suspended false ceiling, and on accessing to the attic part from the access panel at the verandah, it is found that the timber roof members have been infested by termite, and steel members have be added to reinforce one of the hip purlin.
- The timber roof structure including the timber roof truss, purlins, battens, eaves board and eaves soffite boards shall be replaced, if found to be defective. Such replacement work may have difficult in satisfying the statutory requirements, early consultation with Building Authority is recommended. (Paragraph 1.4 in the *Practical Guidebook*).
- Based on conservation approach, the replacement shall follow the existing construction, i.e. the size, spacing, and details of the joints, etc.

	
Soffite of the roof from the access panel at the false ceiling of the 1/f verandah – the main part	Soffite of the roof from the access panel at the false ceiling of the 1/f verandah – the hip ridge at the corner of the roof

(d) Roof eave projection –

- The roof eave is projected above 500 mm beyond the external wall and the soffite is covered with timber panel.
- From visual inspection, the panel and side fascia board are defective and may have been infested by termite.
- The panel and fascia board shall be replaced with similar construction.
- It is recommended to keep the white colour, unless a more appropriate colour to match the external appearance of the building is identified.

	
The soffite panel of the projecting roof eaves and fascia board at facade	The soffite panel of the projecting roof eaves and fascia board at rear elevation

(e) Cast iron eaves gutter and rainwater downpipe –

- The eaves gutter including the brackets shall be repair, and to be replaced if beyond repair.
- The paint on the rainwater downpipes and brackets shall be removed, and these components properly primed and re-painted.
- The rainwater hoppers which are not properly fixed, shall be taken down and properly fix with appropriate brackets and fixing details.

	
Hopper installed at floor drain outlet	The shoe of the cast iron downpipe

(f) Three Granite Chimney Stacks –

- The granite chimney stacks shall be cleaned.
- The defective pointing shall be removed and the joints re-pointed with 1 : 3 lime sand mortar.
- Copper wire mesh shall be added at the internal side of the chimney stack to prevent birds building nest inside the chimney.

Two chimney stacks

Chimney stack

6.2 Masonry External Wall

(a) Removal of installations that are detrimental to the heritage value of the building and making good –

- All conduits, light fittings and water pipes fixed on the wall shall be carefully removed without creating additional damages to the granite blocks.
- The holes shall be carefully fill up with repair mortar. The repair mortar is recommended to be 1:3 lime / granite fines mortar, and mock ups shall be prepared before the final decision for the mix and other aggregates of the repair mortar.

Water pipes fixed on the façade

Water pipes fixed on the facade

Part 6 – Conservation Guidelines for Senior Staff Quarters

(b) The granite external wall –

- Clean the granite blocks.
- All previous improper patching up repair work shall be removed and the damaged filled with repair mortar. The repair mortar is recommended to be 1:3 lime / granite fines mortar, and mock ups shall be prepared before the final decision for the mix and other aggregates of the repair mortar.
- The defective pointing shall be removed and the joints re-pointed with 1 : 3 lime sand mortar.

(c) Blocking up of the verandah at east elevation –

- The verandahs at the east elevation have been blocked up and finished with washed granolithic finish. It is not be necessary to remove this previous alteration work.
- Clean the washed granolithic finish.
- Fill up any cracks in the washed granolithic finish with cement sand slurry with colour to match the existing background colour.
- Openings are recommended to be opened on this part of the external wall.

Previous patching repair

The verandah at both floors have been blocked up and the space converted to a room

Opening blocked up

The verandah at the ground floor verandah has been filled up with blockwork/brickwork with two steel windows

(d) Grilles at rear wall in servant's annex –

- The grilles in each room of the servant's annex shall be preserved.
- The grilles can be blocked up at the interior with glass panel.

Grilles at the first floor external wall

6.3 Façade Balcony

(a) Roof covering and timber roof structure –

- Similar to the main roof, the "double layer pan and double layer roll" (雙筒雙瓦) Chinese tile roof shall be replaced with similar construction.
- The timber purlins, battens and eaves board have been infested and shall be replaced.
- The features at the end of the hip ridges, i.e. the "ox horn" end, shall be preserved during the re-roofing work.
- If it is not possible to preserve the "ox horn", they should be re-constructed with similar construction.

	
Two chimney stacks	Chimney stack

(b) Cast iron eaves gutter and rainwater downpipe –

- The eaves gutter including the brackets shall be repair, and to be replaced if beyond repair.
- The paint on the rainwater downpipes and brackets shall be removed, and these components properly primed and re-painted.
- The rainwater hoppers which are not properly fixed, shall be taken down and properly fix with appropriate brackets and fixing details.

(c) Cast iron pillar –

- The paint on the cast iron pillars shall be removed, and the pillars properly primed and re-painted.

	
The capital of the cast iron pillar	The base of the cast iron pillar

(d) Balustrade –

- The metal tubular frame with wire mesh panel "in-fill" between the cast iron pillars should not be the original balustrade, because this type of wire mesh should not be available at the 1930s.

- This balustrade cannot satisfy the statutory requirements for protective barrier, e.g. height and lateral load capacity. They shall be replaced with design to match the architectural style of the building. The replacement may have difficult in satisfying the statutory requirements, early consultation with Building Authority is recommended. (Paragraph 1.4 in the *Practical Guidebook*).

(e) Flooring –

- The existing cement sand screed floor finishes can be changed.
- The new finishes shall match the architectural style of the building.

6.4 Façade Verandah at Servant's Annex

(a) Roof from –

- The roof form shall not be changed.

(b) Roof covering and timber roof structure –

- Similar to the main roof, the "double layer pan and double layer roll" (雙筒雙瓦) Chinese tile roof shall be replaced with similar construction.
- The timber purlins, battens and eaves board have been infested and shall be replaced.

(c) Cast iron pillar and pillar base –

- The paint on the cast iron pillars shall be removed, and the pillars properly primed and re-painted.
- The plastered pillar base shall be touch-up and re-paint.

	
The capital of the cast iron pillar	Pillar base

(d) Balustrade –

- The paint on the metal balustrade shall be removed, and the members handrail, vertical and horizontal railing properly primed and re-painted.
- Although this balustrade cannot satisfy the statutory requirements, e.g. height, spacing between vertical railing and lateral load capacity, it should not be replaced.
- A new set of balustrade is recommended to be added at the internal side of the balustrade.

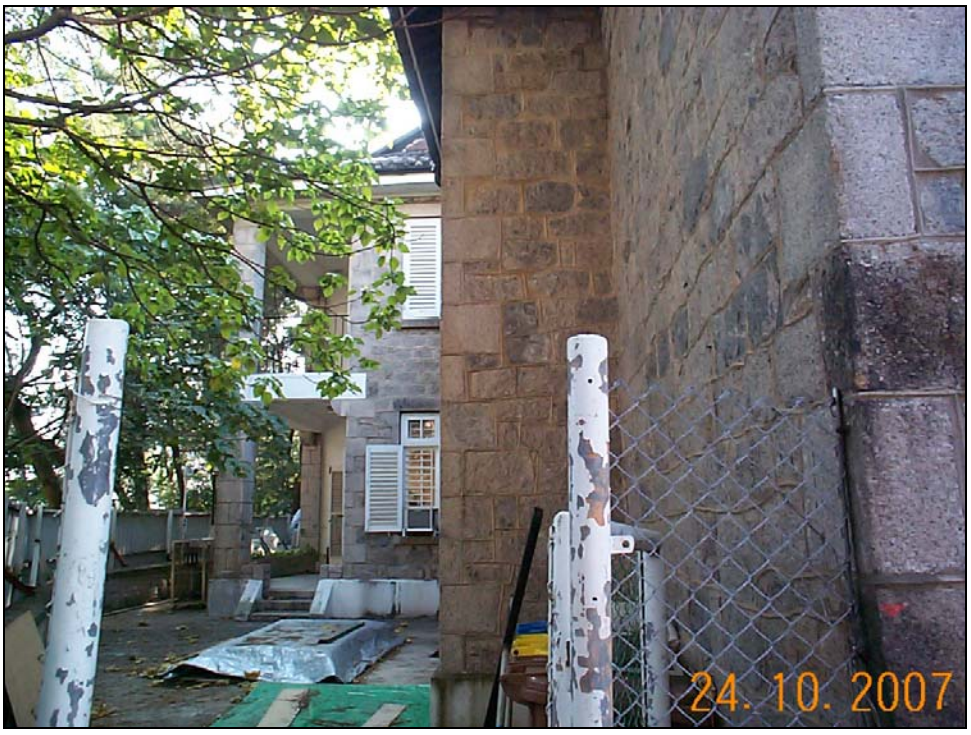
	
The metal balustrade	A special curve is added to the lowest vertical rail

(e) Flooring –

- The existing cement sand screed floor finishes can be changed.
- The new finishes shall match the architectural style of the building.

Part 6 – Conservation Guidelines for Senior Staff Quarters

6.5 Rear Verandah



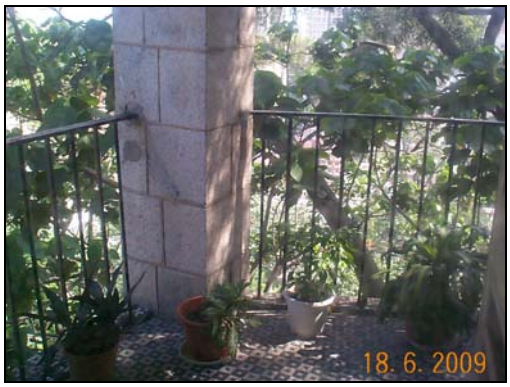
(a) False ceiling –

- The soffite of the roof is covered by suspended timber false ceiling, and on accessing to the attic part from the access panel it is found that the timber false ceiling have been infested by termite, the timber false ceiling shall be replaced with similar construction.
- The pattern grille at the four corners shall be preserved if possible, if they are beyond repair, they shall be re-constructed.
- It is recommended to keep the white colour, unless a more appropriate colour to match the external appearance of the building is identified.

	
The timber false ceiling at first floor verandah	The pattern grille at one of the corners at ceiling of first floor verandah

(b) Granite block pillar and corbel –

- Clean the granite block pillar and corbels.
- The defective pointing shall be removed and the joints re-pointed with 1 : 3 lime sand mortar.

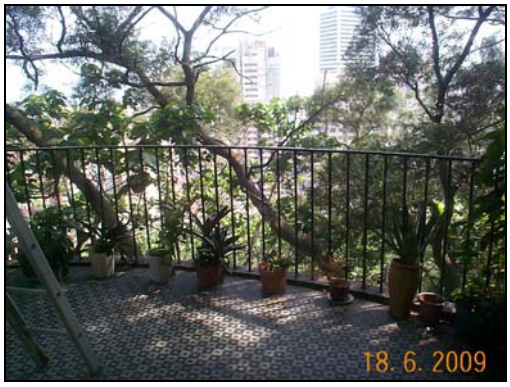


The granite pillar

The granite corbel at the capital of the pillar

(c) Balustrade –

- The existing balustrade is not the original balustrade, because the pocket for the fish-tail of the original handrail of the balustrade is still visible.
- This balustrade cannot satisfy the statutory requirements for protective barrier, e.g. lateral load capacity. They shall be replaced with design to match the architectural style of the building. The replacement may have difficult in satisfying the statutory requirements, early consultation with Building Authority is recommended. (Paragraph 1.4 in the *Practical Guidebook*).
- Any damages to the granite work should be filled with repair mortar as recommended in the repair of the granite external wall.



The balustrade

The pocket at the granite wall the granite was the groove for the original handrail if the balustrade

(d) Flooring –

- The pattern mosaic floor finishes should not be the original floor finishes, because this type of ceramic mosaic should not be available after Second World War.
- They shall be preserved and the defective parts shall be repair.

The pattern mosaic floor finishes

6.6 Entrance Porch

(a) False ceiling –

- The soffite of the roof is covered by suspended timber false ceiling, and may have been infested by termite as in other timber building components.
- If it has been infested, the timber false ceiling shall be replaced with similar construction.
- The pattern grille at the four corners shall be preserved if possible, if they are beyond repair, they shall be re-constructed.
- It is recommended to keep the white colour, unless a more appropriate colour to match the external appearance of the building is identified.

The timber false ceiling at ground floor entrance porch

Edge of the timber false ceiling at ground floor entrance porch

(b) Granite pillar –

- The granite pillar with base and capital shall be cleaned.
- The defective pointing shall be removed and the joints re-pointed with 1 : 3 lime sand mortar.

The granite pillar at ground floor entrance porch

The granite pillar base

(c) Floor finishes –

- The granite floor paving shall be cleaned.
- The defective pointing shall be removed and the joints re-pointed with 1 : 3 lime sand mortar.
- The floor mat well at both the exterior and the interior shall be preserved.

The granite floor paving at ground floor entrance

The floor mat well at the rear side of the ground floor quarter entrance

(d) External door –

- The painting to the door and frame is very thick, it is recommended to remove the paint to examine the condition of the door and frame.
- The defective part of the door and frame shall be repair.
- The colour of the door can be changed.

(e) External door ironmongeries –

- The ironmongeries which are considered to be the original building components shall be preserved.
- The ironmongeries that are considered to be the original building components in the first floor quarter entrance door at the brass knob cylindrical door lock, the brass letter box fascia plate and the horizontal bolt.
- The later replaced or added ironmongeries shall be replaced with ironmongeries compatible with the architectural style of the building.

<table>
<tr>
<td> 

Ground floor quarter entrance door – the brass letter box fascia plate</td>
<td> 

Ground floor quarter entrance door – the surface mount door closer</td>
</tr>
<tr>
<td> 

Ground floor quarter entrance door, the ironmongeries are brass letter box fascia plate, brass knob cylindrical door lock, cylindrical rim of the rim night latch, lock plate for the pad lock and peep eye</td>
<td> 

Ground floor quarter entrance door, the ironmongeries are brass knob cylindrical door lock, rim night latch, horizontal bolt, security chain and peep eye</td>
</tr>
</table>

(f) Door bell button –

- The door bell buttons may be the original building component and should be preserved.

- Though it is highly desirable, it is not necessary for the door bell buttons to function.

	
The door bell button for ground floor quarter	The door bell button for first floor quarter

6.7 French Window, Window and Jalousies

(a) French window and jalousies –

- From site inspection, the painting to the French window and frame is very thick, it is recommended to remove the paint to examine the condition of the French window and frame.
- The defective part of the French window and frame shall be repair.
- The external side of the jalousies are covered with a plywood panel, and the panel shall be removed and the jalousies restored.
- The jalousies shall be replaced if beyond repair.
- It is recommended to keep the white colour, unless a more appropriate colour to match the external appearance of the building is identified.

	
French window with top hung fanlight at first floor verandah	The middle port of the French window at first floor façade balcony

- It is recommended to carry out an ironmongery survey to identify those ironmongeries which are original.

- The later replacement ironmongeries which are not compatible with those used in the period when the building was constructed shall be replaced with compatible ones.
- The ironmongeries can be replaced with brass ironmongeries.

	
Vertical top bolt to French window at first floor balcony	Lever handle lock to French window at first floor façade balcony

(b) Circular timber window at façade –

- From site inspection, the painting to the window and frame is very thick, it is recommended to remove the paint to examine the condition of the window.
- The defective part of the window and frame shall be repair.
- The centre-pivoted mechanism shall be touched up for easy opening and closing of the window.
- It is recommended to keep the white colour, unless a more appropriate colour to match the external appearance of the building is identified.
- The mosquito screen and the three horizontal security bars shall be removed.
- Glazing panel can be added at the rear side of the window of necessary.
- The brass window stay shall be preserved and polished.

	
External view of window	Internal view of the window

	
The three security bar and the brass window stay	The centre-pivoted mechanism

(c) Timber window, jalousies and security grille panel –

- The timber windows in the building open in two directions, the majority open inwards and a few open outwards. It is not necessary to unify the direction of the window openings.
- From site inspection, the painting to the window and frame, and jalousies are very thick and because of the thick painting layer, some of the windows cannot close properly. It is recommended to remove all the paint to examine the conditions of the window and framer.
- The defective part of the window and frame, and jalousies shall be repair.
- Defective window and frame, and jslousies which are beyond repair should be replaced.
- Care shall be taken when taking down the window frame and installation of new window frame in order to avoid any damages to the granite window jambs.
- The replacement shall follow the existing construction, i.e. the size, spacing, and details of the joints, etc.
- The window which opens inwards has inherent difficulty in water-tightness. It is recommended to add a gasket at the window frame to improve water-tightness.
- It is recommended to keep the white colour, unless a more appropriate colour to match the external appearance of the building is identified.
- The mosquito screen and the security grille panel shall be removed.

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 External view of windows on ground floor	 External view of windows on first floor – window on the right side open inwards and the left one open outwards
 External view of window on ground floor (toilet window)	 Internal view of window on ground floor (bathroom window)

- It is recommended to carry out an ironmongery survey to identify those ironmongeries which are original.
- The later replacement ironmongeries which are not compatible with the period when the building was constructed shall be replaced with compatible ones.
- The ironmongeries can be replaced with brass ironmongeries.

 Vertical bottom bolt at jalousies	 Hinge at jalousies

 Iron window/jalousies stop	 Iron vertical security bars at servant's annex windows

(d) Steel window and security grille panel –

- The steel windows are located in the blocked up of verandah.
- It is not necessary to replace with timber windows.
- The steel windows which has been modified for the installation of air-conditioning unit shall be restored.

 Internal view of window on ground floor	 Internal view if the top center-pivoted casement
 The brass window stay	 The brass window lever handle

6.8 Internal Fittings

(a) False ceiling –

- The false ceiling can be taken down for the fixing of building services installation to the soffite of the floor slab.
- In restoring the defective/missing original false ceiling, the original details of the existing false ceiling, i.e. the cove ceiling border, cornices and the pattern grill at the corners, shall be replicated.

The false ceiling

The cove ceiling border, cornice and grille pattern at the corner

(b) Glazed partition with door –

- There are two sets of glazed partition with door, one at each floor.
- From site inspection, the painting to the partition frame and door are very thick, it is recommended to remove the paint to examine the condition of the partition frame and door.
- The defective part of the frame shall be repair.
- The broken glass pane shall be repair the texture glass to match existing.
- It is recommended to carry out an ironmongery survey to these two sets of door and the non-compatible ones replaced.

The glazed partition with door at ground floor

The texture glass

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(c) Internal door –

- From site inspection, it is observed that there are two types of doors – those which may the original building components and the later replacements.
- The original doors are usually those with glazed panels and a bottom panel.
- The later replacements are usually plain surface hollow core door. It is not recommended to replace these doors.
- From site inspection, the painting to the door window and frame is very thick, it is recommended to remove the paint to examine the condition of the door window and frame.
- The defective part of the door and frame shall be repair.
- It is recommended to carry out an ironmongery survey to identify those ironmongeries which are original.
- The later replacement ironmongeries which are not compatible with those used in the period when the building was constructed shall be replaced with compatible ones.

The toilet door at ground floor, this may be one of the original door

The top hung fanlight of an internal door

A projecting door hinge such that the door can be opened 180 degrees

The lever arm catch of the top hung fanlight

(d) Timber internal staircase –

- The timber staircase including the handrail shall be preserved.

6.9 Internal Features

(a) Fireplace –

- All fireplaces shall be preserved.
- The fireplaces shall be restored to original appearance.
- One of the fireplaces at ground floor has been blocked up to change to accommodate an electrical heater, it is recommended to restore this fireplace.

Fireplace at ground floor

Fireplace at ground floor

(b) Sanitary fittings –

- The sanitary fittings are later replacements.
- There is one corner type wash basin in the toilet at first floor corridor which may be the original building component, and this basin should be preserved.

The ground floor bathroom

The ground floor toilet outside at corridor (outside kitchen entrance)

	
The corner type wash basin in toilet at first floor corridor	The manufacturer's name

6.10 Window and Door Condition Survey

(a) The "window and door schedules" from pages 73 to 104 of the report, *Centennial Campus Site, Hong Kong University, Senior Staff Quarters – Conservation Management Plan and Preliminary Interpretation Strategy*, July 2006 prepared by McDougall & Vines (referred to as the "McDougall & Vines report – SSQ" in this report) is added as annex to this part. The assessment to the conditions of the timber windows and doors in the schedule were carried out in 2006 and the present conditions are worse than stated.

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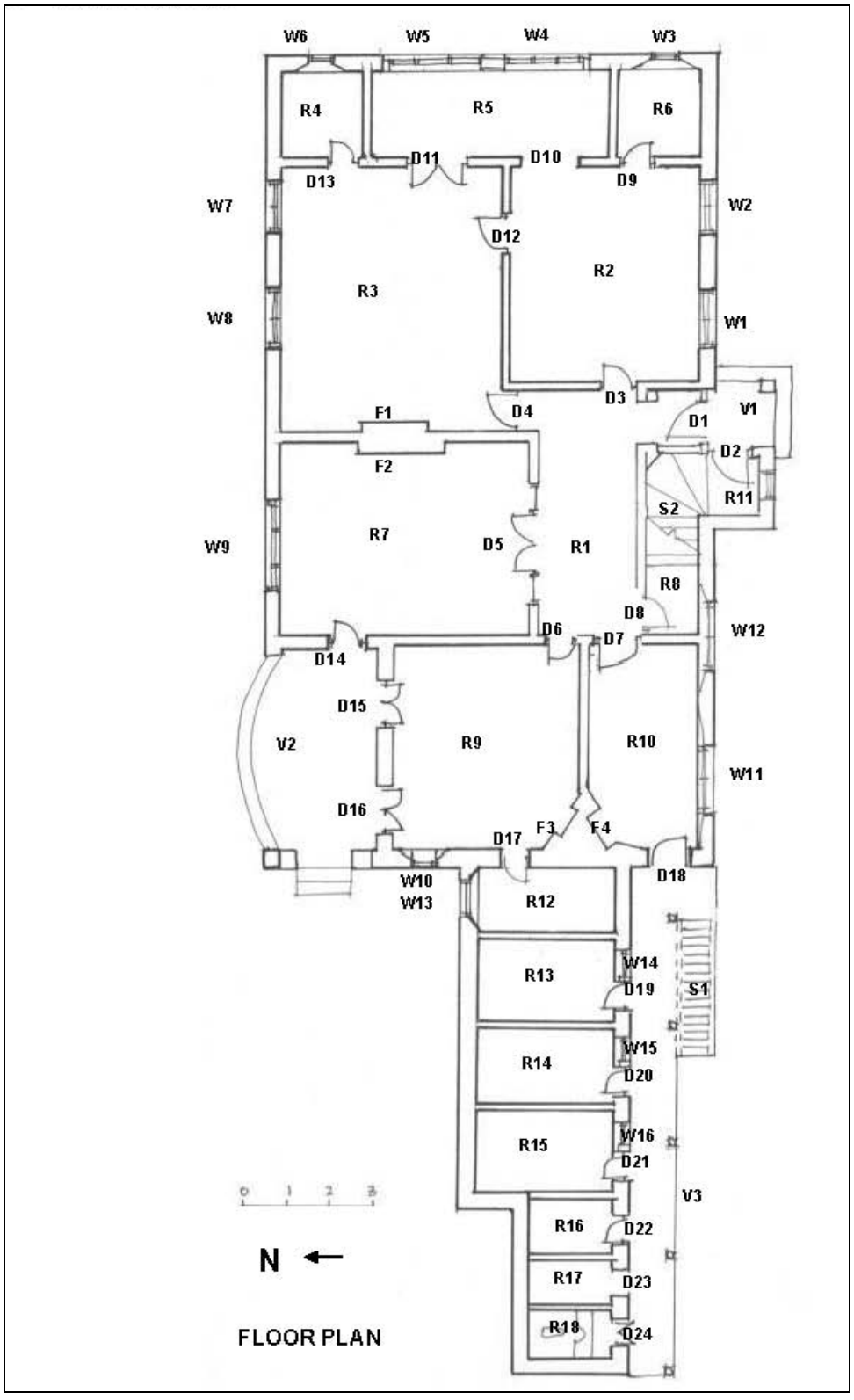

Ground floor plan indicating the window mark and door mark (not to scale)

(from page 23 of the "McDougall & Vines report – SSQ")

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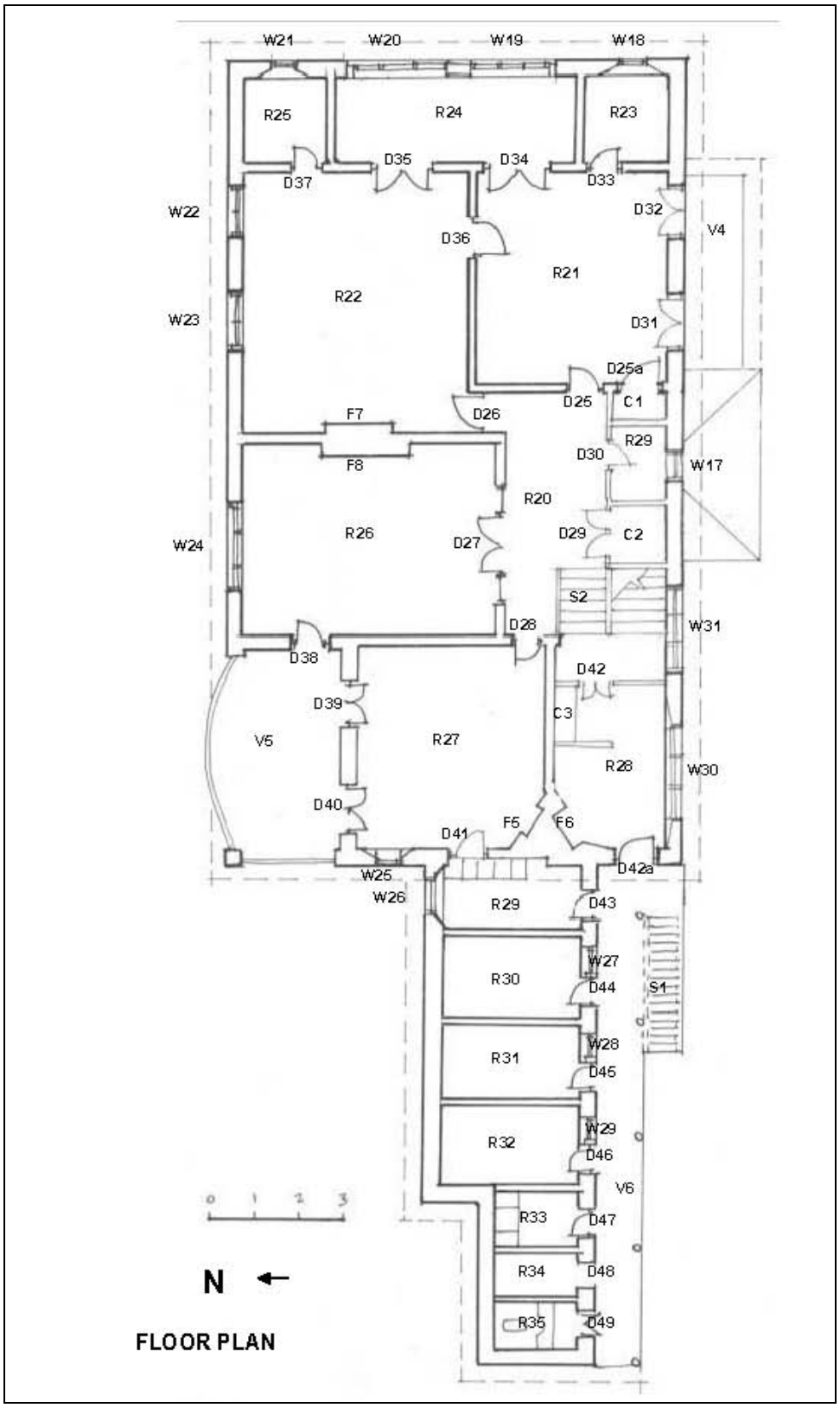

Ground floor plan indicating the window mark and door mark (not to scale)

(from page 42 of the "McDougall & Vines report – SSQ")

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10.0 WINDOW & DOOR SCHEDULES

10.1 Window Schedule

Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
Ground Floor						
W1 	Room - R2	2 casement windows inward opening, with 4 lights, horizontal fanlight, later aluminium fly screens have been added, externally to the pair of casement windows and internally to the outward opening fanlight.	Retains square profile wrought iron horizontal patterned security screens.	Original shutters retained.	Retains 4 hinges, 2 bolts, casement stay hooks on windows and walls, fanlight opening mechanism, security bar and brackets.	Retain and conserve original configuration and all original elements. Remove mesh screens. Remove pelmets.
W2 	Room - R2	2 casement windows inward opening, with 4 lights, horizontal fanlight, later aluminium fly screens have been added, externally to the pair of casement windows and internally to the outward opening fanlight.	Retains square profile wrought iron horizontal patterned security screens.	Original shutters retained.	Retains 4 hinges, 2 bolts, casement stay hooks on windows and walls, fanlight opening mechanism, security bar and brackets.	Retain and conserve original configuration and all original elements. Remove mesh screens. Remove pelmets.
W3 	Room - R6	Inward opening single 4 light casement with textured glass.	Retains external wrought iron security screens.	Original shutters retained.	2 hinges, 1 bolt, 1 casement hook, external shutter bolts.	Adapt as required

Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W4 	Room - R5	Outward opening metal framed 3 part window with end casements.	Retains security elements as part of window frames.	No external shutters remain.	Retains bolts and latches from date of installation.	Remove wall and window
W5 	Room - R5	Outward opening metal framed 3 part window with end casements.	Retains security elements as part of window frames.	No external shutters remain.	Retains bolts and latches from date of installation.	Remove wall and window
W6 	Room - R4	Inward opening single 4 light casement with textured glass.	Retains external wrought iron security screens.	Original shutters retained.	2 hinges, 1 bolt, external shutter bolts.	Adapt as required
W7 	Room - R3	Outward opening metal framed casement window with upper pivoting substantial fanlight. Windows have been fitted with internal sliding aluminium fly screens to full height of opening	Retains security screens internally as part of window design.	Retains external shutters in poor condition.	Retains furniture from date of installation.	Remove metal windows, replace with timber windows to match original Remove pelmet Reinstate external shutters

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Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W8 	Room - R3	Outward opening metal framed casement window with upper pivoting substantial fanlight. Windows have been fitted with internal sliding aluminium fly screens to full height of opening	Retains security screens internally as part of window design.	Retains external shutters in poor condition.	Retains furniture from date of installation.	Remove metal windows, replace with timber windows to match original Remove pelmet Reinstate external shutters
W9 	Room - R7	Outward opening 3 part metal framed window with lower casement sections & upper pivoting fanlights. 1 light of the lower casement section has been filled with a later air-conditioning unit. Internal sliding aluminium screens have been fitted within the window opening.	Security screens form part of the internal design of the window.	Remain in poor condition.	Window furniture from the time of installation remains on these windows.	Remove metal windows, replace with timber windows to match original Remove pelmet Reinstate external shutters
W10 	Room - R9	Inward opening single 8 light timber casement with the lower section now replaced by a fixed air-conditioning unit to light upper fanlight.. External fly screens have been added to the lower casement section above the later air-conditioner.	Wrought iron security screens have been added to both levels.	Remain in fair condition.	Retains hinges, security bar brackets, bolt, fanlight opening.	Remove a/c unit repair or remake window to match original

Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W11 	Room - R10	Outward opening pair of 8 light casements. Internal sliding aluminium flywire screens have been installed.	Wrought iron security screens have been fitted within each of the windows.	No external shutters remain, no evidence of fixings externally.	Retains hinges, bolts, external casement hooks.	Retain and conserve original configuration and all original elements. Remove mesh screens
W12 	Room - R10/R8	Inward opening pair of side hung casements separated by an internal wall. The east half retains textured glass panes & the top 2 lights have been cut down internally.	Security screens are attached to the inside of the frames.	The externa shutters remain fixed within the window frames, not attached to the outside stone walls.	Retains hinges & bolts.	Retain and conserve original configuration and all original elements. Retain integral shutters

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Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W12a 	R11	Small 6 pane side hung casement with textured glass.	Retains square profile wrought iron security screens.	Retains original external shutters.	Retains hinges and bolts.	Retain and conserve original configuration and all original elements.
W13 	R12	Inward opening 6 light side hung casement.	Vertical round cast iron bars fixed within window frame between window and shutters.	Retains original external shutters.	Retains hinges bolt, casement hook and bolts, and hooks to external shutter.	Retain and conserve original configuration and all original elements.
W14/D19 	R13	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W14) which has a later aluminium fly screen. Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.			Original top and bottom casement bolts and hinges, door cabin hook.	Retain and conserve original configuration and all original elements. Repair frame as required

Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W15/D20 	R14	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W14). Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.			Original top and bottom casement bolts and hinges, door cabin hook.	Retain and conserve original configuration and all original elements. Repair frame as required
W16/D21 	R15	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W14). Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.			Original top and bottom casement bolts and hinges, door cabin hook.	Retain and conserve original configuration and all original elements. Repair frame as required
First Floor						
W17 	R29	Round timber framed pivotal window with diamond glazing and textured glass. This window is painted and fixed in open position.	Security bars have been installed above and below the pivot.	Nil.	Nil.	Retain and conserve original configuration and all original elements. Reinstate circular internal opening frame

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Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W18  	Room - R23	A small 4 paned casement.	Security screens installed within frame.	Retains original external shutters.	Retains hinges, bolt & casement hook.	Adapt as required
W19  	Room - R24	Outward opening metal framed 3 part window with end casements.	Retains security elements as part of window frames.	No external shutters remain.	Retains bolts and latches from date of installation.	Remove wall and window
W20  	Room - R24	Outward opening metal framed 3 part window with end casements.	Retains security elements as part of window frames.	No external shutters remain.	Retains bolts and latches from date of installation.	Remove wall and window
W21  	Room - R25	A small 4 paned casement.	Security screens installed within frame.	Retains original external shutters.	Retains hinges, bolt & casement hook.	Adapt as required

Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W22  	Room - R22	Outward opening metal framed casement window with upper pivoting substantial fanlight. Windows have been fitted with internal sliding aluminium fly screens to full height of opening	Retains security screens internally as part of window design.	Nil	Retains furniture from date of installation.	Remove metal windows, replace with timber windows to match original Remove pelmet
W23  	Room - R22	Outward opening metal framed casement window with upper pivoting substantial fanlight. Windows have been fitted with internal sliding aluminium fly screens to full height of opening	Retains security screens internally as part of window design.	Nil	Retains furniture from date of installation.	Remove metal windows, replace with timber windows to match original Remove pelmet
W24  	Room - R26	Outward opening 3 part metal framed window with lower casement sections & upper pivoting fanlights. 1 light of the lower casement section has been filled with a later air-conditioning unit. Internal sliding aluminium screens have been fitted within the window opening.	Security screens form part of the internal design of the window.	Nil.	Window furniture from the time of installation remains on these windows.	Remove metal windows, replace with timber windows to match original Remove pelmet

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Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W25  	Room - R27	Single tall side hung casement with 10 panes.	Security screens installed within the frame of the window. These are later because they have been cut into the window frame.	Retains original external shutters with bolts and shutter hooks.	Retains hinges, top and bottom bolts, casement hook and security bar brackets.	Retain and conserve original configuration and all original elements. Remove pelmet
W26  	Room - R29	Inward opening 6 light side hung casement.	Vertical round cast iron bars fixed within window frame between window and shutters.	Retains original external shutters.	Retains hinges bolt, casement hook and bolts, and hooks to external shutter.	Retain and conserve original configuration and all original elements.
W27/D44 	R30	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W27). Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.			Original top and bottom casement bolts and hinges, door cabin hook.	Retain and conserve original configuration and all original elements. Repair frame as required

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Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W28/D45 	R31	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W31) which has a later aluminium flyscreen. Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.			Original top and bottom casement bolts and hinges, door cabin hook.	Retain and conserve original configuration and all original elements. Repair frame as required
W29/D46 	R32	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W32). Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.			Original top and bottom casement bolts and hinges, door cabin hook.	Retain and conserve original configuration and all original elements. Repair frame as required
W30  	Room - R28	3 light casement window with 8 panes per window. Each opens outwards. Later sliding aluminium screens have been added internally.	Security bars have been attached internally to the window frame.	Nil	Retain hinges, bolts and a casement hook to the central window.	Retain and conserve original configuration and all original elements. Remove mesh screen

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Window number	Location	Description (including later changes)	Security screens	External shutters	Original window furniture	Recommendations
W30a 						
W31  	Staircase - S2	3 light casement window with 8 panes per window. All 3 windows open inwards.	Security bars have been added between the window and the external shutters.	Remain to all 3 windows. The central shutter is fixed to the central mullions of the window.	Retain hinges, bolts and no casement hooks.	Retain and conserve original configuration and all original elements.

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10.2 Door Schedule

Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
Ground Floor					
D1	R1 - V1	Main entry door - either replaced or sheeted over - would likely have been identical to D2. Granite door threshold.	Retains hinges, letter slot and bell press (in adjacent wall).	Fabricate new panelled door with 9 light upper section to match D2. Reuse letter slot and retain bell press.	 
D2	S1 -V2	Panelled timber door has with 9 pane upper section. Granite door threshold.	Retains letter slot, hinges, latch set, key escutcheon, nail lock, peep hole and bell press.	Upgrade lock. Refinish and retain original door furniture.	   

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D3	R1 - R2	A 6 panel timber door on extended hinges.	Door lock/latch set replaced, hinges original.	Refinish, remove non-original door furniture, replace with selected furniture.	
D4	R1 - R2	A 6 panel timber door.	Door lock/latch set replaced, hinges original.	Refinish, remove non-original door furniture, replace with selected furniture.	
D5a-d	R1 - R7	A pair of French doors and opening side light doors (a, b, c &d) with patterned glass. Each door has 12 lights with textured 'arctic' glass. Cement door threshold.	Bolts (note 2 non original bolts), original bottom bolts on a, b (damaged) & d, and original top bolts on d, and non original top bolts on a, and b. Original extended cabin hooks adjacent a and d. Original hinges, non-original handles, original key escutcheons.	Strip furniture, clean off paint and refinish, re-fix in original locations. Remove non-original bolts. Repair damaged bolt shaft to b to match a.	 

Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
					 
D6	R1 - R9	A 6 panel timber door on extended hinges. Cement door threshold.	Door lock/latch set replaced, hinges original.	Refinish, remove non-original door furniture, replace with selected furniture.	
D7	R1 - R10	A 6 panel timber door.	Door lock/latch set replaced, hinges original.	Refinish, remove non-original door furniture, replace with selected furniture.	

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D8	R1 - R8	An arch headed door with finger timbal ? inset panel at the lower panel with 16 glazed panel with patterned 'arctic' glass.		Refinish, remove non-original door furniture, replace with selected furniture.	
D9	R2 - R6	A 6 panel door.	Original door furniture replaced.	Refinish, remove non-original door furniture, replace with selected furniture.	
D10	R2 - R5	Pair of French doors replaced with 1 opening door and 1 fixed side door. Openable timber fanlight is original.	Fanlight furniture: opening stay and 2 locks. Extended hinges (2).	Install new timber French doors to match original (modelled on D11).	 

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D11	R3 - R5	Pair of French doors with timber 4 light fanlight over - original paired doors sheeted over.	Fanlight opening stays and 2 locks, and French door lock and extended hinges (4).	Remove flush sheeting over original doors (to reveal original doors under?) or install new timber French doors (modelled on D3?)	
D12	R2 - R3	A 6 panel timber door.	Door lock/latch set replaced, hinges original.	Refinish, remove non-original door furniture, replace with selected furniture.	
D13	R3 - R4	A 6 panel door. Timber inserted vent to lower 2 panels.	Original door furniture replaced.	Refinish, remove non-original door furniture, replace with selected furniture.	[Same as D9]
D14 door	R7	18 pane timber door with clear glass (3 panes patterned obscure) and 3 pane fanlight over. Later internal aluminium fly screens installed.	Top and bottom door bolts, hinges, sash opener, fanlight opener and lock. Security bar holder.	Refinish, remove non-original door furniture, replace with selected furniture. Reglaze patterned glass with clear.	

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D14 external shutters	R7		Top and bottom shutter bolts (fixed internally)		
D15 door	R9 - V2	18 pane timber door with clear glass and 3 pane fanlight over. Later internal aluminium fly screens installed.	Top and bottom door bolts, hinges sash opener, fanlight opener and lock. Casement latch. Security bar holder.	Refinish, remove non-original door furniture, replace with selected furniture. Remove later aluminium fly screen. 	   

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D15 external shutters	R9 - V2	Pair of timber louvred shutters (with later aluminium fly screen fixed internally)	Top and bottom shutter bolts (fixed internally)	Refinish, remove non-original door furniture, replace with selected furniture.	
D16 door	R9 - V2	18 pane timber door with clear glass and 3 pane fanlight over. Later internal aluminium fly screens installed. (Note door has swollen and does not open easily.)	Top door bolts, hinges, sash opener, fanlight opener and lock. Casement latch. Security bar holder.	Refinish, remove non-original door furniture, replace with selected furniture. Remove later aluminium fly screen.	
D16 external shutters	R9 - V2	Pair of timber louvred shutters (with later aluminium fly screen fixed internally).	Top and bottom shutter bolts (fixed internally).	Refinish, remove non-original door furniture, replace with selected furniture. Remove later aluminium fly screen.	 

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D17	R9 - R12	A 6 panel door. Granite door threshold.	Retains original door furniture set (handle, key escutcheon & lock mechanism (note: only original surviving door furniture set for internal 6 panel doors?).	Refinish. Retain original door furniture, use as model for door furniture selection for other doors.	 
D18	R2	A framed timber tongue & groove boarding, ledge & brace door with fixed lower timber ventilation grille with fly screen fixed. Base of door has timber weather strip attached.	Security peep hole, 2 hinges (1 hinge not original).	Refinish, remove non-original door furniture, replace with selected furniture.	 
D19/W14	R13	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W14). Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.	Original top and bottom casement bolts and hinges, door cabin hook.	Repair to match original and repaint.	

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D20/W15	R14	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W14) which has a later aluminium flyscreen. Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.	Original top and bottom casement bolts and hinges, door cabin hook.	Repair to match original and repaint.	
D21/W16	R15	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W14). Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.	Original top and bottom casement bolts and hinges, door cabin hook.	Repair to match original and repaint.	
D22	R16	A framed timber tongue & groove boarding, ledge & brace door. Granite door threshold.	Cabin hook, hinges.	Repair to match original and repaint.	

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D23	R17	A later stainless steel door associated with pump station internal mechanisms.	Hinges	Reinstate door to match D22.	
D24	R18 (toilet)	A pair of sheet steel doors with granite threshold.	Hinges	Retain original sheet steel doors, or if required, install matching timber doors to D22.	

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
First Floor					
D25	R20 - R21	6 panel timber door.	Recessed latch and lock mechanism, hinges, replacement door handle?	Refinish, remove non-original door furniture, replace with selected furniture.	
D25a	R21	6 panel timber door.	Recessed latch and lock mechanism, hinges, replacement door handle?	Refinish, remove non-original door furniture, replace with selected furniture.	

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D26	R20-R22	6 panel timber door.	Recessed latch and lock mechanism, hinges, replacement door handle?	Refinish, remove non-original door furniture, replace with selected furniture.	
D27a-d	R20 - R26	A pair of French doors and opening side light doors (a, b, c &d) with patterned glass. Each door has 12 lights with textured 'arctic' glass. Cement door threshold.	Original hinges.	Refinish, remove non-original door furniture, replace with selected furniture.	
D28	R20 - R27	6 panel timber door.	Recessed latch and lock mechanism, hinges, replacement door handle?	Refinish, remove non-original door furniture, replace with selected furniture.	

Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D29	R20	Pair of timber ledge & brace doors.	Surface mounted lock, original brass handle and key escutcheon, top and bottom internal bolts to right hand door, hinges.	Retain all original door furniture. Repaint 	 
D30	R20 - R29	A timber door with single panel below, 16 light upper door with semi-circular head.	Retains hinges, mortice lock and latch set Non original handles.	Refinish, remove non-original door furniture, replace with selected furniture.	
D31	R21	A pair of timber 12 light inward opening French doors with clear glass. Granite threshold.	Hinges, wrought iron catch, iron security bar hooks and cabin hooks to secure doors. Original wrought iron fanlight security bars.	Refinish, remove non-original door furniture, replace with selected furniture. 	 

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D31 external shutters		Pair of timber louvre shutters, later fixed internal aluminium screen.	Top bolt and bottom bolt. Parliament hinges	Retain all original fittings and door furniture. Repaint	
D32	R21	A pair of timber 12 light inward opening French doors with clear glass. Granite threshold.	Hinges, wrought iron catch, iron security bar hooks and cabin hooks to secure doors. Original wrought iron fanlight security bars.	Refinish, retain all original door furniture, replace with selected furniture.	 
D32 external shutters	R21	Pair of timber louvre shutters, later fixed internal aluminium screen.	Top bolt and bottom bolt. Parliament hinges	Retain all original fittings and door furniture. Repaint	

Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D33	R20 - R26	A 6 panel door. Door incorporates timber louvre at base to ventilate bathroom.	Original hinges.	Refinish, remove non-original door furniture, replace with selected furniture.	
D34	R21 - R24	A pair of timber French doors with 4 light fanlight over. Door has been sheeted over to conceal multi-pane glazing.	Wrought iron door catch, parliament hinges, fanlight opening stay.	Remove sheeting over door and reinstate glazed appearance.	 
D35	R22 - R24	A pair of timber French doors with 4 light fanlight over. Door has been sheeted over to conceal multi-pane glazing.	Wrought iron door catch, parliament hinges, fanlight opening stay.	Remove sheeting over door and reinstate glazed appearance.	[Same as D35]

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D36	R22 - R21	6 panel timber door.	Recessed latch and lock mechanism, hinges, replacement door handle?	Refinish, remove non-original door furniture, replace with selected furniture.	
D37	R22 - R25	A 6 panel door. Door incorporates timber louvre at base to ventilate bathroom.	Original hinges.	Refinish, remove non-original door furniture, replace with selected furniture.	
D38	R26	An 18 paned glazed door with 3 paned fanlight over. Door has external timber side hung shutter. Later aluminium flyscreen to fanlight.	Hinges, top bolts, bottom bolts, external cabin hook. Internal door has no original door furniture (top and bottom bolt later). Original wrought iron fanlight security bars.	Refinish internal door, remove non-original door furniture, replace with selected furniture. Repaint shutters. Retain all original fittings and door furniture.	 

Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D39	R27	Timber 12 light inward opening French doors with 4 pane fanlight over. Original wrought iron security bars to fanlight. Later aluminium fly screen to fanlight.	Door handles and door bolts not original, hinges original, iron security bar brackets.	Refinish internal doors, remove non-original door furniture, replace with selected furniture. Reinstate shutters. Retain all original fittings and door furniture.	
D40	R27	Timber 12 light inward opening French doors with 4 pane fanlight over. Original wrought iron security bars to fanlight. Later aluminium fly screen to fanlight.	Wrought iron door catch/handle, door bolts not original, hinges original, iron security bar brackets.	Refinish internal doors, remove non-original door furniture, replace with selected furniture. Reinstate shutters. Retain all original fittings and door furniture.	 

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D41	R27 - R29	Small 6 panel door providing access to R29.	Hinges	Refinish, remove non-original door furniture, replace with selected furniture.	
D42	S2 - R28	Timber ledge & brace door pair.	Handle and surface mounted latch and lock set, hinges.	Repaint, retain original door furniture.	
D42a	R28	A framed timber tongue & groove boarding, ledge & brace door with fixed lower timber ventilation grille with fly screen fixed. Base of door has timber weather strip attached.	Nil	Repair or remake door to match original, install selected door furniture.	 

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D43		A framed timber tongue & groove boarding, ledge & brace door	Original top and bottom casement bolts and hinges, door cabin hook	Repair to match original and repaint.	[Same as D42a]
D44/W27	R30	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W27). Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.	Original top and bottom casement bolts and hinges, door cabin hook.	Repair to match original and repaint.	
D45/W28	R31	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W31) which has a later aluminium flyscreen. Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.	Original top and bottom casement bolts and hinges, door cabin hook.	Repair to match original and repaint.	

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D46/W29	R32	A framed timber tongue & groove boarding, ledge & brace door with attached 6 light side hung casement window (W32). Casement window has built in iron security bars and granite sill. Sections of door jamb/frame are rotten. Granite door threshold.	Original top and bottom casement bolts and hinges, door cabin hook.	Repair to match original and repaint.	
D47	R33	A framed timber tongue & groove boarding, ledge & brace door. Granite door threshold.	Nil	Repair to match original and repaint.	
D48	R34	A framed timber tongue & groove boarding, ledge & brace door. Granite door threshold.	Nil	Repair to match original and repaint.	

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Door number	Location	Description (including later changes)	Original door furniture	Recommendations	Views of doors - internal/external/detail
D49	R35 (toilet)	A pair of sheet steel doors with granite threshold.	Hinges	Retain original sheet steel doors, or if required, install matching timber doors to D48.	

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Part 7 – Heritage Impact Assessment for Workmen's Quarters

7.1 Potential Impact and Mitigation Measures on the External Appearance

This section is to evaluate the proposed treatments and any potential impact on the "external appearance" being affected by the design for the adaptive re-use of the building and to suggest mitigation measures to reduce any adverse impact as necessary.

7.1.1 Impact assessment on external appearance –

(a) Integrating the building with the Centennial Campus –

Plan

Light-weight glass box structure for connection to the campus building

Covered walkway for connecting to the walkway to the elevators to MTR

Front (south) elevation

- A covered walkway will be added on the east side to connect to the covered walkway to the elevators to the MTR.
- A light-weight glass box structure will be added at the west side providing a weatherproof connection to the Centennial Campus building.
- A glass balustrade will be added in front of the verandah due to the level different between the floor level of the verandah and the entry plaza

exceeds 600 mm.

(b) Impact assessment –

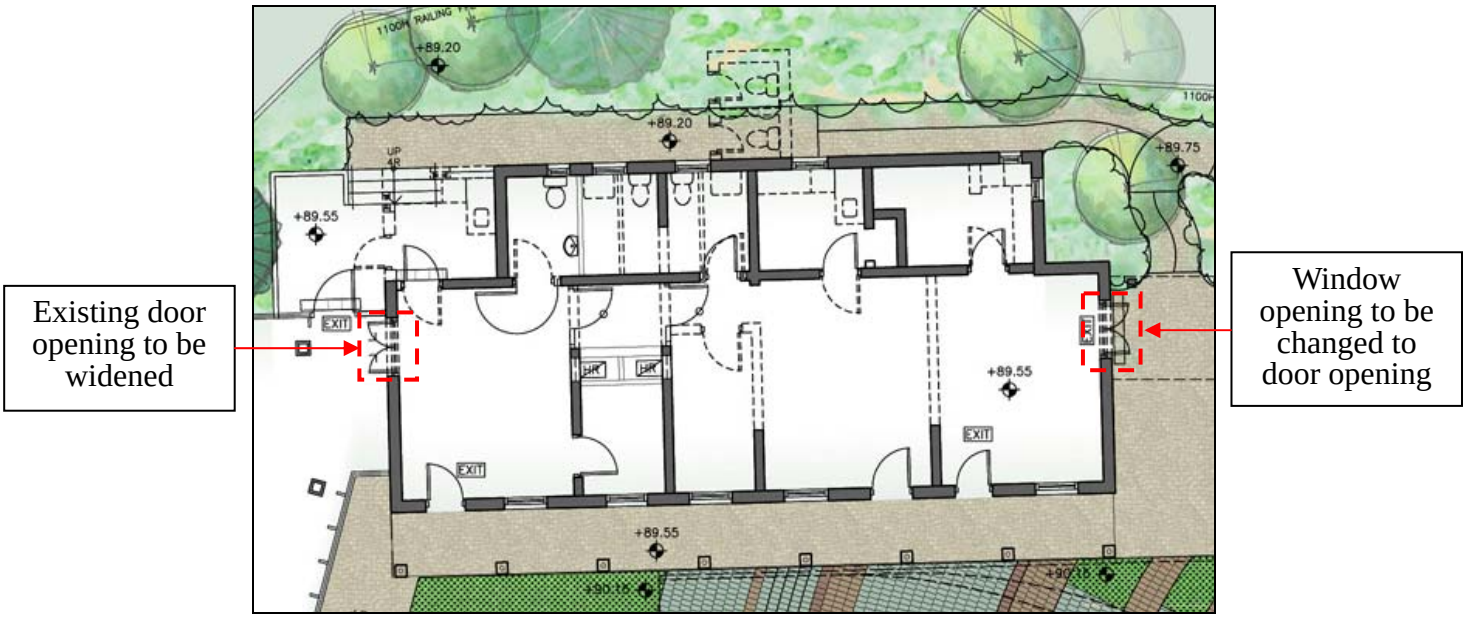
- Impact assessment – low, because of the following reasons.
- The front elevation remains un-obstructed.
- These two new structures are self-standing and the connection with the heritage building will not chase into the existing red facing brickwork.
- The glass balustrade is fixed on the entry plaza and not in the verandah of the historic building.

(c) Mitigation measures recommended –

- Photographic record of the elevations taken before the work.
- Close site supervision to ensure that the red facing brickwork is not damaged during construction.

7.1.2 Impact assessment on door and window openings on the side elevations –

(a) Widening of existing door opening and conversion of window opening to door opening for wheelchair users –



Ground floor plan showing the door and window openings at the side elevations to be altered

- Conversion of window opening on east elevation for providing access to satisfy the requirements for "universal accessibility" to the covered

walkway linking to the elevators to MTR.

- Widening of door opening on west elevation for providing the route for "universal accessibility" for connection to the light-weight glass box structure linking to the campus building.

(b) Impact assessment –

- Conversion of window opening to door opening at east elevation – medium impact to the elevation and low impact to the building structure.
- Widening of door opening at west elevation – low impact to the elevation and structure.

(c) Mitigation measures recommended –

- Set up monitoring check points to monitor condition of the structure during the construction work.
- The existing and new positions of the openings to be documented.
- The new doors shall be distinguishable from the existing, but compatible with the architectural style of the building.

7.2 Potential Impact and Mitigation Measures on the Internal Layout

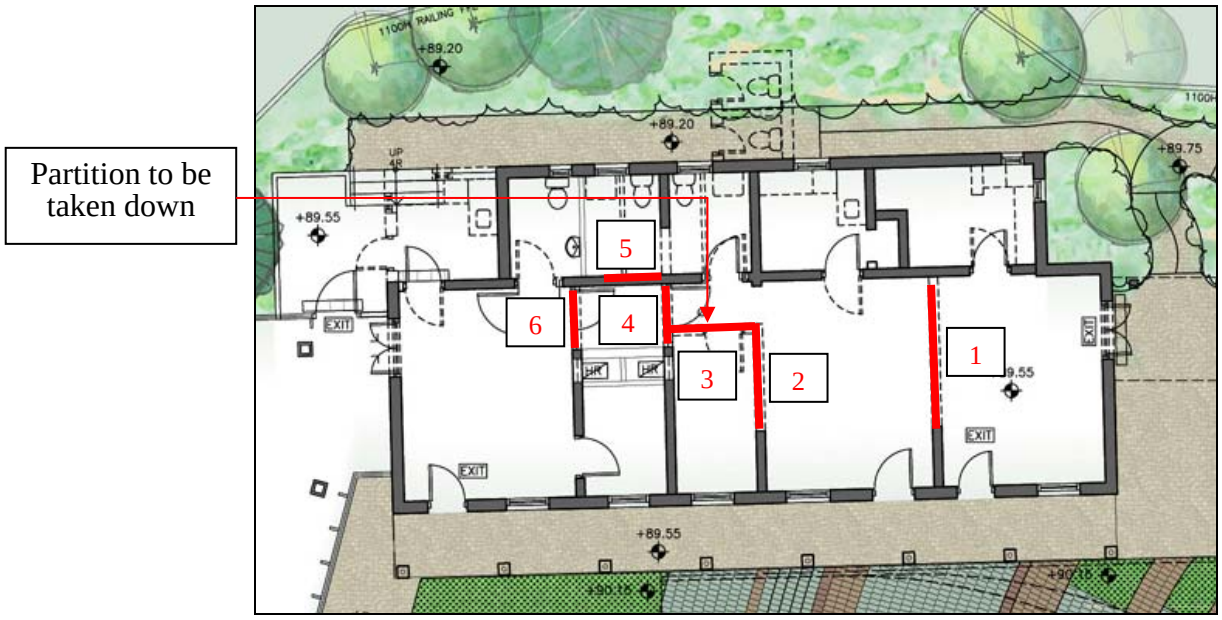
This section is to evaluate the proposed treatments and any potential impact on the "internal layout" being affected by the design for the adaptive re-use of the building and to suggest mitigation measures to reduce any adverse impact as necessary.

7.2.1 Impact assessment in the internal layout –

(a) Alteration to the internal layout for the new usage –

- New openings have to be formed on the internal cross walls for the new usage and providing the "universal accessibility" route form the MTR elevators through the light-weight glass box structure to the campus building.
- The strengthening proposal for the formation of the opening on the internal cross walls has been prepared by the Structural Engineer.

Part 7 – Heritage Impact Assessment for Workmen's Quarters



New internal layout with new opening to be formed marked in red

(b) Impact assessment –

- These openings changed the original layout.
- Opening 1 – low impact, because the in-filling partition which the opening is to be formed is not an original partition.
- Opening 2 – high impact, because the in-filling partition which the opening is to be formed is an original partition.
- Opening 3 – low impact, because it is the taking down of a later added partition.
- Opening 4 – low impact, because it is the opening up of a blocked up opening.
- Opening 5 – low impact, because it is the opening up of a blocked up opening.
- Opening 6 – medium impact, due to the small size of the opening.

(c) Mitigation measures recommended –

- Set up monitoring check points to monitor condition of the structure during the construction work.
- The existing and new positions of the openings to be documented.
- A 100 mm width wall reveal shall be left at the north side (wall along new store) to reflect the position of the original wall.

Part 7 – Heritage Impact Assessment for Workmen's Quarters

7.3 Potential Impact and Mitigation Measures on the Character Defining Elements

This section is to evaluate the proposed treatments and any potential impact on the "character defining elements" being affected by the design for the adaptive re-use of the building and to suggest mitigation measures to reduce any adverse impact as necessary.

7.3.1 Impact assessment on "roof" repair –

(a) The works on the repair of the roof include –

- Double layer pan and double layer roll tiling (雙筒雙瓦) –
  - Replacement of all the pan tiles because the top surface of the pan tile on the upper layer has been painted with bituminous paint (which is impossible to remove), and the lower layer of pan tiles begin to deteriorate, and
  - Replace with a higher quality pan tile engraved with the year of restoration work (2012 HKU Centennial Campus) at the underside of the pan tile.
- Granite coping on top of the gable wall –
  - Cleaning of the granite coping, and
  - Re-pointing of the joints.
- Brick chimney –
  - Cleaning of the brickwork,
  - Replace the deteriorated bricks by the method of "dentist replacement of brickwork",
  - Re-pointing of the joints, and
  - Block up the chimney properly to ensure no ingress of water.
- Exposed timber roof truss structural supporting system –
  - Replace the defective timber members,
  - The size of the replacement timber members will be kept to the existing dimensions unless due to structural reasons, and
  - Hardwood will be used in the replacement work.

(b) Impact assessment –

- Impact level – minimal, because the appearance and construction of the roof is not changed.

(c) Mitigation measures recommended –

- Dimensions of the existing timber roof members properly recorded.

7.3.2 Impact assessment on repair of "external facing brickwork" –

(a) The works on the repair of the "external facing brickwork" include –

- Cleaning of the brickwork,
- Replace the deteriorated bricks by the method of "dentist replacement of brickwork", and
- Re-pointing of the joints.

(b) Impact assessment –

- Impact level – minimal.

(c) Mitigation measures recommended –

- Record the positions of the deteriorated bricks replaced.

7.3.3 Impact assessment on repair/new works to façade verandah –

(a) The repair/new works on the façade verandah include –

- Roof repair as in section 7.3.1,
- Cleaning and repair of the cast iron eaves gutter and rainwater downpipe, and
- Clean and re-paint cast iron pillar, and
- R-pave the verandah floor with new finishes.

(b) Impact assessment –

- Impact level – low, because the appearance and construction of the façade verandah is not change.

(c) Mitigation measures recommended –

- The granite pillar base should not be embedded in the raised floor, the top should be exposed.
- The new floor finishes to the verandah should also be of a "rustic" appearance.

7.3.4 Impact assessment on repair of timber window –

(a) Repair of the timber window include –

- Repair of the defective timber window including frame and replace if beyond repair,
- Change the existing colour to natural finishes or colour compatible with the design scheme of the building,
- Since most of the ironmongeries are later date replacement, replace the ironmongeries,
- Removal of the vertical anti-burglar bars, and
- Cleaning of the granite cill and lintol, and re-point the joints.

(b) Impact assessment –

- The impact level to the timber window – low.
- The vertical iron anti-burglar bars are original building components and impact is medium.

(c) Mitigation measures recommended –

- Take photo record and prepare measured drawings of the vertical iron anti-burglar bars.
- Take photo record of the existing ironmongeries.

7.3.5 Impact assessment on repair of timber door –

(a) Repair of the timber door include –

- Repair of the defective timber door including frame and replace if beyond repair,
- Change the existing colour to natural finishes or colour compatible with the design scheme of the building,
- Since most of the ironmongeries are later date replacement, replace the ironmongeries,
- Cleaning of the granite threshold and steps.

(b) Impact assessment –

- Impact level – low.

(c) Mitigation measures recommended –

- Take photo record of the existing ironmongeries.

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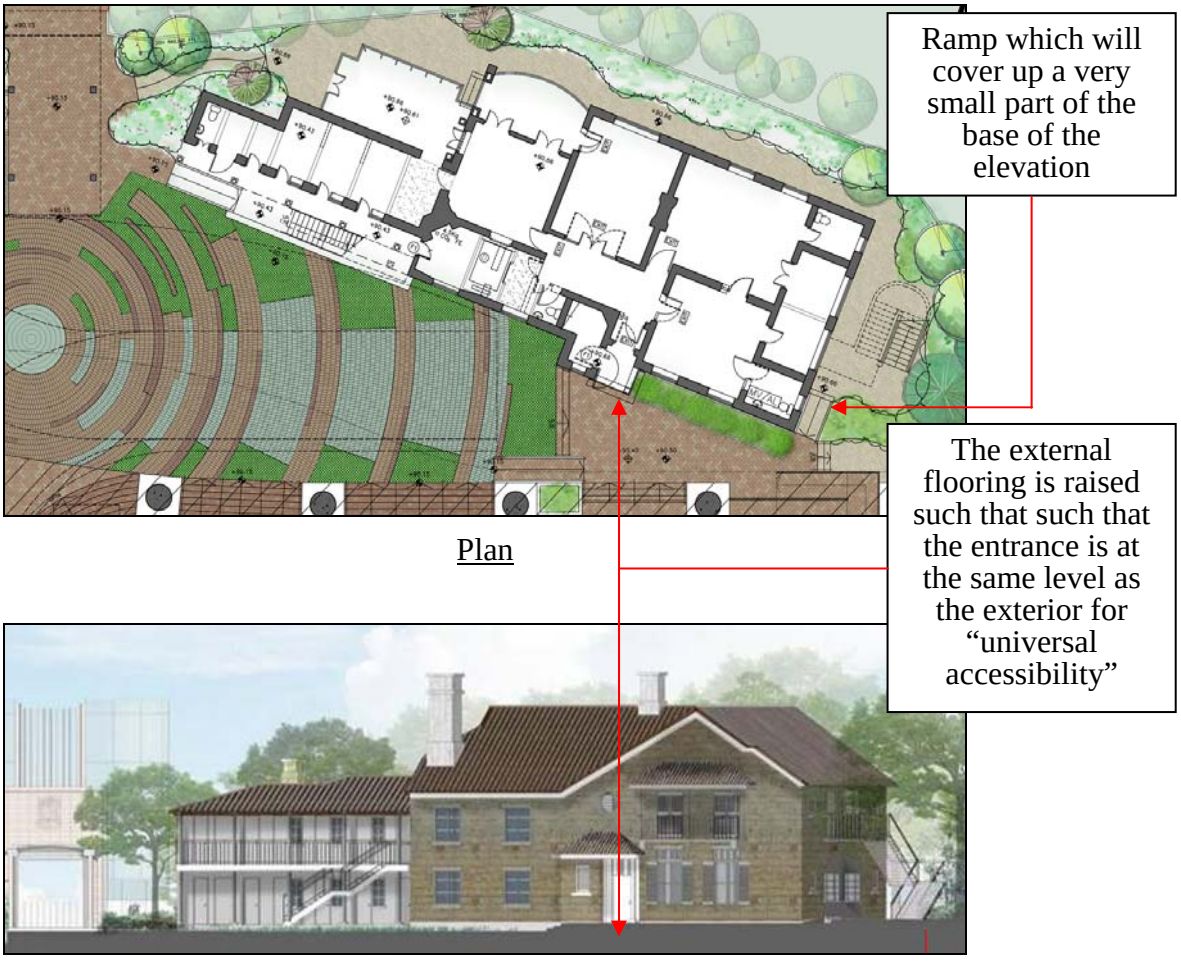
Part 8 – Heritage Impact Assessment for Senior Staff Quarters

8.1 Potential Impact and Mitigation Measures on the External Appearance

This section is to evaluate the proposed treatments and any potential impact on the "external appearance" being affected by the design for the adaptive re-use of the building and to suggest mitigation measures to reduce any adverse impact as necessary.

8.1.1 Impact assessment on external appearance –

(a) Integrating the building with the Centennial Campus –



Plan

Front (south) elevation

- The external floor level is raised so that the entrance is at the same level as the external paving to facilitate wheelchair user.
- A ramp is added at the east side of the building.

(b) Impact assessment –

- Impact assessment – low, because there is only change to the part of the façade (east side of the façade) and covered up small part of the base of the

east elevation.

(c) Mitigation measures recommended –

- Photographic record of the elevations of the heritage building taken before the work.
- The design and material of the new ramps and necessary floor level changes for barrier free access on ground floor will be an independent structure discernible from the original historic building fabric.
- The raised external floor (at façade) and ramp 9at east elevation) shall not be in contact with the original skirting of the external wall to prevent surface water seepage into the wall.
- The existing surface water at the edge of the building shall be maintained to collect the surface water that may and prevent ingress of water into the building, and light weight materials such as steel/glass reinforced fabric grating shall be used in lieu of concrete to avoid additional modifications works to the existing surface water drainage system.
- A planter is designed at the façade (east part) such that the vegetation acts as the "buffer" between the paving and the building.

8.1.2 Impact assessment on addition of external staircase at the east elevation –

(a) There is only one timber staircase for access to the first floor after the addition and alteration work and the addition of this staircase will be one of the means of escape staircases –

Plan with new external staircase boxed in red

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View of external staircase at east elevation with trees removed

- Addition of external staircase at east elevation.
- Forming of access opening at east elevation of first floor.

(b) Impact assessment –

- Forming of the opening at first floor of east elevation, impact – low because the position of the opening is a later in-fill wall to enclose the open verandah.
- Visual impact – low because the surrounding will be landscape with trees.

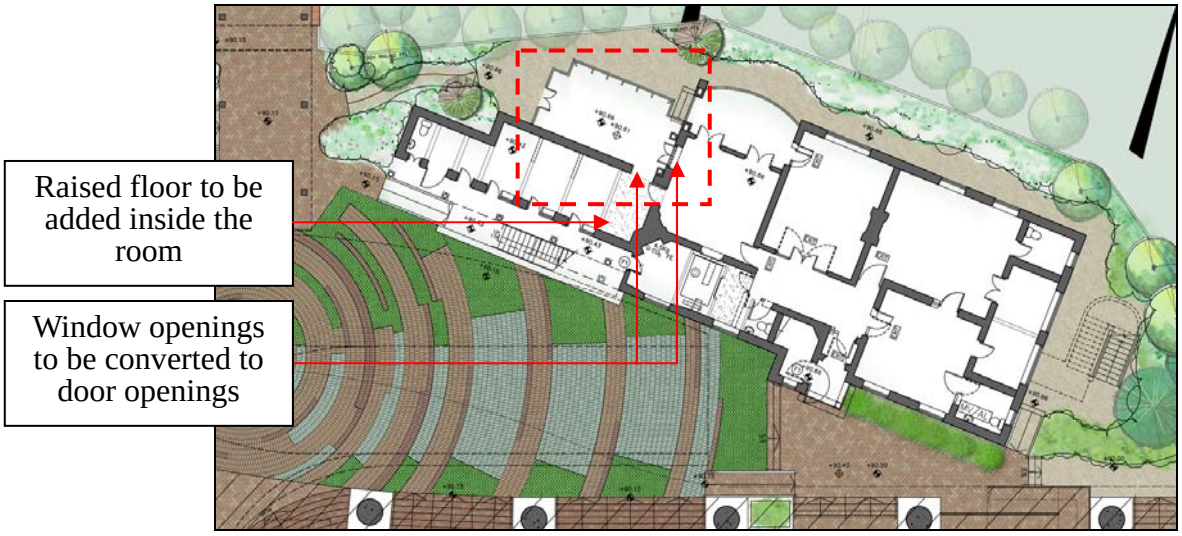
View of external staircase at east elevation with landscaping

(c) Mitigation measures recommended –

- The position of the new opening to be documented.
- The finishes of the external staircase shall be distinguishable form the existing building.

8.1.3 Impact assessment on addition of light-weight glass box at rear (north) elevation –

(a) Addition of light-weight glass box at ground floor of rear (north) elevation –



Plan with the addition light-weight glass box boxed in red

View of light-weight glass box at rear (north) elevation with trees removed

- A 1-storey high multi-purpose function room is to be added at the rear (north) elevation, which serves as the reception room in the ground floor.

- Two existing window openings will be converted to door openings for access from interior.
- The floor in the small room in servant's annex shall be raised by the addition of raised floor.

(b) Impact assessment –

- Visual impact – low because the surrounding will be landscape with trees.

View of light-weight glass box at rear (north) elevation with landscaping

(c) Mitigation measures recommended –

- The light-weight glass box shall be an independent structure from the existing building to avoid adverse structural impact to the existing. It should also be reversible in nature.
- The glass box shall be of light weight glass construction to minimize the visual impact to the building form.
- The external granite block wall which becomes the interior wall of the glass box should not be covered up, i.e. plastered or covered with furring.
- Any chasing into the external granite block wall shall be along the joints only.
- Any changes on floor level shall be made by the installation of removable raised floor system and not concreter filling is allowed.

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8.1.4 Impact assessment on enclosing the ground floor rear verandah at rear (north) elevation –

(a) Addition of glass panel to enclose the verandah.

(b) Impact assessment –

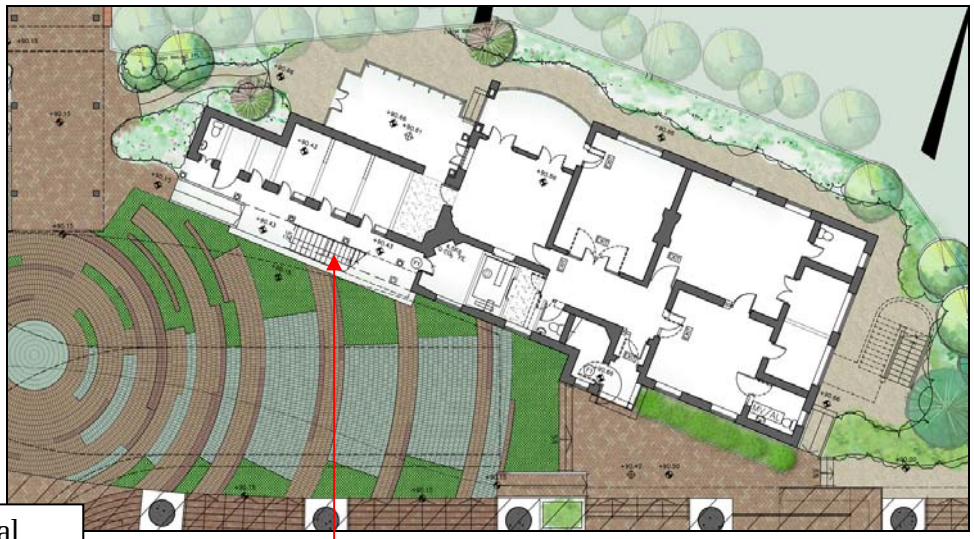
- Visual impact – low because the surrounding will be landscape with trees.

(c) Mitigation measures recommended –

- The existing verandah to be documented.
- The existing granite planter at the edge of the verandah shall not be demolished.

8.1.5 Impact assessment on the modification to the external reinforced concrete staircase at the servant's annex –

(a) Addition of staircase as means of escape route for first floor –



Plan

The external reinforced concrete staircase is to be modified

Front (south) elevation

- The existing reinforced concrete staircase is the only access to the first floor of the servant's annex after the addition and alteration work.
- This staircase could not satisfy the statutory requirements on width, height of the treads and width of the risers, height and strength of the balustrade, as a means of escape staircase.
- It is recommended to re-construct this staircase to become the sole means of escape staircase, rather than the addition of another staircase.

(b) Impact assessment –

- Impact level – high.

(c) Mitigation measures recommended –

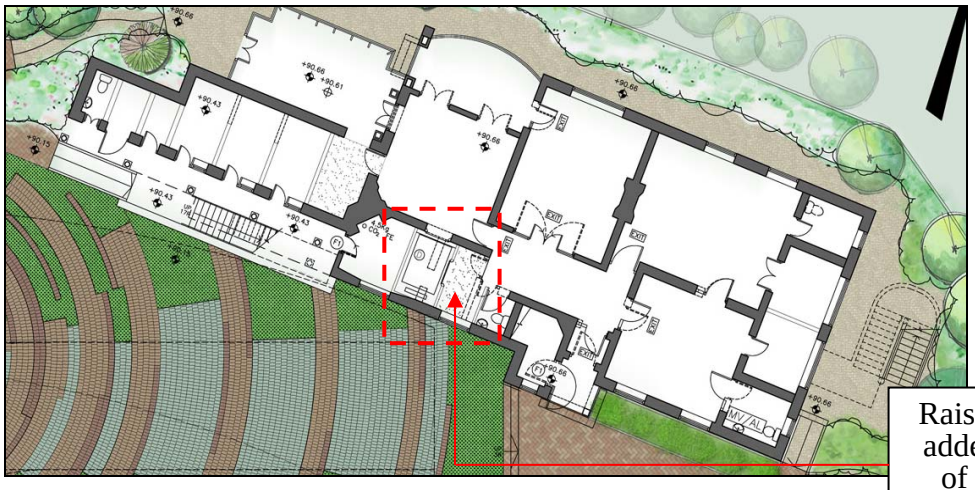
- The existing staircase to be documented.
- The design of the re-constructed staircase shall follow the architectural detail of the existing.

8.2 Potential Impact and Mitigation Measures on the Internal Layout

This section is to evaluate the proposed treatments and any potential impact on the "internal layout" being affected by the design for the adaptive re-use of the building and to suggest mitigation measures to reduce any adverse impact as necessary.

8.2.1 Impact assessment in the addition of wheelchair platform at the interior –

(a) Addition of wheelchair platform at the interior for wheelchair users –



Ground floor – new internal layout with wheelchair platform boxed in red

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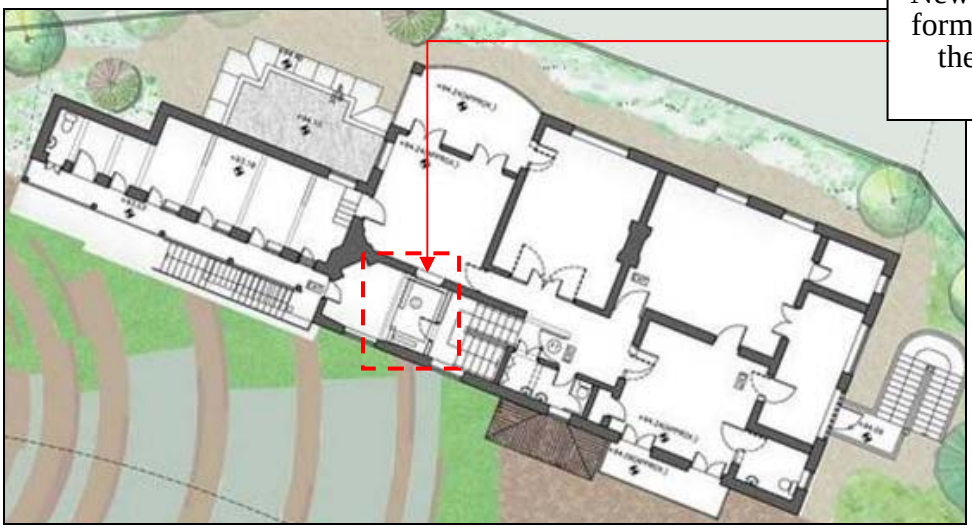

First floor – new internal layout with wheelchair platform boxed in red

- Forming of new shaft including excavation of pit for the wheelchair platform.
- Part of the floor in the existing kitchen at ground floor shall be raised by the addition of raised floor.
- Forming of new wheelchair platform opening at first floor.
- Forming of new openings for the wheelchair platform door,

(b) Impact assessment –

- Impact level – high because structural alteration works will be needed.

(c) Mitigation measures recommended –

- Set up monitoring check points to monitor condition of the structure during the construction work.
- The existing and new positions of the openings to be documented.
- If the wheelchair platform is added as an exterior structure, it will create greater visual impact with a high structure (with the top overrun) adjoining the external wall.
- Any changes on floor level shall be made by the installation of removable raised floor system and not concreter filling is allowed.

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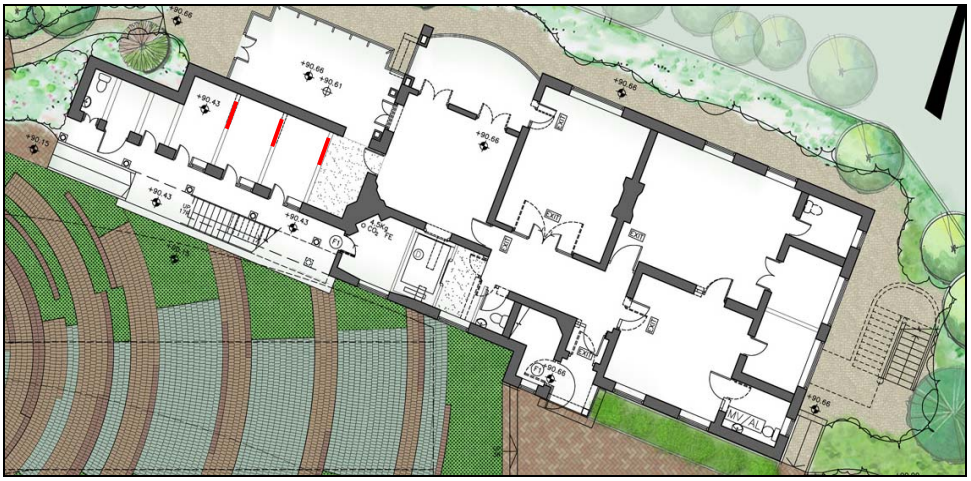
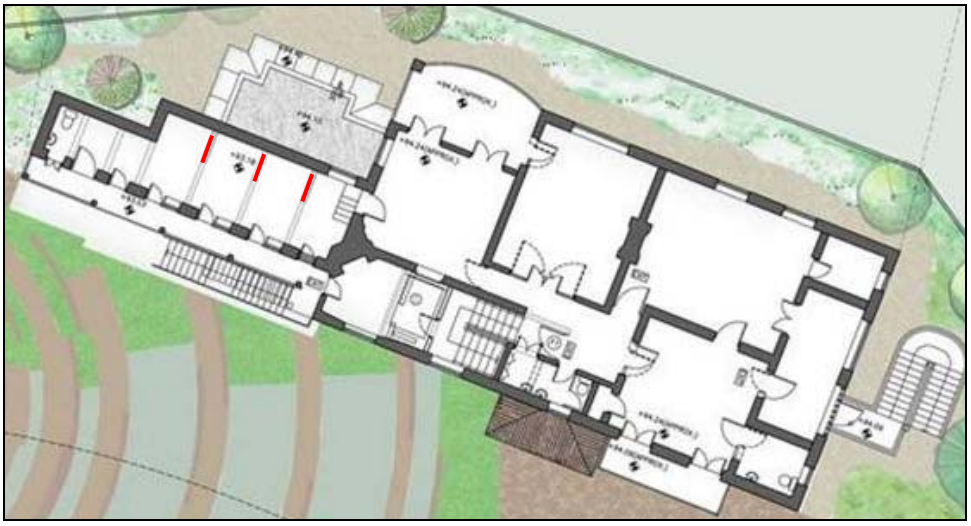
8.2.2 Impact assessment in the forming of new opening in the internal layout –

(d) Alteration to the internal layout for the new usage –



Ground floor – new internal layout with new opening to be formed marked in red



First floor – new internal layout with new opening to be formed marked in red

- New openings have to be formed on the partitions for the adaptive re-use scheme.
- The strengthening proposal for the formation of the opening on the partitions has been prepared by the Structural Engineer.

(e) Impact assessment –

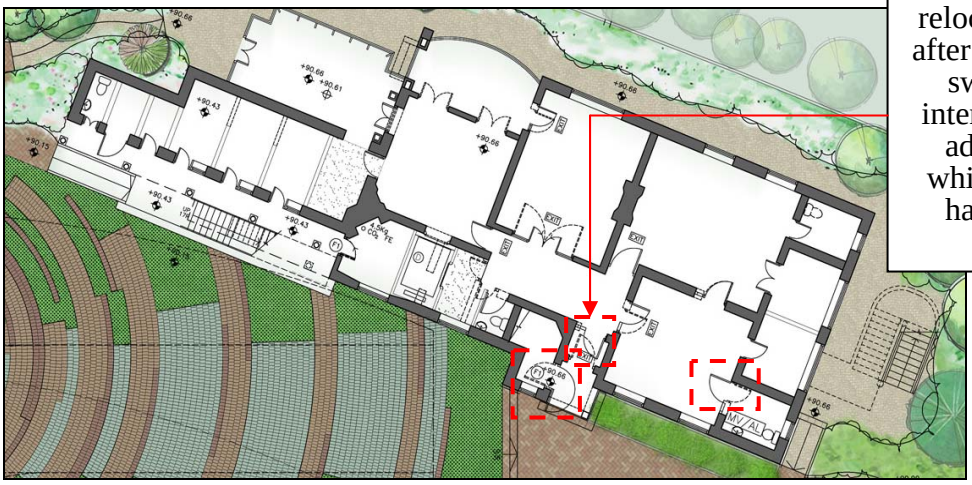
- New openings to partitions – medium impact to the building structure since structural strengthening will be needed, and the original room layout changed.

(f) Mitigation measures recommended –

- Set up monitoring check points to monitor condition of the structure during the construction work.
- The existing and new positions of the openings to be documented.

8.2.3 Impact assessment in the widening of door opening for wheelchair user –

(a) Alteration to the internal layout for the wheelchair users –



Ground floor – new internal layout with the swing of the door to be reversed boxed in red

First floor – new internal layout with the swing of the door to be reversed boxed in red

- Reverse of the swing of door for wheelchair user.
- Relocation of the ground floor entrance door because after the reverse in swing, it will interfere with the adjacent door (entrance door to first floor)

which the swing has also to be reversed.

- Proposal for wheelchair users to be entered from the verandah at rear elevation has been rejected because the wheelchair users have to enter the building at the main entrance as the other users.

(b) Impact assessment –

- Reverse of the swing of the door – medium impact.

(c) Mitigation measures recommended –

- The existing and new positions of the ground floor entrance door to be documented.
- Any new door shall follow the architectural details of the existing door.

8.3 Potential Impact and Mitigation Measures on the Character Defining Elements

This section is to evaluate the proposed treatments and any potential impact on the "character defining elements" being affected by the design for the adaptive re-use of the building and to suggest mitigation measures to reduce any adverse impact as necessary.

8.3.1 Impact assessment on "roof" repair –

(a) The works on the repair of the roof include –

- Double layer pan and double layer roll tiling (雙筒雙瓦) –
  - Replacement of all the pan tiles because the top surface of the pan tile on the upper layer has been painted with bituminous paint (which is impossible to remove), and the lower layer of pan tiles begin to deteriorate, and
  - Replace with a higher quality pan tile engraved with the year of restoration work (2012 HKU Centennial Campus) at the underside of the pan tile.

- Hip ridge with "ox horn" end –
  - Carefully take down the "ox horn" end before taking down the roof tiles, and
  - Connect the "ox horn" to the rendered hip roll tiling.
- Brick chimney –

- Cleaning of the granite blocks,
- Re-pointing of the joints, and
- Block up the chimney properly to ensure no ingress of water.

- Exposed timber roof truss structural supporting system –
  - Replace the defective timber members,
  - Remove the later date added steel frame support,
  - The size of the replacement timber members will be kept to the existing dimensions unless due to structural reasons, and
  - Hardwood will be used in the replacement work.
- Cast iron eaves gutter and rainwater downpipe –
  - Cleaning and repair of the cast iron eaves gutter and rainwater downpipe, and
  - Replace the damaged and missing components, e.g. swan-neck bends and rainwater hopper.

(b) Impact assessment –

- Impact level – minimal, because the appearance and construction of the roof is not changed.

(c) Mitigation measures recommended –

- Dimensions of the existing timber roof members properly recorded.

8.3.2 Impact assessment on repair of granite block external wall –

(a) The works on the repair of the granite block external wall include –

- Cleaning of the brickwork, and
- Re-pointing of the joints.

(b) Impact assessment –

- Impact level – minimal.

(c) Mitigation measures recommended –

- Nil.

8.3.3 Impact assessment on repair/new works to first floor façade verandah –

(a) The repair/new works on the first floor façade verandah include –

- Roof repair including the "ox horn" ends of the hip ridges as in section 8.3.1,
- Cleaning and repair of the cast iron eaves gutter and rainwater downpipe, and
- Clean and re-paint cast iron pillar.

(b) Impact assessment –

- Impact level – minimal low, because the appearance and construction of the first floor façade verandah is not changed.

(c) Mitigation measures recommended –

- Nil.

8.3.4 Impact assessment on repair/new works to first floor verandah at servant's annex –

(a) The repair/new works on the first floor verandah at servant's annex include –

- Roof repair including the "ox horn" ends of the hip ridges as in section 8.3.1,
- Cleaning and repair of the cast iron eaves gutter and rainwater downpipe, and
- Clean and re-paint cast iron pillar.

(b) Impact

- Impact level – minimal, because the appearance and construction of the first floor verandah at servant's annex is not changed.

(c) Mitigation measures recommended –

- Nil.

8.3.5 Impact assessment on new works to first floor verandah at rear elevation –

(a) The new works on the first floor verandah at rear elevation include –

- Repair of the timber suspended ceiling with pattern grille at the four corners including replacement of the defective parts beyond repair,
- Cleaning of the granite pillar and corbel, and

(b) Impact assessment –

- Impact level – low.

(c) Mitigation measures recommended –

- The mosaic tile floor finishes should be restored.

8.3.6 Impact assessment on works to entrance porch –

(a) The works on the ground floor entrance porch include –

- Repair of the timber suspended ceiling including replacement of the defective parts beyond repair,
- Cleaning of the granite block pillar and flooring, and re-pointing of the joints,
- Repair of the timber door to first floor including frame, and
- Replace the later added/altered ironmongeries.

(b) Impact assessment –

- Impact level – low, because the external appearance is not changed.

(c) Mitigation measures recommended –

- The granite floor should not be embedded in the raised external flooring, the top should be exposed, and
- Take photo record of the existing ironmongeries.

8.3.7 Impact assessment on repair of timber window and jalousies –

(a) Repair of the timber window and jalousies include –

- Repair of the defective timber window including frame and replace if beyond repair,
- Repair of the defective timber jalousies and replace if beyond repair, and
- Since most of the ironmongeries are later date replacement, replace the ironmongeries.

(b) Impact assessment –

- Impact level – low.

(c) Mitigation measures recommended –

- Take photo record of the existing ironmongeries.

Part 8 – Heritage Impact Assessment for Senior Staff Quarters

8.3.8 Impact assessment on repair of timber door –

(a) Repair of the timber door include –

- Repair of the defective timber door including frame and replace if beyond repair, and
- Since most of the ironmongeries are later date replacement, replace the ironmongeries.

(b) Impact assessment –

- Impact level – low.

(c) Mitigation measures recommended –

- Take photo record of the existing ironmongeries.

8.3.9 Impact assessment on repair of fireplace –

(a) Repair of the fireplace include –

- Restoration of the fascia of the fireplace.

(b) Impact assessment –

- Impact level – minimal because the fireplace has been altered.

(c) Mitigation measures recommended –

- Take photo record of the fireplace before the work.

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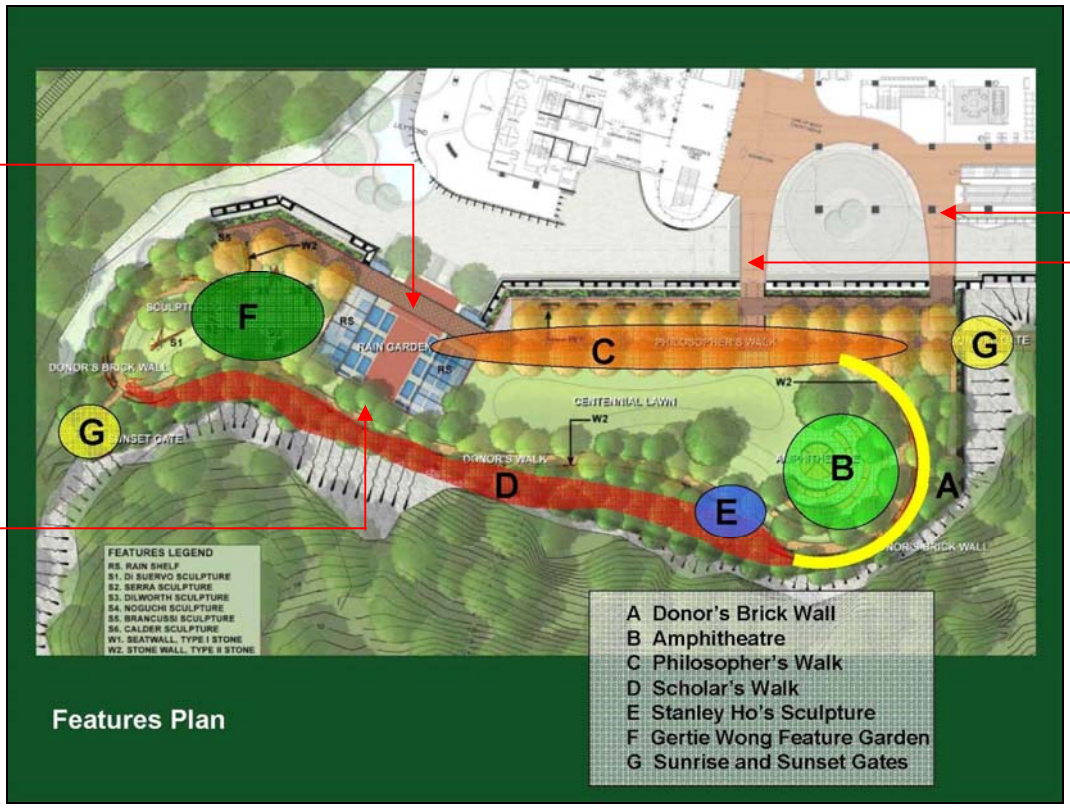
Part 9 – The Design of the Landscape Deck at Top of the Reservoirs

9.1 The Landscape Deck

The top of the two fresh water reservoirs are proposed to be landscape decks which will be the only bigger-scale landscaped space in the Centennial Campus with features, (the features are shown in section 9.2). The access to the landscape deck on top of the east side fresh water reservoir will be connected to the Centennial Campus building by two bridges at the same level such that the decks serve as the extension to the facilities to the building.

Bridge at facade of Treatment Works Building

Bridge at rear of Treatment Works Building



Two bridges connecting the landscape deck to the Centennial Campus building

Reservoir Top Landscape Deck Features Plan

Two bridges are designed to connect the two landscape decks such that the two decks are inter-connected and integrated as one landscape garden, and also forming a circulation route at the perimeter.

Part 9 – The Design of the Landscape Deck at Top of the Reservoirs

Diagram showing the two bridges spanning above
the façade and rear at the Treatment Works Building

9.2 Features of the Landscape Deck

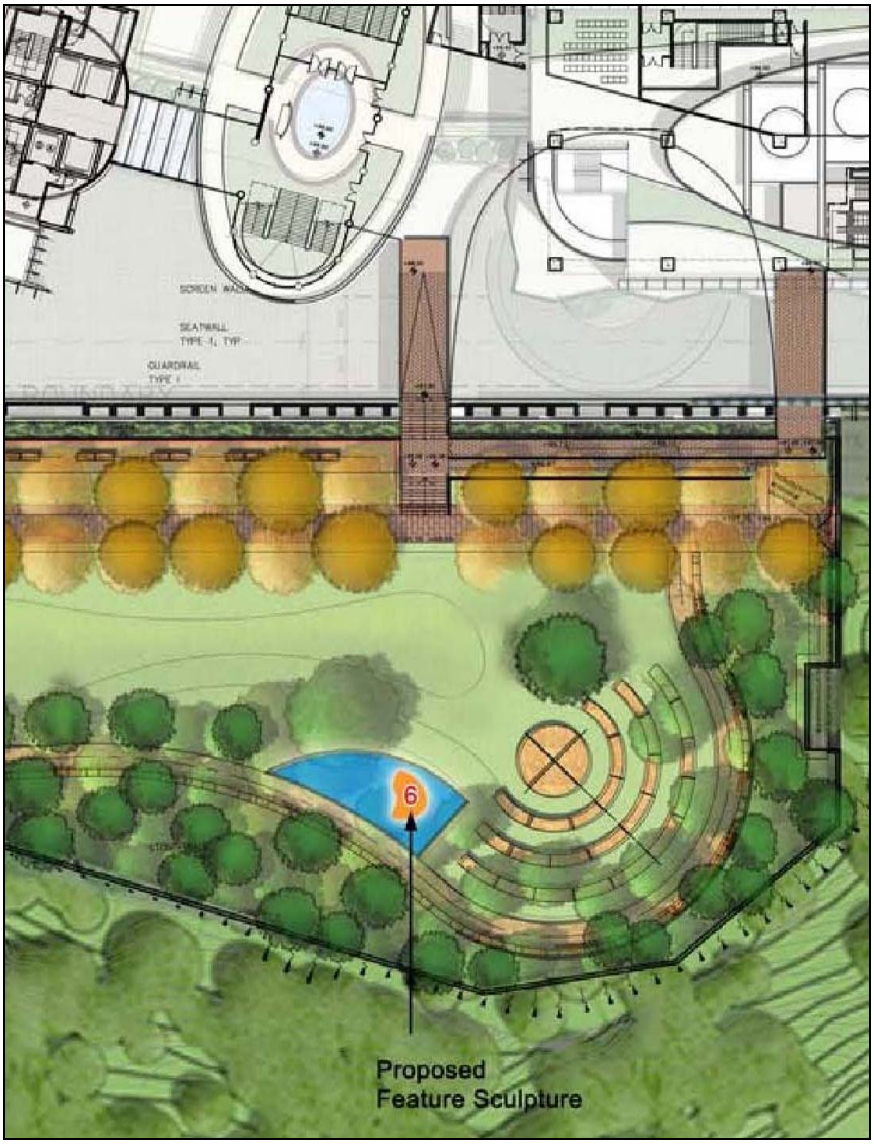
Features (A) and (B) – Amphitheatre and Donor's Brick Wall

Part 9 – The Design of the Landscape Deck at Top of the Reservoirs

Feature (C) – Philosopher's Walk

Feature (D) – Scholar's Walk

Part 9 – The Design of the Landscape Deck at Top of the Reservoirs



Feature (E) – Sculpture Garden

Feature (G) – Sunrise and Sunset Gate

****

Part 10 – Heritage Impact Assessment for Treatment Works Building

10.1 Potential Impact and Mitigation Measures on the Setting

This section is to evaluate the proposed treatments and any potential impact on the "setting" of the historic building being affected by the two bridges and to suggest mitigation measures to reduce any adverse impact as necessary.

(a) The Treatment Works Building has never been opened to the public. With the opening of the Centennial Campus, the public will recognize the historic building and the two bridges provide the opportunity for the public to have an aerial view of the historic building.

View of Treatment Woks Building with the bridge spanning at the façade

View of Treatment Woks Building with the two bridges

(b) Impact assessment – low because the setting of the historic building (including the filters beds at both sides) are not disturbed and the two bridges are designed to be built at a level higher than the roof of the front four level "tower".

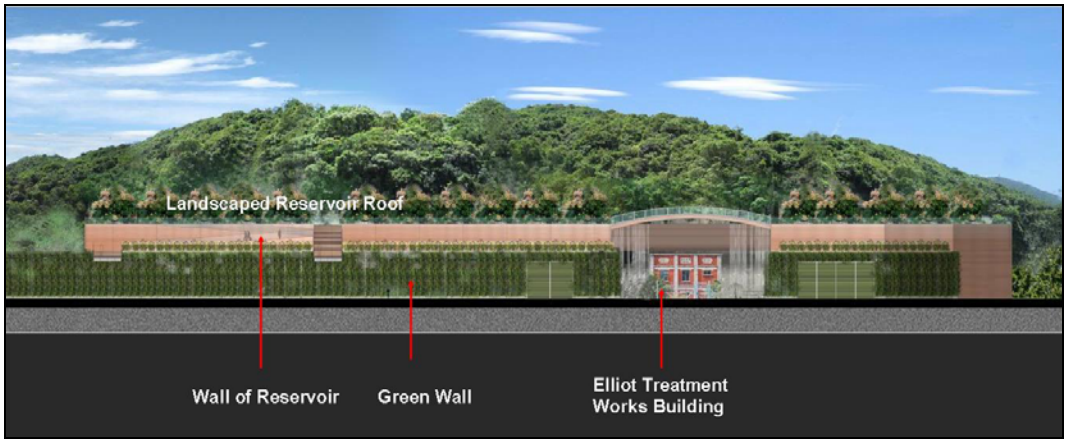
(c) Mitigation measures recommended –

- Photographic record of the elevations of the historic building taken before the work.
- Close site supervision to ensure that the historic building is not affected during the construction of the two bridges.

5.1 Potential Impact and Mitigation Measures on the Façade (Front Elevation)

This section is to evaluate the proposed treatments and any potential impact on the "façade (front elevation)" being affected by the bridge and to suggest mitigation measures to reduce any adverse impact as necessary.

(a) The bridge spanning across the façade is designed as an arch bridge such that the view to the historic building would not be obstructed rather as a gesture to high-light the significance of the building.



Treatment Works Building façade with the "arch bridge" spanning on top

(b) Impact assessment – low because the visual impact is minimal when one is looking at the historic building on the ground.

(c) Mitigation measures recommended –

- The materials for the construction of the bridge should be differentiable from the historic building.
- Interpretation panels to be installed at the façade of the historic building and on the bridge.

5.2 Potential Impact and Mitigation Measures on the Rear Elevation

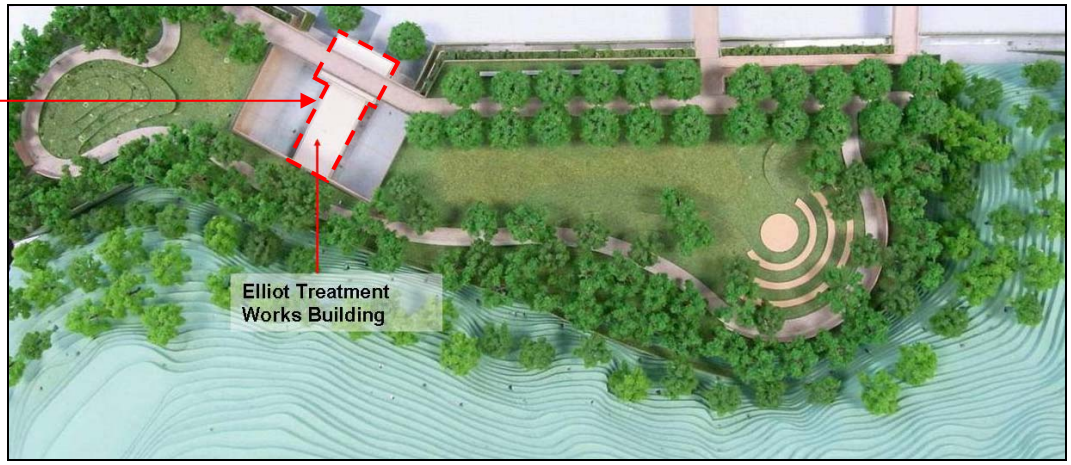
This section is to evaluate the proposed treatments and any potential impact on the "rear elevation" being affected by the bridge and to suggest mitigation measures to reduce any adverse impact as necessary.

(a) The bridge spanning across the rear elevation is flat and adjoins the slope of Lung Fu Shan.

(b) Impact assessment – low because the bridge is located beside the rear two level gallery, i.e. out of the footprint of the historic building.

Part 10 – Heritage Impact Assessment for Treatment Works Building

View of Treatment Woks Building with the front and rear bridges



The Treatment Works Building rear two level galley and the bridge

(c) Mitigation measures recommended –

- The materials for the construction of the bridge should be differentiable from the historic building.
- Interpretation panels to be installed on the bridge.

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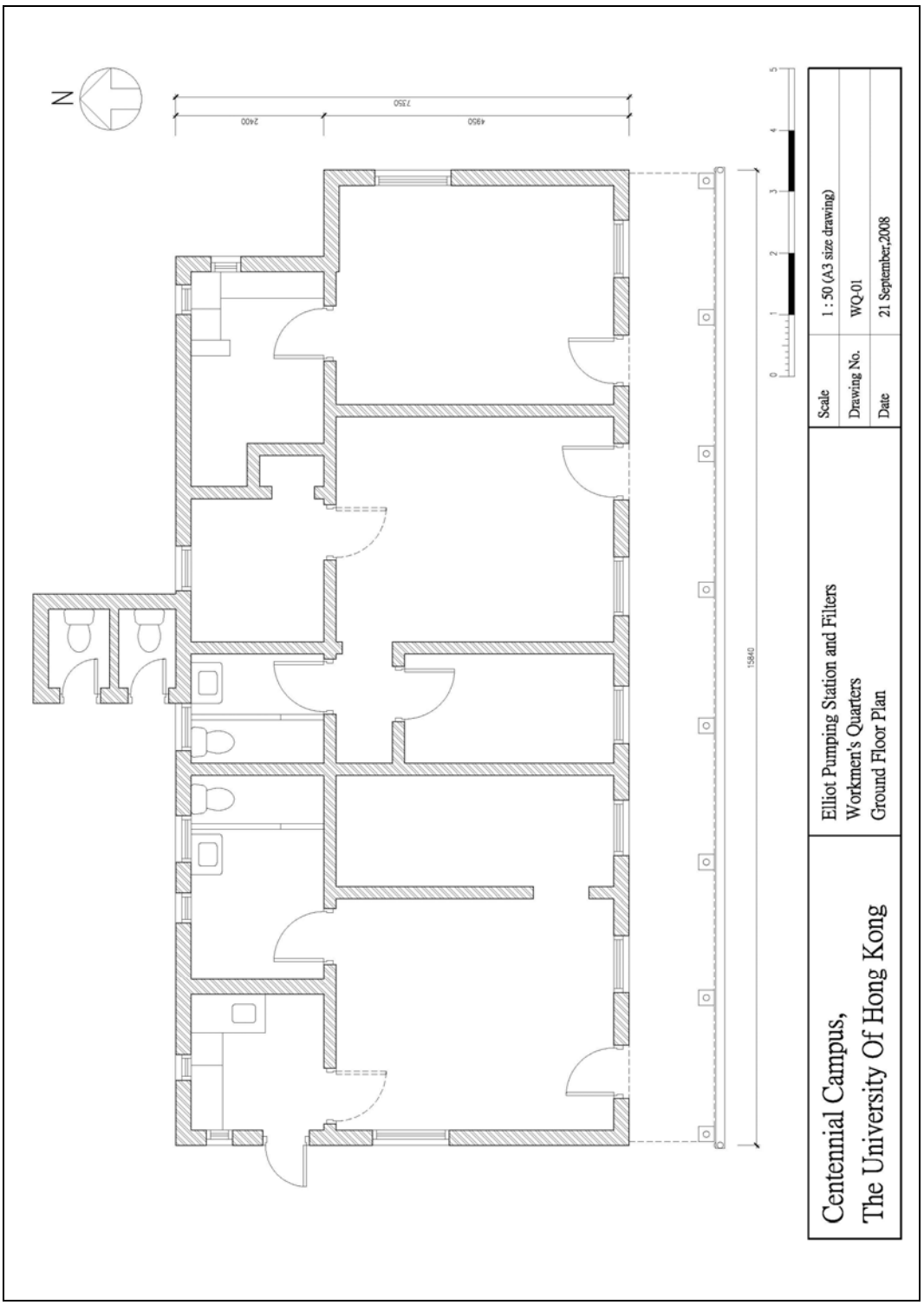
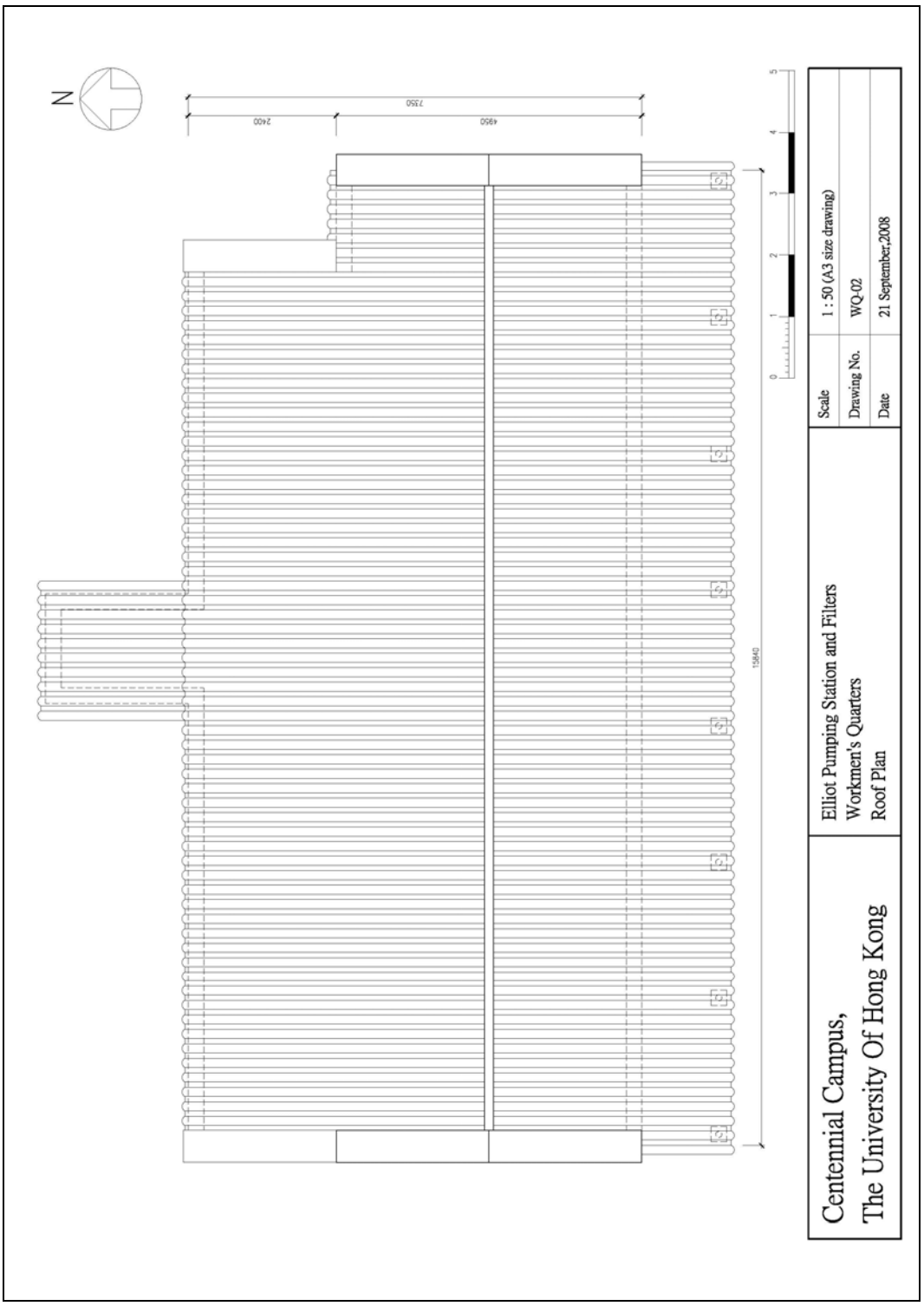
Appendix 1 – Measured Drawings of the Three Historic Buildings



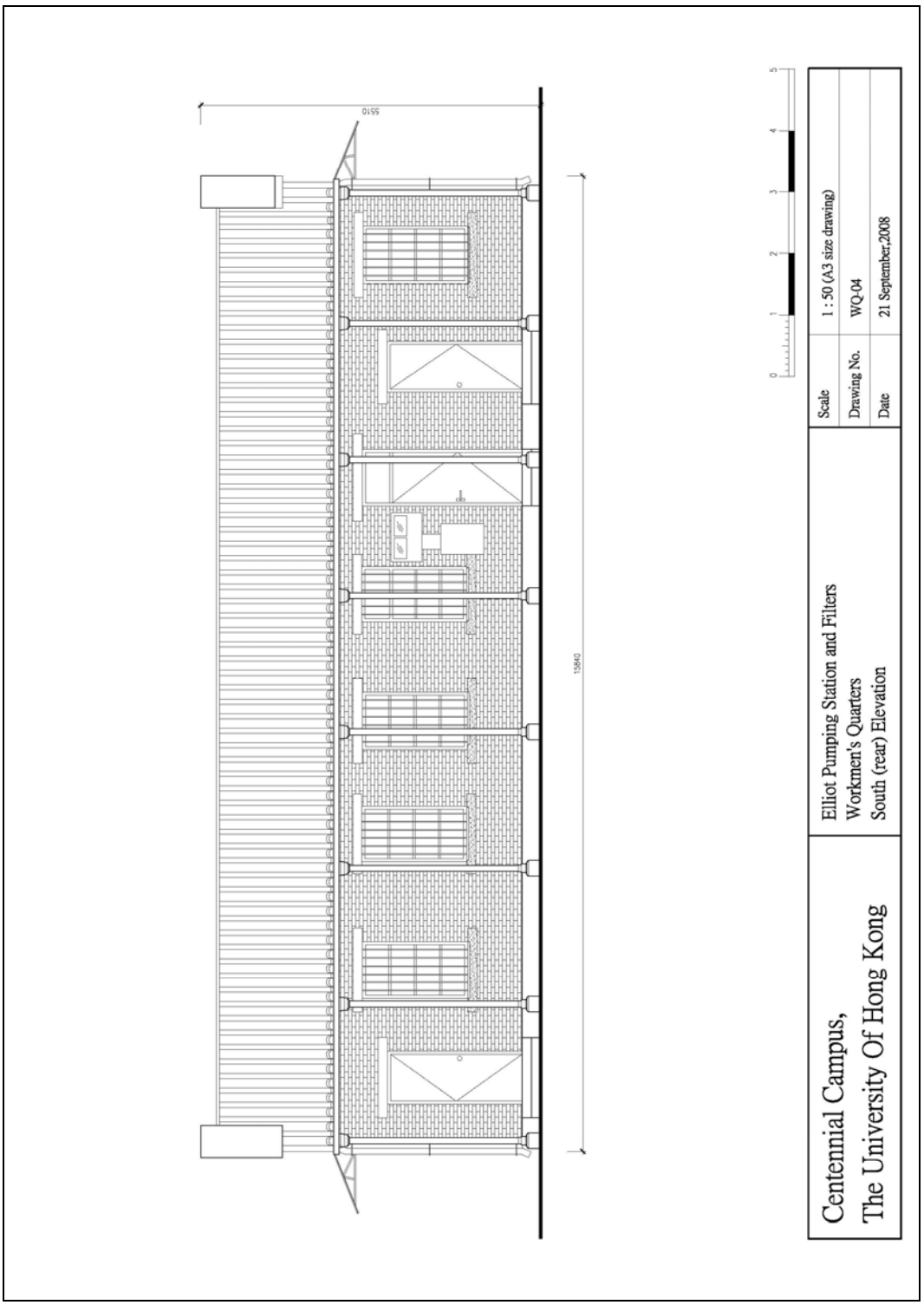
Workmen's Quarters – ground floor plan

Appendix 1 – Measured Drawings of the Three Historic Buildings



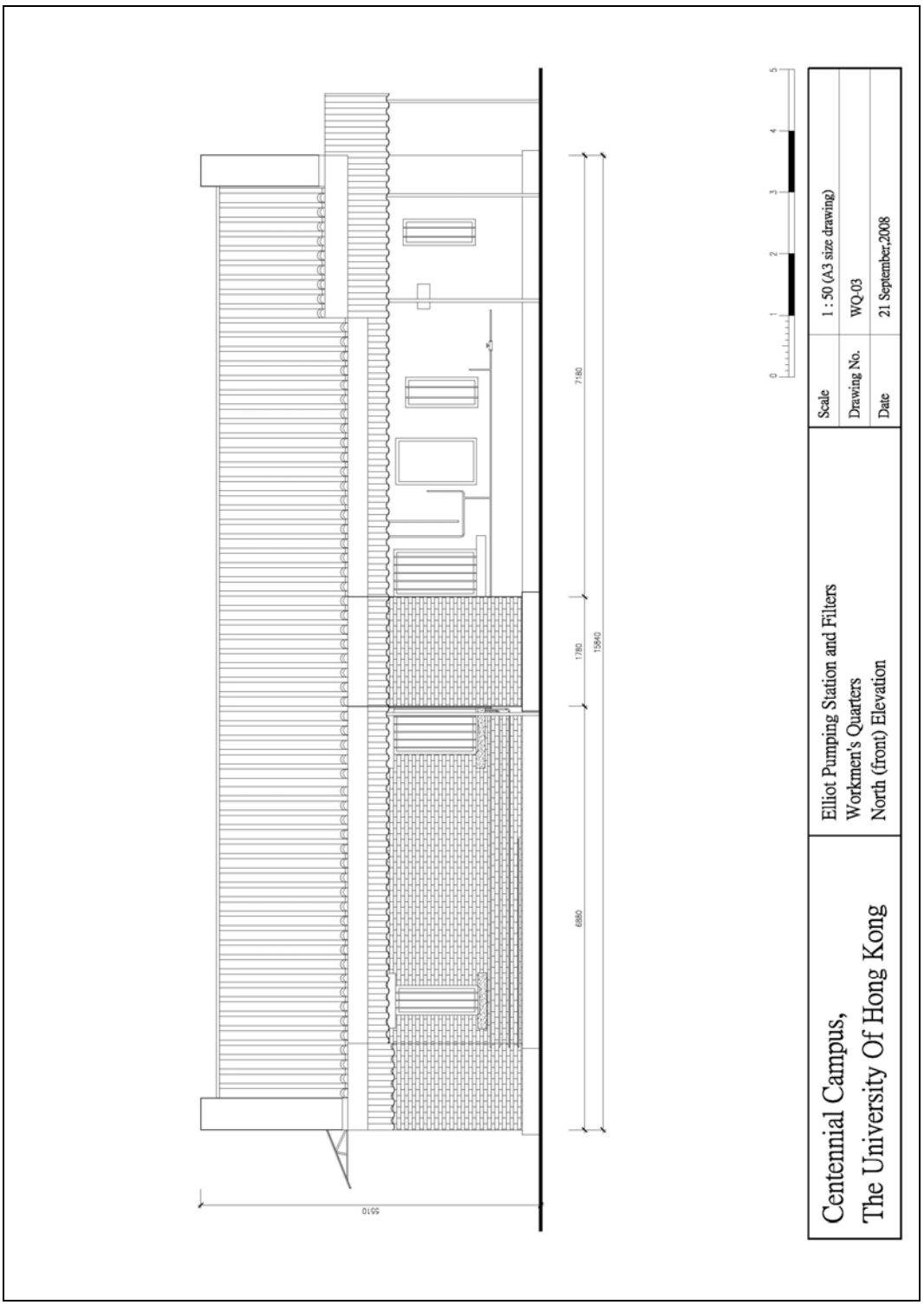
Workmen's Quarters – roof plan

Appendix 1 – Measured Drawings of the Three Historic Buildings



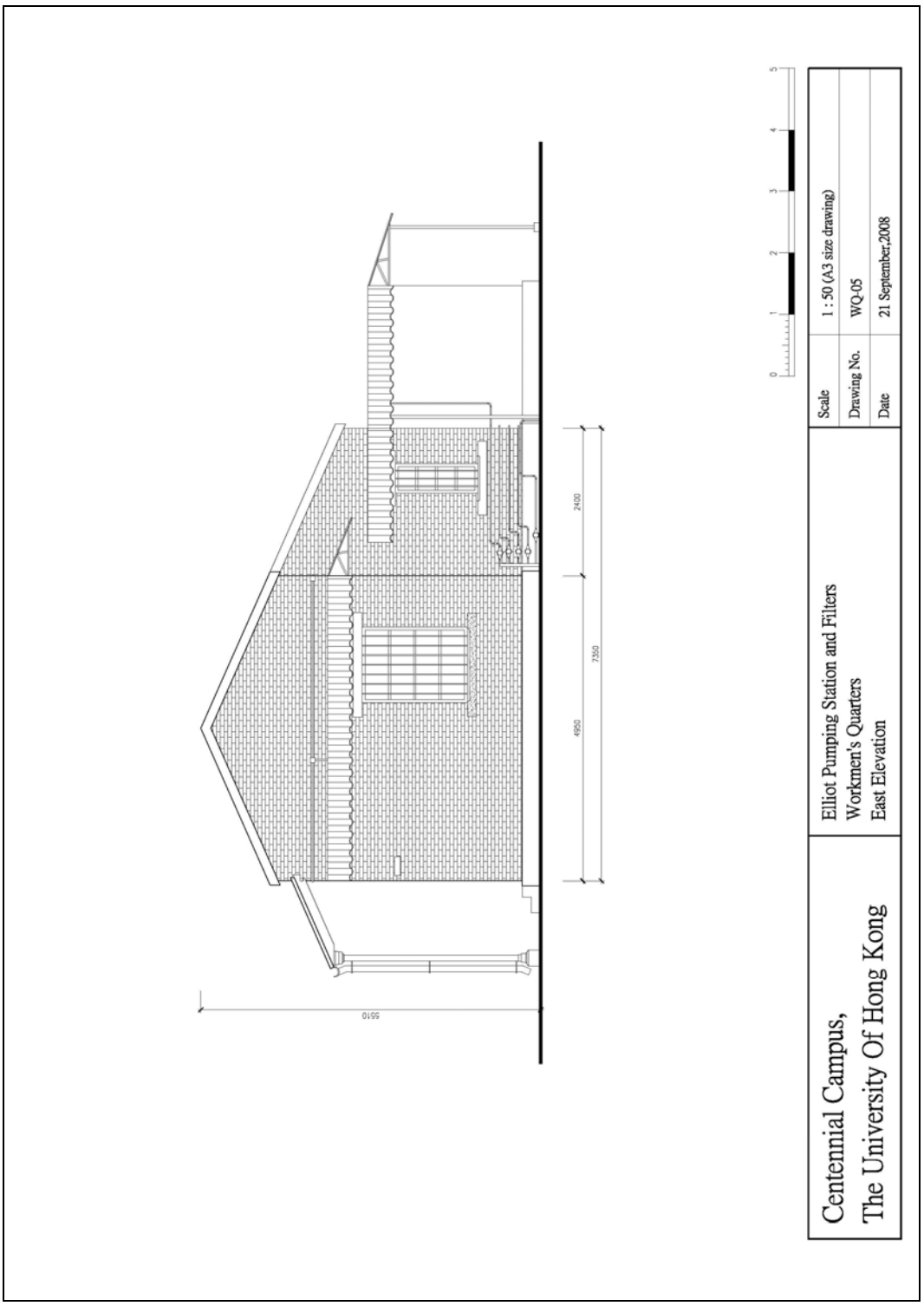
Workmen's Quarters – north (front) elevation

Appendix 1 – Measured Drawings of the Three Historic Buildings



Workmen's Quarters – south (rear) elevation

Appendix 1 – Measured Drawings of the Three Historic Buildings



Workmen's Quarters – east (side) elevation

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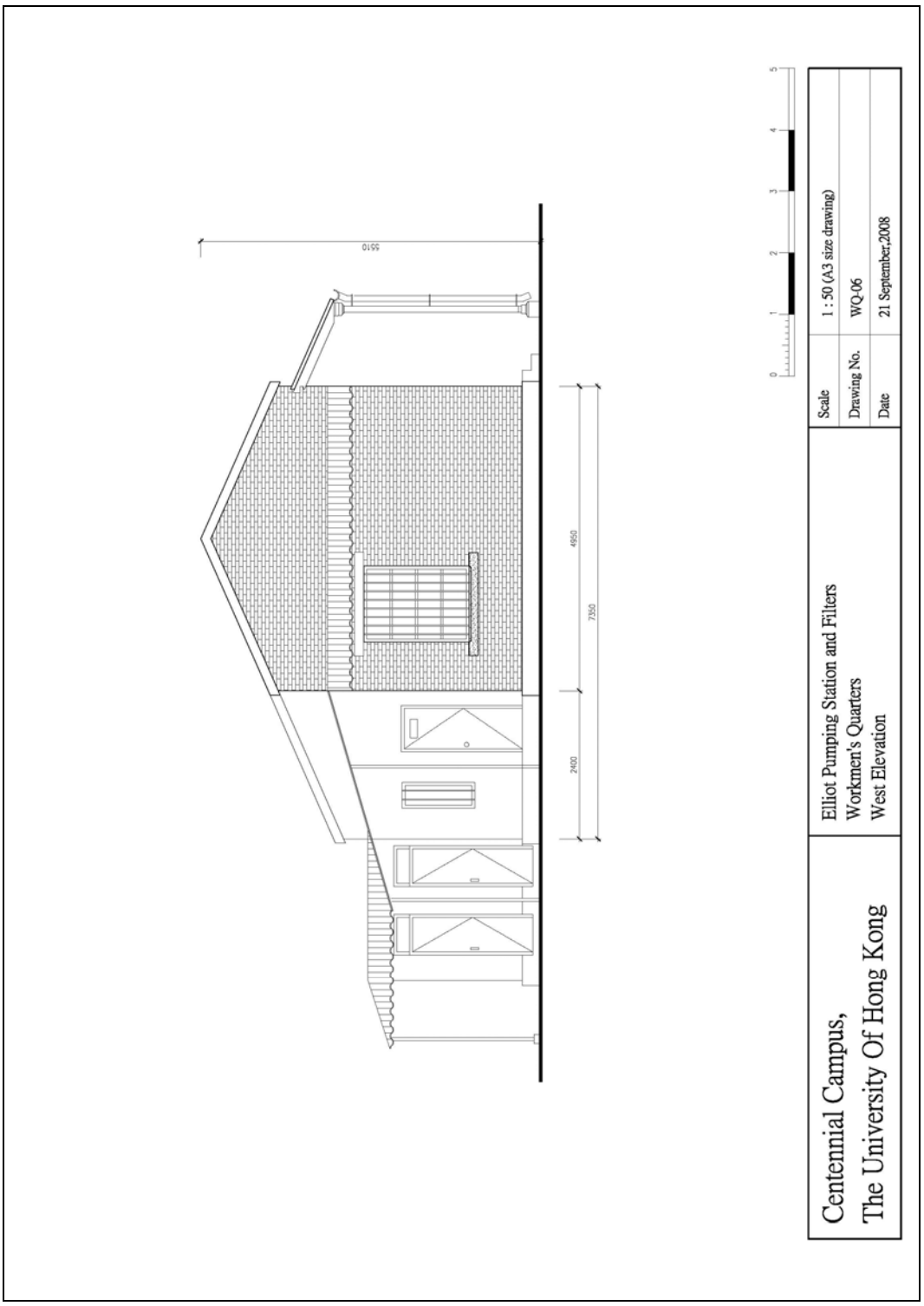
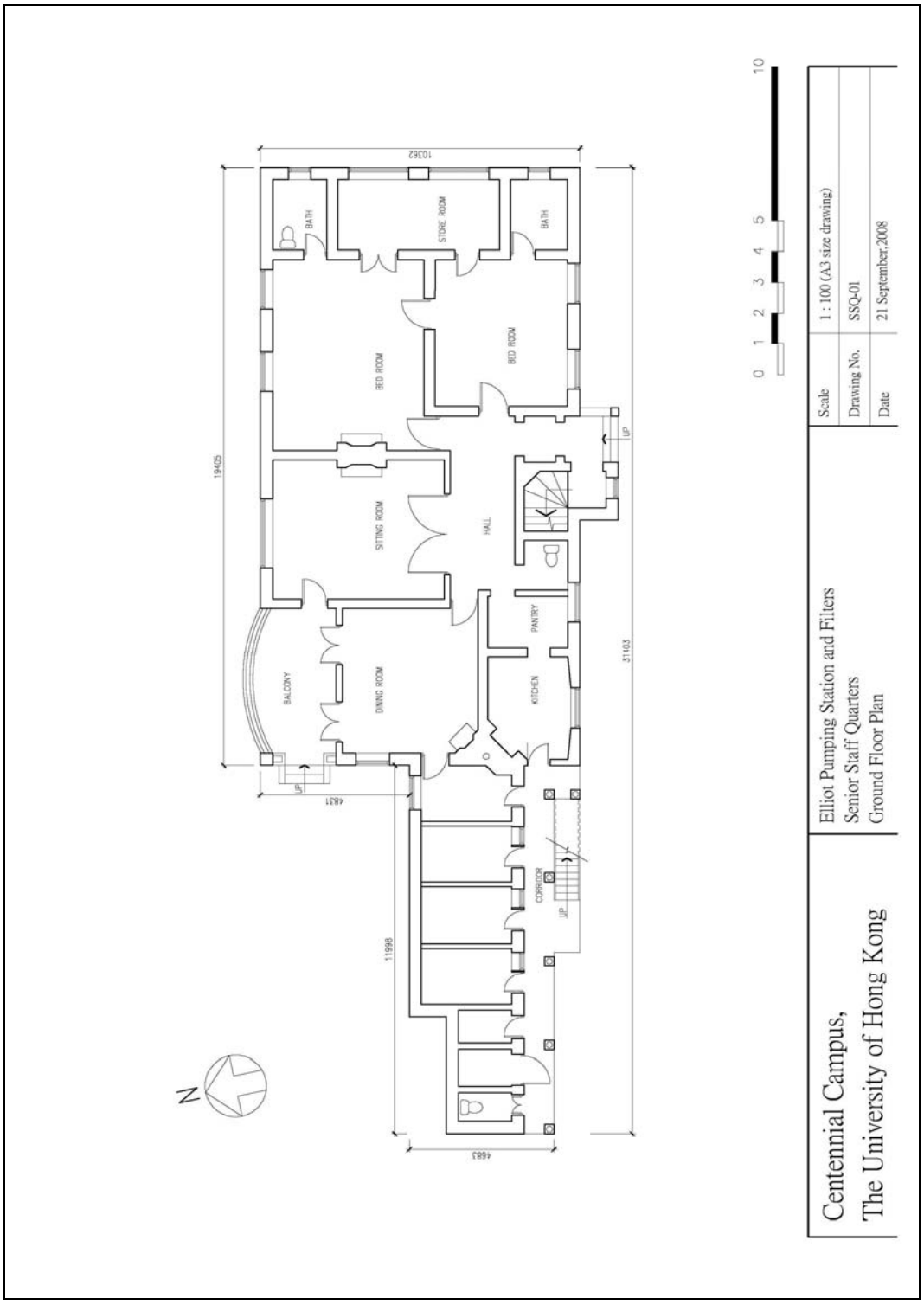


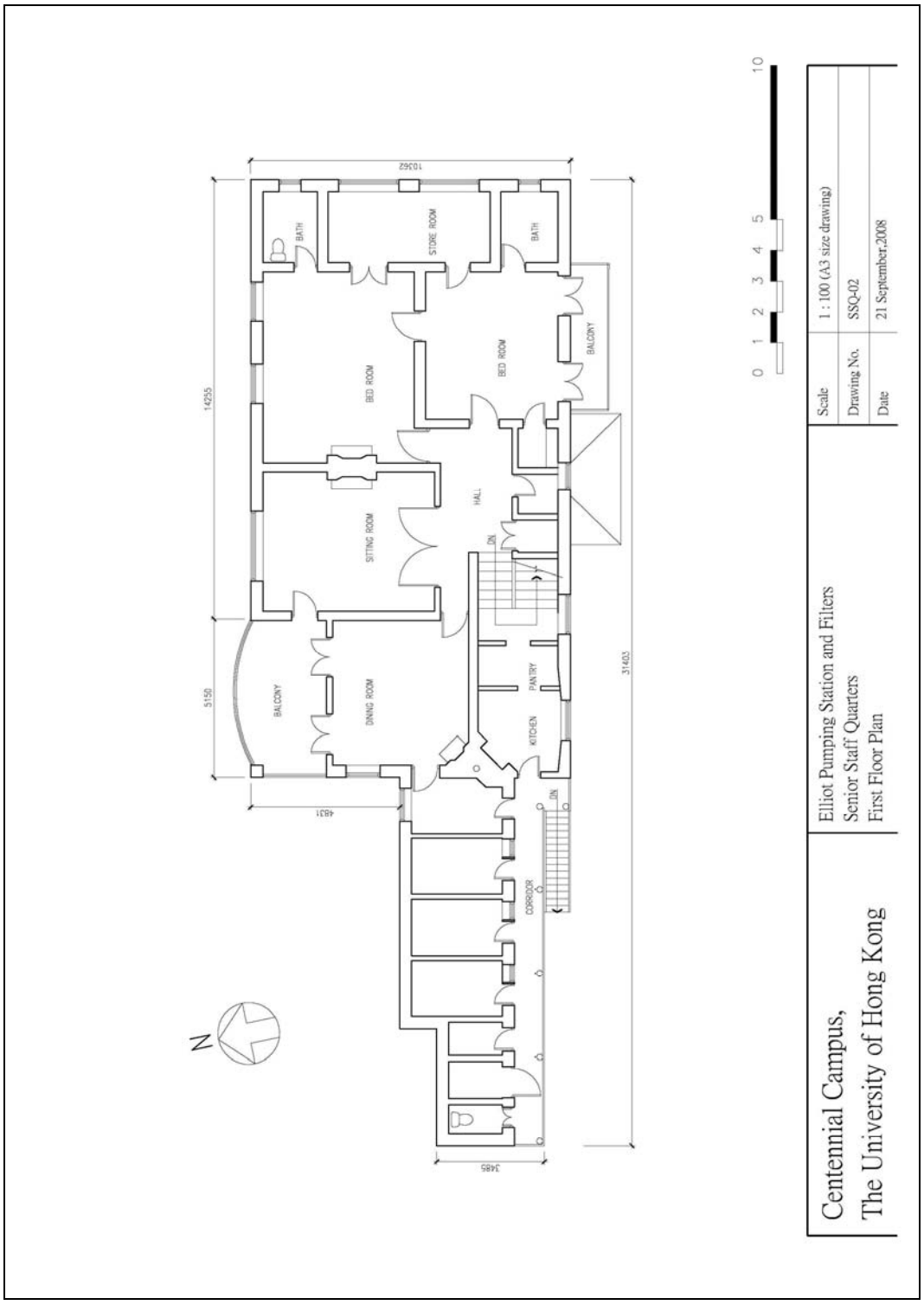
Workmen's Quarters – west (side) elevation

Appendix 1 – Measured Drawings of the Three Historic Buildings



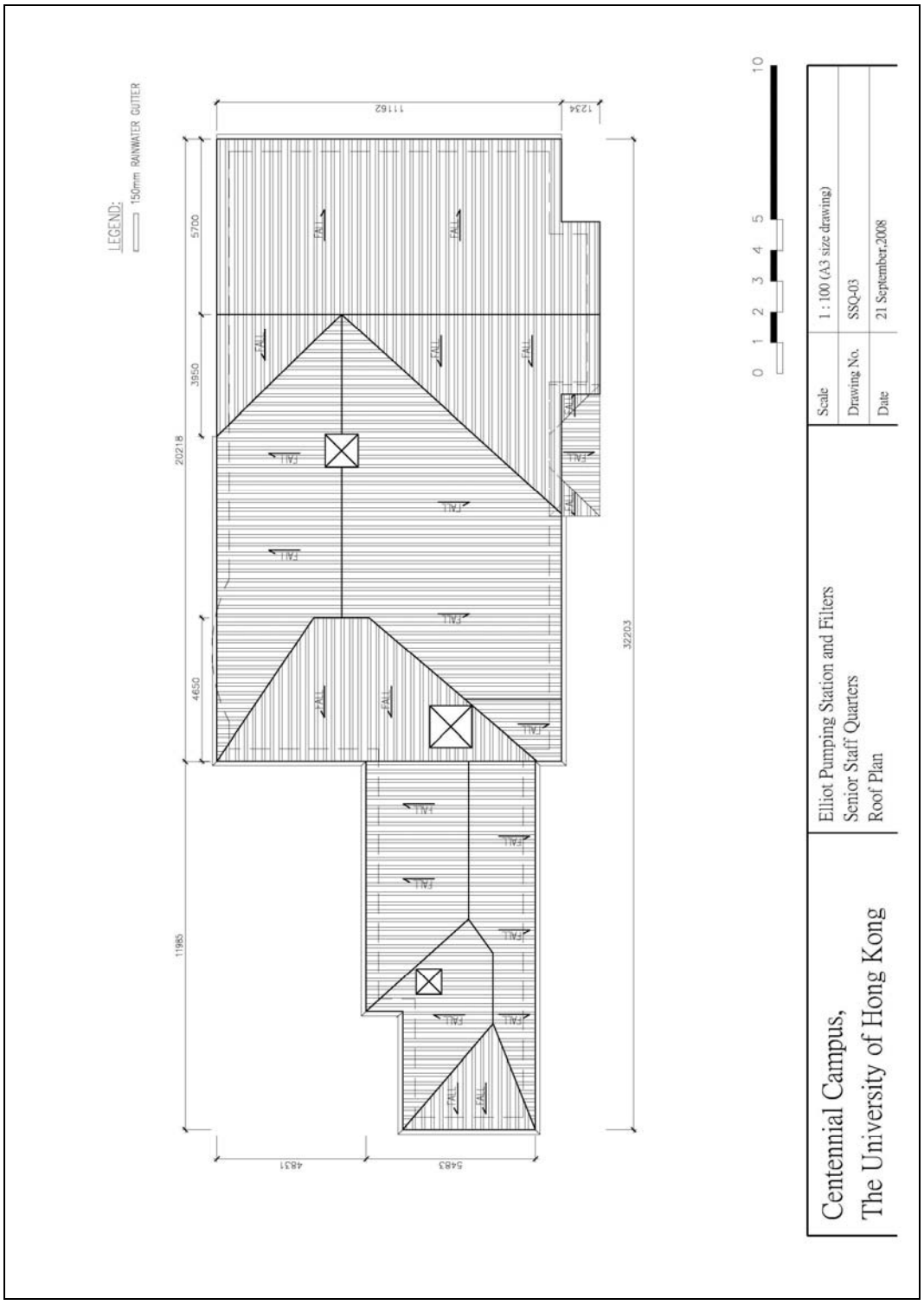
Senior Staff Quarters – ground floor plan

Appendix 1 – Measured Drawings of the Three Historic Buildings



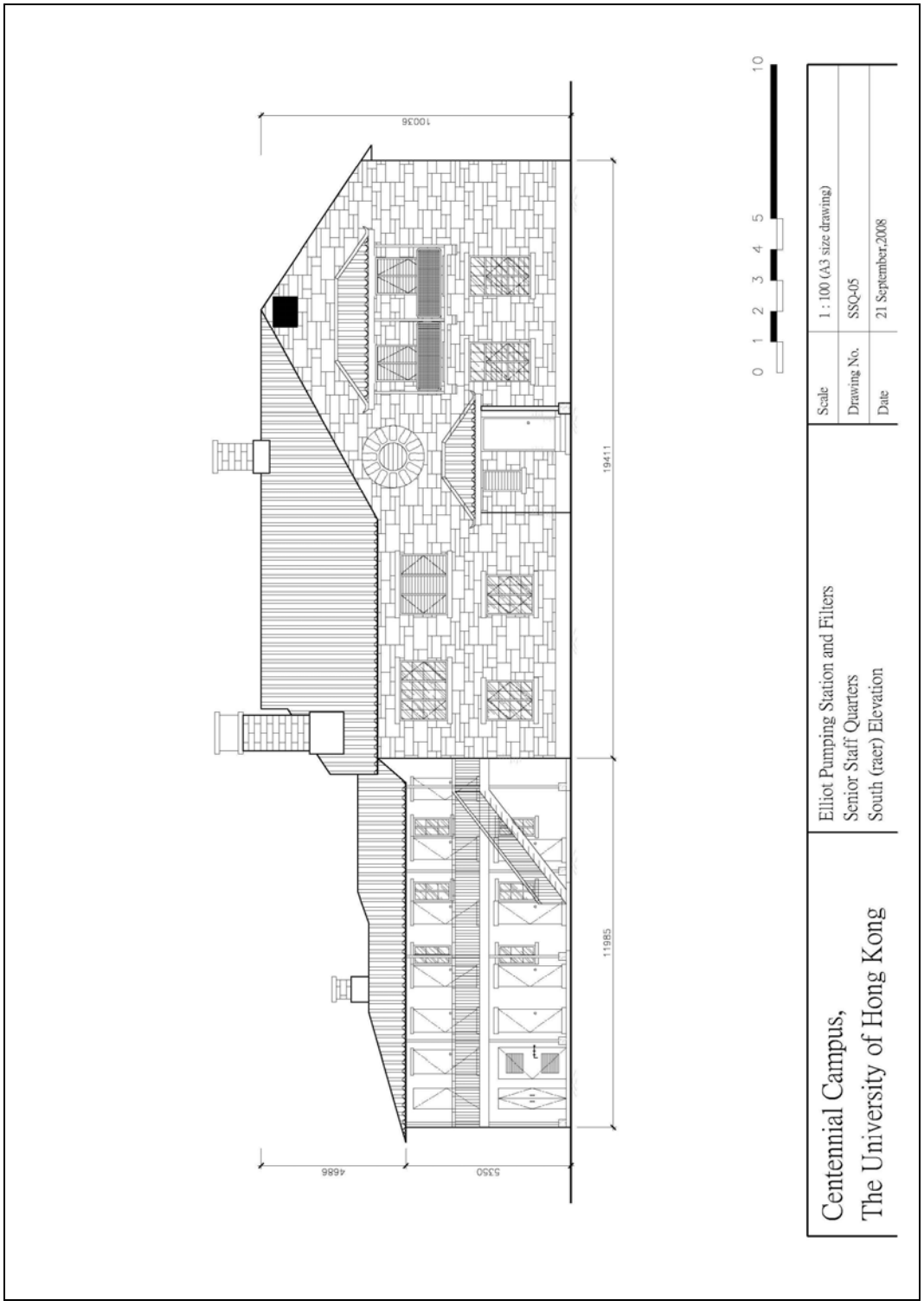
Senior Staff Quarters – first floor plan

Appendix 1 – Measured Drawings of the Three Historic Buildings



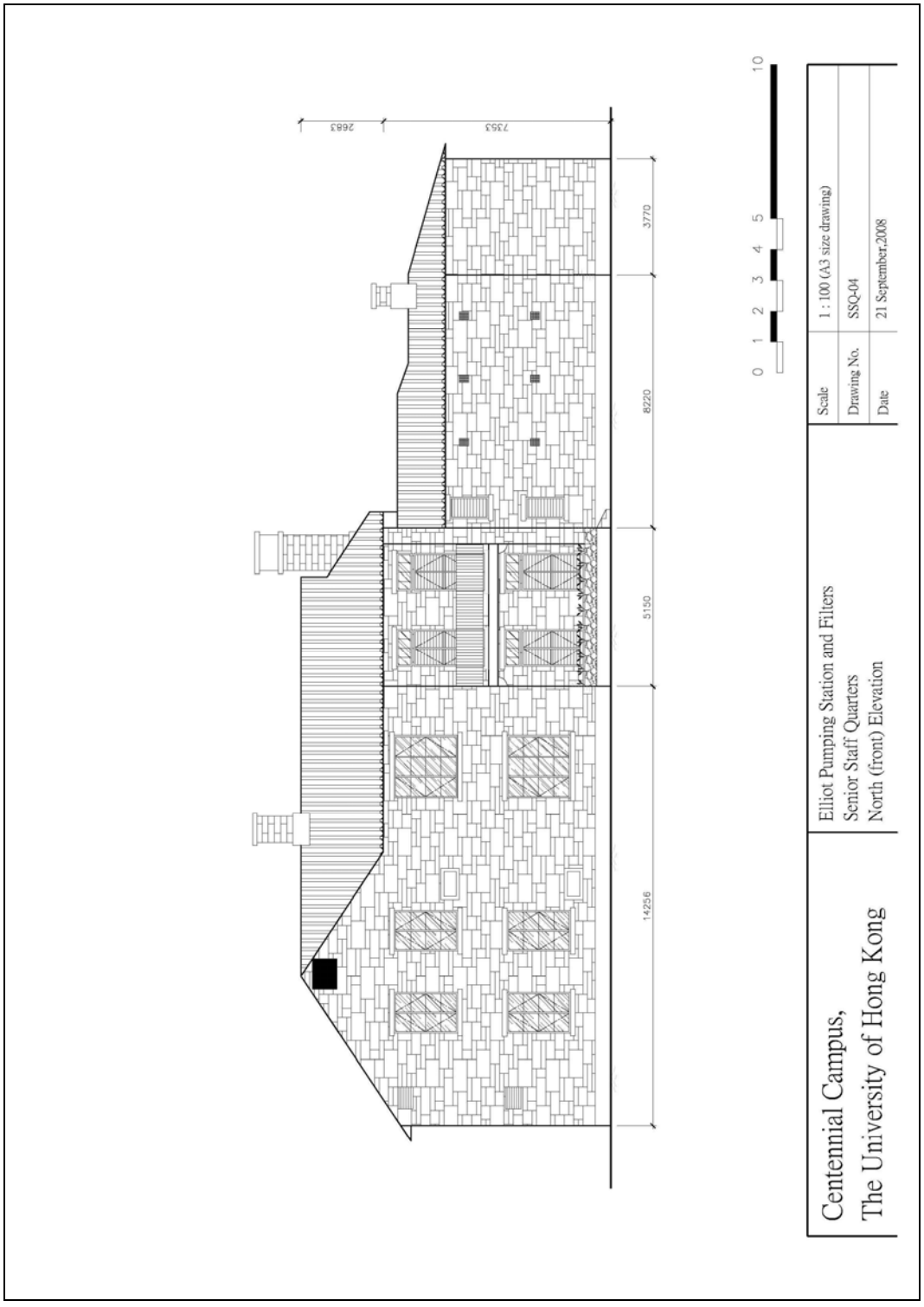
Senior Staff Quarters – roof plan

Appendix 1 – Measured Drawings of the Three Historic Buildings



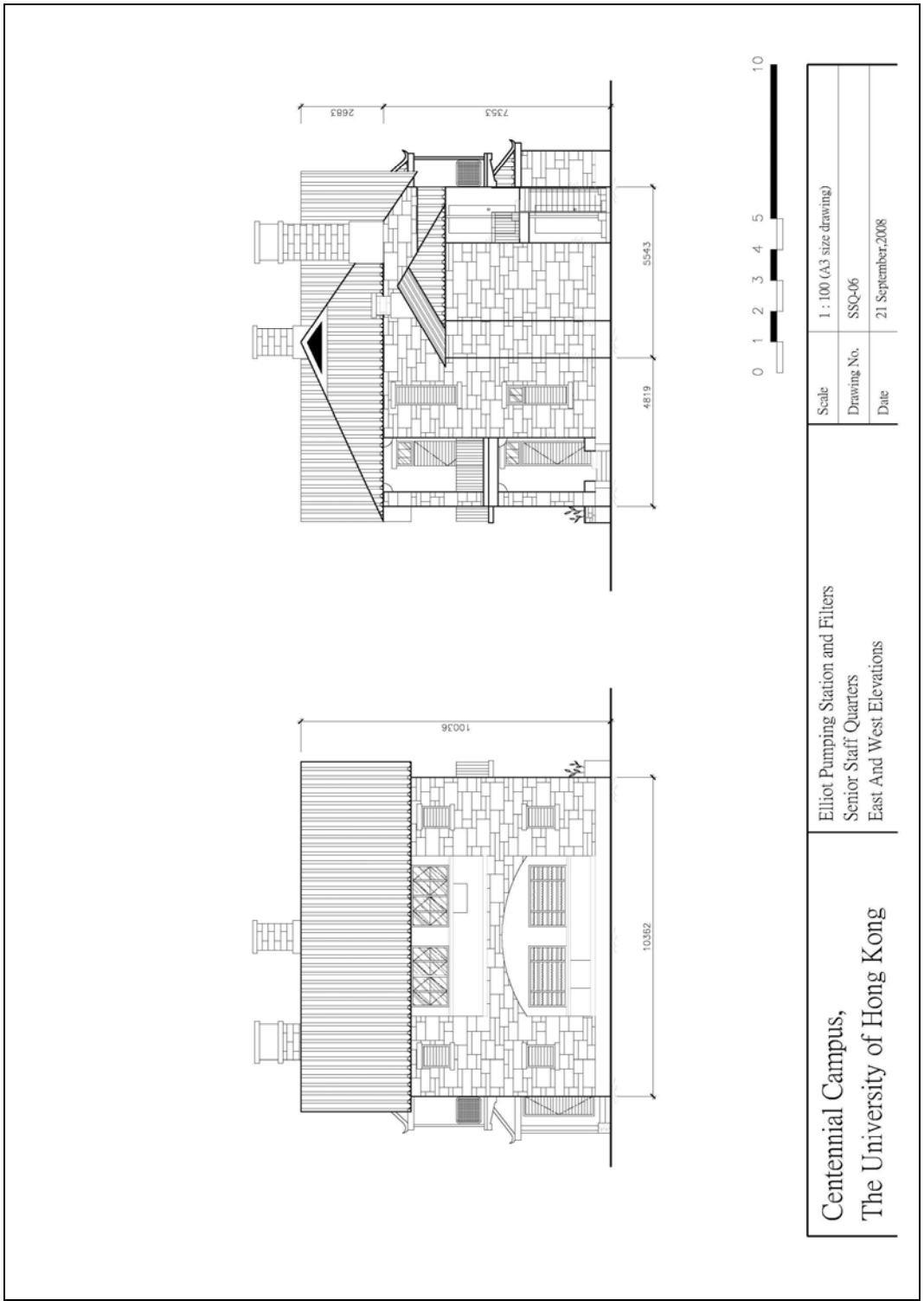
Senior Staff Quarters – north (front) elevation

Appendix 1 – Measured Drawings of the Three Historic Buildings



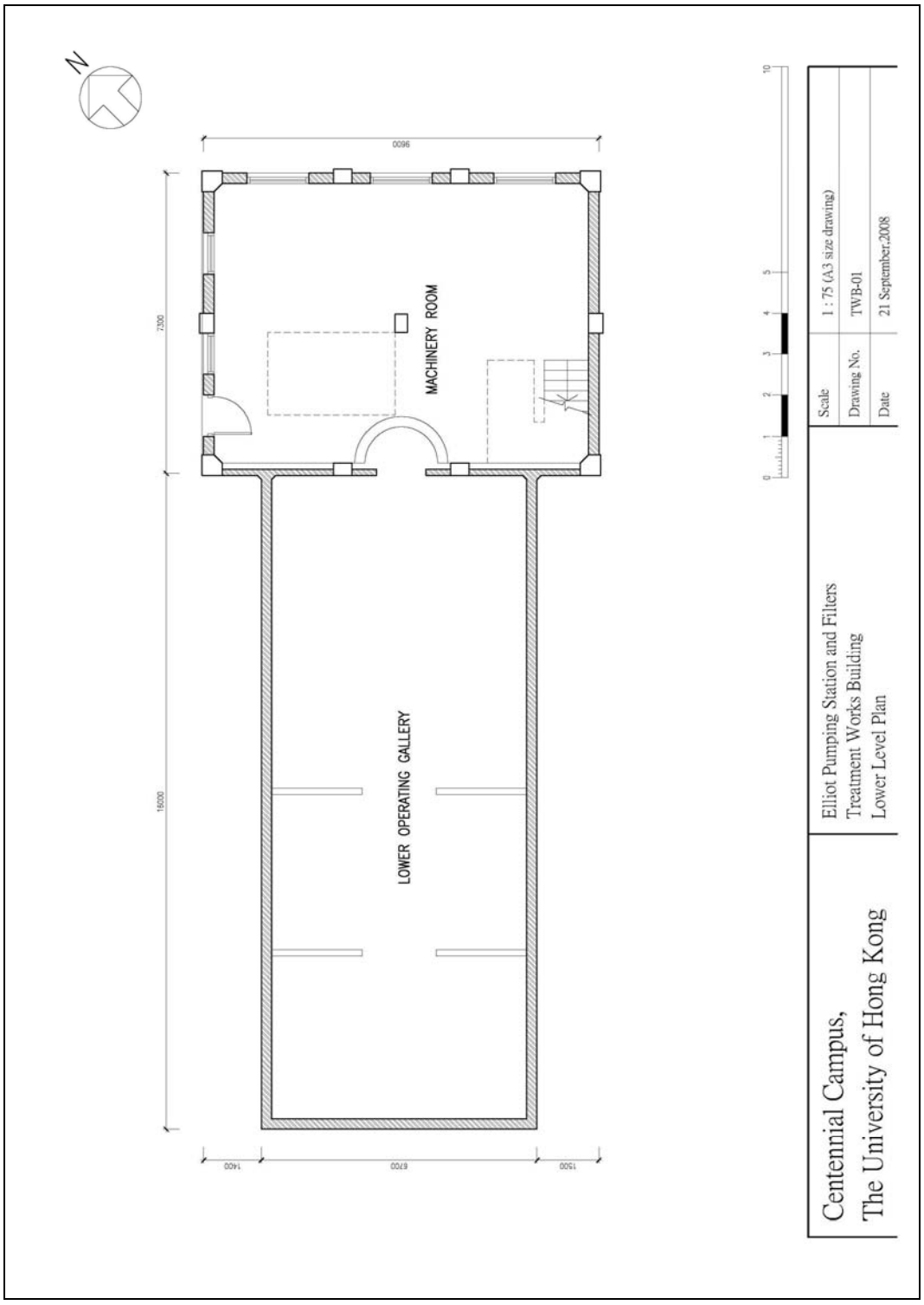
Senior Staff Quarters – south (rear) elevation

Appendix 1 – Measured Drawings of the Three Historic Buildings



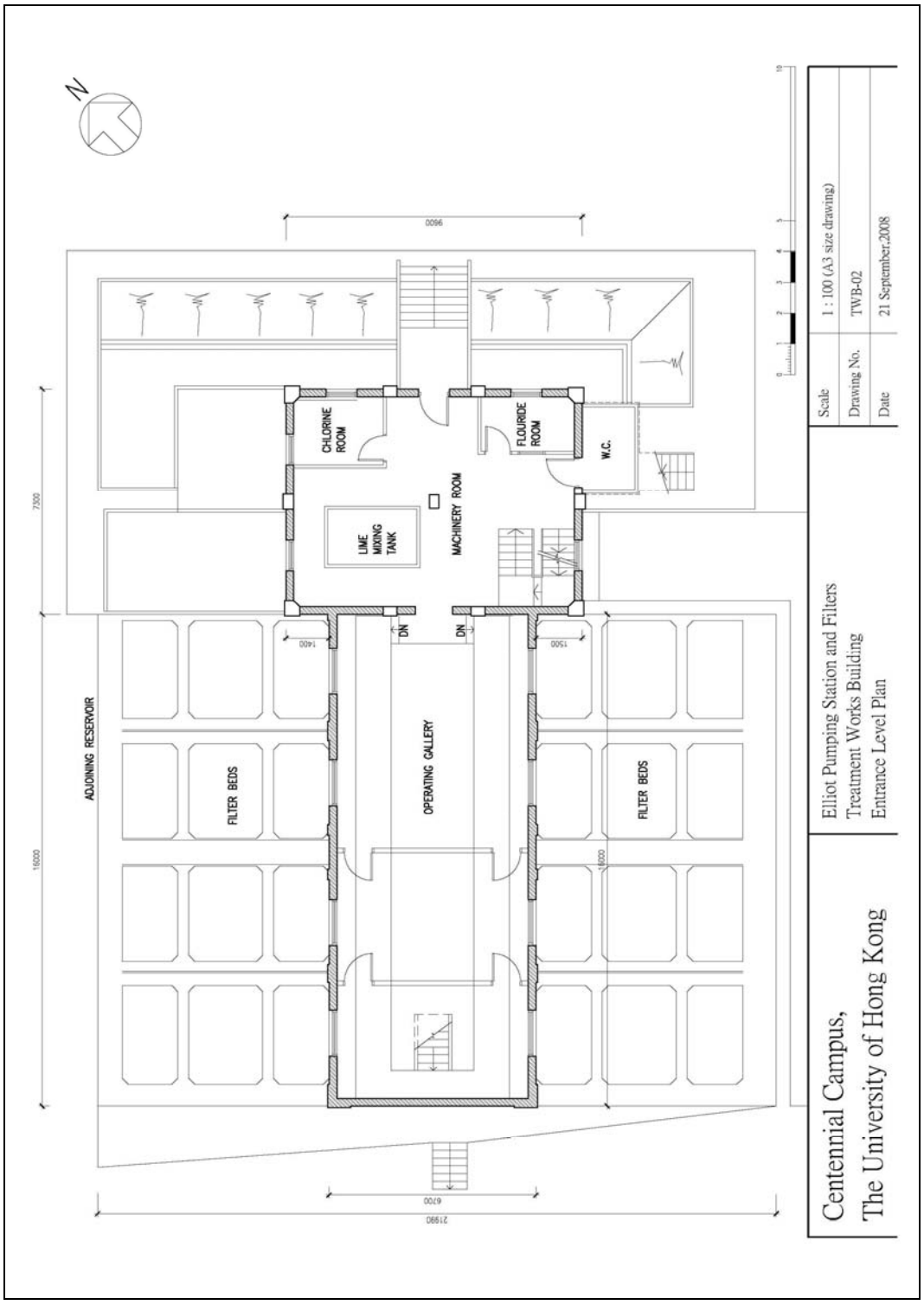
Senior Staff Quarters – east and west (side) elevations

Appendix 1 – Measured Drawings of the Three Historic Buildings



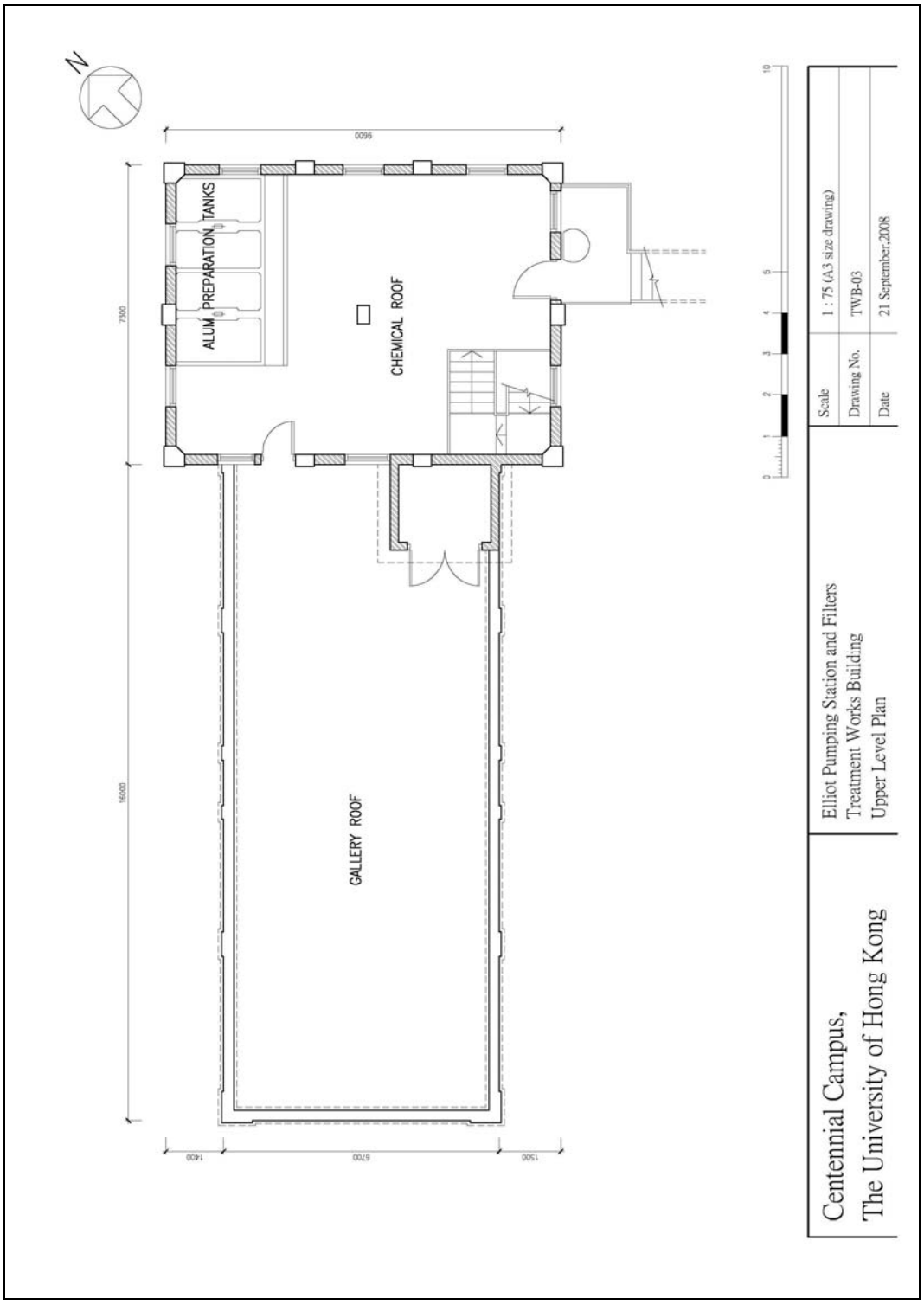
Treatment Works Building – lower level plan

Appendix 1 – Measured Drawings of the Three Historic Buildings



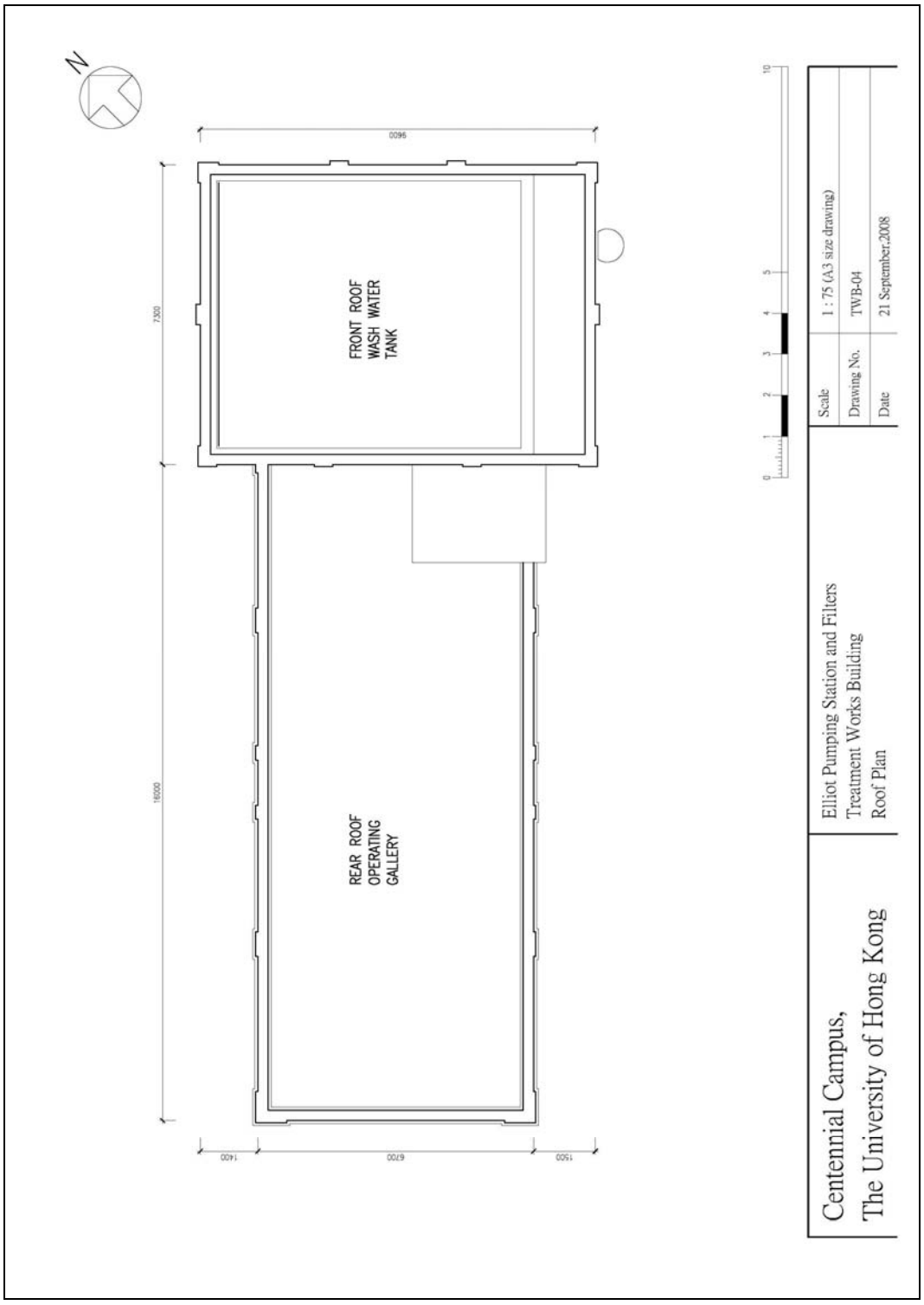
Treatment Works Building – entrance level plan

Appendix 1 – Measured Drawings of the Three Historic Buildings



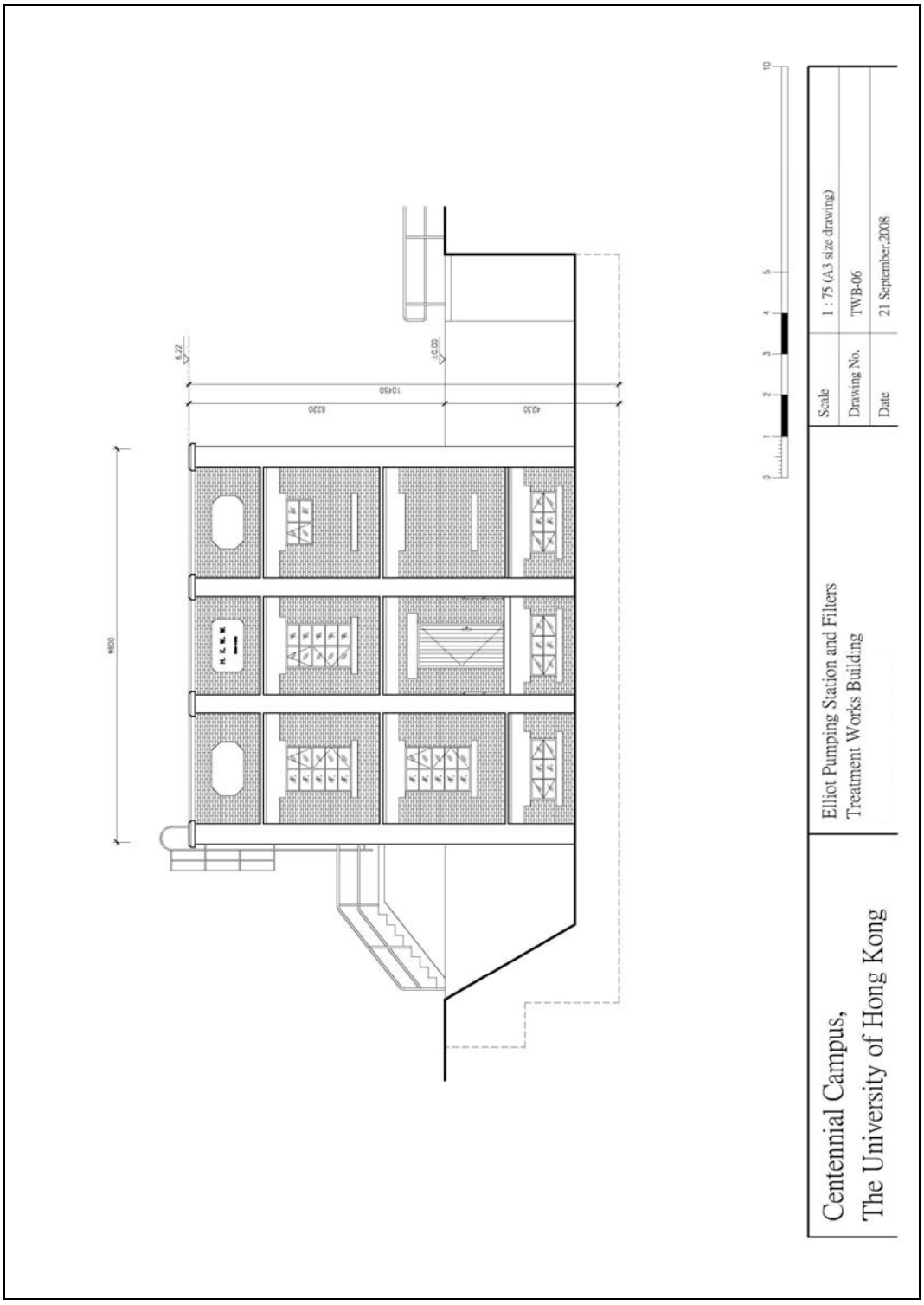
Treatment Works Building – upper level plan

Appendix 1 – Measured Drawings of the Three Historic Buildings



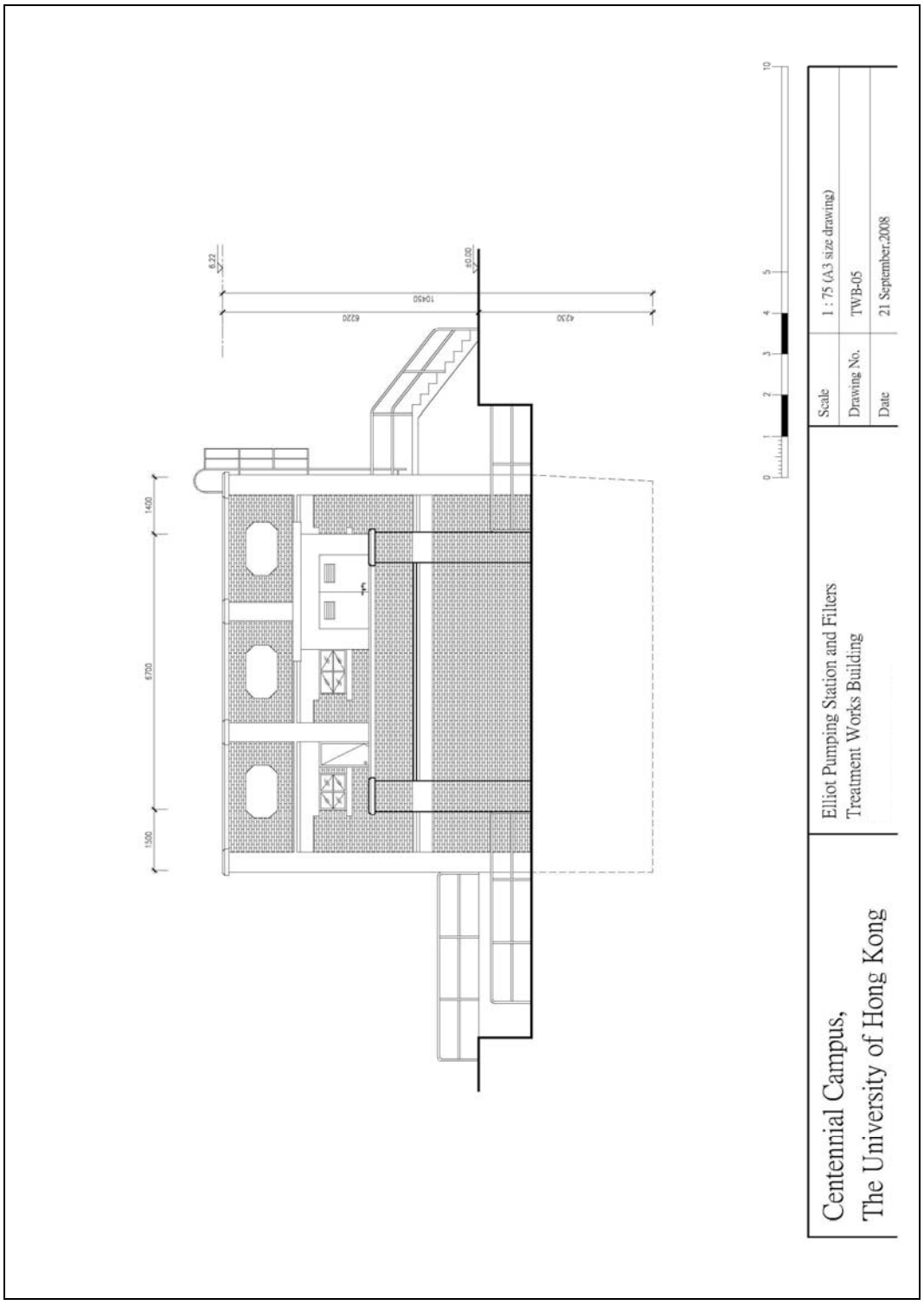
Treatment Works Building – roof plan

Appendix 1 – Measured Drawings of the Three Historic Buildings



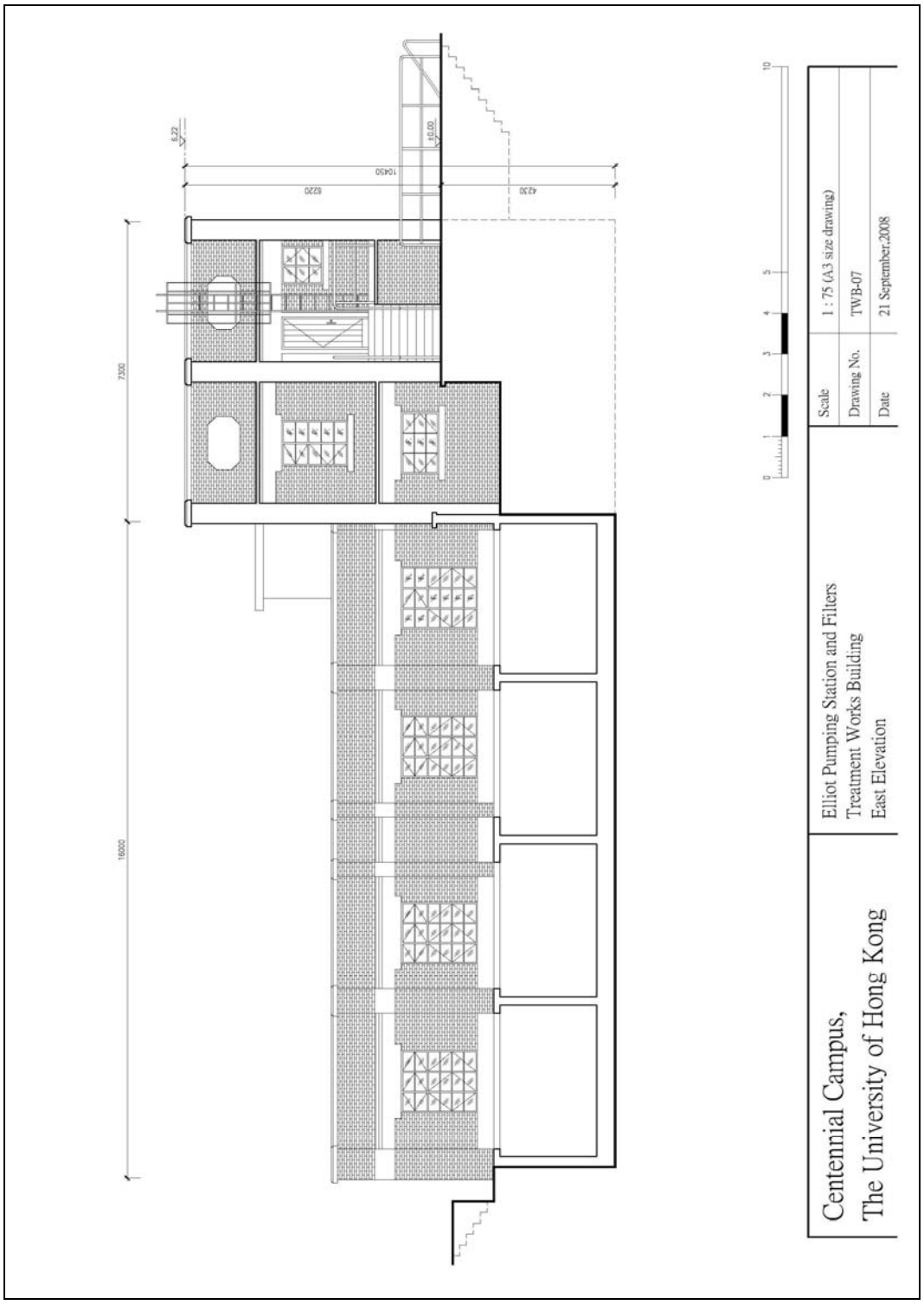
Treatment Works Building – south (front) elevation

Appendix 1 – Measured Drawings of the Three Historic Buildings



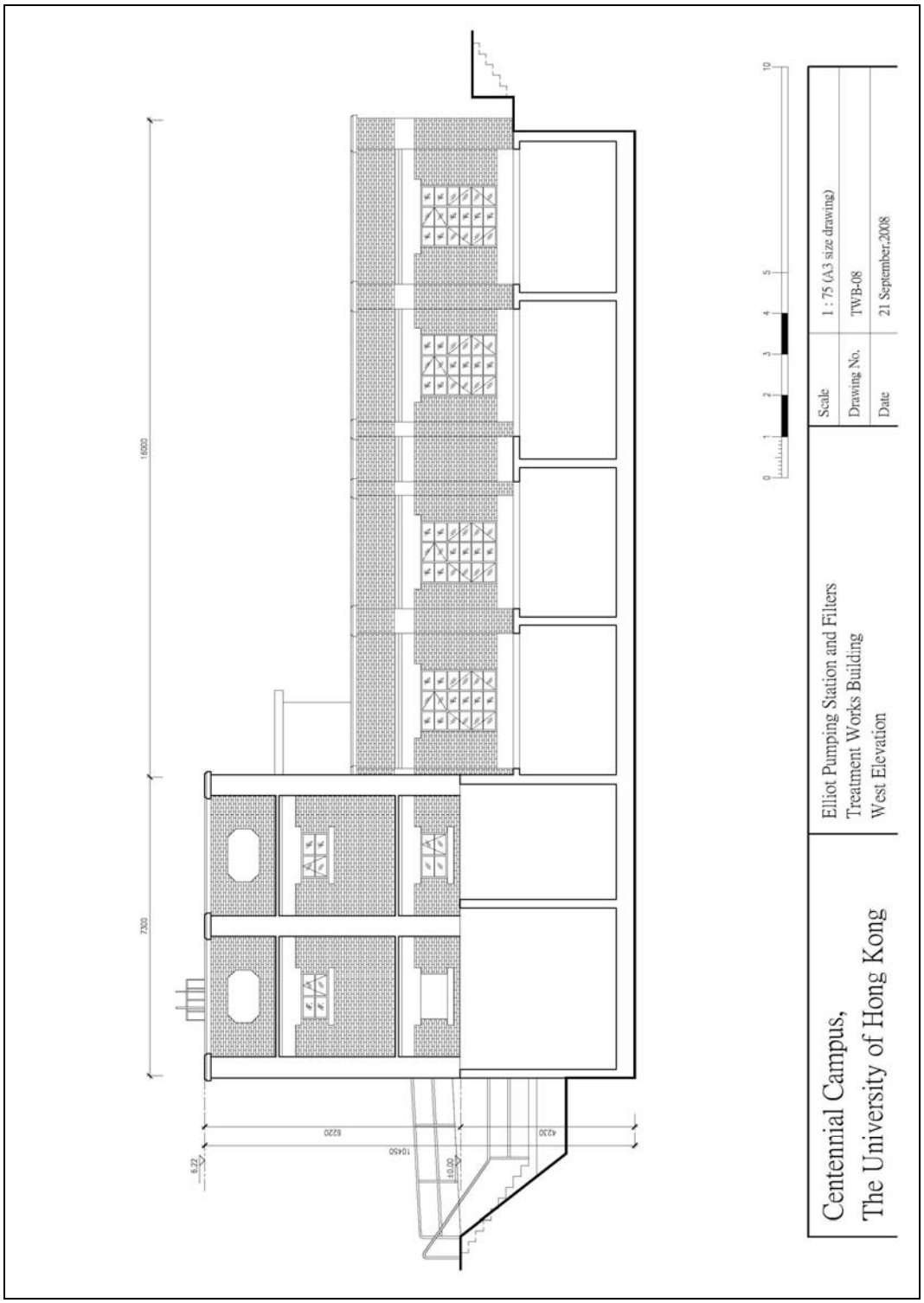
Treatment Works Building – north (rear) elevation

Appendix 1 – Measured Drawings of the Three Historic Buildings



Treatment Works Building – east elevation

Appendix 1 – Measured Drawings of the Three Historic Buildings



Treatment Works Building – west elevation

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Appendix 2 – Adaptive Re-use Design Scheme of Workmen's Quarters

Landscape master plan

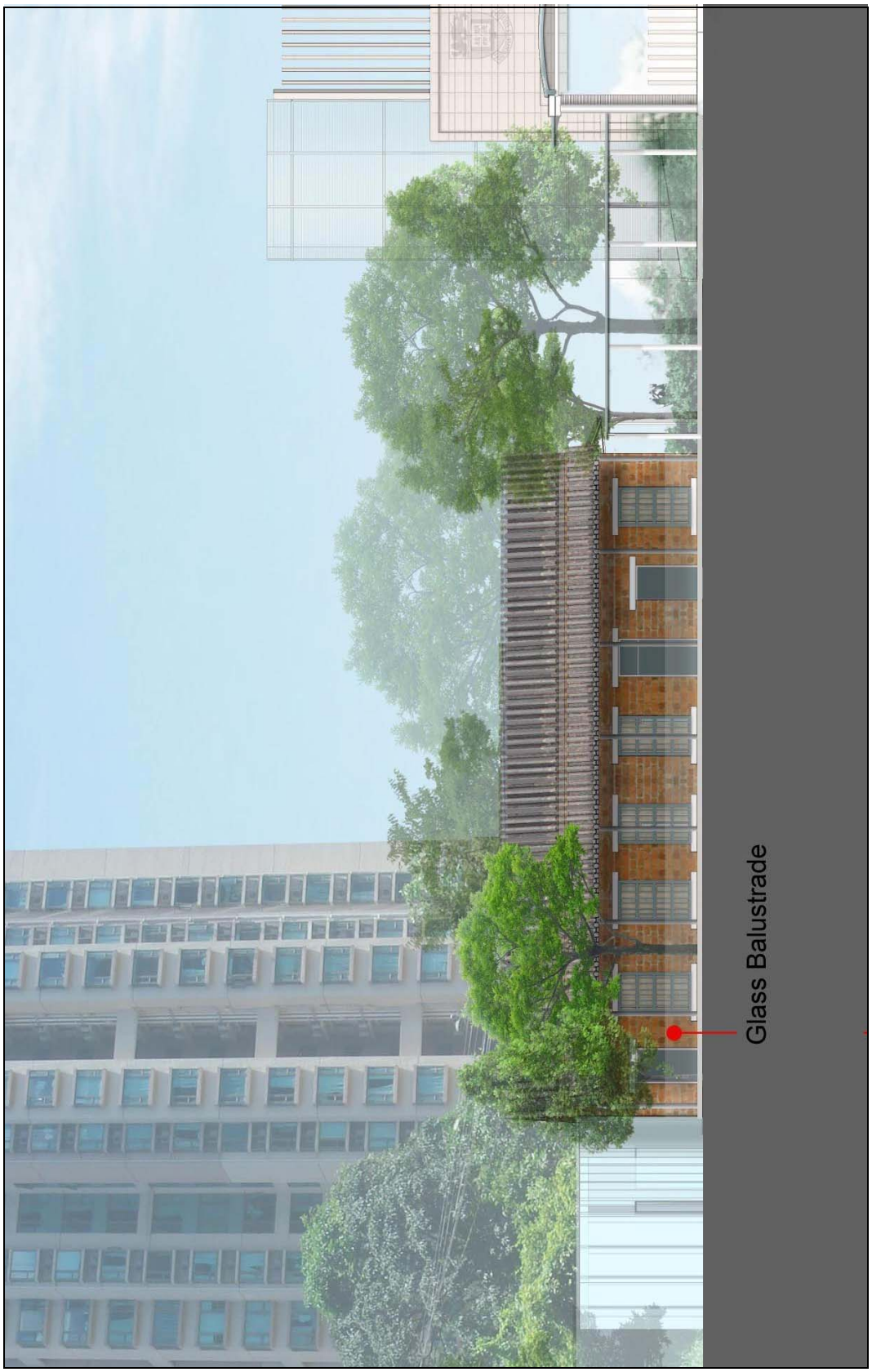
Appendix 2 – Adaptive Re-use Design Scheme of Workmen's Quarters

Site plan

Appendix 2 – Adaptive Re-use Design Scheme of Workmen's Quarters

Ground floor plan

Appendix 2 – Adaptive Re-use Design Scheme of Workmen's Quarters



North (front) elevation

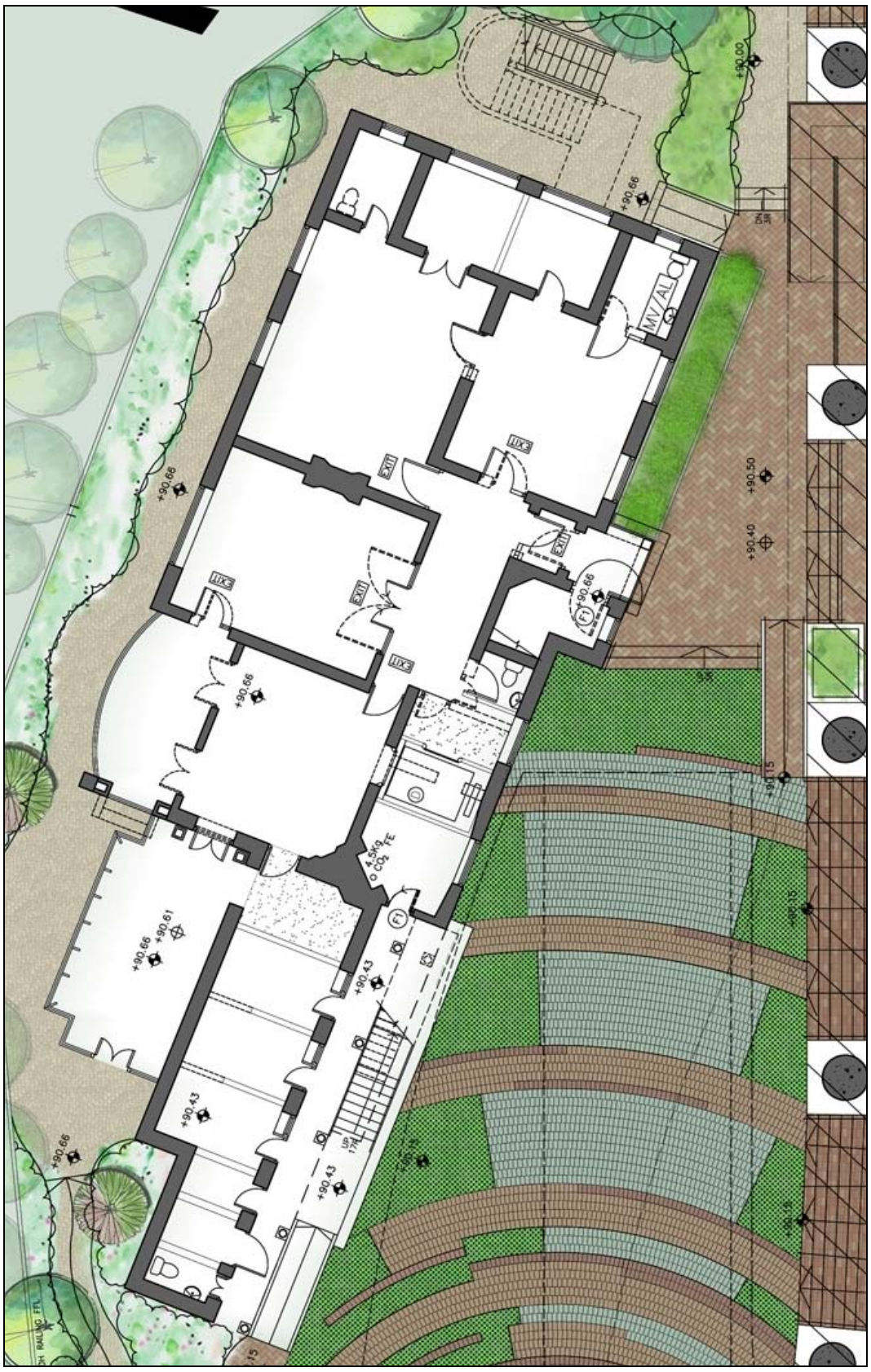
Appendix 3 – Adaptive Re-use Design Scheme of Senior Staff Quarters

Landscape master plan

Appendix 3 – Adaptive Re-use Design Scheme of Senior Staff Quarters

Site plan

Appendix 3 – Adaptive Re-use Design Scheme of Senior Staff Quarters



Ground floor plan

Appendix 3 – Adaptive Re-use Design Scheme of Senior Staff Quarters

First floor plan

Appendix 3 – Adaptive Re-use Design Scheme of Senior Staff Quarters

North (front) elevation

Appendix 3 – Adaptive Re-use Design Scheme of Senior Staff Quarters

South (rear) elevation

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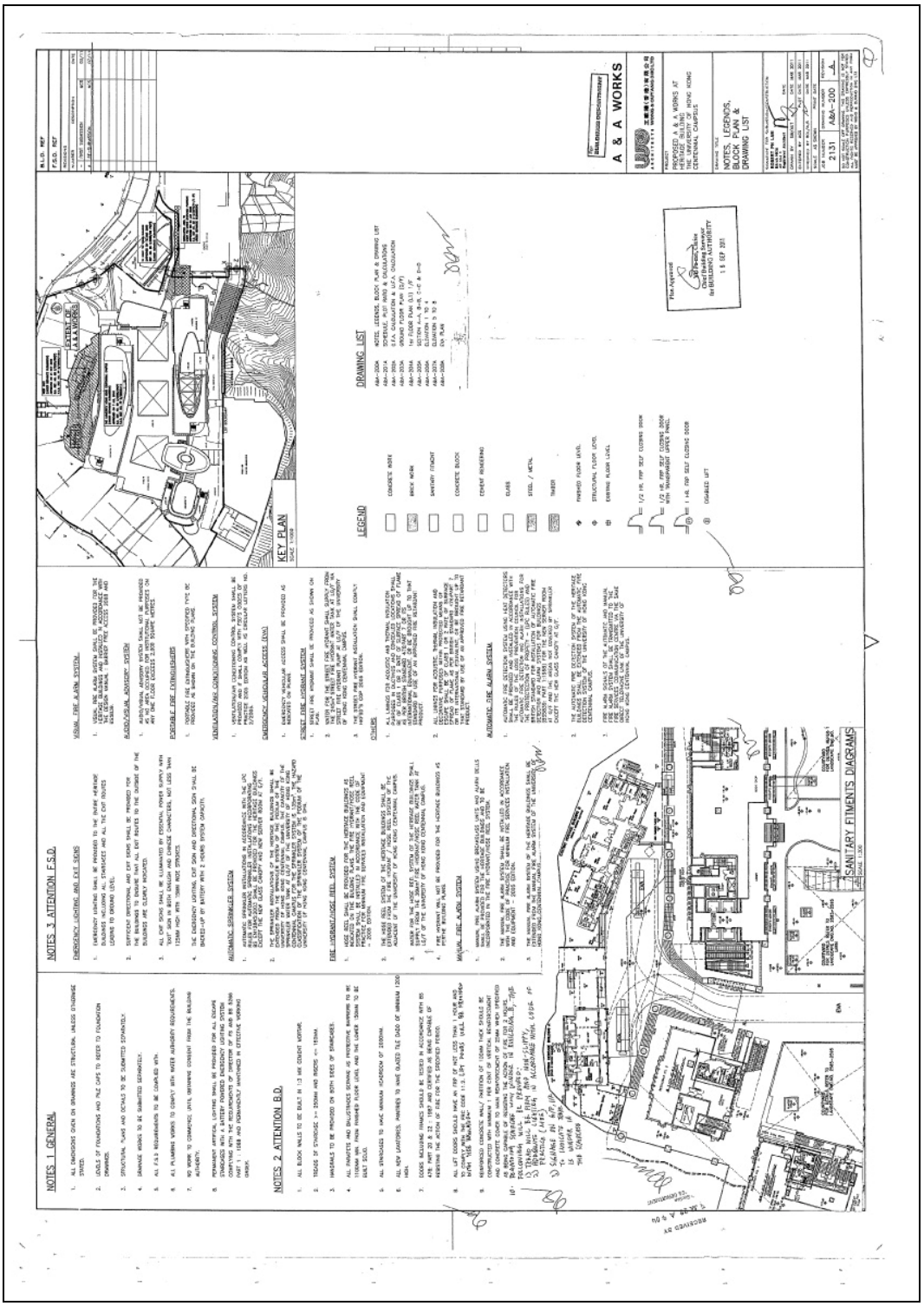
Appendix 4 – Buildings Department Approved General Building Plan (on 19th September, 2011)



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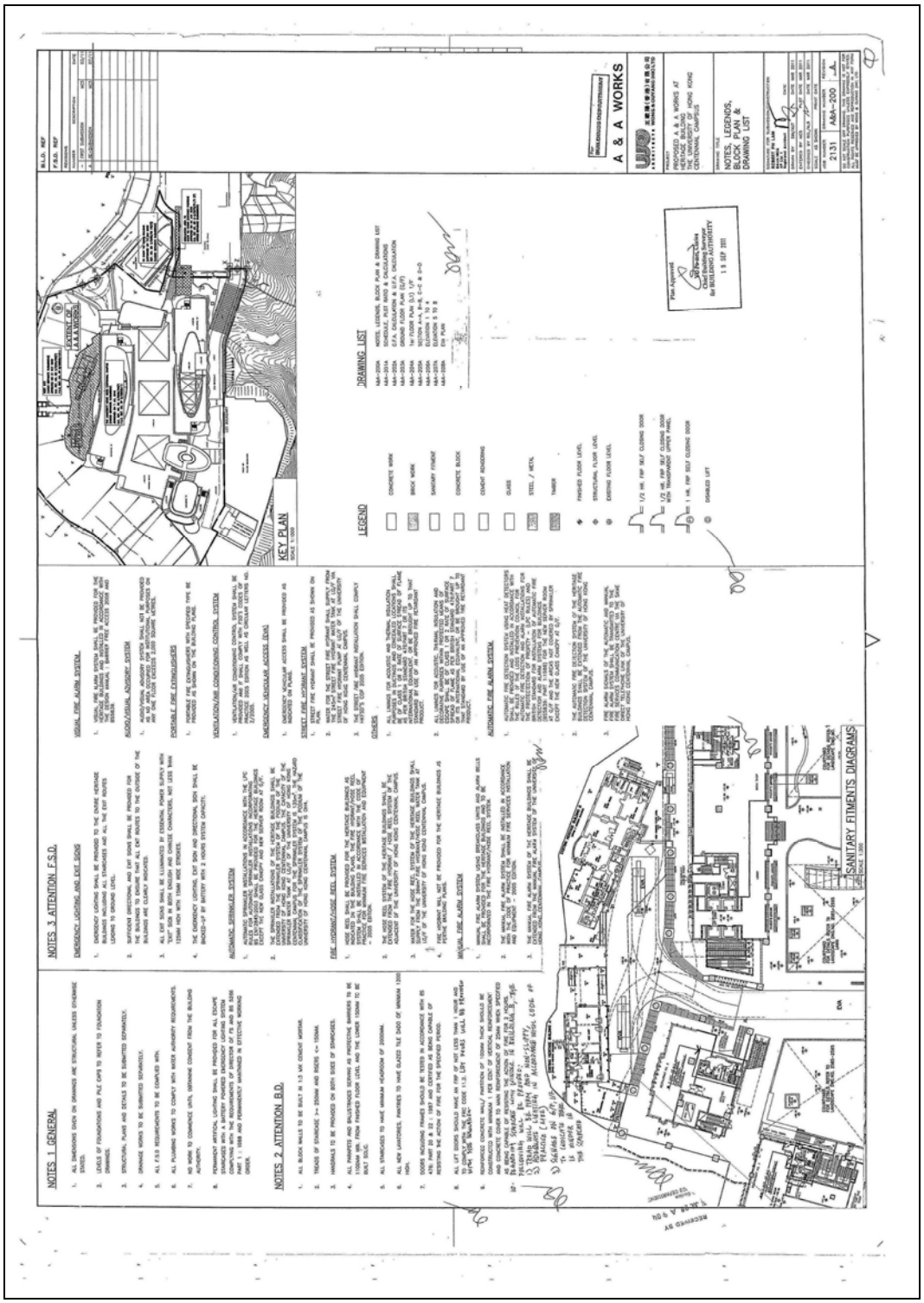

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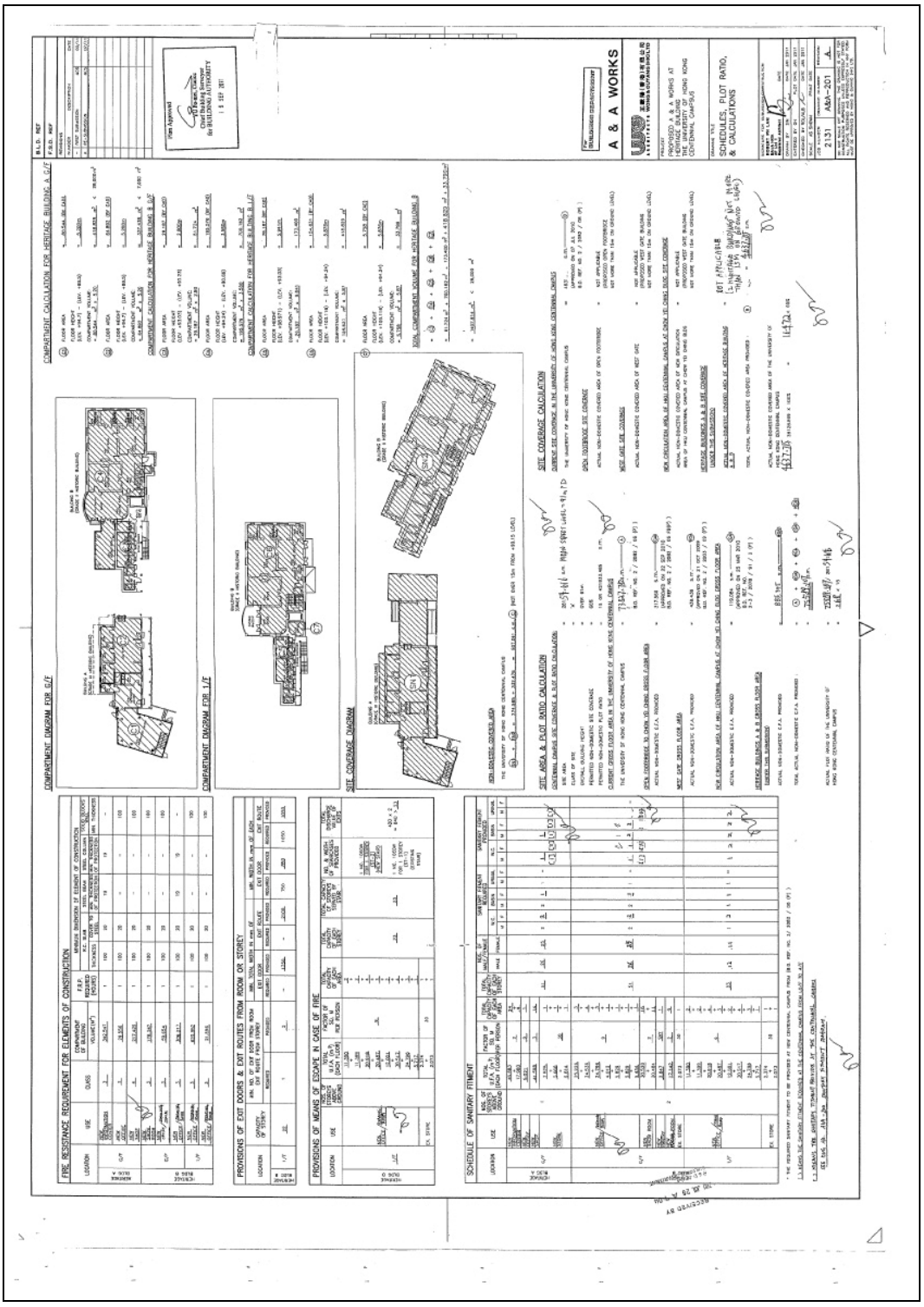

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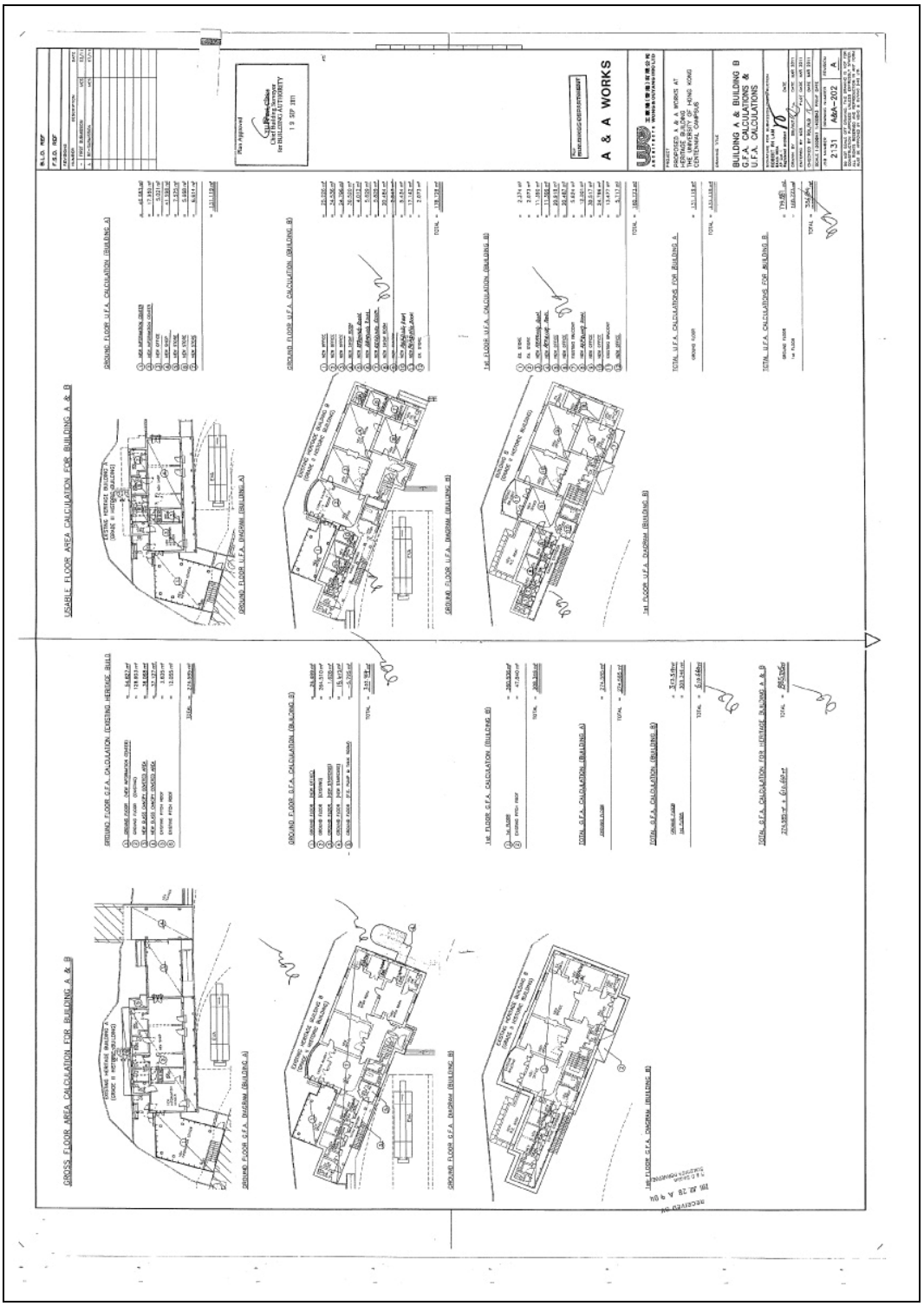

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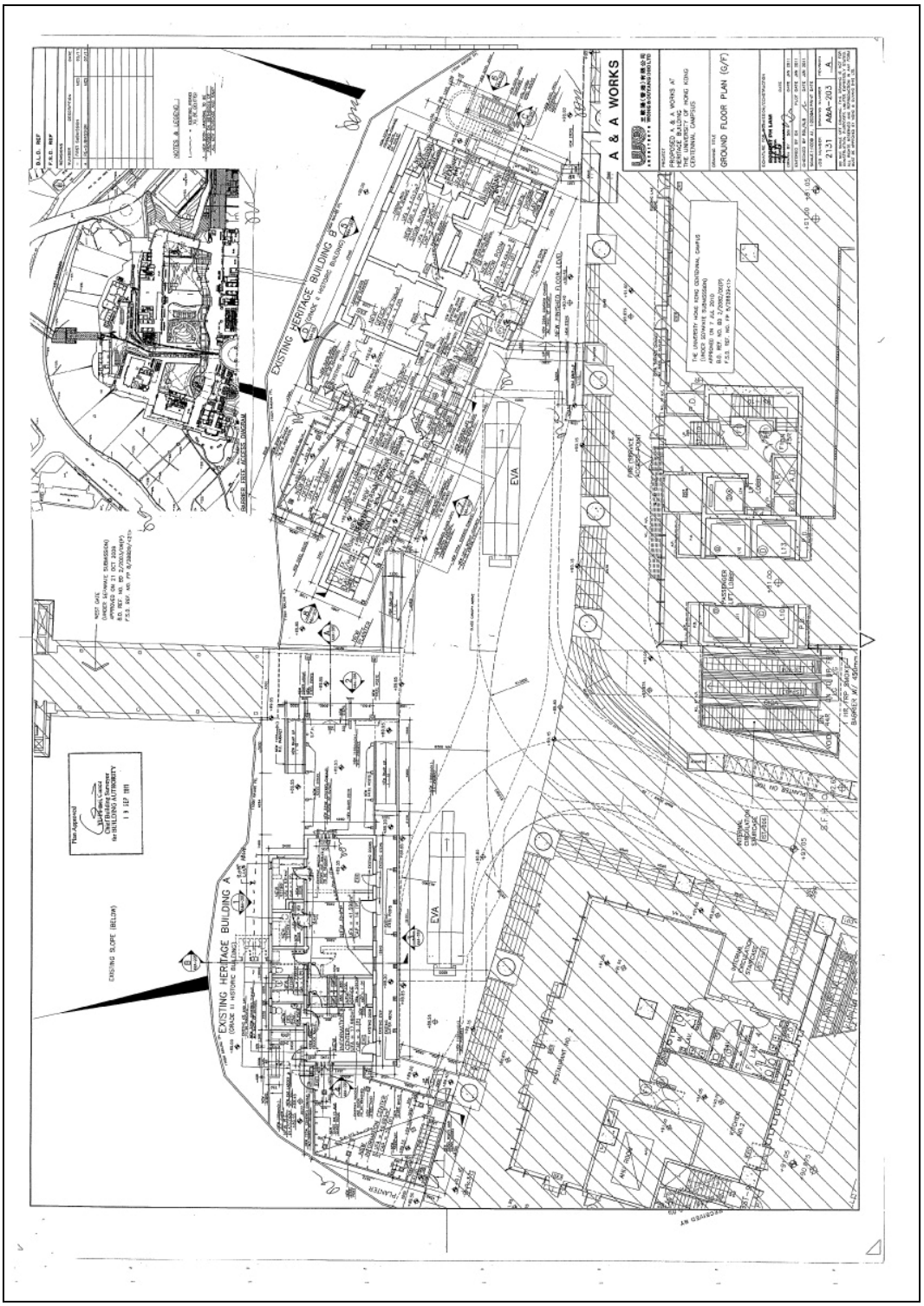

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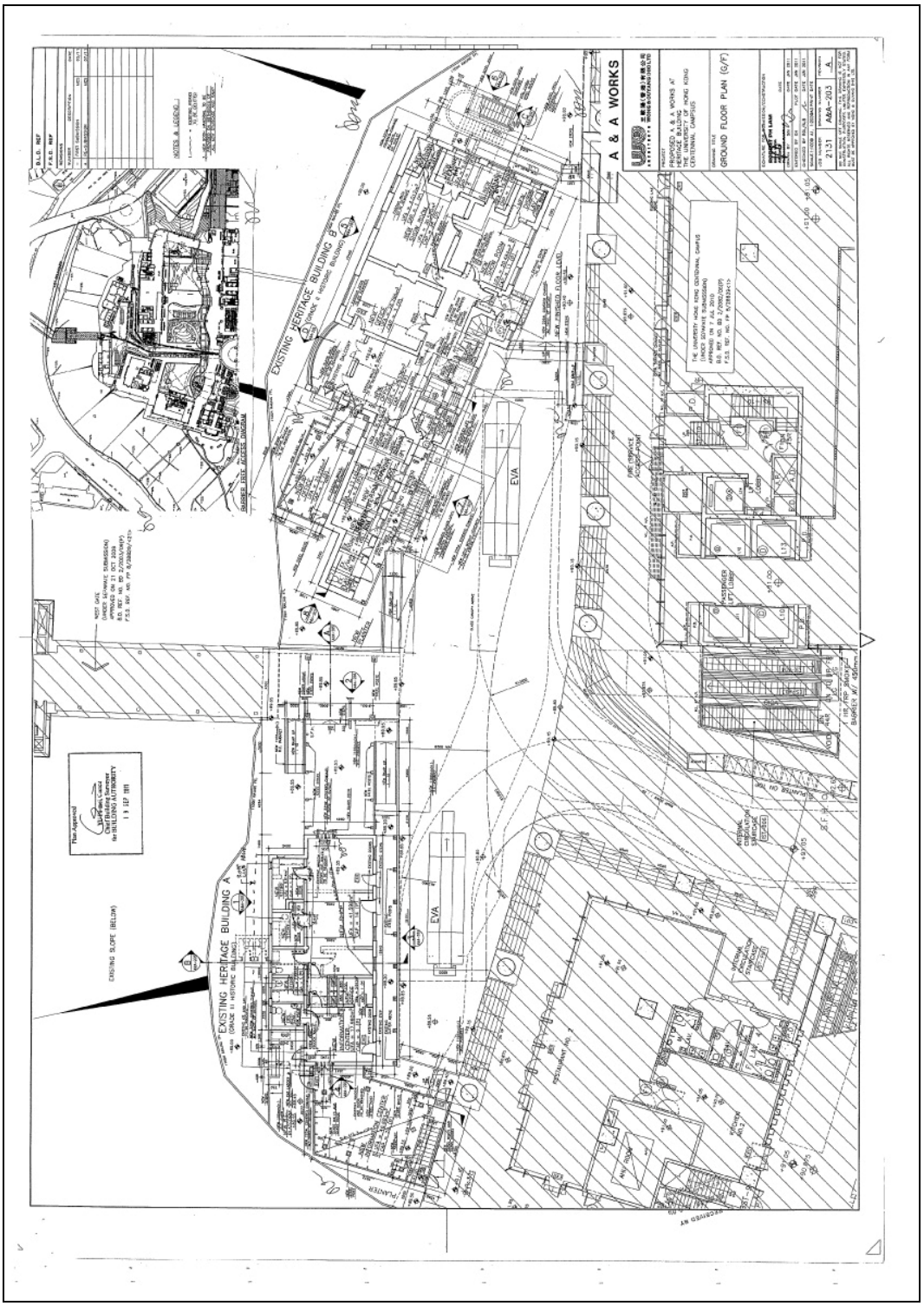

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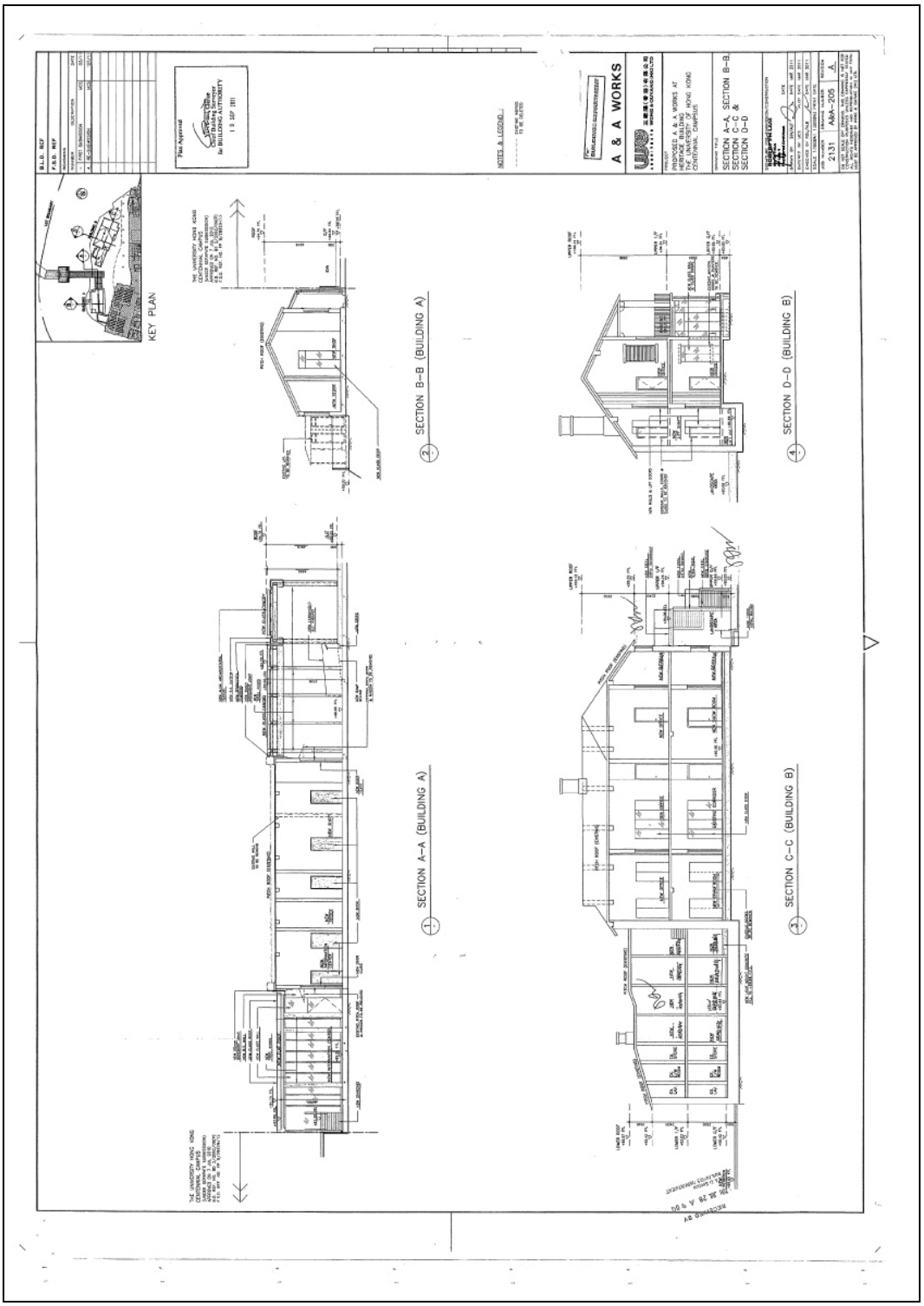

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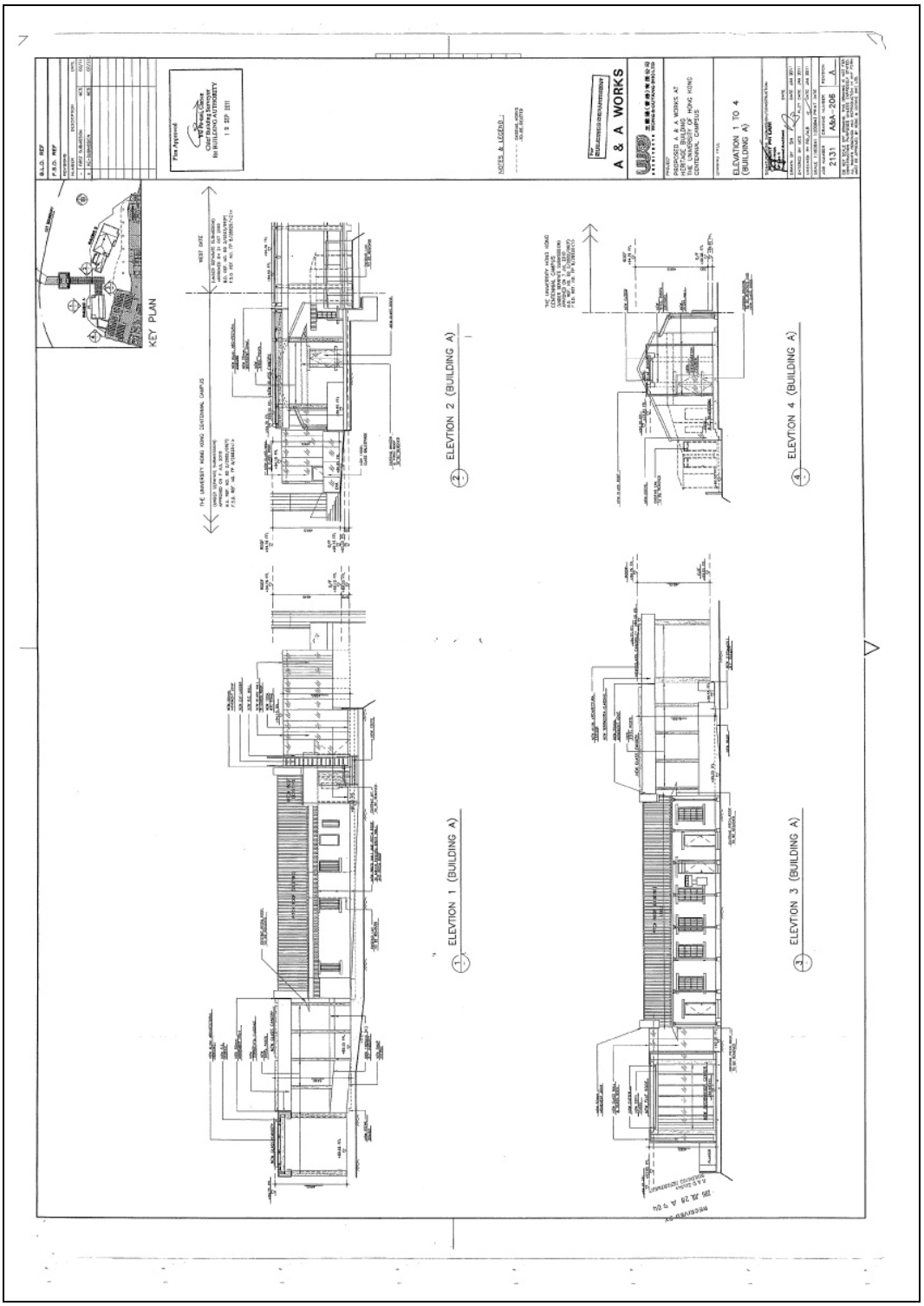

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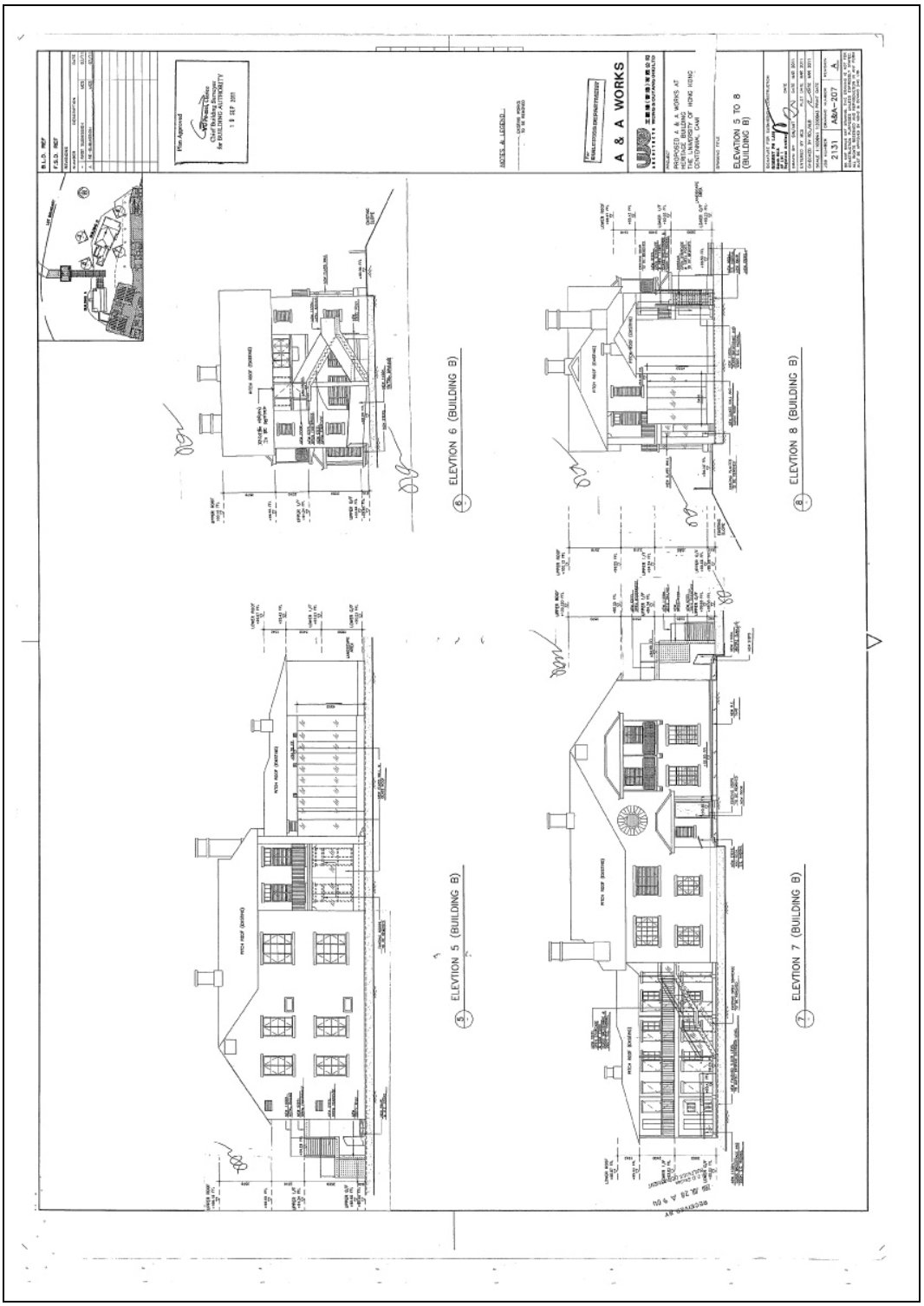

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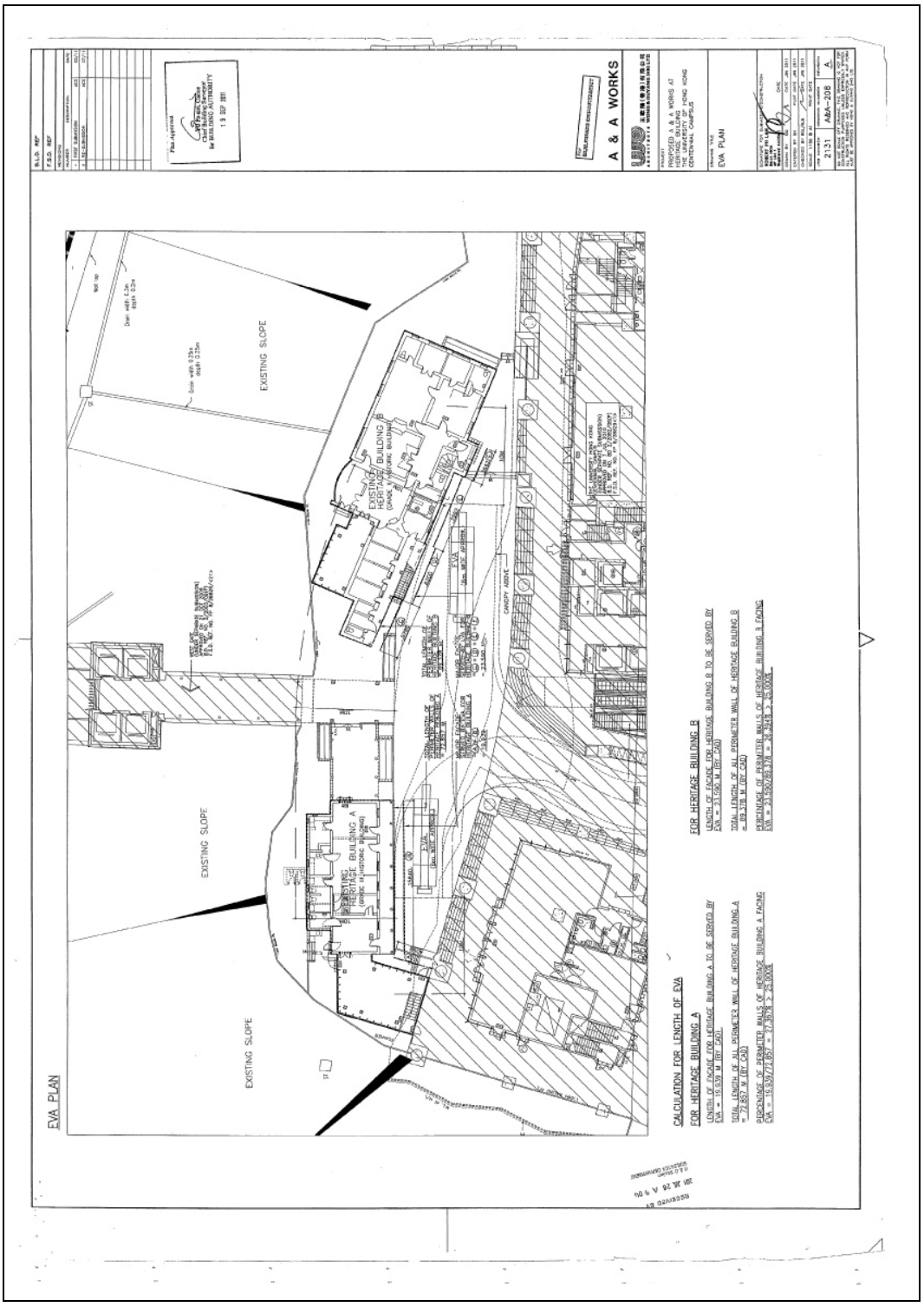

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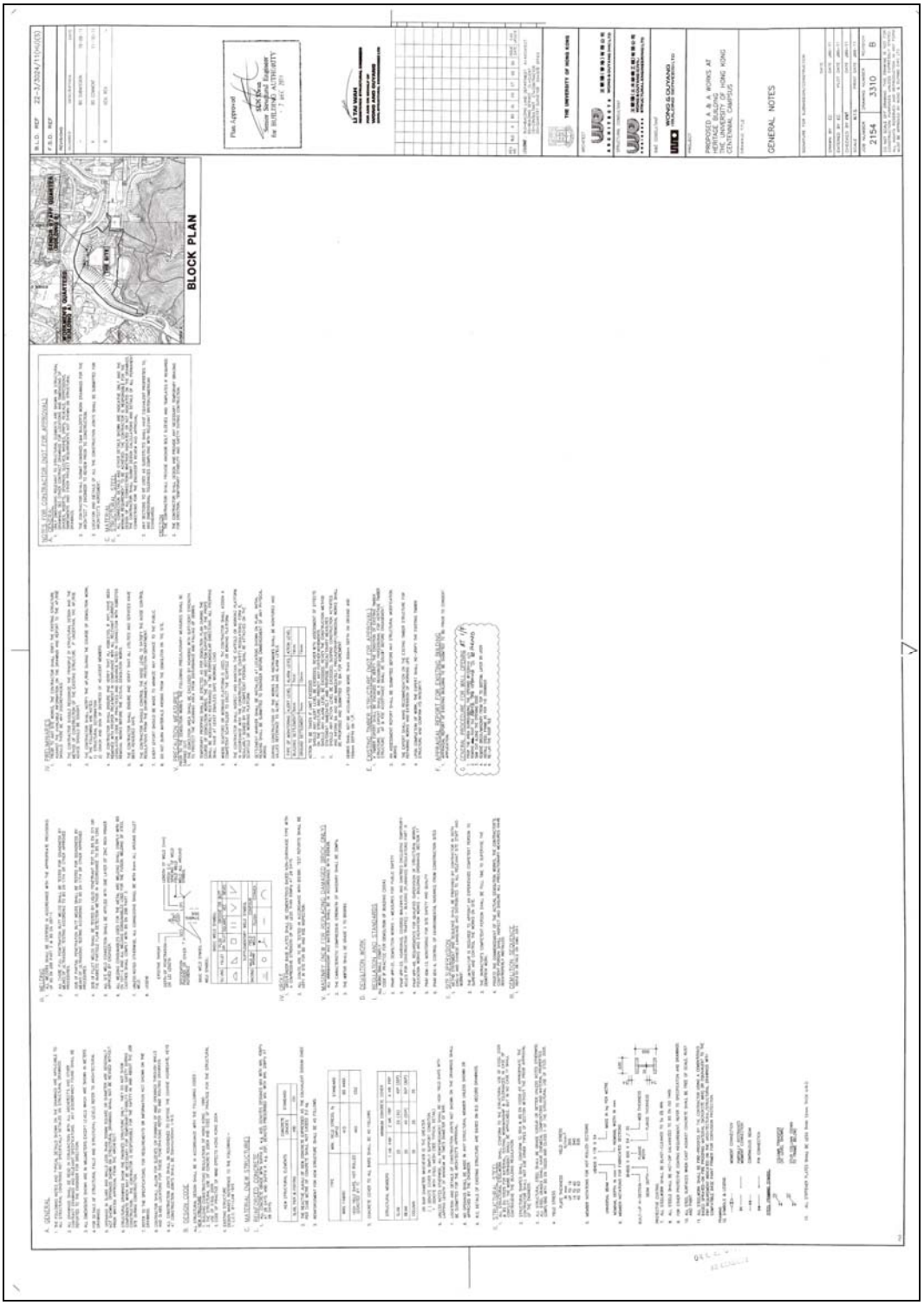
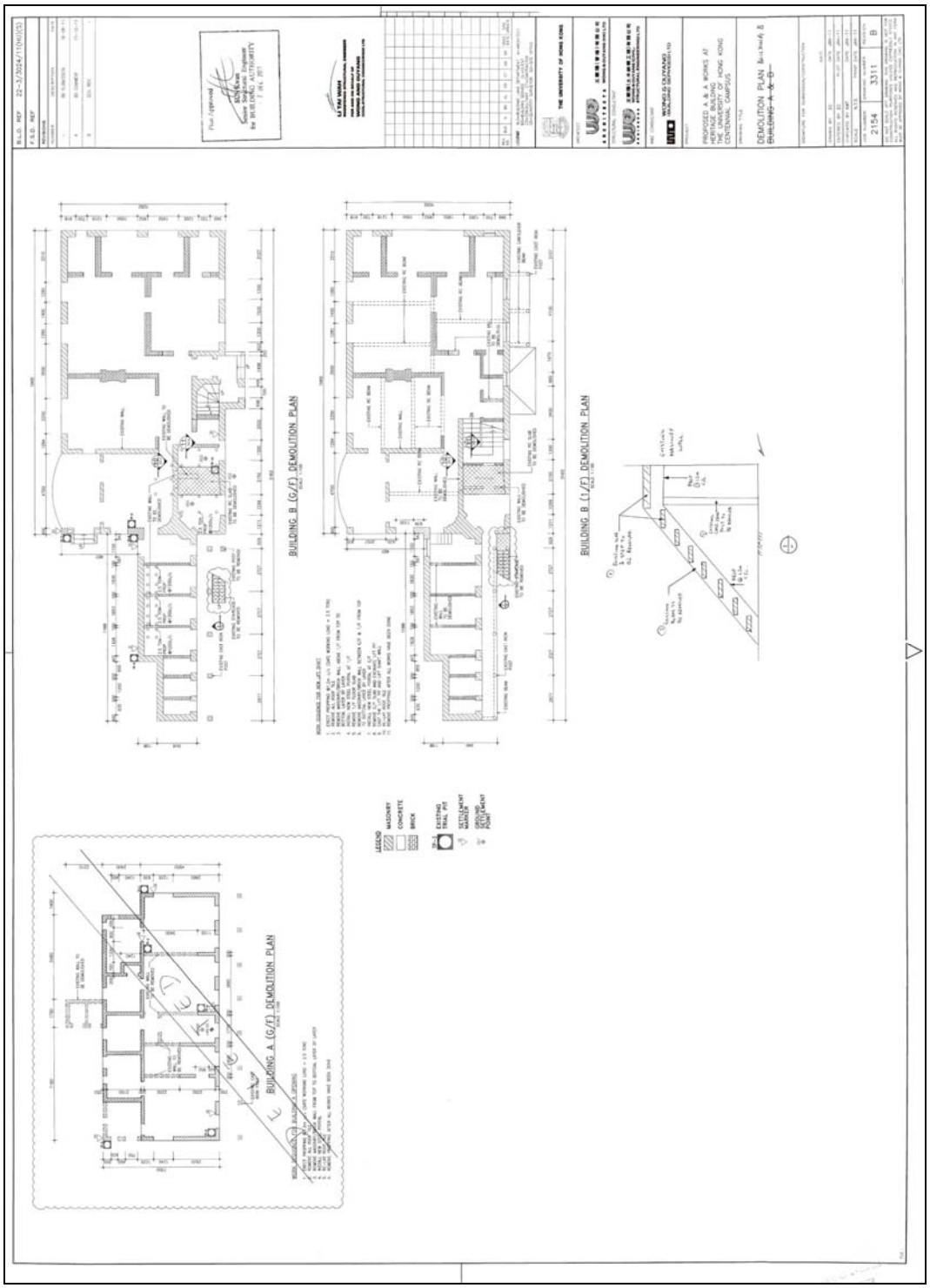
Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works

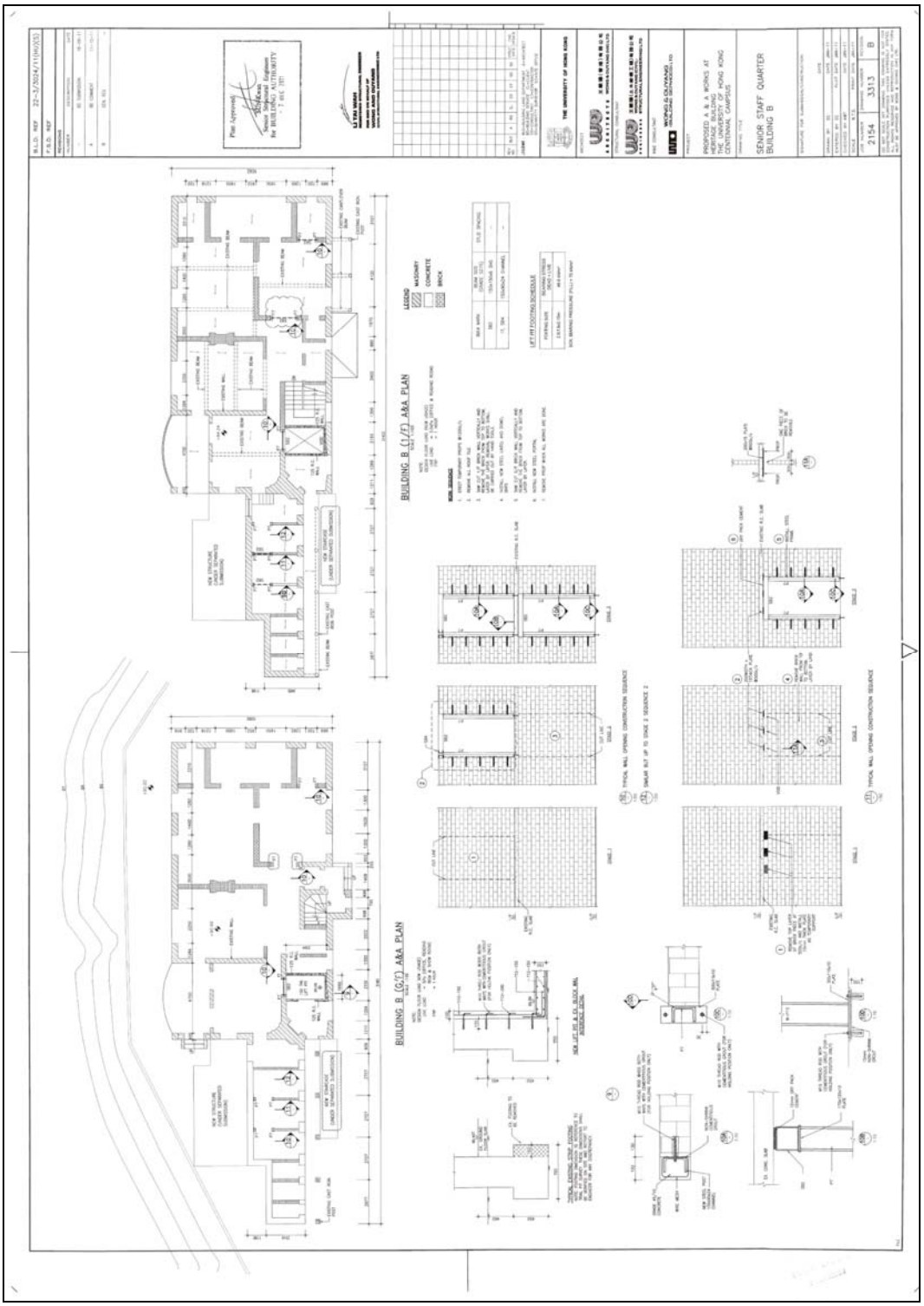
Approved Structural Addition and Alteration for Senior Staff Quarters (on 7th December, 2011)



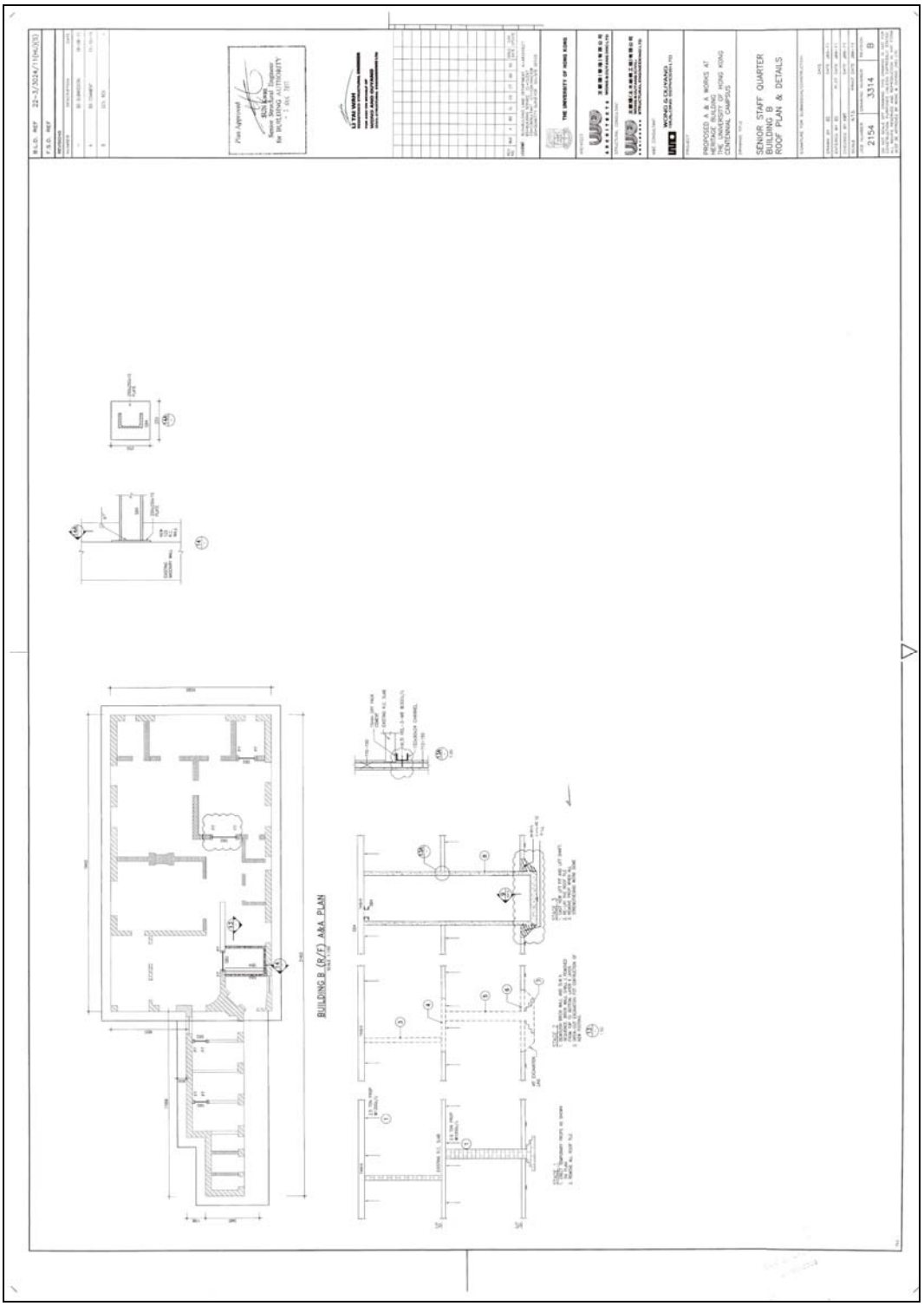
Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works



Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works

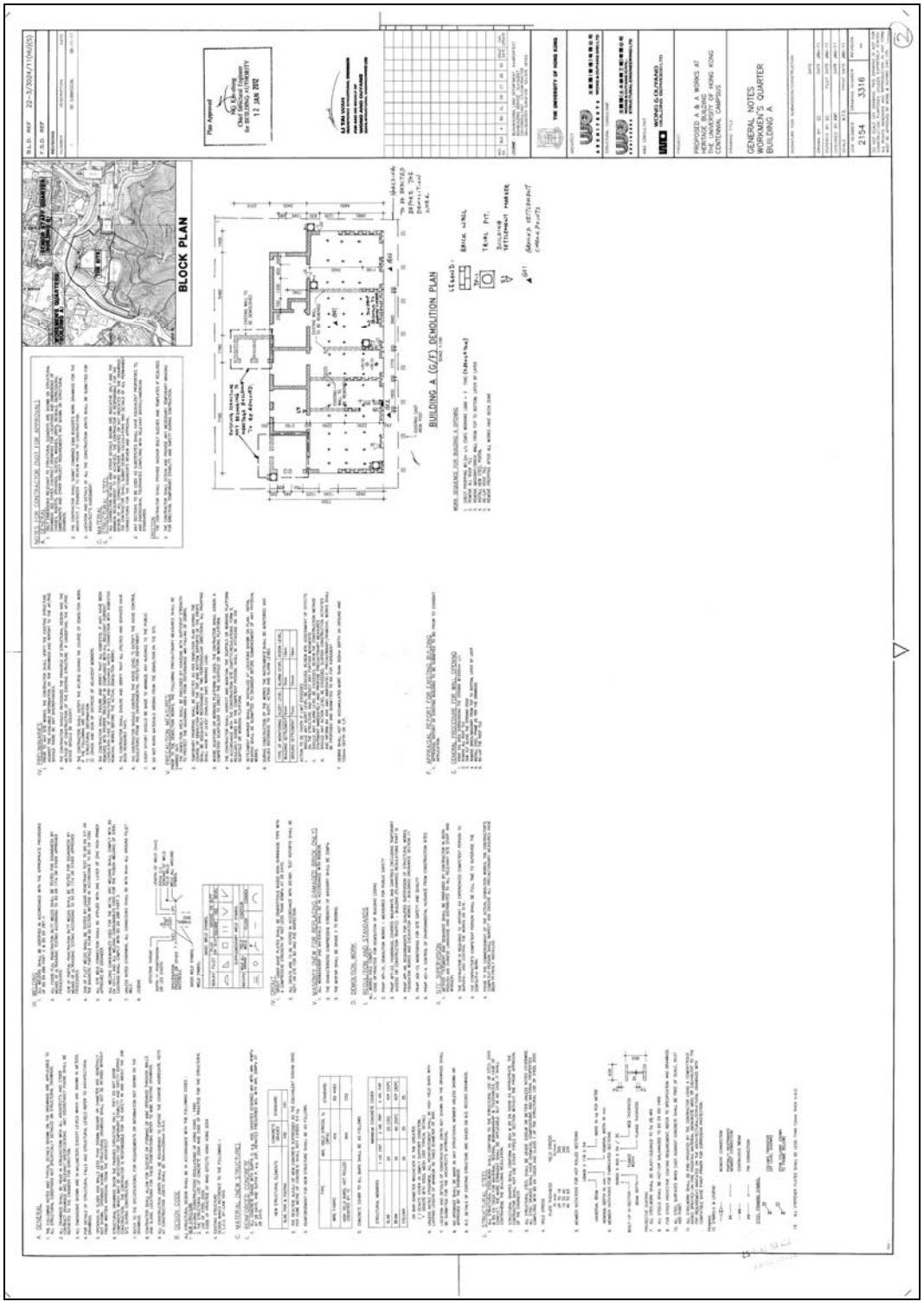


Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works

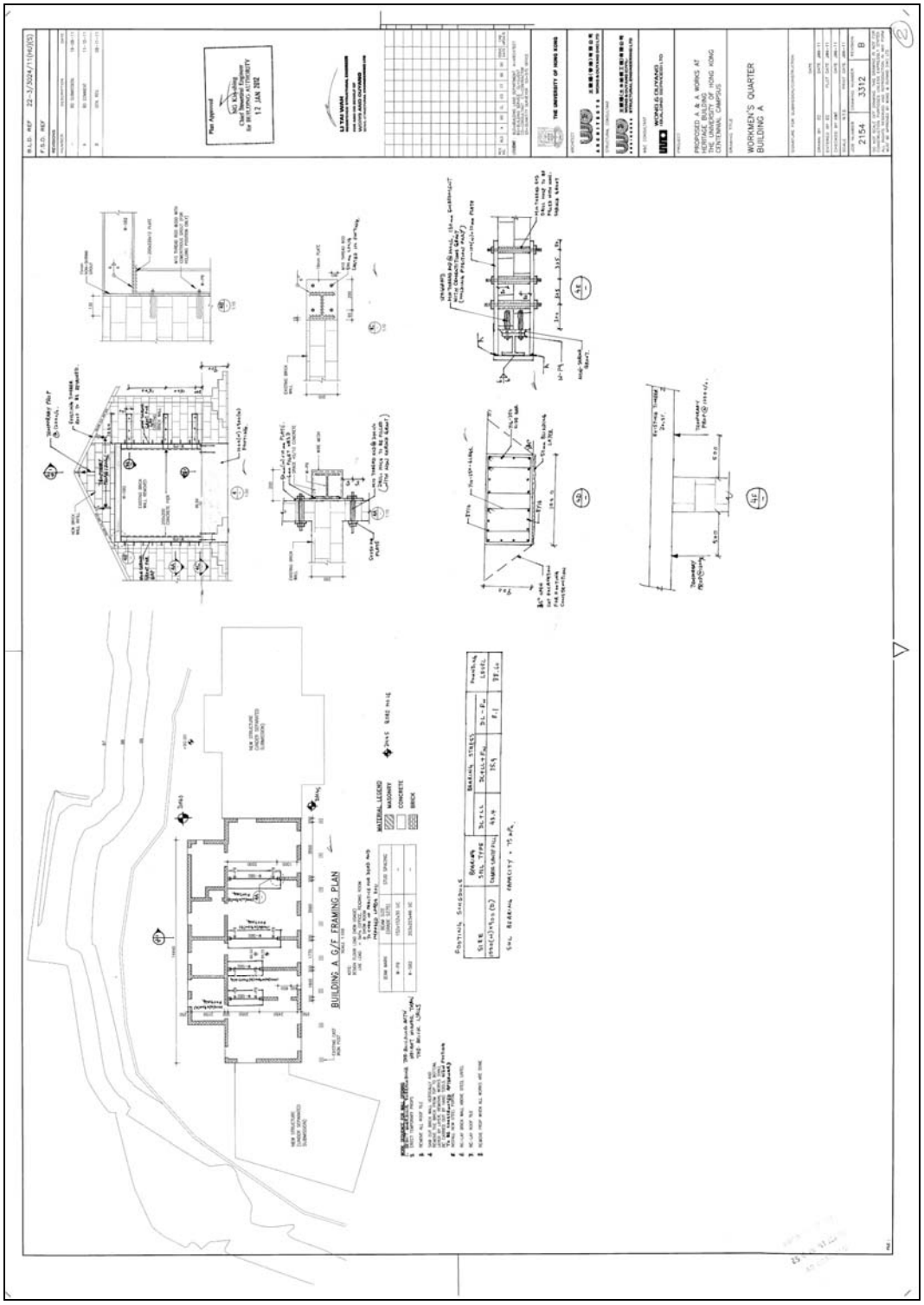


Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works

Approved Structural Addition and Alteration for Workmen's Quarters (on 12th January, 2012)

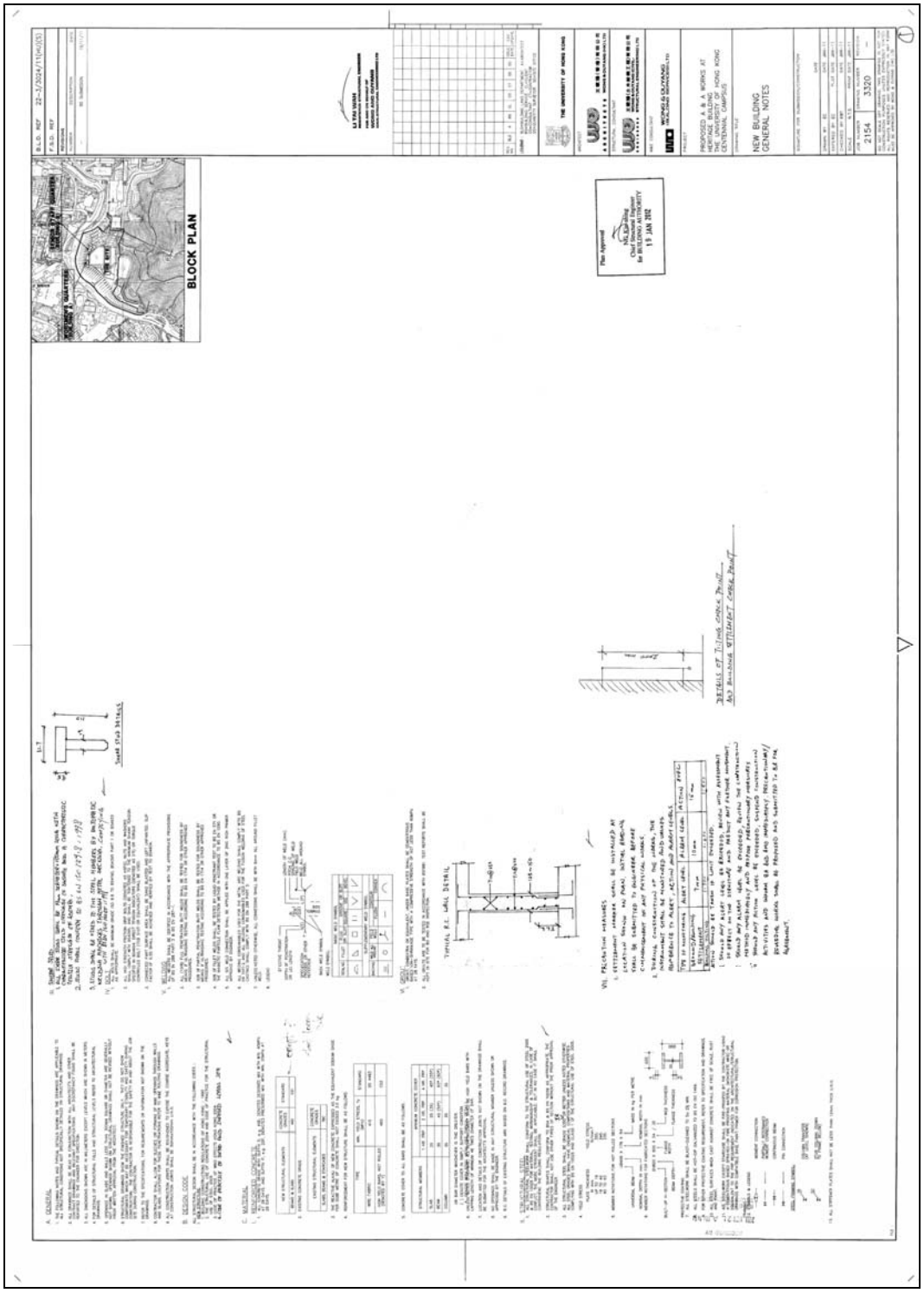


Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works

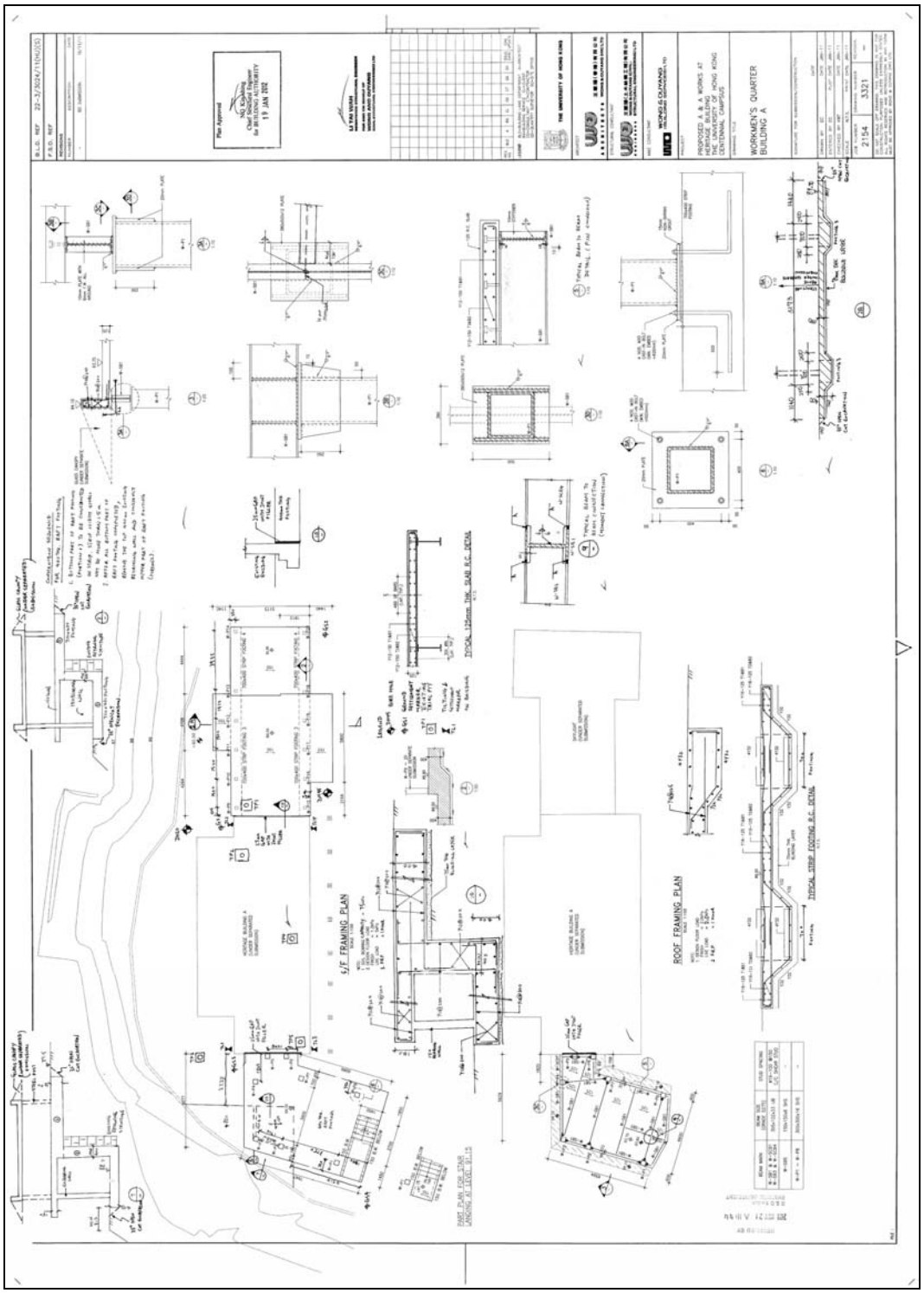


Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works

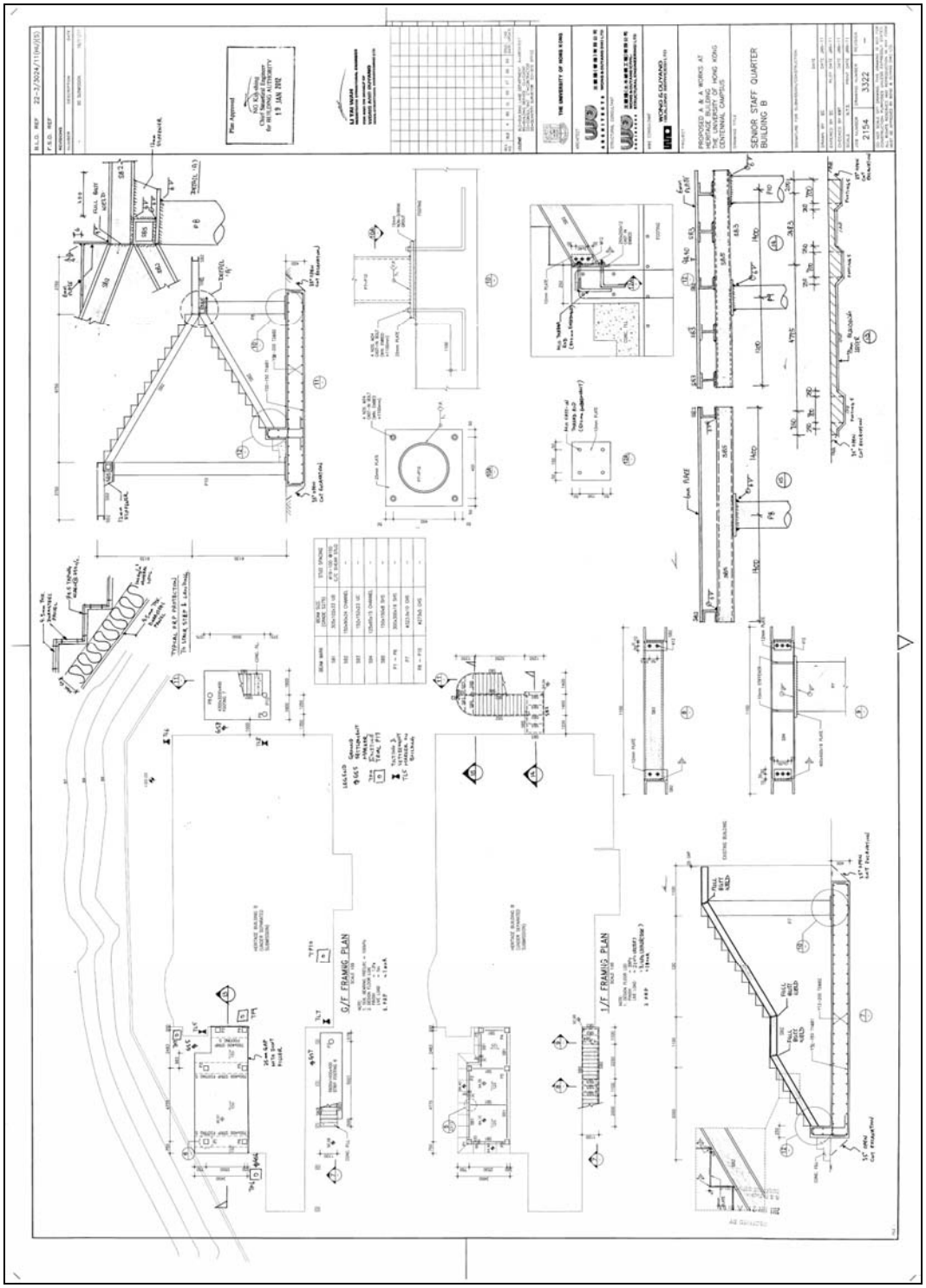
Approved Structural Works for Addition at Exterior (on 19th January, 2012)



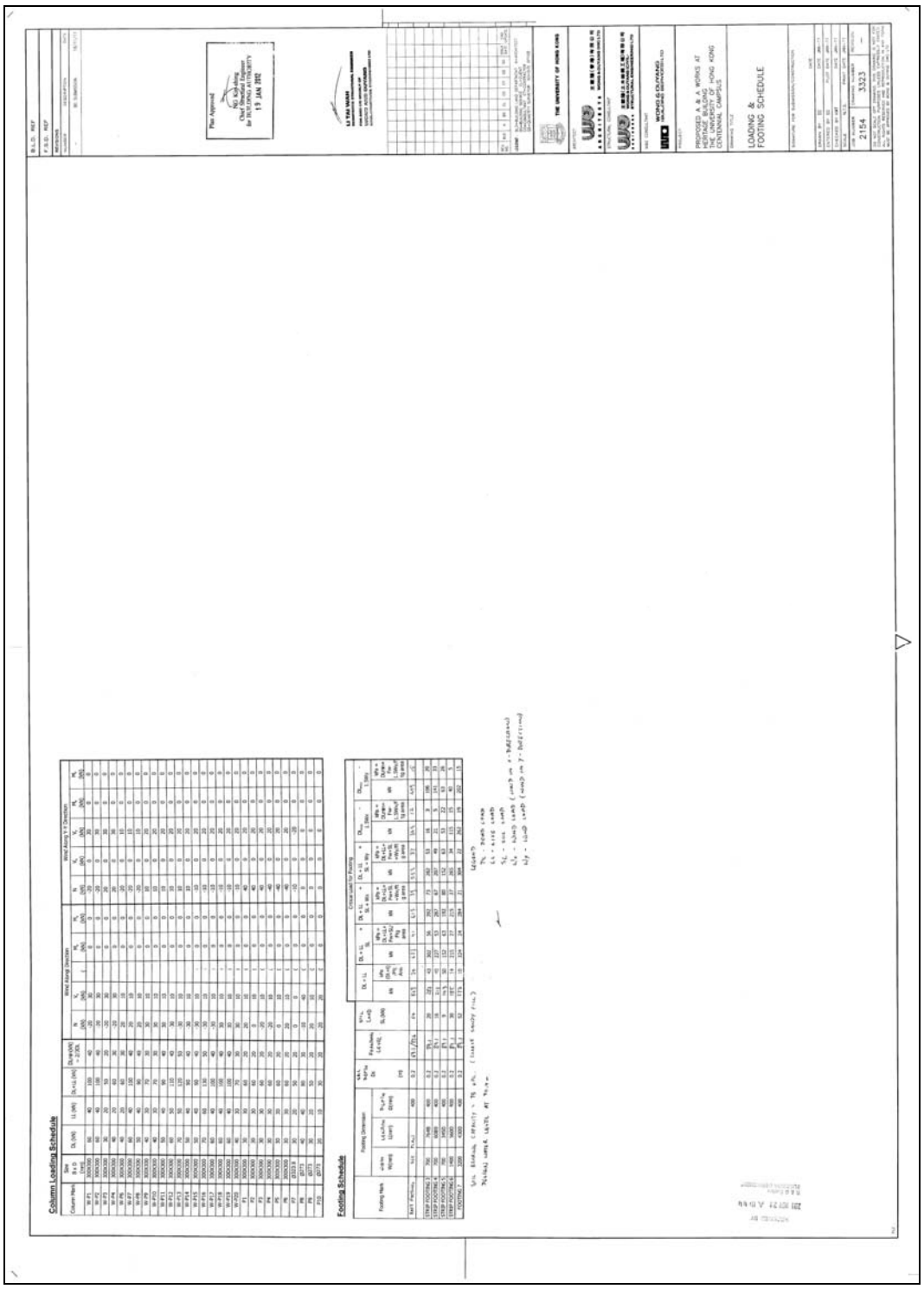
Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works



Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works



Appendix 5 – Buildings Department Approved Structural Addition and Alteration Works



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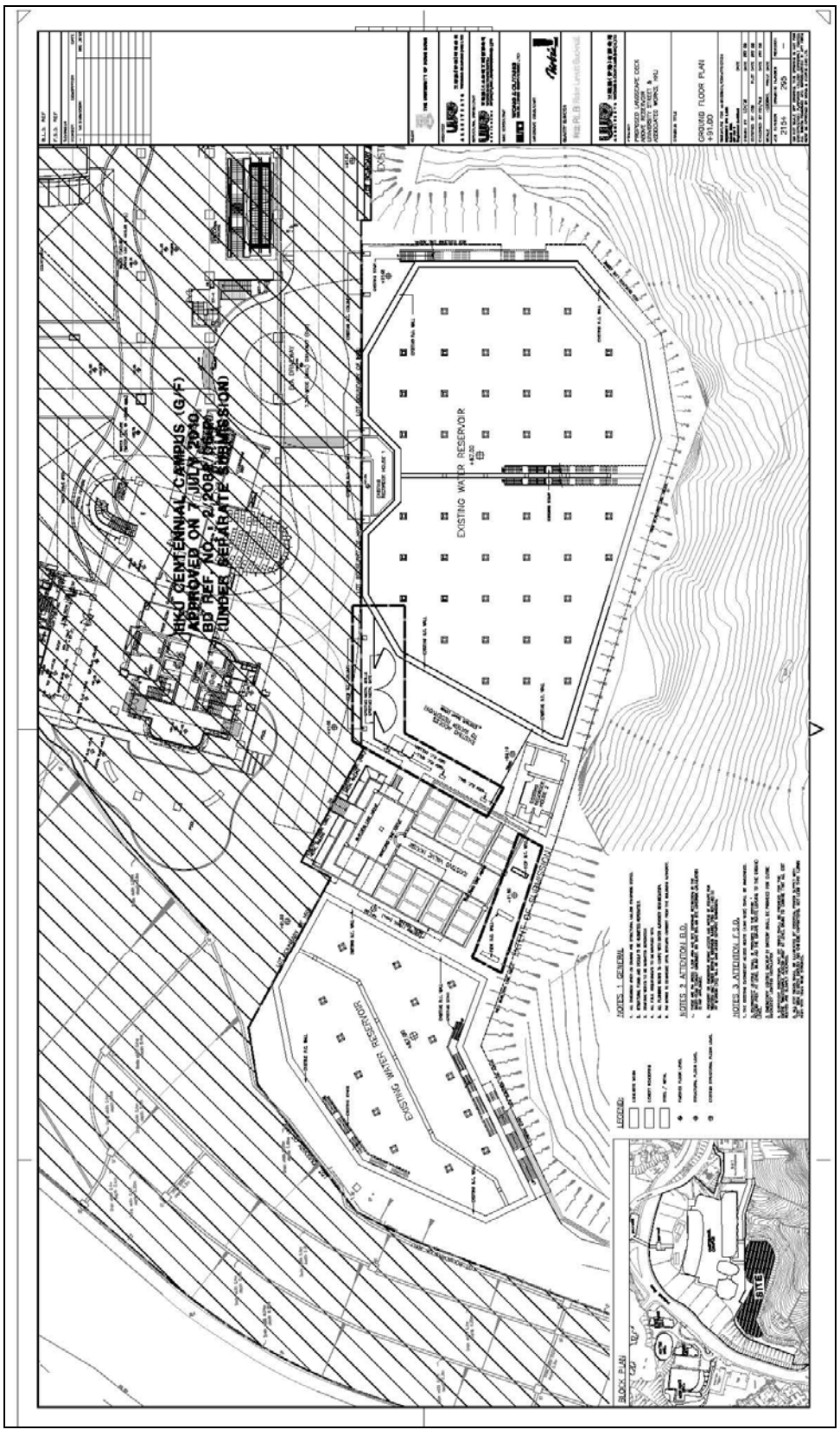
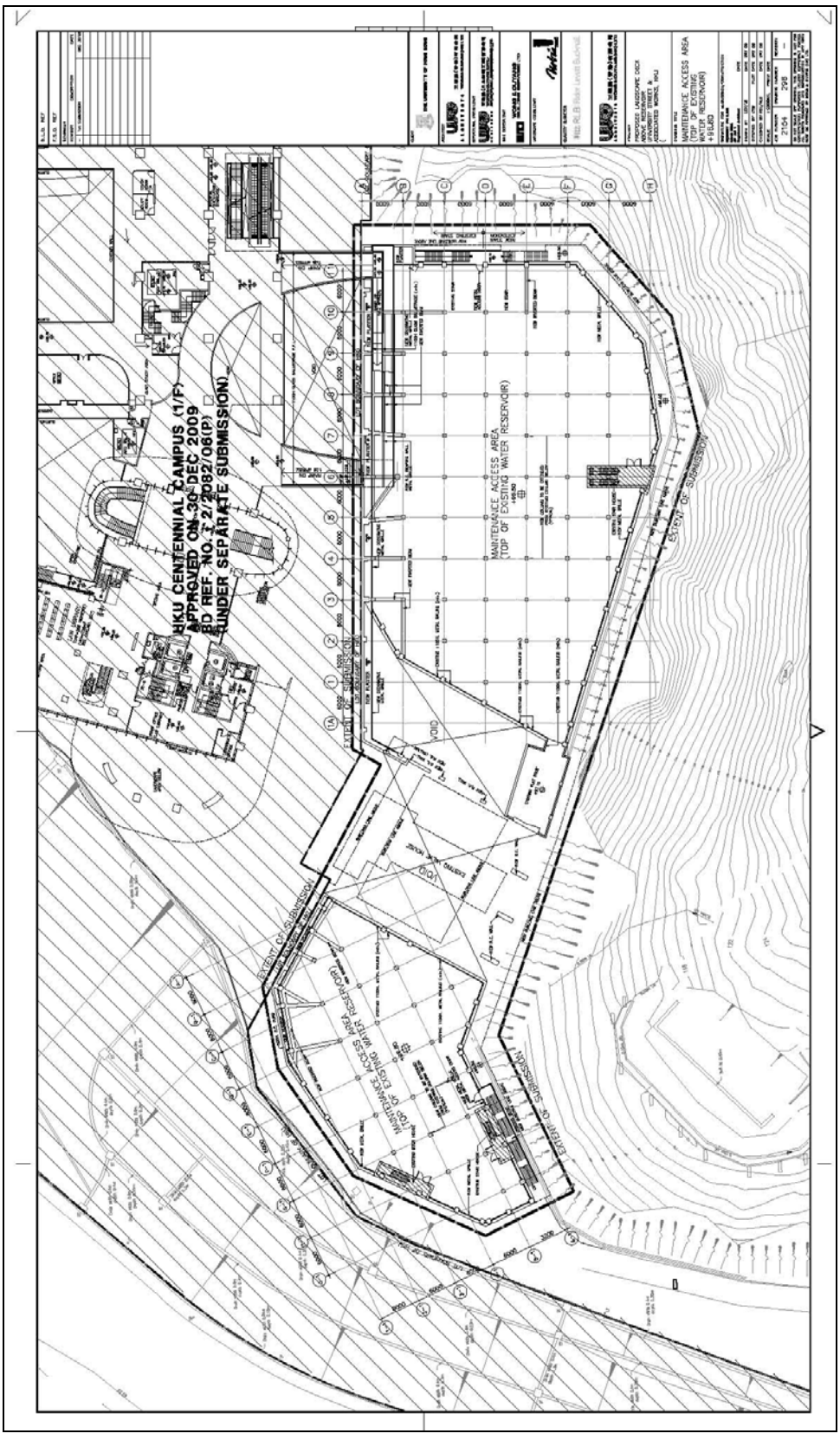
Appendix 6 – The Fresh Water Reservoir Drawings



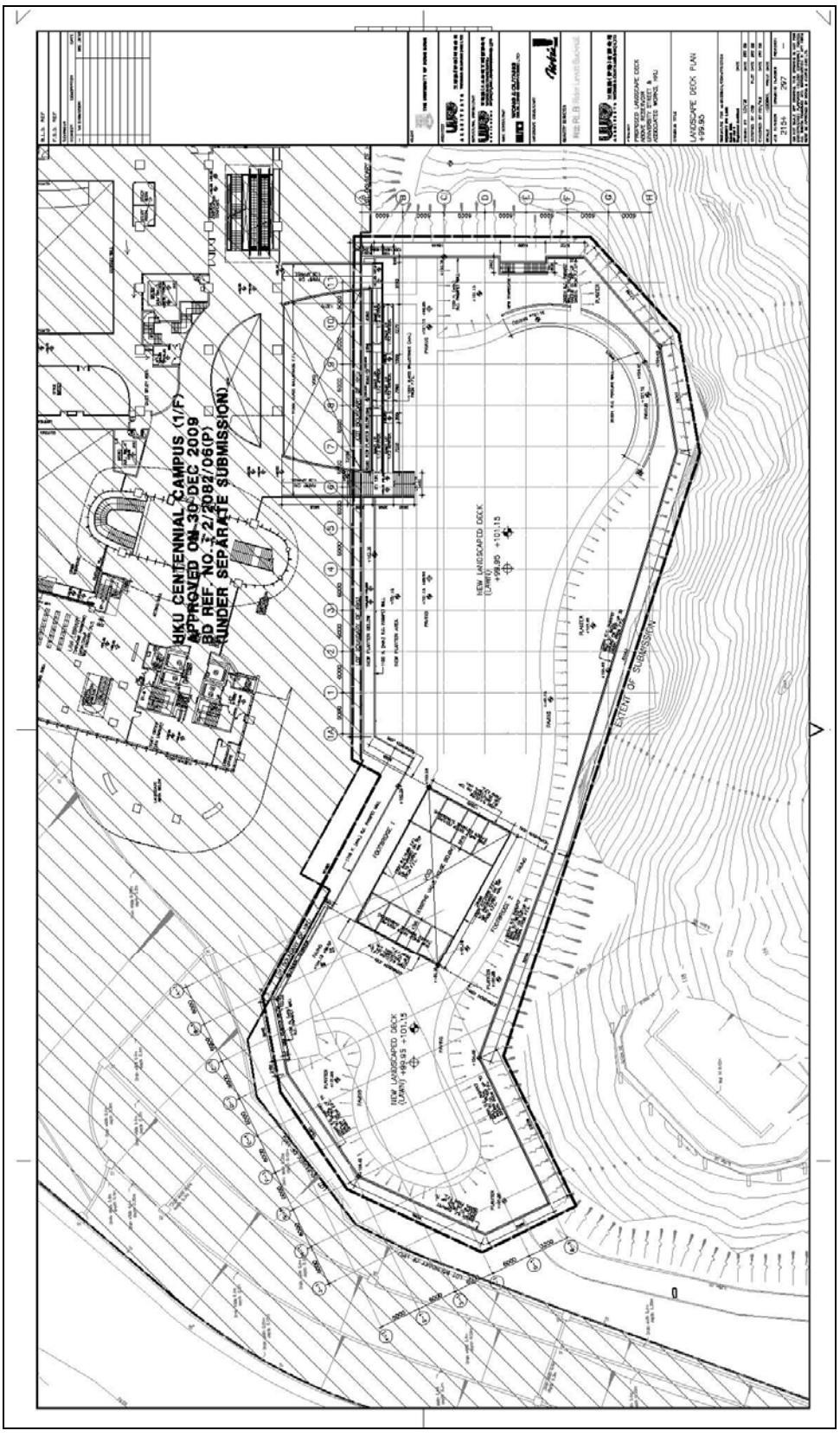
Ground floor plan (level at +91.00)

Appendix 6 – The Fresh Water Reservoir Drawings



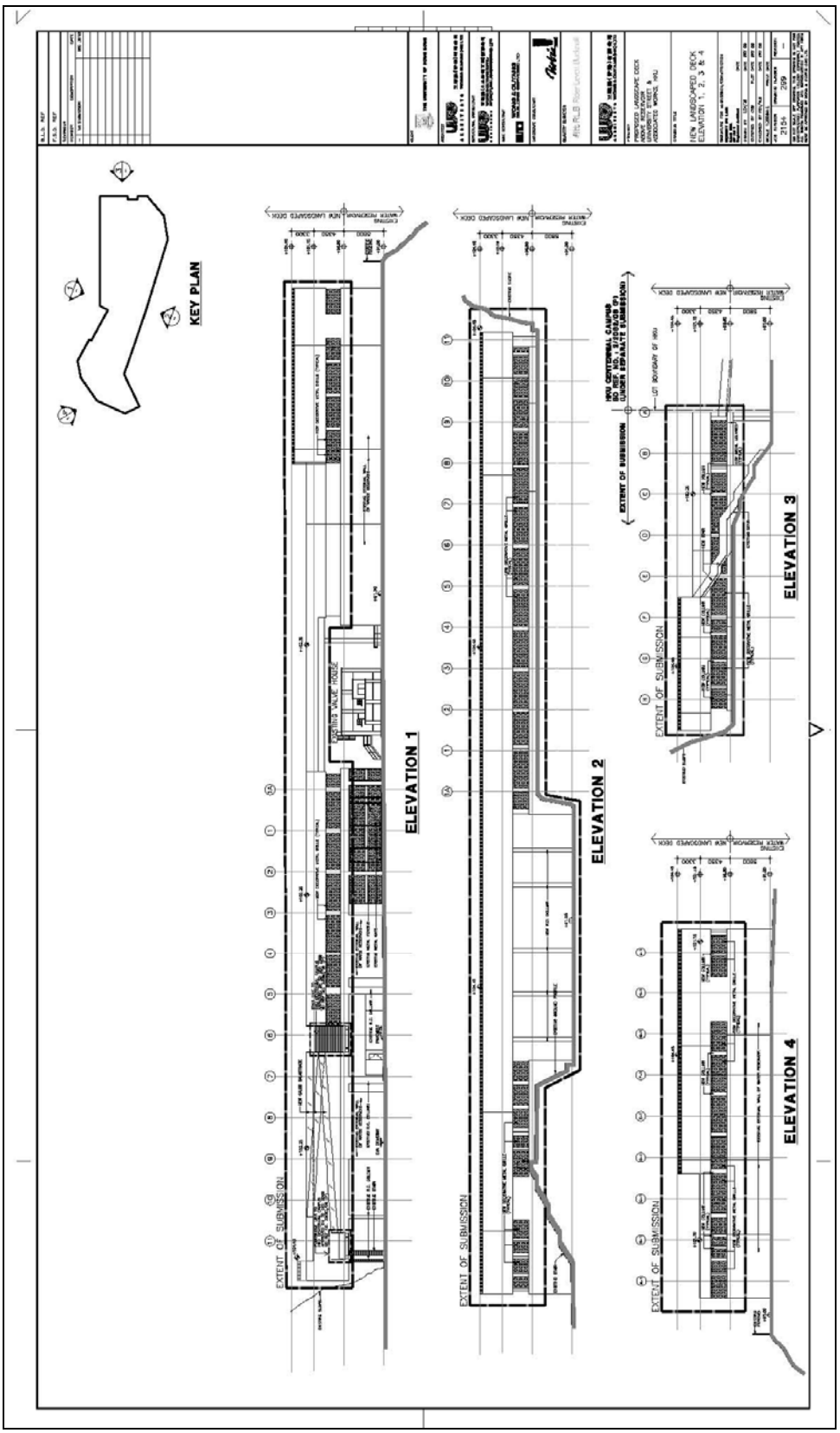
Maintenance access area (top of existing water reservoir) (level at +96.80)

Appendix 6 – The Fresh Water Reservoir Drawings



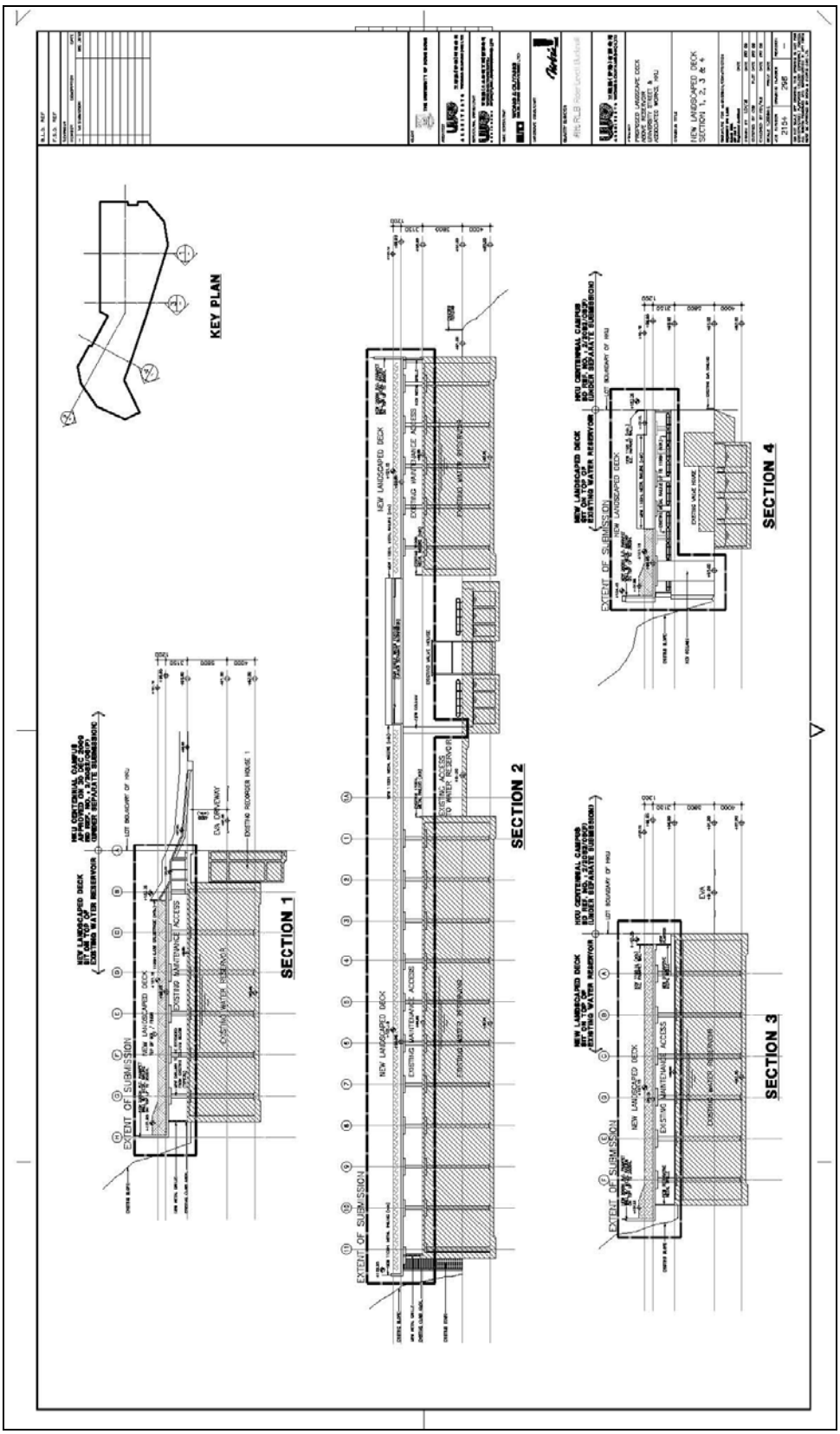
Landscape deck plan (level at +99.95)

Appendix 6 – The Fresh Water Reservoir Drawings



New landscape deck, elevation 1, 2, 3 and 4

Appendix 6 – The Fresh Water Reservoir Drawings



New landscape deck, section 1, 2, 3 and 4

Appendix 7 – Historic Building Appraisal by Antiquities and Monuments Office for the Three Historic Buildings

Historic Building Appraisal

Elliot Pumping Station & Filters
(Workmen's Quarters)
Pok Fu Lam Road, Kennedy Town, Hong Kong

Historical Interest

Water supply on Hong Kong Island relied solely on wells and streams prior to 1860. The first ever reservoir in the territory was completed in 1863 in Pokfulam to meet the needs in the City of Victoria. In the following decades, to cater for the ever increasing demands, much larger reservoirs and more complex water supplies systems, including ancillary pumping stations and distribution mains to convey augmented water supply to higher levels, were constructed. In order to uphold the quality of water, the Government gradually filtered all reservoir water.

The **Elliot Pumping Station and Filters** (西區抽水站及濾水廠) were built in 1930-1931 to extend a pre-existing pumping station on site. They were the auxiliary waterworks of Aberdeen Reservoir (the fourth reservoir, built in 1931) filtering and channeling water to the western part of Hong Kong Island. Afterwards, water could be transferred from the upper reservoir, through Wan Chai Gap Road to Island Road, Victoria Road and via Sandy Bay to the filters situated in Western District.

The **Workmen's Quarters** were built in the **1920s** for staff looking after the pumping station.

Architectural Merit

The Workmen's Quarters are situated at the northwest corner of the Elliot Pumping Station compound. The building is a long rectangular single storey structure with red-brick walls and a pitched roof of Chinese tiles. An open verandah with cast iron posts runs along the south elevation. Window and door openings have granite thresholds, cills and lintels. The wooden casements are heavily barred with burglar bars. Doors are wooden, braced and battened. There is a small latrine annex at the rear of the building. Internally, the building is divided into four small separate quarters (two of them seem to have been combined into one). There is nothing of architectural merit inside. The architectural style is **Colonial Eclectic** combining Western **Arts and Crafts** and local vernacular elements.

Rarity, Built Heritage Value & Authenticity

This style of building is not particularly rare, but it has built heritage value as well as group value. The building does not appear to have been altered very much and seems to retain its original appearance.

Social Value & Local

The social value of the building is low as it has only been used as WSD workmen's quarters. It is not well known being relatively isolated and not seen

Appendix 7 – Historic Building Appraisal by Antiquities and Monuments Office for the Three Historic Buildings

by the public. ***Interest***

The Elliot Pumping Station & Filters are quite important as a component of a significant architectural and historical complex. They are quite close to the West Point Filters (西環濾水廠) and the University of Hong Kong where declared monuments such as Main Building (香港大學本部大樓), Hung Hing Ying Building (孔慶熒樓) and Tang Chi Ngong Building (鄧志昂樓) stand. Other buildings in the surroundings graded by the Antiquities and Monuments Board include the Fung Ping Shan Building (馮平山樓) and King's College (皇仁書院). ***Group Value***

It is difficult to suggest an adaptive re-use for this building. As quarters they would need considerable upgrading to make them attractive to anyone. Possibly the best use for the building is utilitarian such as a workshop or store. ***Adaptive Re-use***

Appendix 7 – Historic Building Appraisal by Antiquities and Monuments Office for the Three Historic Buildings

Historic Building Appraisal

Elliot Pumping Station & Filters
(Senior Staff Quarters)
Pok Fu Lam Road, Kennedy Town, Hong Kong

Historical Interest

Water supply on Hong Kong Island relied solely on wells and streams prior to 1860. The first ever reservoir in the territory was completed in 1863 in Pokfulam to meet the needs in the City of Victoria. In the following decades, to cater for the ever increasing demands, much larger reservoirs and more complex water supplies systems, including ancillary pumping stations and distribution mains to convey augmented water supply to higher levels, were constructed. In order to uphold the quality of water, the Government gradually filtered all reservoir water.

The **Elliot Pumping Station and Filters** (西區抽水站及濾水廠) were built in 1930-1931 to extend a pre-existing pumping station, as a part of the Aberdeen Valley Water Scheme. The **Elliot Pumping Station and Filters** were the auxiliary waterworks of Aberdeen Reservoir (the fourth reservoir, built in 1931) filtering and channeling water to the western part of Hong Kong Island. Afterwards, water was transferred by an 18-inch diameter water pipe from Aberdeen Upper Reservoir, through Wanchai Gap Road to Island Road, Victoria Road and via Sandy Bay to the filters situated in the Elliot Pumping Station. With the development of advanced technology, the premises have been left vacant since 1993.

The **Senior Staff Quarters** were built in the **1920s** for staff looking after the pumping station.

Architectural Merit

The Senior Staff Quarters is quite a large building located at the northeast corner of the Elliot Pumping Station compound. It consists of two parts: a two-storey block comprising the senior staff quarters and a narrow two-storey annex comprising the servants' quarters. The walls are mainly built of granite ashlar blocks, but the verandahs are rendered and painted white. The roofs are pitched and hipped, covered with Chinese tiles, with several granite chimney stacks projecting above the roof. The front porch and first floor balcony to the senior staff quarters have their own individual roofs of Chinese tiles with "curling ends" to the hips. Windows are steel framed and wood casements regularly spaced, some fitted with shutters. The servants' annex has an external staircase and front verandah with cast iron posts. Internally, original features are still retained such as the wooden staircase, boarded floors, glazed and panelled doors, skirting, cornices and fireplaces. The senior staff quarters consist of two separate flats, one on the ground floor and one on the first floor. The architectural style of the building is **Colonial Eclectic** as it combines Western

Appendix 7 – Historic Building Appraisal by Antiquities and Monuments Office for the Three Historic Buildings

style with **Arts and Crafts** and local vernacular elements.

The building, which looks a bit like an old rambling English country house, is quite unique and should be regarded as a rare piece pf architecture with built heritage value. A verandah on the east elevation appears to have been blocked and there have been minor changes internally, but other than that the building appears to have retained much of its original appearance.	***Rarity, Built Heritage Value & Authenticity***
The social value of the Senior Staff Quarters is relatively low as it has only been used as Water Supplies Department (WSD) department quarters. It is not a well known building being relatively isolated and not seen by the public.	***Social Value & Local Interest***
The Elliot Pumping Station & Filters are quite important as a component of a significant architectural and historical complex. They are quite close to the West Point Filters (西環濾水廠) and the University of Hong Kong where declared monuments such as Main Building (香港大學本部大樓), Hung Hing Ying Building (孔慶熒樓) and Tang Chi Ngong Building (鄧志昂樓) stand. Other buildings in the surroundings graded by the Antiquities and Monuments Board include the Fung Ping Shan Building (馮平山樓) and King's College (皇仁書院).	***Group Value***
The building is situated in very pleasant surroundings and the accommodation is quite spacious. The best use for it is residential for which it was intended.	***Adaptive Re-use***

Appendix 7 – Historic Building Appraisal by Antiquities and Monuments Office for the Three Historic Buildings

Historic Building Appraisal

Elliot Pumping Station & Filters
(Treatment Works Building)
Pok Fu Lam Road, Kennedy Town, Hong Kong

Historical Interest

Water supply on Hong Kong Island relied solely on wells and streams prior to 1860. The first ever reservoir in the territory was completed in 1863 in Pokfulam to meet the needs in the City of Victoria. In the following decades, to cater for the ever increasing demands, much larger reservoirs and more complex water supplies systems, including ancillary pumping stations and distribution mains to convey augmented water supply to higher levels, were constructed. In order to uphold the quality of water, the Government gradually filtered all reservoir water.

The **Elliot Pumping Station and Filters** (西區抽水站及濾水廠) were built in 1930-1931 to extend a pre-existing pumping station on site. They were the auxiliary waterworks of Aberdeen Reservoir (the fourth reservoir, built in 1931) filtering and channeling water to the western part of Hong Kong Island. Afterwards, water could be transferred from the upper reservoir, through Wan Chai Gap Road to Island Road, Victoria Road and via Sandy Bay to the filters situated in Western District.

The **Treatment Works Building** is situated in the southwest corner of the Elliot Pumping Station compound. It was built in **1930-1931**. Due to advanced technology, it is no longer used and has been left vacant since 1993.

Architectural Merit

The Treatment Works Building consists of a valve house with a filter bed on either side. The front part of the valve house is a square three-storeys high block with a flat roof. The rear part is two-storeys high also with flat roof. The structure is reinforced concrete framing with red brick infill panels. Windows are steel framed, regularly spaced of various sizes. The window openings have concrete cills and concrete lintels. The front part of the building has decorative panels all around it below parapet level including one incised "H.K.W.W. 1930-1931". The whole structure is built in a pit surrounded by fencing. There is an external staircase at the northeast corner. The architectural style is **Utilitarian** with **Neo-Classical** influence which can be classified as **Colonial Eclectic**. Internally, there is little of architectural value, but all the old pipes, pumps, valves, etc. are still there and nothing appears to have been removed.

Rarity, Built Heritage Value & Authenticity

The Treatment Works Building has rarity and built heritage value as a historical relic. It does not appear to have been altered and seems to have retained its authenticity.

Appendix 7 – Historic Building Appraisal by Antiquities and Monuments Office for the Three Historic Buildings

The social value of the Treatment Works Building lies in the role it played in the treatment of our water supply for over 60 years. It is not a well known building being relatively isolated and not seen by the public. ***Social Value & Local Interest***

The Elliot Pumping Station & Filters are quite important as a component of a significant architectural and historical complex. They are quite close to the West Point Filters (西環濾水廠) and the University of Hong Kong where declared monuments such as Main Building (香港大學本部大樓), Hung Hing Ying Building (孔慶熒樓) and Tang Chi Ngong Building (鄧志昂樓) stand. Other buildings in the surroundings graded by the Antiquities and Monuments Board include the Fung Ping Shan Building (馮平山樓) and King's College (皇仁書院). ***Group Value***

It is not recommended that the Treatment Works Building be converted for adaptive re-use. In the U.K. for example, such redundant buildings are preserved with all their plant and machinery intact as museums. This building should be restored as preserved just as it is. ***Adaptive Re-use***

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Centennial Campus Project, The University of Hong Kong
Heritage Impact Assessment Report

Appendix 8 – The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Rehabilitating Historic Buildings

Rehabilitating is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.
(from: http://www.nps.gov/history/hps/tps/standguide/rehab/rehab_index.htm, down-loaded on 30th September, 2011.)

Standards for Rehabilitation Historic Buildings

(from: http://www.nps.gov/history/hps/tps/standguide/rehab/rehab_standards.htm, down-loaded on 30th September, 2011.)

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Guidelines for Rehabilitation Historic Buildings

The guidelines contain –

- The Approach.
- Exterior Materials – Masonry, Wood, and Architectural Metals.
- Interior Features – Roofs, Windows, Entrances + Porches, and Storefronts.
- Site.
- Setting.
- Special Requirements – Energy Efficiency, New Additions, Accessibility, Health + Safety.

Only the guidelines on Approach, and Special Requirements – New Additions, Accessibility, Health + Safety, are appended below.

Guidelines – the Approach

(from: http://www.nps.gov/history/hps/tps/standguide/rehab/rehab_approach.htm, down-loaded on 30th September, 2011.)

When repair and replacement of deteriorated features are necessary; when alterations or additions to the property are planned for a new or continued use; and when its depiction at a particular period of time is not appropriate. Rehabilitation may be considered as a treatment. Prior to undertaking work, a documentation plan for Rehabilitation should be developed.

Appendix 8 – The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Rehabilitating Historic Buildings

Choosing Rehabilitation as a Treatment

In **Rehabilitation**, historic building materials and character-defining features are protected and maintained as they are in the treatment Preservation; however, an assumption is made prior to work that existing historic fabric has become damaged or deteriorated over time and, as a result, more repair and replacement will be required. Thus, latitude is given in the **Standards for Rehabilitation and Guidelines for Rehabilitation** to replace extensively deteriorated, damaged, or missing features using either traditional or substitute materials. Of the four treatments, only Rehabilitation includes an opportunity to make possible an efficient contemporary use through alterations and additions.

Identify, Retain, and Preserve Historic Materials and Features

Like Preservation, guidance for the treatment **Rehabilitation** begins with recommendations to identify the form and detailing of those architectural materials and features that are important in defining the building's historic character and which must be retained in order to preserve that character. Therefore, guidance on ***identifying, retaining, and preserving*** character-defining features is always given first. The character of a historic building may be defined by the form and detailing of exterior materials, such as masonry, wood, and metal; exterior features, such as roofs, porches, and windows; interior materials, such as plaster and paint; and interior features, such as moldings and stairways, room configuration and spatial relationships, as well as structural and mechanical systems.

Protect and Maintain Historic Materials and Features

After identifying those materials and features that are important and must be retained in the process of **Rehabilitation** work, then ***protecting and maintaining*** them are addressed. Protection generally involves the least degree of intervention and is preparatory to other work. For example, protection includes the maintenance of historic material through treatments such as rust removal, caulking, limited paint removal, and re-application of protective coatings; the cyclical cleaning of roof gutter systems; or installation of fencing, alarm systems and other temporary protective measures. Although a historic building will usually require more extensive work, an overall evaluation of its physical condition should always begin at this level.

Appendix 8 – The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Rehabilitating Historic Buildings

Repair Historic Materials and Features

Next, when the physical condition of character-defining materials and features warrants additional work ***repairing*** is recommended. **Rehabilitation** guidance for the repair of historic materials such as masonry, wood, and architectural metals again begins with the least degree of intervention possible such as patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading them according to recognized preservation methods. Repairing also includes the limited replacement in kind--or with compatible substitute material--of extensively deteriorated or missing parts of features when there are surviving prototypes (for example, brackets, dentils, steps, plaster, or portions of slate or tile roofing). Although using the same kind of material is always the preferred option, substitute material is acceptable if the form and design as well as the substitute material itself convey the visual appearance of the remaining parts of the feature and finish.

This two-story brick commercial building--with its corner storefront--was originally constructed ca. 1876, then remodeled in 1916 in the Craftsman style and given a new, distinctive roofline. It served a number of uses, including a hotel, boarding house, saloon, restaurant, liquor store, warehouse, and office furniture showroom. The red brick walls had been painted several times over the years. Rehabilitation work included removal of multiple paint layers using a chemical stripper and thorough water rinse; spot repointing with matching mortar; and appropriate interior alterations. The building is now being used as a retail shop. Photos: NPS files.

Appendix 8 – The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Rehabilitating Historic Buildings

Replace Deteriorated Historic Materials and Features

Following repair in the hierarchy, **Rehabilitation** guidance is provided for ***replacing*** an entire character-defining feature with new material because the level of deterioration or damage of materials precludes repair (for example, an exterior cornice; an interior staircase; or a complete porch or storefront). If the essential form and detailing are still evident so that the physical evidence can be used to re-establish the feature as an integral part of the rehabilitation, then its replacement is appropriate. Like the guidance for repair, the preferred option is always replacement of the entire feature in kind, that is, with the same material. Because this approach may not always be technically or economically feasible, provisions are made to consider the use of a compatible substitute material. It should be noted that, while the National Park Service guidelines recommend the replacement of an entire character-defining feature that is extensively deteriorated, they never recommend removal and replacement with new material of a feature that--although damaged or deteriorated--could reasonably be repaired and thus preserved.

Design for the Replacement of Missing Historic Features

When an entire interior or exterior feature is missing (for example, an entrance, or cast iron facade; or a principal staircase), it no longer plays a role in physically defining the historic character of the building unless it can be accurately recovered in form and detailing through the process of carefully documenting the historical appearance. Although accepting the loss is one possibility, where an important architectural feature is missing, its replacement is always recommended in the **Rehabilitation** guidelines as the first or preferred, course of action. Thus, if adequate historical, pictorial, and physical documentation exists so that the feature may be accurately reproduced, and if it is desirable to re-establish the feature as part of the building's historical appearance, then designing and constructing a new feature based on such information is appropriate. However, a second acceptable option for the replacement feature is a new design that is compatible with the remaining character-defining features of the historic building. The new design should always take into account the size, scale, and material of the historic building itself and, most importantly, should be clearly differentiated so that a false historical appearance is not created.

Appendix 8 – The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Rehabilitating Historic Buildings

Alterations/Additions for the New Use

Some exterior and interior alterations to a historic building are generally needed to assure its continued use, but it is most important that such alterations do not radically change, obscure, or destroy character-defining spaces, materials, features, or finishes. Alterations may include providing additional parking space on an existing historic building site; cutting new entrances or windows on secondary elevations; inserting an additional floor; installing an entirely new mechanical system; or creating an atrium or light well. Alteration may also include the selective removal of buildings or other features of the environment or building site that are intrusive and therefore detract from the overall historic character. The construction of an exterior addition to a historic building may seem to be essential for the new use, but it is emphasized in the **Rehabilitation** guidelines that such new additions should be avoided, if possible, and considered only after it is determined that those needs cannot be met by altering secondary, i.e., non character-defining interior spaces. If, after a thorough evaluation of interior solutions, an exterior addition is still judged to be the only viable alterative, it should be designed and constructed to be clearly differentiated from the historic building and so that the character-defining features are not radically changed, obscured, damaged, or destroyed. Additions and alterations to historic buildings are referenced within specific sections of the Rehabilitation guidelines such as Site, Roofs, Structural Systems, etc., but are addressed in detail in New Additions to Historic Buildings.

Energy Efficiency/Accessibility Considerations/Health and Safety Code Considerations

These sections of the guidance address work done to meet accessibility requirements and health and safety code requirements; or retrofitting measures to improve energy efficiency. Although this work is quite often an important aspect of **Rehabilitation** projects, it is usually not a part of the overall process of protecting or repairing character-defining features; rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to radically change, obscure, damage, or destroy character-defining materials or features in the process of meeting code and energy requirements.

Appendix 8 – The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Rehabilitating Historic Buildings

Guidelines – Special Requirements, New Additions to Historic Building

(from: http://www.nps.gov/history/hps/tps/standguide/rehab/rehab_newadd.htm, down-loaded on 30th September, 2011.)

Although the work in these sections is quite often an important aspect of rehabilitation projects, it is usually not part of the overall process of preserving character-defining features (maintenance, repair, replacement); rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to obscure, radically change, damage, or destroy character-defining features in the process of rehabilitation work.

Historical Overview

Within the treatment, Rehabilitation, an attached exterior addition to a historic building expands its "outer limits" to create a new profile. Because such expansion has the capability to radically change the historic appearance, an exterior addition should be considered only after it has been determined that the new use cannot be successfully met by altering non-character-defining interior spaces. If the new use cannot be met in this way, then an attached exterior addition is usually an acceptable alternative. New additions should be designed and constructed so that the character-defining features of the historic building are not radically changed, obscured, damaged, or destroyed in the process of rehabilitation. New design should always be clearly differentiated so that the addition does not appear to be part of the historic resource.

Recommended

Placing functions and services required for the new use in non-character-defining interior spaces rather than constructing a new addition.

Constructing a new addition so that there is the least possible loss of historic materials and so that character-defining features are not obscured, damaged, or destroyed.

Appendix 8 – The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Rehabilitating Historic Buildings

This downtown Chicago library was expanded in 1981 when additional space was required with light and humidity control for the rare book collection. The compatible 10-story wing was linked to the historic block on side and rear elevations. Its simple design is compatible with the historic form, features, and detailing; old and new are clearly differentiated. Photo: Dave Clifton.

Designing a new addition in a manner that makes clear what is historic and what is new.

Considering the design for an attached exterior addition in terms of its relationship to the historic building as well as the historic district or neighborhood. Design for the new work may be contemporary or may reference design motifs from the historic building. In either case, it should always be clearly differentiated from the historic building and be compatible in terms of mass, materials, relationship of solids to voids, and color.

As part of this rehabilitation, two historic buildings were successfully joined by a new addition. The small glass connector between the two buildings (see photo, right) is appropriately set back. Photo: Martha L. Werenfels, AIA.

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Placing a new addition on a non-character-defining elevation and limiting the size and scale in relationship to the historic building.

Designing a rooftop addition when required for the new use, that is set back from the wall plane and as inconspicuous as possible when viewed from the street.

Not recommended

Expanding the size of the historic building by constructing a new addition when the new use could be met by altering non-character-defining interior spaces.

Attaching a new addition so that the character-defining features of the historic building are obscured, damaged, or destroyed.

Duplicating the exact form, material, style, and detailing of the historic building in a new addition so that the new work appears to be part of the historic building. Imitating a historic style or period of architecture in a new addition.

This highly visible new rooftop addition appears to be part of the historic building because of its replicative design and historicized detailing, such as the arched windows. This approach does not meet the Standards for Rehabilitation. Photo: NPS files.

Designing and constructing new additions that result in the diminution or loss of the historic character of the resource, including its design, materials, workmanship, location, or setting.

Designing a new addition that obscures, damages, or destroys character-defining features of the historic building.

Constructing a rooftop addition so that the historic appearance of the building is radically changed.

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Guidelines – Special Requirements, Accessibility Considerations

(from: http://www.nps.gov/history/hps/tps/standguide/rehab/rehab_access.htm, down-loaded on 30th September, 2011.)

Although the work in these sections is quite often an important aspect of rehabilitation projects, it is usually not part of the overall process of preserving character-defining features (maintenance, repair, replacement); rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to obscure, radically change, damage, or destroy character-defining features in the process of rehabilitation work.

Historical Overview

Work that must be done to meet accessibility requirements, health and safety requirements or retrofitting to improve energy efficiency is usually not part of the overall process of protecting historic buildings; rather, this work is assessed for its potential impact on the historic building.

It is often necessary to make modifications to a historic building so that it will be in compliance with current accessibility code requirements. Accessibility to certain historic structures is required by three specific federal laws: the Architectural Barriers Act of 1968, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990. Federal rules, regulations, and standards have been developed which provide guidance on how to accomplish access to historic areas for people with disabilities. Work must be carefully planned and undertaken so that it does not result in the loss of character-defining spaces, features, and finishes. The goal is to provide the highest level of access with the lowest level of impact.

Recommended

Identifying the historic building's character-defining spaces, features, and finishes so that accessibility code-required work will not result in their damage or loss.

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A new elevator entrance was provided next to the stairs to provide universal access to the services inside. Photo: Courtesy, GSA.

Complying with barrier-free access requirements, in such a manner that character-defining spaces, features, and finishes are preserved.

Working with local disability groups, access specialists, and historic preservation specialists to determine the most appropriate solution to access problems.

Providing barrier-free access that promotes independence for the disabled person to the highest degree practicable, while preserving significant historic features.

The automatic door to this museum building is a practical solution for universal entry. Photo: NPS files.

Designing new or additional means of access that are compatible with the historic building and its setting.

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Not Recommended

Undertaking code-required alterations before identifying those spaces, features, or finishes which are character-defining and must therefore be preserved.

Altering, damaging, or destroying character-defining features in attempting to comply with accessibility requirements.

The ramp's scale and materials are inconsistent with the character of the historic building. Photo: NPS files.

Making changes to buildings without first seeking expert advice from access specialists and historic preservationists, to determine solutions.

Making access modifications that do not provide a reasonable balance between independent, safe access and preservation of historic features.

Designing new or additional means of access without considering the impact on the historic building and its setting

Guidelines – Special Requirements, Health + Safety Considerations

(from: http://www.nps.gov/history/hps/tps/standguide/rehab/rehab_healthsafety.htm, down-loaded on 30th September, 2011.)

Although the work in these sections is quite often an important aspect of rehabilitation projects, it is usually not part of the overall process of preserving character-defining features (maintenance, repair, replacement); rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to obscure, radically change, damage, or destroy

character-defining features in the process of rehabilitation work.

Historical Overview

Work that must be done to meet accessibility requirements, health and safety requirements or retrofitting to improve energy efficiency is usually not part of the overall process of protecting historic buildings; rather, this work is assessed for its potential impact on the historic building.

In undertaking work on historic buildings, it is necessary to consider the impact that meeting current health and safety codes (public health, occupational health, life safety, fire safety, electrical, seismic, structural, and building codes) will have on character-defining spaces, features, and finishes. Special coordination with the responsible code officials at the state, county, or municipal level may be required. Securing required building permits and occupancy licenses is best accomplished early in work project planning. It is often necessary to look beyond the "letter" of code requirements to their underlying purpose; most modern codes allow for alterative approaches and reasonable variance to achieve compliance.

Some historic building materials (insulation, lead paint, etc.) contain toxic substances that are potentially hazardous to building occupants. Following careful investigation and analysis, some form of abatement may be required. All workers involved in the encapsulation, repair, or removal of known toxic materials should be adequately trained and should wear proper personal protective gear. Finally, preventive and routine maintenance for historic structures known to contain such materials should also be developed to include proper warnings and precautions.

Recommended

Identifying the historic building's character-defining spaces, features, and finishes so that code-required work will not result in their damage or loss.

Complying with health and safety codes, including seismic code requirements, in such a manner that character-defining spaces, features, and finishes are preserved.

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This small-scale staitower on a nonsignificant rear elevation is compatible with the historic character of the building. Photo: NPS files.

Removing toxic building materials only after thorough testing has been conducted and only after less invasive abatement methods have been shown to be inadequate.

Providing workers with appropriate personal protective equipment for hazards found in the worksite.

Working with local code officials to investigate systems, methods, or devices of equivalent or superior effectiveness and safety to those prescribed by code so that unnecessary alterations can be avoided.

Upgrading historic stairways and elevators to meet health and safety codes in a manner that assures their preservation, i.e., so that they are not damaged or obscured.

In undertaking rehabilitation work on historic buildings, it is necessary to consider the impact that meeting current health and safety codes will have on character-defining spaces, features, and finishes. This stair enclosure preserves the decorative staircase and also meets the safety code. Photo: NPS files.

Installing sensitively designed fire suppression systems, such as sprinkler systems that result in retention of historic features and finishes.

Applying fire-retardant coatings, such as intumescent paints, which expand during fire to add thermal protection to steel.

Adding a new stairway or elevator to meet health and safety codes in a manner that preserves adjacent character-defining features and spaces.

Placing a code-required stairway or elevator that cannot be accommodated within the historic building in a new exterior addition. Such an addition should be on an inconspicuous elevation.

Not Recommended

Undertaking code-required alterations to a building or site before identifying those spaces, features, or finishes which are character-defining and must therefore be preserved.

Altering, damaging, or destroying character-defining spaces, features, and finishes while making modifications to a building or site to comply with safety codes.

Destroying historic interior features and finishes without careful testing and without considering less invasive abatement methods.

Removing unhealthful building materials without regard to personal and environmental safety.

Making changes to historic buildings without first exploring equivalent health and safety systems, methods, or devices that may be less damaging to historic spaces, features, and finishes.

Damaging or obscuring historic stairways and elevators or altering adjacent spaces in the process of doing work to meet code requirements.

Covering character-defining wood features with fire-resistant sheathing which results in altering their visual appearance. Using fire-retardant coatings if they damage or obscure character-defining features.

Radically changing, damaging, or destroying character-defining spaces, features, or finishes when adding a new code-required stairway or elevator.

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Constructing a new addition to accommodate code-required stairs and elevators on character-defining elevations highly visible from the street; or where it obscures, damages, or destroys character-defining features.

This new staircase addition on a historic university building has been constructed on a highly visible side elevation. Together with its contrasting color and size, it obscures the historic form and roofline. Photo: Martha L. Werenfels, AIA.

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