

PROJECT PROFILE

-for-

REPAIR AND MAINTENANCE WORKS

-to-

EX - TUNG CHUNG PUBLIC SCHOOL

-at-

TUNG CHUNG FORT



Employer:

TUNG CHUNG RURAL COMMITTEE

Architects and Heritage Conservation Consultant:

TONY IP GREEN ARCHITECTS LTD.

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1. BASIC INFORMATION

1.1. Project title

Repair and Maintenance Works to ex-Tung Chung Public School at Tung Chung Fort

1.2. Purpose and nature of the project

The purpose of the Project is to carry out necessary repair and maintenance works to a building of ex-Tung Chung Public School in Tung Chung Fort at Sheung Ling Pei Tsuen, Tung Chung. The Tung Chung Fort was declared as a monument under the Antiquities and Monuments Ordinance (Cap. 53 A&M Ordinance) on 24 August 1979. The boundary of Declared Monument and works are shown at Figure 1.1 and the project site is highlighted in red in Figure 1.1. Please refer to GBP000 in Appendix I for the scaled drawing.

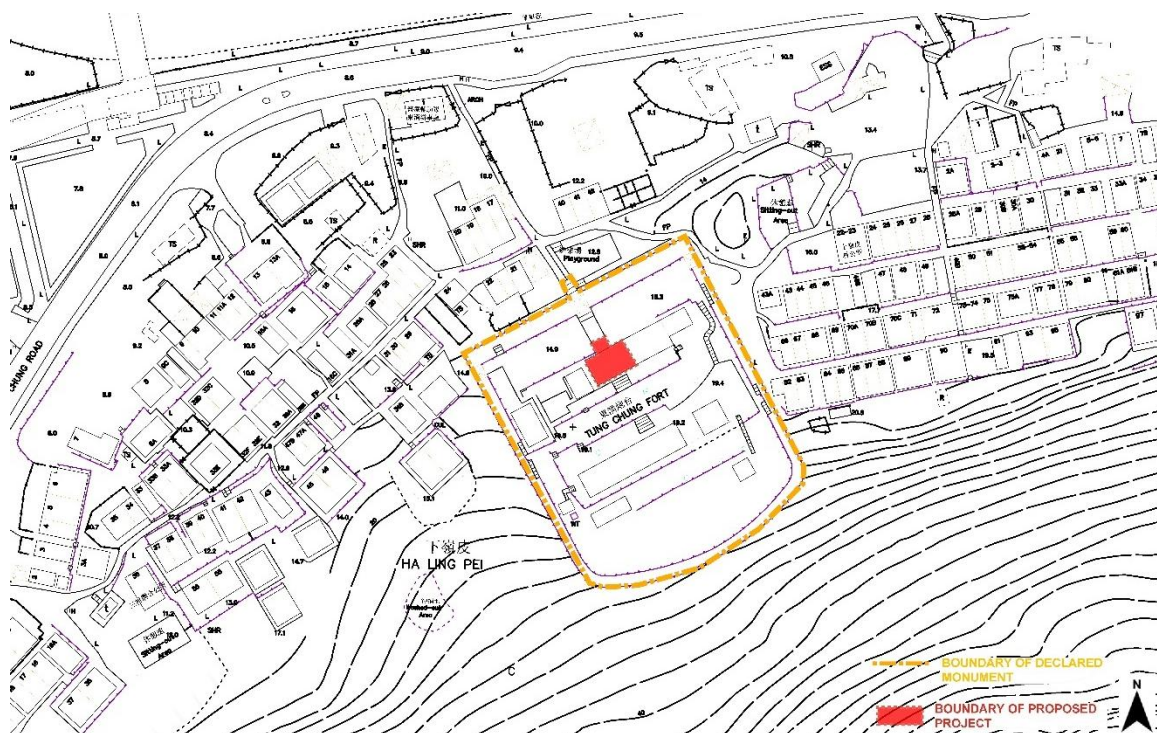


Figure 1.1: Site Location Map
(Source: Hong Kong Map Service 2.0)

1.3. Name of project proponent

Tung Chung Rural Committee (hereafter “TCRC”)

1.4. Location and scale of project

The project site is located in Tung Chung Fort in Sheung Ling Pei Village, Tung Chung. The project site area is approximately 94m², including a one-storey building and the building height is about 6.7m.

The project location is classified as Government, Institution or Community (G/IC) zone in Approved Tung Chung Town Centre Area Outline Zoning Plan No. S/I-TCTC/24. The surrounded sites are mainly zoned as Conservation Area (CA), Village Type Development(V) and Green Belt (GB) as shown in Figure 1.2.

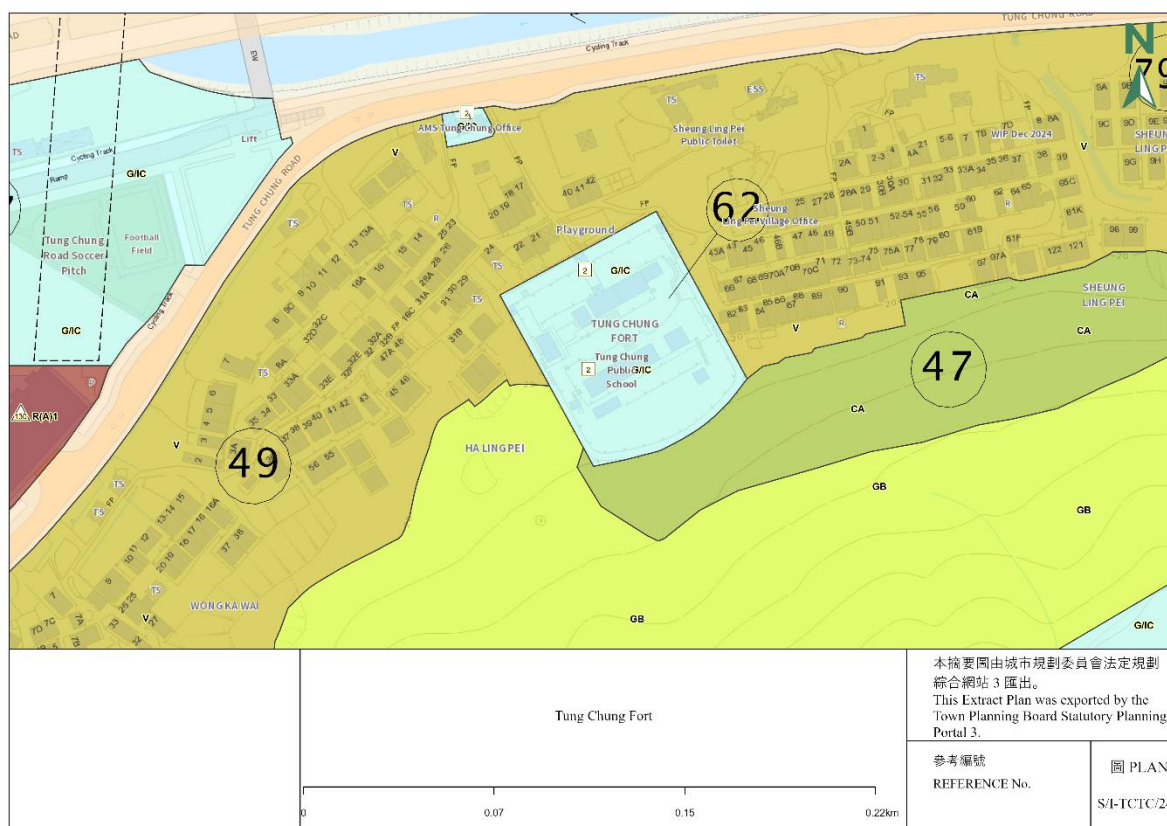


Figure 1.2: Extract of OZP No. S/I-TCTC/24
 (Source: Town Planning Board Statutory Planning Portal 3)

1.5. History of Site

Tung Chung Fort, situated on the northern shore of Lantau Island in Hong Kong, was established in 1832 as a strategic military stronghold to combat piracy and protect merchant ships. Known as Tung Chung Suo Cheng during its early years, the fort played a crucial role in safeguarding the coast against illegal trading and the opium trade. Built by the Qing government, it served as the naval headquarters for the Right Battalion of Dapeng. By 1898, following the lease of the New Territories to Britain, the fort was vacated by Qing forces and entered the British colonial administration, marking a significant shift in its history.

Over the years, Tung Chung Fort underwent various transformations, including serving as a police station and later housing Wa Ying College from 1938 to 1941. The Tung Chung Fort regained military relevance during World War II when it was occupied by Japanese forces. After the war, the fort fell into disrepair, although remnants of its structure remained. In 1946, the Tung Chung Rural Committee established an office there, and Tung Chung Public Primary School was founded in the same year. Designated a Declared Monument in 1979, the fort retains its cultural and historical significance, showcasing Qing military architecture and serving as a community cultural hub, thereby preserving local heritage.

Tung Chung Public School was the only school in the area, surrounded by nineteen villages. It followed a half-day system, and the Education Department appointed its teachers at that time. The school's campus was integrated into the existing fort layout, featuring two rows of single-story buildings constructed with blue-brick walls and traditional black tiled roofs. Most of its premises was constructed in the year of 1957. In 1957, a new building was constructed at the rear of the site, enhancing the school's capacity. Further development followed in 1971, when the project building was reconstructed to serve as the main entrance. This new gateway featured a distinctive Western-style design and prominently displayed the school's name, blending colonial architectural influences with the fort's historic surroundings. The school ceased operations in 2003 as territory education is not available in Tung Chung so children had to go to new towns for continuing of studies. The Tung Chung Rural Committee repurposed the information centre and caretaker's house into an exhibition space and a community center. The community centre now serves as a cultural hub, showcasing the rich history of Tung Chung and its notable landmarks. While some parts of the original site remain vacant, the exhibition space and the community centre breathe new life into the fort's legacy."

1.6. Number and types of designated projects to be covered by the project profile

The Project involves no earthworks but only building works including repair and maintenance works for one of the buildings in Tung Chung Fort, i.e. partly in the site, which is highlighted in Figure 1.1. Tung Chung Fort is classified as Declared Monument, a site of cultural heritage, as therefore the Project is a Designated Project (DP) under Item Q.1 “*All projects involving earthworks and other building works partly or wholly in an existing site of cultural heritage*”, Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499).

This Project Profile (PP) is to seek permission to apply directly for an Environmental Permit for the construction of the Project under Section 5(11) of the EIAO. It is prepared in accordance with Annex 1 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM).

1.7. Name and telephone number of contact person(s)

Name:	Ms. Wong
Title:	Secretary
Name of Proponent:	Tung Chung Rural Committee
Tel.:	2988 8228
Email:	tungchungrc@gmail.com

2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1. Responsibilities of Parties

Tung Chung Rural Committee is the Project Proponent. The project is funded under Financial Assistance for Maintenance Scheme on Built Heritage (FAS), launched by the Commissioner for Heritage's Office (CHO) of the Development Bureau (DEVB). Tony Ip Green Architects Ltd. is the consultant for the project who will be responsible for project management, contract preparation and site supervision.

The work will be undertaken by the specialist contractor on the list of Approved Specialist Contractors for Repair and Restoration of Historic Buildings endorsed by the DEVB. The Contractor will be responsible for carrying out the mitigation measures, if any, for minimizing the environmental impacts induced by the project.

2.2. Scope of Proposed Work

The proposed works are comprised of repair and maintenance works. Character Defining Elements (CDEs) are the physical features, materials, spatial configurations, uses, and cultural associations that are essential to the heritage significance of a historical building, structure, or site. In taking forward the works, the CDEs identified will be preserved, repaired or reinstated (as appropriate) with minimal intervention. Table 2.1 below has listed out the scope of proposed works, no excavation and breaking works will be carried out throughout the project.

Type of Works	Proposed Works
External Works	<ol style="list-style-type: none"> 1. Repairing and restoring works of the external building elements: <ol style="list-style-type: none"> (i) Repairing of existing hall asbestos cement sheet roof (ii) Repairing of external wall (iii) Repairing of flat roof of portal and columns (iv) Repairing of granite steps (v) Repairing of front, back and side doors (vi) Repairing of windows and window grilles (vii) Repairing of spalling concrete and flaking paints at window lintel (viii) Repairing of spalling concrete and flaking paints at entrance (ix) Repairing of spalling concrete and flaking paints at roof lintel 2. Repairing of existing drainage: <ol style="list-style-type: none"> (i) Repairing of external drainage pipes (ii) Repairing of surface channel

Internal Works	<ol style="list-style-type: none"> 1. Repairing and restoring works of the internal building elements: <ol style="list-style-type: none"> (i) Repairing of internal wall (ii) Repairing of internal doors (iii) Repairing of internal flooring (iv) Repairing of spalling concrete and flaking paints at internal wall (v) Repairing of timber deck at cockloft 2. Repairing works of existing building services: <ol style="list-style-type: none"> (i) Repairing of internal lighting and associated conduit and cabling works
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Table 2.1 List of scope of proposed works

As the building located within the Declared Monument boundary of Tung Chung Fort, all proposed works including relevant method statements were submitted to CHO for approval following the requirements and procedure set out in the Permit under Section 6 of the A&M Ordinance prior to the commencement of works on site.

2.3. Method of Construction

As the proposed works involve repair and maintenance works at declared monument. Specially designed temporary works, e.g. scaffolding, will be adopted to avoid damage to the existing building fabrics.

The sequence of repair and maintenance works will be carefully planned to minimise any adverse impact on the building. Standard design and use of dry construction when appropriate will be adopted to minimise the adverse impact towards the surrounding environment during construction.

2.4. Implementation Programme

The tentative implementation programme is shown in Table 2.2. The Project is expected to commence construction in Q3 2026 and finish by Q1 2027.

Project Phases	Tentative Schedule
Site Clearance and Site Preparation	Q3 2026
Internal and External Works	Q3 2026 to Q1 2027
Reroofing Work	Q3 2026 to Q1 2027

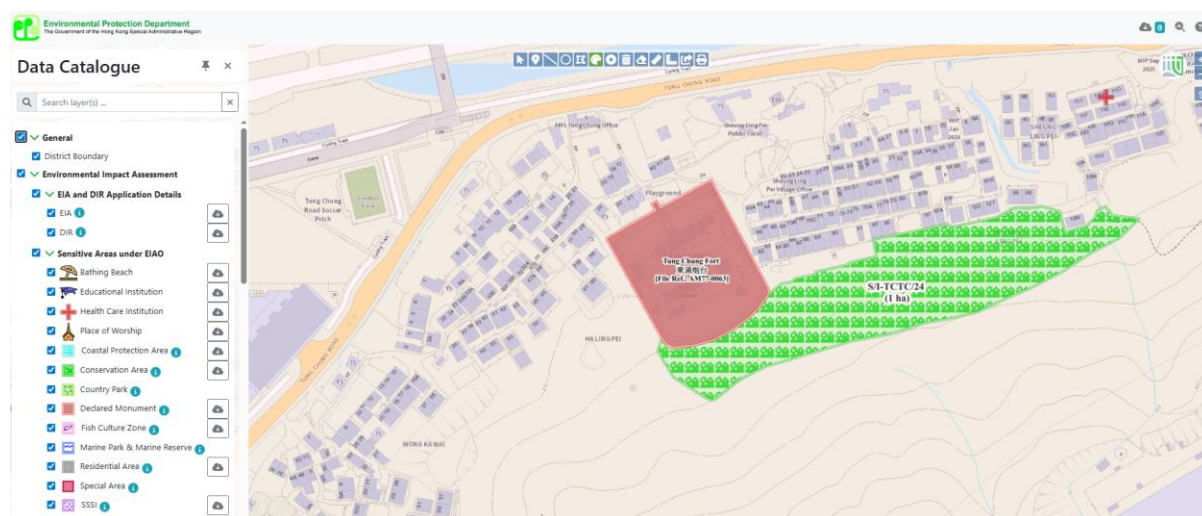
Table 2.2 Proposed Implementation Programme

3. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

3.1. Major Elements of the Surrounding Environment

Tung Chung Fort is located at the existing rural area, surrounded with village type development, conservation area and green belt area. It is around 70m from the main traffic road, Tung Chung Road. Vehicles currently reach the Project Site through vehicular access via the surrounding roads.

Hong Kong Environmental Database was reviewed to identify the surrounding environment and sensitive receivers nearby.



Extract from Hong Kong Environmental Database

3.2. Sensitive Receivers

Air Quality

The study area for air quality assessment covered area of 500m from the project site area as indicated Dwg. GP001 of **Appendix I** (red line). The Representative Air Sensitive Receivers (ASRs) in the vicinity of the Project Site are identified and reviewed in accordance to Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) Annex 12. The details are shown in Table 3.1.

Receiver's ID	Name	Type of Use	Distance from the Project Site (m)	Ground Level (mPD)	Height (mPD)
ASR1	Information Centre of Tung Chung Fort	Office	0	15.1	6.5
ASR2	Ha Ling Pei Village 58	Residential	34	13.5	8.4

ASR3	Sheung Ling Pei Village 21	Residential	22	11.6	7.8
ASR4	Auxiliary Medical Service Tung Chung Office	Office	88	8.6	8.1

Table 3.1 List of Representative Air Sensitive Receivers (ASRs)

Noise

Requirements in relevant construction noise control ordinances, regulations and the guideline document as below would be adopted for construction noise control.

- Noise Control Ordinance (NCO) (Cap. 400)
- EIAO Guidance Note No. 9/2023
- Recommended Pollution Control Clauses for Construction Contracts (RPCC)
- Annex 5 of the Technical Memorandum on Environmental Impact Assessment Ordinance (EIAO-TM)

The study area for noise assessment covered area of 300m from the project site area as indicated Dwg. GP001 of **Appendix I** (blue line). The Representative Noise Sensitive Receivers (NSRs) in the vicinity of the Project Site are identified and reviewed in accordance to Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) Annex 13. The details are shown in Table 3.2. Based on the best available information at time of preparing this PP, there will be no planned NSRs within 300 m of the Project during the construction stage. Therefore, no planned NSRs were included in the assessment.

Receiver's ID	Name	Type of Use	Distance from the Project Site (m)
NSR1	Sheung Ling Pei Village 21	Residential	22
NSR2	Ha Ling Pei Village 58	Residential	34
NSR3	Sheung Ling Pei Village 43A	Residential	42

Table 3.2 List of Representative Noise Sensitive Receivers (NSRs)

Water Quality

The study area for water quality assessment covered an area of 500m distance from the Project Site boundary as indicated Dwg. GP001 of **Appendix I** (red line). The representative Water Sensitive Receivers (WSRs) identified with the study area are listed in Table 3.3.

Receiver's ID	Name	Status	Location	Distance from the Project Site (m)
WSR1	Wong Lung Hang Channel	Channelized nullah	Tung Chung	109

Table 3.3 List of Representative Water Sensitive Receivers (WSRs)

Cultural Heritage

The study area is defined by a distance of 150m from the boundary of the Project Site as indicated Dwg. GP001 of **Appendix I** (orange line). Within the study area, no other declared monuments (apart from the Tung Chung Fort) or proposed monuments, graded historic building / structure, new items for grading assessment and Government Historic Sites Identified by Antiquities and Monuments Office are identified. The nearest graded historic buildings, Hau Wong Temple (Tung Chung) (Grade 2) and Tin Hau Temple (Tung Chung) (Grade 2) are both over 150m away from the Project site boundary and are indicated in Dwg. GP002 of **Appendix I**.

According to the available information from AMO, no Sites of Archaeological Interest within the study area are identified. Tung Chung Fort is Declared Monument, mitigation measures would be considered and to inform AMO immediately when any antiquities or supposed antiquities under the A&M Ordinance are discovered during the course of works.

It is essential to recognize that the Project has the potential to generate both direct and indirect impacts on the Declared Monument, necessitating a thorough assessment of its implications.

3.3. Interfacing with Other Projects

Based on the tentative construction programme of the Project and the best available information at time of preparing this PP, no existing, committed or planned concurrent project would be carried out in the vicinity.

4. POSSIBLE IMPACT DURING CONSTRUCTION PHASE

4.1. Cultural Heritage

In this Project, special care and attention will be paid for maintaining the Declared Monument; therefore, all building works are approved by CHO and to be carried out in a careful and skilled manner by a specialized contractor, which will be subject to a high-level supervision by the project proponent and heritage consultant to ensure that the works are of the highest standard and the materials are exactly as required. The works will be mainly carried out by using handheld tools and small-scale equipment in order to avoid any adverse impact to the building.

Research has been carried out in Section 3.2 and noted that there are no other declared monuments (apart from the Tung Chung Fort) or proposed monuments, graded historic buildings/structure, new items for grading assessment, Site of Archaeological Interest and Government Historic Sites Identified by Antiquities and Monuments Office was located in the site. No direct impact is expected during the construction phase to other heritage sites.

The level of impacts on elements being assessed, after considering the level of significance of affected elements and the corresponding mitigation measures, is classified into five levels as shown in Table 4.1 and the assessment results are summarized in Table 4.2.

Level of Impact Definition	Level of Impact Definition
Beneficial Impact	The impact is beneficial if the proposal will enhance the preservation of the heritage site
Acceptable Impact	The assessment indicates that there will be insignificant effects on the heritage site
Acceptable Impact with Mitigation Measures	There will be some adverse effects, but these can be eliminated, reduced or offset to a larger extent by specific measures
Unacceptable Impact	The adverse effects are considered to be too excessive and are unable to mitigate practically
Undetermined Impact	The significant adverse effects are likely, but the extent to which they may occur or may be mitigated cannot be determined from the study. Further detailed study will be required for the specific effects in question

Table 4.1 Definition of impact Level

Type of Works	Approved Works by CHO	Affected CDEs/ Elements	Overall Impact Level
External Works	Repairing and restoring works of the external building elements, eg. roof, windows, doors, portal and steps	1. Roof	Beneficial Impact
		2. Windows	Beneficial Impact
		3. Doors	Beneficial Impact
		4. Entrance Portal	Beneficial Impact
		5. Lintel	Beneficial Impact
		6. External Steps	Beneficial Impact
		7. External Wall	Beneficial Impact
	Repairing of existing downpipes and surface channel	1. Existing Downpipes	Beneficial Impact
		2. Surface channel	Beneficial Impact
Internal Works	Repairing and restoring works of the internal building elements, eg. existing internal wall, floor, doors, cockloft and interior finishes	1. Doors	Beneficial Impact
		2. Cockloft	Beneficial Impact
		3. Internal wall	Beneficial Impact
		4. Internal flooring	Beneficial Impact
	Repairing works of existing building services, eg. internal lighting and pipework etc	1. Internal Wall	Acceptable Impact

Table 4.2 Summary of affected CDEs/ elements and Overall Impact Level

The proposed repair and maintenance works in overall have beneficial impact to the building to enhance the preservation of the monuments except the building services works which are with acceptable impact.

4.2. Air Quality

Internal Works

The internal works will be held within the building envelop. As no chemical with toxic air pollutant emissions will be used during the repair and maintenance works for the project, no adverse air quality impact of volatile organic compounds (VOCs) during the construction phase is anticipated. Thus, adverse air quality impact generated from internal works is not anticipated.

External Works

As shown in Table 2.1 in Section 2.2, there will be no excavation and earthworks. A small amount of dust emission may arise from the proposed external works, such as the paint removal works. No heavy-power-operated machinery such as earth excavator and bulldozer will be used in this construction works. Maximum of 3 no. powered mechanical equipment (PME) is assumed to be operated concurrently. The maximum of vehicle for delivery of C&D materials is estimated to be 1 vehicle per day.

In view of the scale and nature of the Project, which is a small-scale project with no excavation and earthworks, the amount of air pollutant emission generated is expected to be low and will be controlled with air quality mitigation measures. Adverse air quality impact generated from external works is not anticipated.

The emissions from the NRMM are regulated under the Air Pollution Control (Non-Road Mobile Machinery) (Emission) Regulation. Fuel with sulphur content not exceeding 0.001% by weight will be used to minimize SO₂ emission in accordance with the Air Pollution Control (Fuel Restriction) Regulations. In addition, the use of NRMMs with exempted label under the Air Pollution Control (Non-Road Mobile Machinery) (Emission) Regulation will be avoided as far as practicable. The equipment would also be properly maintained to minimize any emissions.

4.3. Noise

During the construction phase, PME will be used to carry out the external construction works outside the building envelope. Construction noise may arise from the use of PME during construction. The external works will be carried out during non-restricted hours only. According to Annex 5 of the Technical Memorandum on Environmental Impact Assessment Ordinance (EIAO-TM), the criteria of daytime construction noise are summarized in Table 4.3.

Uses	Noise Standards, Leq (30 mins) dB(A)
<ul style="list-style-type: none"> - All domestic premises, - Temporary housing accommodation, - Hostels - Convalescent homes, and - Homes for the aged 	75
<ul style="list-style-type: none"> - Places of public worship, - Courts of law, and - Hospitals and medical clinics 	70
<ul style="list-style-type: none"> - Educational institutions (including kindergartens and nurseries) 	70 65 (during examination)

Table 4.3 Noise Standards for Daytime Construction Activities

Notes:

[1] The above standards apply to uses which rely on opened windows for ventilation and are assessed at 1m from the external façade.

[2] A Construction Noise Permit shall be required for carrying out relevant construction work during restricted hours under the Noise Control Ordinance. In case the applicant would like to evaluate whether carrying out relevant construction works during restricted hours under the Noise Control Ordinance is feasible or not in the context of programming construction works, reference should be made to relevant technical memoranda issued under the Noise Control Ordinance.

Internal Works

No percussive construction method and breaking work will be adopted for the proposed internal and external works.

The internal works will be carried out during non-restricted hour only and within the building envelop with windows and doors closed. The opening of building envelope, such as roof, doors and windows, will only be opened when required for the works of reroofing and renewal of doors and windows. The construction programme will be carefully arranged to ensure that the internal works and renewal of doors and windows will be not carried out concurrently. During reroofing works, NSRs may have direct line of sight to the building. However, as no noisy works such as percussive or breaking works, will be carried out in the building, adverse construction noise impact is not anticipated. The renewal of doors and windows is expected to be completed within a short duration. The internal noisy works will be minimized as far as practicable during these work stages.

External Works

Noise impacts were assessed in accordance with Annex 5 and 13 of the EIAO-TM. NSR 1 (Sheung Ling Pei Village 21) is identified as the nearest NSR for evaluation to represent the worst-case scenario, as it is a residential use with the shortest separation distance (approximately 22 m) to the Project. According to the EIAO-TM, the daytime construction noise criteria for residential premises is 75 dB(A). The detailed calculations are provided in **Appendix II**, and the summary of predicted Construction Noise Levels (CNLs) are shown in Table 4.4.

Type of Works	Phase	Assessment Criteria, dB(A)	Predicted CNLs, dB(A)		
			NSR 1	NSR 2	NSR 3
External Works	Repairing and restoring works of the external building elements	75	74	70	68
	Repairing of existing drainage	75	74	74	64
Internal Works	Repairing and restoring works of the internal building elements	75	63	58	57
	Repairing works of existing building services	75	60	56	54

Table 4.4 Summary of Predicted Construction Noise Levels (CNLs)

Referring to Table 4.4, the predicted CNL of all construction activities does not exceed the construction noise criteria for all NSR. External works would be avoided to carry out concurrently to minimize adverse impact. To further reduce the construction noise impact on NSR, PME with lower sound power levels will be adopted if applicable. The predicted construction noise level comply with the noise standards and no adverse construction noise impact is anticipated.

4.4. Water Quality

Wastewater may be generated from paint removal works at façade works during reroofing and washing of walls, columns and floors using a solution of mild detergent and fresh water. The repairing of existing drainage and surface channels are rectifying existing defective conditions which do not involve any new or upgrading of existing drainage system, so minimal adverse impact on the water quality is expected. There is one Water Sensitive Receiver (WSR) - Wong Lung Hang channel identified within 500m of the Project Site. However, in view of the limited scale,

localized nature and short duration of the construction works, limited water will be used during the construction. No proposed earthwork within the work scope, adverse impact from construction runoff is not anticipated to the WSRs in proximity.

There is a public toilet in the vicinity of the Project Site, so there will be no provision of portable toilet within the Project Site during the construction phase. Therefore, it is unlikely that sewage generated from workforce.

4.5. Waste Management

It is anticipated that the repair and maintenance works of the building will generate a variety of waste. The type of waste can broadly be divided into distinct categories based on their composition, timing of waste generation and ultimate disposal method. The identified waste types associated with these construction works include:

- Construction and demolition (C&D) materials and;
 - Inert C&D materials
 - Non-inert C&D materials
- General refuse; and
- Chemical waste; and

Only repair and maintenance works will be carried out in the Project, with no heavy demolition, earthworks, site formation and foundation works involved. All existing structures and materials will be reused or recycled on-site where applicable. In addition, the construction programme is carefully arranged to prevent overlapping of work that could result in excessive material handling or wastage. Thus, the quantity of waste generated onsite is minimal.

The estimated quantity of wastes generated during the construction works period is summarized in Table 4.5.

Type of Wastes	Sources	Estimated Quantity			Proposed Handling/ Disposal Method
		Generated	Re-use and Recycle ^[1]	Disposal	
Inert C&D Materials (e.g. cement mortar, brick, roofing tiles and floor tiles etc.)	Site cleaning and demolition works	9.38m ³	0.94m ³	<9.38m ³	<ul style="list-style-type: none"> • Reused on-site • Sent to public fill reception facilities (i.e. Tseung Kwan O Area 137) ^[2]

Non-inert C&D Materials (e.g. wall plaster, old furniture, old building services equipment etc.)		Repair and maintenance works	0.02m ³	0.002m ³	<0.02m ³	<ul style="list-style-type: none"> • Reused on-site • Recycling • Sent to designated landfill at West New territories (WENT) Landfill ^[3]
General Refuse		Entire construction works	6.5 kg/day ^[4]	0.65 kg/day	<6.5 kg	<ul style="list-style-type: none"> • Off-site recycling of recyclables • Disposed of at landfill sites (i.e. WENT)
Chemical Waste	General Chemical Waste	Entire construction works	~10 litre ^[5]	N/A	<10 litre	<ul style="list-style-type: none"> • Collected by licensed chemical waste collectors and disposed of at the Chemical Waste Treatment Centre (CWTC)
	Asbestos Containing Material (ACM)	Re-roofing works	~ 0.07m ³	N/A	~ 0.07m ³	<ul style="list-style-type: none"> • Collected by licensed chemical waste collectors and disposed of in landfill site (i.e. WENT) by secure burial method. ^[6]

Table 4.5 Breakdown of Wastes to be Generated During the Demolition and Construction Works

Remarks:

[1] For waste assessment, assuming 10% of the generated waste could be recycled and re-used. The actual quantity shall subject to site condition and practice of the Contractor and operational requirements.

[2] The final destination of inert C&D materials is subject to the designation by the Public Fill Committee according to DEVB TC (W) No.6/2010.

[3] The disposal of non-inert C&D materials at the designated landfill shall be subject to agreement with the relevant section of the EPD.

[4] Estimated that maximum 10 workers would be working on-site per day and calculated based on the *Monitoring of Solid waste in Hong Kong – Waste Statistics for 2023* - the generation rate of industrial and commercial waste is 0.65 kg/person/day .

[5] Subject to actual site condition and the practice of the Contractor.

[6] The disposal of ACM materials shall be carried out in accordance to The Air Pollution Control Ordinance, Cap. 311 and The Waste Disposal (Chemical Waste) (General) Regulation, Cap. 354C and make reference to the "Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste" issued by Environmental Protection Department (EPD).

With proper on-site handling and storage, regular disposal of C&D materials, general refuse and chemical waste, as well as implementation of general good construction site practices in Section 5.6, no adverse impact is anticipated from the construction of the Project.

4.6. Ecology

The project site is located village area and is not surrounded by areas of ecological value; thus no adverse ecological impact is therefore anticipated during the works.

4.7. Landscape & Visual Impact

According to EIAO-TM and Guidance Note (GN) No. 8/2023, the project does not involve landscape and new works resulting in permanent visual impact, so landscape and visual impact assessment are not required for the project. Furthermore, no tree is located within the Project site. Hence, no adverse landscape and visual impact are anticipated for the site in the future operational phase.

5. ENVIRONMENTAL MITIGATION MEASURES & ANY FURTHER ENVIRONMENTAL IMPLICATIONS

5.1. Measures to minimize Environmental Impact

As described in the sections above, it is assessed that impacts related to cultural heritage, air, noise, water quality, waste management and ecology arising from the Project are minimal. Standard mitigation measures in accordance with the latest version of "Recommended Pollution Control Clauses for Construction Contracts" will be adopted to further reduce the likely environmental impacts. The summary of mitigation measures and good site practices to be implemented during the construction period are listed in **Appendix III**.

5.2. Cultural Heritage

Antiquities and Monuments Ordinance

According to Section 6 of the A&M Ordinance (Cap. 53), no person shall demolish, remove, obstruct, deface or interfere with a monument, unless a permit is granted by the Antiquities Authority. As the Tung Chung Fort is a declared monument, the required permit will be obtained from the Antiquities Authority before any works may commence on-site and the Contractor and all parties involved should comply with any requirements made under the terms of the permit. Repair and maintenance work and mitigation measures specified in the Conservation Proposal approved by CHO under A&M Ordinance will be implemented under the supervision of a heritage consultant.

Prior to Commencement of Construction Works

Prior to the commencement of construction works, photographic survey and condition survey of the building within project site will be carried out and submitted to the AMO for record. A method statement after consulting a heritage consultant for the protection of the CDEs before any commencement of works. The CDEs identified will be preserved, repaired or reinstated with minimum intervention. The Project Proponent is required to employ approved specialist contractors listed on Development Bureau (DEVB) website for repair and restoration of historical building. Regular site monitoring during any advance enabling works or throughout the construction stage will be implemented.

Precautionary and protective measures will be implemented during the construction stage to protect the CDEs from damage and visitors of the proposed site. The Project area shall be fenced off and the entrance for materials delivery shall be well protected to minimize potential damage

to existing historical fabric. The entrances shall be maintained for visitors' free of access. Temporary storage place shall be proposed at location with minimal disturbance to visitors in order to allow visitors to enjoy the remaining part of the Site. Details of the mitigation measures for surrounding historic fabric, such as fence-off areas, control of access, protective measures and site planning will be further illustrated in Appendix III item 5.3.

After Completion of Construction Works

After the completion of works, a set of photographic record of the building within project site, relative testing and commissioning record and as-built drawing will be prepared and submitted to AMO for record. No adverse cultural heritage impact is anticipated if the proposed mitigation measures are implemented appropriately.

Possible impacts on the monument's historic fabric at adjacent

As the project site is situated within declared monument boundary, adequate protection works during building works and detailed site planning prior commencement of works are necessary for the surrounding monuments to minimize risk and avoid irreparable damage. Regular monitoring of site works and full awareness of the construction team is vital to make sure all parties are aware of the significance of the historic features. The scope of works include works at external and replacement of roof which relative high risks to surrounding monuments, so sufficient protective barriers will be required to enclose the working area to minimize risk and damages on the surrounding monuments, especially adjacent AMO Information Centre. Details of the mitigation measures for surrounding historic fabric, such as protective measures for surrounding historic fabrics will be further illustrated in Appendix III item 5.3. Proper protection should be in place throughout the construction works period, so no adverse cultural heritage impact is anticipated for monument's historic fabric at adjacent if the proposed mitigation measures are implemented appropriately.

5.3. Air Quality

The air quality mitigation measures during construction phase aforementioned and recommendations under the Air Pollution Control (Construction Dust) Regulation (Cap. 311R), Air Pollution Control (Non-road Mobile Machinery (NRMM)) (Emission) Regulation and Air Pollution Control (Fuel Restriction) Regulations will be implemented, thus no adverse construction air quality impact is anticipated at ASRs.

During the construction phase, air quality control and dust suppression measures and good site practices as stipulated in the Air Pollution Control (Construction Dust) Regulation will be strictly

followed and implemented. The following mitigation measures and good site management will be carried out:

- i. Avoid free falling of debris while roof and external wall materials is being repaired and restored. Baskets or similar containers shall be used to carry such material from the roof to ground level for proper disposal.
- ii. Provide the vertical dust screen to enclose the whole building.
- iii. Provide localized protection against dust during paint removing works and when reroofing works is carried out.
- iv. Spray the debris with clean water so that it remains damp before it is carted away. In addition, water will be continuously sprayed on the surface where any drilling, cutting or other small-scale breaking operation is carried out by using hand-held power tools.

The works in construction phase mainly involve normal office work activities and public visits, i.e. 9am – 5pm. The internal construction works would be conducted inside the building, while external protection will be provided for external works. The construction area is contained in separate buildings with the site office and is not accessible to the public. Given the scale and nature of works and with the implementation of the aforementioned mitigation measures, no significant dust or gaseous emissions and no adverse air quality impact is anticipated during construction.

5.4. Noise

Requirements in relevant construction noise control ordinances, regulations and the guideline document as below would be adopted for construction noise control.

- Noise Control Ordinance (NCO) (Cap. 400)
- EIAO Guidance Note No. 9/2023
- Recommended Pollution Control Clauses for Construction Contracts (RPCC)
- Annex 5 of the Technical Memorandum on Environmental Impact Assessment Ordinance (EIAO-TM)

No construction works will be carried out from 7 p.m. to 7 a.m. and any time on Sundays and General Holidays; as a result, there will not be any noise generated during these restricted hours. The Contractor should implement good site practices as listed in **Appendix III**, such as regular maintenance of powered mechanical equipment and use of quieter equipment such as water jet (electric) as the proper noise control measures during the construction stage are recommended to minimize the potential noise impacts. Carrying out internal and external works concurrently shall be avoided, particularly during re-roofing works.

5.5. Water Quality

The site practice in the construction phase shall refer to ProPECC PN 2/24 “Construction Site Drainage” in order to minimize surface runoff and the chance of erosion. The Contractor will obtain the Water Pollution Control Ordinance license and implement the relevant mitigation measures according to RPCC and the guideline of the ProPECC PN 2/24 Construction Site Drainage. The effluent discharge from the site will be monitored by the Contractor as part of the monitoring under the WPCO license to ensure all effluent discharge from the works meets the standard of Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage System, Inland and Coastal Waters under the Water Pollution Control Ordinance (WPCOTM). Furthermore, there is no water sources or WSR in the vicinity of the site that would be affected by the Project.

5.6. Waste Management

C&D materials

Two types of C&D materials, e.g. inert C&D material and non-inert C&D material would be produced from the repair and maintenance works. Mitigation measures of C&D materials management are detailed as follows:

- A Waste Management Plan (WMP) shall be prepared in accordance with PNAP No. 243 (ADV-19) and include appropriate mitigation measures to avoid, reduce, reuse and recycle waste. The Contractor shall ensure the day-to-day site operations comply with the agreed WMP by the AP or Engineer of the project and in accordance with the Waste Disposal Ordinance.
- The Contractor shall minimize the generation of waste from his work. Inert C&D materials shall be reused on-site wherever practicable, while the appropriate implementation of reduce, reuse and recycle of the non-inert C&D materials shall be carried out.
- The Contractors should adopt good housekeeping practices to record the amount of waste generated, recycled, delivered and disposed, including the delivery destinations or disposal sites, should be implemented. Besides the provision of stockpiling and segregating areas at site, waste storage areas should be well maintained and cleaned regularly to minimize potential nuisance to surrounding.
- In order to monitor the delivery and disposal of C&D materials at public fill reception facilities and landfills and to control flytipping, a trip-ticket system should be included with reference to DEVB TCW No. 6/2010. Dump trucks shall be equipped with real-time tracking and monitoring devices as a means to prevent illegal dumping. Moreover, all waste will be stored, handled and disposed of in accordance with the Waste Disposal Ordinance.
- Adequate number of enclosed waste containers will be provided to avoid over-spillage of

waste and recycling bins will be provided to maximize recycling of general refuse during construction. A reputable waste collector should be employed to collect the general refuse for disposal at designated landfill sites on a daily basis.

General Refuse

Good waste management practices will be applied to the Project in accordance with the Waste Disposal Ordinance. Mitigation measures will involve disposing of general refuse in covered bins or compaction units, distinct from construction and demolition materials and hazardous waste. A reputable waste collector will be hired for the daily collection and disposal of general refuse. Sufficient rubbish and recycling bins will be provided, with regular removal of waste to ensure a clean environment. Best practices for the transportation and disposal of litter will also be followed, along with implementing effective recycling methods for paper, glass, and plastic bottles.

Chemical Waste

Chemical waste, including waste termiticide and detergent containing hazardous substances listed in Schedule 1 under Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C), arising during the construction phase may pose environmental, health and safety hazards if not stored and disposed of in an appropriate manner as stipulated in the Waste Disposal Ordinance and its subsidiary Waste Disposal (Chemical Waste) (General) Regulation. Major mitigation measures of chemical waste are detailed as follows:

- Appropriate labels should be securely attached on each chemical waste container in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.
- Suitable area for temporary storage of chemical waste should be provided in accordance with Section 4 of the Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes.
- A licensed chemical waste collector will be employed by the registered chemical waste producer (i.e. the Contractor) to deliver chemical waste and disposed regularly at EPD licensed chemical waste treatment facility (such as the CWTC in Tsing Yi)

Asbestos Containing Material (ACM) will be disposed of in accordance with the Waste Disposal Ordinance and its subsidiary Waste Disposal (Chemical Waste) (General) Regulation. A registered asbestos consultant shall be employed to conduct an asbestos investigation in accordance with Section 69 of the Air Pollution Control Ordinance (APCO) (Cap 311) for verifying the presence or absence of any ACM, and where applicable, submit an asbestos investigation report to the EPD.

The presence of ACM is confirmed after Asbestos Survey by registered asbestos consultant, an Asbestos Abatement Plan (AAP) shall be prepared by the registered asbestos professional in accordance with the Air Pollution Control Ordinance (Cap.311) and Codes of Practice on Asbestos Control, and submitted to EPD for approval. The ACM would subsequently be removed by a registered asbestos professional in accordance with the approved AAP prior the commencement of the demolition works of the Project. The Project Proponent shall also give not less than 28 days' written notice to EPD of the date on which the aforesaid asbestos abatement work commenced.

All asbestos works will be carried out by registered asbestos contractor. All relevant works will be carried out in full compliance with all current relevant Regulations, Ordinances, and guidelines, including all Codes of Practice regarding asbestos works issued pursuant to Section 37 of the APCO. The legislation requires that all ACM wastes must be disposed of at designated or licensed facilities. In Hong Kong, the only proven method of disposing ACM wastes is by secure burial method in a landfill site. The project proponent must additionally send not less than 28 days' written notification to EPD of the date on which the aforesaid asbestos abatement work commenced.

With the implementation of mitigation measures, no adverse waste impact is anticipated.

5.7. Ecology

As no ecological impact is expected during construction phase, no mitigation measure is necessary.

5.8. Landscape and Visual

As there are no trees involved and no new works proposed to construct within the Project, no landscape and visual impact are anticipated and hence no mitigation measure is required for this project.

5.9. Further Environmental Implications

The possible severity, distribution and duration of environmental effects and further implications are summarized in Table below:

Impact	Effects	Severity and Duration	Distribution	Estimated Duration
Cultural Heritage	Improve the appearance of the monument	Beneficial and long-term enhancement	Project Site only	Long term
Air Quality	Air quality impact generated from construction works	Minimal and short	Project Site and ASRs	6 months
Noise	Noise nuisance from construction and clearance	Minimal and short	Project Site	6 months
Water Quality	Discharging of waste water into drains after filtration	Minimal and short	Project Site	6 months
Waste Management	Handling and disposal of C&D material, general refuse, chemical waste and asbestos during construction	Minimal and short	Project Site	6 months

Table 5.1 Summary of environmental implications

5.10. Environmental Monitoring and Audit

With the implementation of recommended mitigation measures, no adverse environmental impacts are anticipated from the Project during the construction period. An environmental audit programme is proposed to implement for tracking and assessing the effectiveness of the recommended mitigation measures and compliance with legislative requirements by means of regular site auditing throughout the Project.

An Independent Environmental Checker (IEC) shall be employed before the commencement of construction of the Project. The IEC who possesses at least 7 years' experience in EM&A and/or environmental management, shall be an independent party from the Contractor. The IEC shall audit the overall environmental performance, including the implementation of all environmental mitigation measures, and any other submissions required by the Environmental Permit. Environmental site audit shall be conducted by IEC during the construction phase on a monthly basis to ensure that the recommended mitigation measures are implemented properly.

Monitoring procedures are proposed to be adopted, and Project Architect will be responsible for monitoring operations:

- Ensuring the quality of the conservation aspects of the project are carried out to the highest possible standard;
- Ensuring that the general aspects of environmental quality will comply with the project requirements;
- Supervising the Contractor to ensure that the requirements in the Project Profile are fully complied with;
- Instructing the Contractor when action is required to reduce or prevent any impacts; and
- Dealing effectively and speedily with any complaints received with regard to any environmental aspects of the project.

6. USE OF PREVIOUSLY APPROVED EIA REPORTS/ PROJECT PROFILE

The following project profiles submitted for applications for permission to apply directly for an environmental permit are referenced in the preparation of this Project Profile due to the similarity in work nature:

No	EIAO Register No.	Project	Declared Monument	Date of Issuance of Environmental Permit	Environmental Aspect addressed	Relevant Environmental Aspects and Measures Recommended
1.	PP-696/2025	The Adaptive Re-Use of Maryknoll Convent School as A Service, Heritage and Education ("She") Centre by The Maryknoll Convent School Foundation Limited ("MCS Foundation")	Y	December 2025	air quality, noise, water quality, waste management and cultural heritage	Its findings and recommended mitigation measures in relation to air quality, noise, water quality, waste management and cultural heritage are valid and relevant for consideration.
2.	PP-689/2025	Repair, Maintenance and Revamping of Western Market at Sheung Wan	Y	September 2025	air quality, noise, water quality, waste management and cultural heritage	Its findings and recommended mitigation measures in relation to air quality, noise, water quality, waste management and cultural heritage are valid and relevant for consideration.
3.	PP-535/2016	Conversion of the Former French Mission Building for Accommodation Use by Lawrelated Organisation(s) and Related Purposes	Y	July 2016	air quality, noise, water quality, waste management and cultural heritage	Its findings and recommended mitigation measures in relation to air quality, noise, water quality, waste management and cultural heritage are valid and relevant for consideration.
4.	PP-451/2011	Proposed Tai Wong Yeh Temple Management Office at Yuen Chau Tsai, Tai Po,	Y	December 2011	air quality, noise, water quality, waste management and cultural	Its findings and recommended mitigation measures in relation to air quality,

		N.T.			heritage	noise, water quality, waste management and cultural heritage are valid and relevant for consideration.
5.	PP-422/2010	Restoration to Yan Tun Kong Study Hall at Ping Shan, Yuen Long, New Territories	Y	September 2011	air quality, noise, water quality, waste management and cultural heritage	Its findings and recommended mitigation measures in relation to air quality, noise, water quality, waste management and cultural heritage are valid and relevant for consideration.
6.	PP-420/2010	Major Restoration to the Residence of Ip Ting-sz, Lin Ma Hang Tsuen, Sha Tau Kok, New Territories	Y	September 2010	air quality, noise, water quality, waste management and cultural heritage	Its findings and recommended mitigation measures in relation to air quality, noise, water quality, waste management and cultural heritage are valid and relevant for consideration.

Table 6.1 Previous Project Profile Relevant to the Projects

7. CONCLUSION

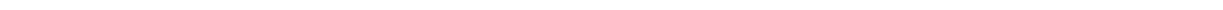
The Project Proponent aims to repair and maintain one of the buildings in Tung Chung Fort. The proposed works will be carried out by approved specialist contractors. The Project Proponent shall supervise the works to ensure the historic value and architectural features of the building would be kept intact.

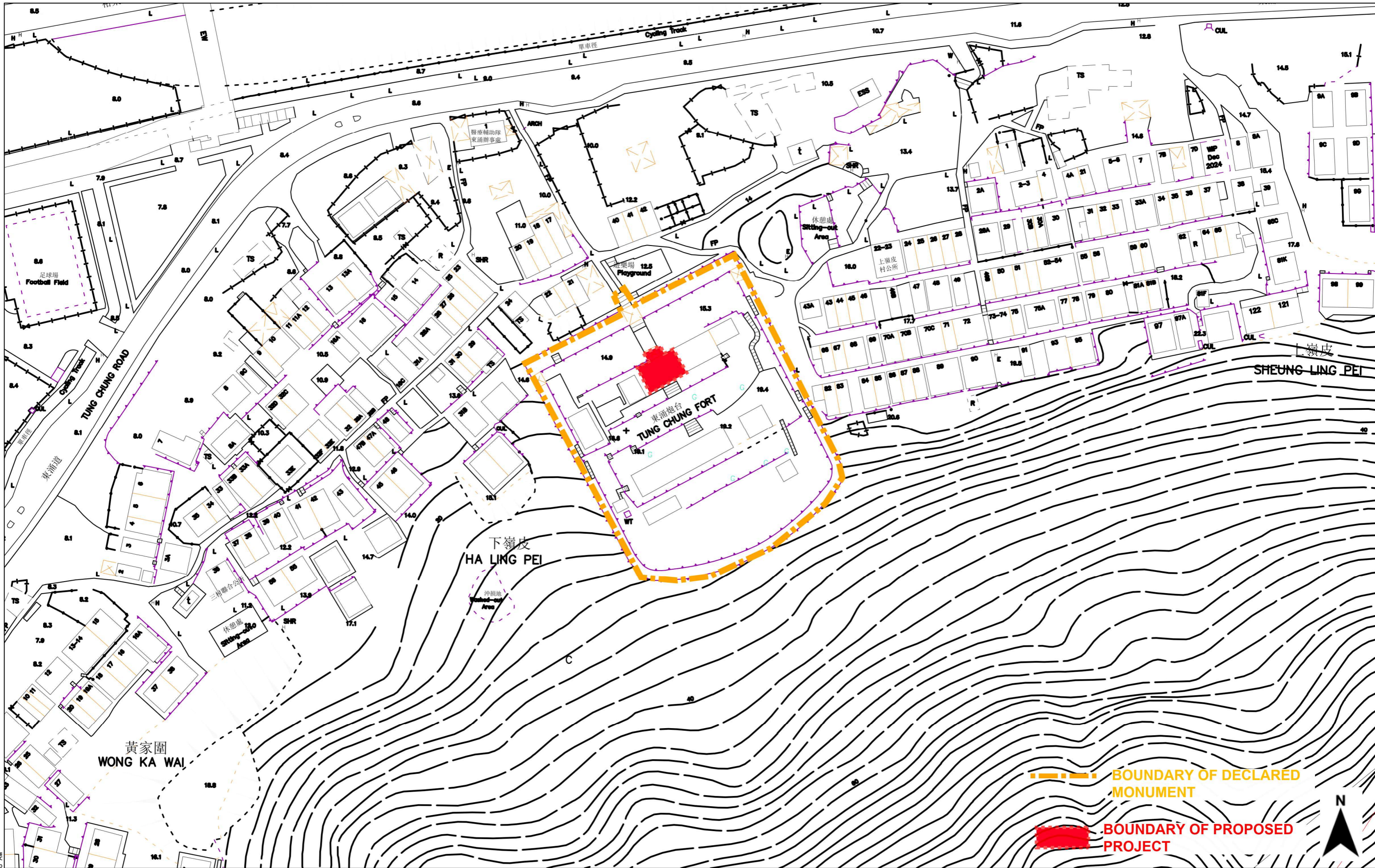
Cultural heritage, noise, air quality, water quality and waste management will be minimal during the construction phase. The contractor will strictly comply with the requirements specified in the permit issued under Section 6 of the A&M Ordinance by the Antiquities Authority. No adverse impacts are anticipated with implementation of the proposed mitigation measures.

The Project is intended to repair Tung Chung Fort into good maintenance conditions which the site is one of the important archeological sites in Hong Kong. The restoration works will help to promote cultural tourism and heritage education in Hong Kong.

Appendix I

Demarcation plan of assessment area





--- BOUNDARY OF DECLARED MONUMENT

■ BOUNDARY OF PROPOSED PROJECT



PLOT DATE = 6/5/2026 11:08 AM

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 葉頌文環保建築師事務所
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REV.	DESCRIPTION	DATE

PROJECT TITLE
 Tung Chung Fort -Tung Chung Public
 School Under Financial Assistance for
 Maintenance Scheme on Built Heritage
 (FAS) at Sheung Ling Pei Tsuen, Tung
 Chung, Lantau Island

DRAWING TITLE
 SITE LOCATION PLAN

PROJECT NO. 24090EB	DRAWN BY HUL
SCALE 1: 1000 @ A3	CHECKED BY TI
DATE 01/2026	APPROVED BY TI
DRAWING NO. GP000	REV. NO.

DRAWING PURPOSE

PLOT DATE = 20/5/2026 6:33 PM



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 葉頌文環保建築師事務所
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REV.	DESCRIPTION	DATE

PROJECT TITLE
 Tung Chung Fort -Tung Chung Public
 School Under Financial Assistance for
 Maintenance Scheme on Built Heritage
 (FAS) at Sheung Ling Pei Tsuen, Tung
 Chung, Lantau Island

DRAWING TITLE
 ASSESSMENT BOUNDARY

PROJECT NO. 24090EB	DRAWN BY HUL
SCALE 1: 4000 @ A3	CHECKED BY TI
DATE 05/2026	APPROVED BY TI
DRAWING NO. GP001	REV. NO.

DRAWING PURPOSE

- 500m assessment area
- 300m assessment area
- 150m assessment area

Hau Wong Temple
(Tung Chung)
(Grade 2)

Tin Hau Temple
(Tung Chung)
(Grade 2)



150m assessment area

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REV.	DESCRIPTION	DATE

PROJECT TITLE
**TUNG CHUNG FORT -
EX- TUNG CHUNG
PUBLIC PRIMARY
SCHOOL**

DRAWING TITLE
SITE LOCATION PLAN
(GRADED HISTORIC BUILDINGS)

PROJECT NO. 24090EB	DRAWN BY HUL
SCALE 1: 4000 @ A3	CHECKED BY TI
DATE	APPROVED BY TI
DRAWING NO. GP002	REV. NO.

DRAWING PURPOSE

Appendix II

Detailed Calculation of Construction Noise Impact Assessment

Total Sound Power Level Calculation



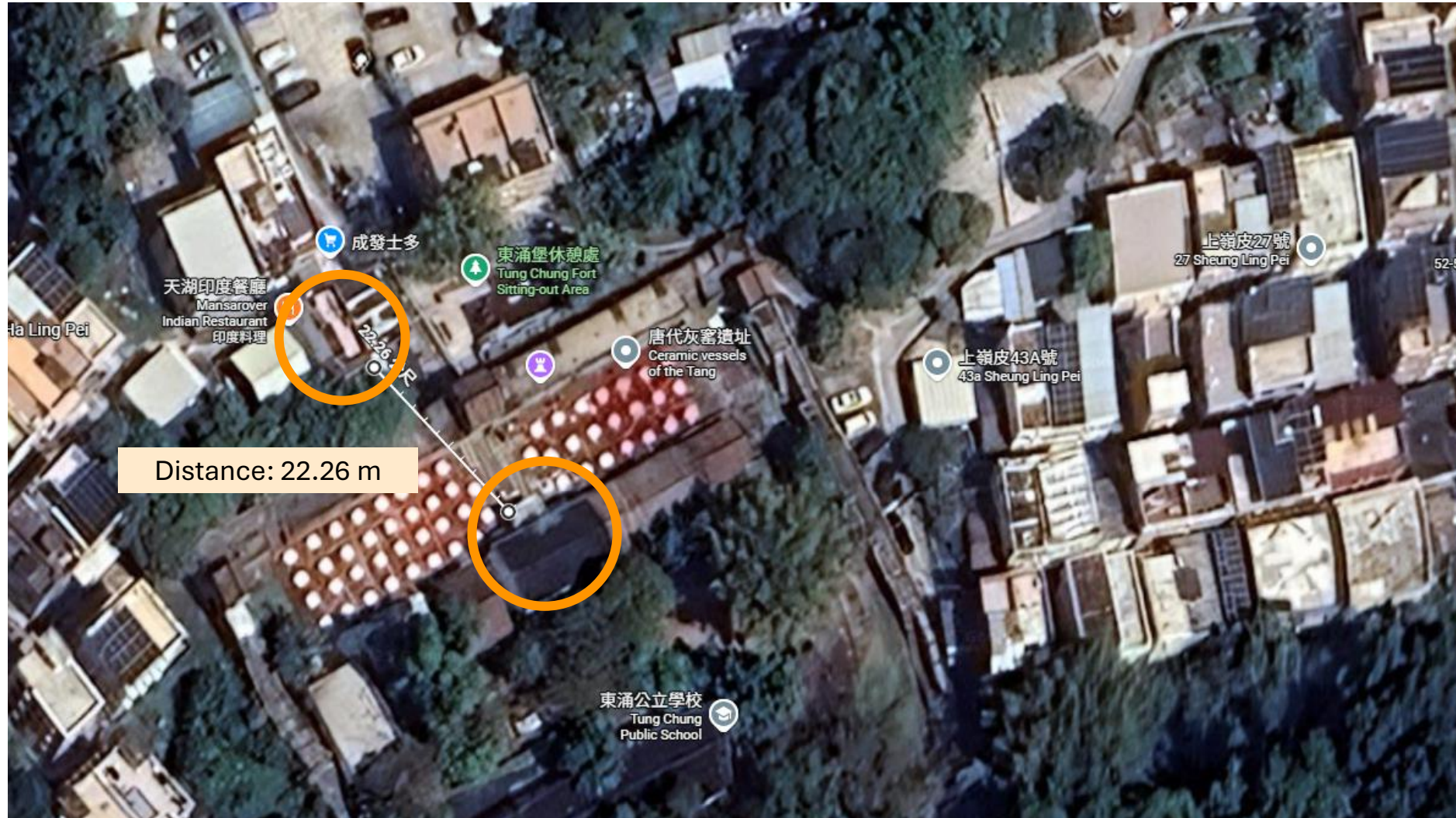
Type of Works	Proposed Works	PME	PME ID (ref. to EPD TM)	SWL (dBA)	Estimated Percentage of Time of Equipment Being Used	Equipment Quantity	On-time Correction (dBA)	Building Envelop Correction (dBA)	Total SWL	Total SWL of Plant Group (dBA)
External Works	Repairing and restoring works of the external building elements, eg. roof, windows, doors, portal and steps	Drill, hand-held (electric)	CNP065	98	100%	1	0	0	98	106
		Jig-saw, hand-held wood (electric)	Other commonly used PME*	99	100%	1	0	0	99	
		Grinder, hand-held (electric)	CNP065	98	100%	1	0	0	98	
		Light goods vehicle, gross vehicle weight ≤ 5.5 tonne	Other commonly used PME*	101	100%	1	0	0	101	
		Water jetting unit (electric)	Other commonly used PME*	94	100%	1	0	0	94	
	Repairing of existing drainage	Drill, hand-held (electric)	CNP065	98	100%	1	0	0	98	101
		Grinder, hand-held (electric)	CNP065	98	100%	1	0	0	98	
Internal Works	Repairing and restoring works of the internal building elements, eg. existing internal wall, floor, doors, loft, ceiling and interior finishes	Drill, hand-held (electric)	CNP065	98	100%	1	0	-10	88	94
		Jig-saw, hand-held wood (electric)	Other commonly used PME*	99	100%	1	0	-10	89	
		Grinder, hand-held (electric)	CNP065	98	100%	1	0	-10	88	
		Air blower (electric)	Other commonly used PME*	95	100%	1	0	-10	85	
	Repairing works of existing building services, eg. internal lighting and pipework etc	Drill, hand-held (electric)	CNP065	98	100%	1	0	-10	88	91
		Grinder, hand-held (electric)	CNP065	98	100%	1	0	-10	88	

Remarks

- * Reference to 'Sound Power Levels of other commonly used PME
- A correction of -10 is applied for works that are carried out inside the building and are visibly completely blocked by the building envelope, including the building's ceiling and walls.
- Reference to Technical Memorandum on Noise from Construction Work other than Percussive Piling

Noise Sensitive Receiver (NSR) - 1

NSR 1 - Domestic Premises



Noise Sensitive Receiver (NSR) - 1

Type of Works	Proposed Works	PME	Total SWL	Horizontal Distance to NSR (D) (m)	Distance Correction $20\log(D)+8$ (dBA)	Façade Correction (dBA)	CNL (dBA)
External Works	Repairing and restoring works of the external building elements, eg. roof, windows, doors, portal and steps	Drill, hand-held (electric)	106	20	-34	3	75
		Jig-saw, hand-held wood (electric)					
		Grinder, hand-held (electric)					
		Light goods vehicle, gross vehicle weight ≤ 5.5 tonne					
		Water jetting unit (electric)					
Repairing of existing drainage	Drill, hand-held (electric)	101	20	-34	3	70	
	Grinder, hand-held (electric)						
Internal Works	Repairing and restoring works of the internal building elements, eg. existing internal wall, floor, doors, loft, ceiling and interior finishes	Drill, hand-held (electric)	94	20	-34	3	63
		Jig-saw, hand-held wood (electric)					
		Grinder, hand-held (electric)					
		Air blower (electric)					
	Repairing works of existing building services, eg. internal lighting and pipework etc	Drill, hand-held (electric)	91	20	-34	3	60
		Grinder, hand-held (electric)					
Above works operate at the same time	Sum of above	96	20	-34	3	65	

Remarks

- Distance attenuation is calculated by $20\log(D)+8$, where D is the distance between NSR and noise source in meters
- As a worst-case assumption, noise impact at the nearest sensitive façades of the residential buildings to the source positions was assessed
- A +3dBA façade correction was added to the predicted noise levels to account for the façade effect at each identified representative NSR
- All works will be carried out during the daytime (07:00-19:00)

Remarks:

With reference to the construction programme, the proposed external works shall not be carried out concurrently.

Noise Sensitive Receiver (NSR) - 2

NSR 2 - Domestic Premises



Noise Sensitive Receiver (NSR) - 2

Type of Works	Proposed Works	PME	Total SWL	Horizontal Distance to NSR (D) (m)	Distance Correction $20\log(D)+8$ (dBA)	Façade Correction (dBA)	CNL (dBA)
External Works	Repairing and restoring works of the external building elements, eg. roof, windows, doors, portal and steps	Drill, hand-held (electric)	106	33	-38	3	70
		Jig-saw, hand-held wood (electric)					
		Grinder, hand-held (electric)					
		Light goods vehicle, gross vehicle weight ≤ 5.5 tonne					
		Water jetting unit (electric)					
Repairing of existing drainage	Drill, hand-held (electric)	101	33	-38	3	66	
	Grinder, hand-held (electric)						
Internal Works	Repairing and restoring works of the internal building elements, eg. existing internal wall, floor, doors, loft, ceiling and interior finishes	Drill, hand-held (electric)	94	33	-38	3	58
		Jig-saw, hand-held wood (electric)					
		Grinder, hand-held (electric)					
		Air blower (electric)					
	Repairing works of existing building services, eg. internal lighting and pipework etc	Drill, hand-held (electric)	91	33	-38	3	56
		Grinder, hand-held (electric)					
Above works operate at the same time	Sum of above	96	33	-38	3	60	

Remarks

- Distance attenuation is calculated by $20\log(D)+8$, which D is the distance between NSR and noise source in meters
- As a worst-case assumption, noise impact at the nearest sensitive façades of the residential buildings to the source positions was assessed
- A +3dBA façade correction was added to the predicted noise levels to account for the façade effect at each identified representative NSR
- All works will be carried out during the daytime (07:00-19:00)

Remarks:

With reference to the construction programme, the proposed external works shall not be carried out concurrently.

Noise Sensitive Receiver (NSR) - 3

NSR 3 - Domestic Premises



Noise Sensitive Receiver (NSR) - 3

Type of Works	Proposed Works	PME	Total SWL	Horizontal Distance to NSR (D) (m)	Distance Correction $20\log(D)+8$ (dBA)	Façade Correction (dBA)	CNL (dBA)
External Works	Repairing and restoring works of the external building elements, eg. roof, windows, doors, portal and steps	Drill, hand-held (electric)	106	40	-40	3	68
		Jig-saw, hand-held wood (electric)					
		Grinder, hand-held (electric)					
		Light goods vehicle, gross vehicle weight ≤ 5.5 tonne					
		Water jetting unit (electric)					
Repairing of existing drainage	Drill, hand-held (electric)	101	40	-40	3	64	
	Grinder, hand-held (electric)						
Internal Works	Repairing and restoring works of the internal building elements, eg. existing internal wall, floor, doors, loft, ceiling and interior finishes	Drill, hand-held (electric)	94	40	-40	3	57
		Jig-saw, hand-held wood (electric)					
		Grinder, hand-held (electric)					
		Air blower (electric)					
	Repairing works of existing building services, eg. internal lighting and pipework etc	Drill, hand-held (electric)	91	40	-40	3	54
		Grinder, hand-held (electric)					
Above works operate at the same time	Sum of above	96	40	-40	3	59	

Remarks

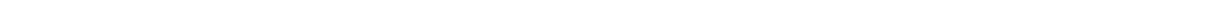
- Distance attenuation is calculated by $20\log(D)+8$, where D is the distance between NSR and noise source in meters
- As a worst-case assumption, noise impact at the nearest sensitive façades of the residential buildings to the source positions was assessed
- A +3dBA façade correction was added to the predicted noise levels to account for the façade effect at each identified representative NSR
- All works will be carried out during the daytime (07:00-19:00)

Remarks:

With reference to the construction programme, the proposed external works shall not be carried out concurrently.

Appendix III

Summary of Mitigation Measures



Project Profile for Repair and Maintenance Works to ex-Tung Chung Public School at Tung Chung Fort
Appendix III - Summary of Mitigation Measures

Project Profile Section	Recommended Mitigation Measures	Implementation Agent	Implementation Period
Cultural Heritage			
5.1	Apply the Section 6 Permit of the Antiquities and Monuments Ordinance (Cap.53)	Project Proponent	Before the commencement of the Works
5.2	Implement restoration and modification works and mitigation measures specified in the approved Conservation Proposal/ Conservation Management Plan	Project Proponent & Contractor	Construction phase
	A heritage consultant to be engaged.	Project Proponent	Construction phase
	Photographic survey, cartographic survey and condition survey of the building within project site to be carried out and submitted to the AMO for record prior to the commencement of construction works.	Contractor	Before construction phase
	The Contractor will be required to submit site layout planning, method statement, risk assessment of historic feature(s) and schedule of works, including identifying components that require specialist supervision or monitoring after consulting a heritage consultant for the protection of the CDEs before any commencement of works.	Contractor	Before construction phase
	An approved specialist contractors listed on DEVB website for repair and restoration work to be engaged for the works	Project Proponent & Contractor	Before construction phase
	A set of photographic record will be prepared and submitted to AMO for record upon the completion of works.	Project Proponent	By completion of construction phase
5.3	Awareness- Full awareness of the construction team on the significance of the monument is vital to make sure all parties acknowledged the monuments need protection. Induction training or orientation session shall be provided to all workers by site manager, preferably by a staff conservator, to familiar with the site conditions and site-specific requirements. Regular monitoring by site manager and displaying signs around site could maintain the workers' awareness and remind the visitors for safety.	Contractor	Before construction phase and Construction phase

Project Profile for Repair and Maintenance Works to ex-Tung Chung Public School at Tung Chung Fort
Appendix III - Summary of Mitigation Measures

	<p>Containing the works - The work area shall be enclosed and storage area shall locate at corner open space to minimize potential disturbance to visitors and historic fabrics. Physical barriers, such as scaffolding with sheeting and water barriers, would be provided where access through a particular space is necessary and subject to works nature. Works shall be carried at enclosed condition to help in reducing the spread of harmful materials and dust. Waterproof screens and sheeting would be used for protection of adjacent historic fabrics when wet work is included.</p> <p>The extent of fence-off areas and temporary storage are proposed and illustrated in attached Drawing No. GP003.</p>	Contractor	Before construction phase and Construction phase
	<p>Temporary protection – Protective materials around the adjacent historic features within the monument boundary shall be provided throughout the construction works period to reduce the risk of impact, exposure to dust and debris, and liquid damage. Generally, this protection measures will involve wrapping or boxing, by plastic sheet or buffer pads or temporary threshold protection or wood board, around the historic fabrics, specifically for the gate, including the arch, staircase and flooring, subject to the condition. Protective materials should be reversible and impose no adverse impact to historic surface of the Fort. The fixing of the protective measures will be reviewed by the heritage consultant to ensure minimal damage to the historic fabrics, especially for delicate surfaces which self-supporting structure or low-tack tape for limited period shall be considered. Heritage consultant and specialist contractor should inspect the protective systems regularly to closely monitor the condition of the historic fabrics.</p> <p>The extent of protective measures for surrounding historic fabric is proposed and illustrated in attached Drawing No. GP003.</p>	Contractor	Before construction phase and Construction phase
	<p>Controlling of access- Exclusion zones are planned for the material storage and delivery of equipment and materials to controlled the extent of activities within the monument site. The delivery route is only through the side entrance to avoid</p>	Contractor	Construction phase

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	<p>overlapping with pedestrian entrance at Main Gate. The opening hour of adjacent information center is 10am-5pm, delivery of equipment and materials may target to schedule before 10am and after 5pm to avoid disturbance to visitors.</p> <p>The delivery routes for materials and equipment are proposed and illustrated in attached Drawing No. GP003.</p>		
Air Quality			
5.4	<p>Execute appropriate air quality control measures as stipulated under Air Pollution (Construction Dust) Regulation, Air Pollution Control (Non- Road Mobile Machinery) (Emission) Regulation and Air Pollution Control (Fuel Restriction) Regulations.</p>	Contractor	Construction phase
	<p><u>Dust Mitigation Measures: (if applicable)</u></p> <ul style="list-style-type: none"> • Avoid free falling of debris while roof or wall material is being removed and dismantled. Baskets or similar containers shall be used to carry such material from the roof to ground level for proper disposal. • Regularly dampen the floor with clean water to avoid spread of dust during the hacking-up and removing of the existing floor finishing. • Spray the debris with clean water so that it remains damp before it is carted away. In addition, water will be continuously sprayed on the surface where any drilling, cutting or other small-scale breaking operation is carried out by using hand-held power tools. • Avoid dusty construction activities (e.g. site clearance, excavation works) during school hours as far as practicable. 	Contractor	Construction phase
	<p><u>Good Site Management: (if applicable)</u></p> <ul style="list-style-type: none"> • The area where dusty work takes place should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after dusty activities as far as practicable; • All dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation; • During transportation by truck, materials should not be loaded to a level higher than the side and tail boards, and 	Contractor	Construction phase

	<p>should be dampened or covered before transport;</p> <ul style="list-style-type: none"> • Temporary stockpiles of dusty materials will be either covered entirely by impervious sheets or sprayed with water to maintain the entire surface wet all the time; • All exposed areas will be kept wet always to minimise dust emission. 		
	Localized protection against dust shall be provided during paint removal works and when reroofing works is carried out.	Contractor	Construction phase
Noise			
5.5	Adopt suitable noise mitigation measures and good site practices as stipulated in EPD's "EIAO Guidance Note No. 9/2023.	Contractor	Construction phase
	<p><u>Standard noise mitigation strategies:</u></p> <ul style="list-style-type: none"> • Use of quiet construction method: <ul style="list-style-type: none"> - Use of High-Pressure Water Jetting for removal works at external area • Utilization of temporary noise barriers • Positioning noise-generating facilities as far as feasible from sensitive receptors • No construction activities will occur between 7 p.m. to 7 a.m. Monday through Saturday, and at any time on Sundays and public holidays • No percussive piling or breaking works will be carried out 	Contractor	Construction phase
	<p><u>Implementation of good site practices, e.g.:</u></p> <ul style="list-style-type: none"> • Regular maintenance of PME • Use of silencers or mufflers on equipment • Mobile plant, if any, should be sited as far from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. • The engine of lorry should be switched off after arriving at the unloading position 	Contractor	Construction phase
	Carefully arrange the construction programme as practicable to ensure that the internal works and renewal of doors and windows will be not carried out concurrently, recommend programme proposed in attached Table 1.1.	Contractor	Construction phase
Water quality			
5.6	Adopt site practices outlined in RPCC and	Contractor	Construction phase

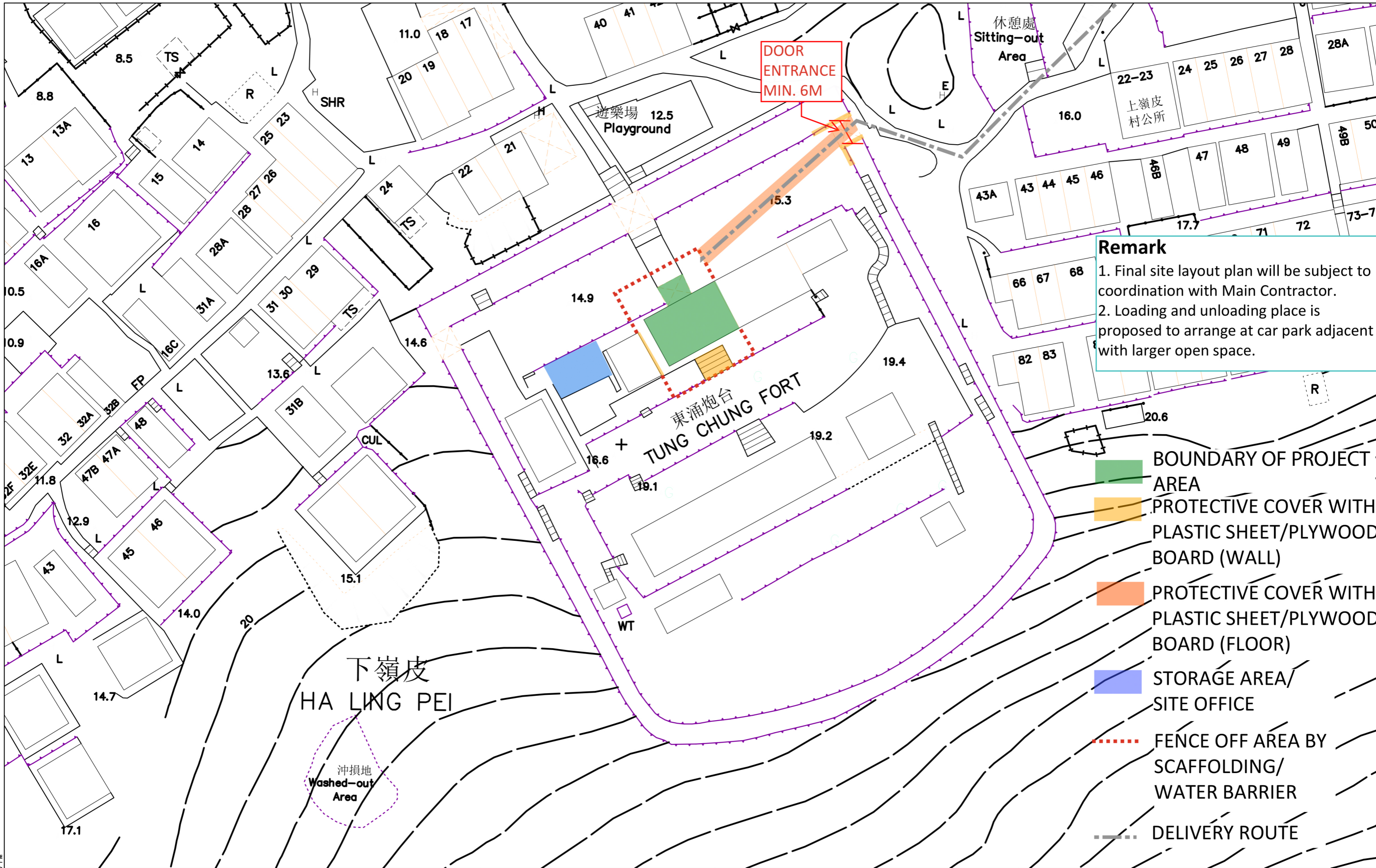
	<p>ProPECC PN 2/24 "Construction Site Drainage":</p> <ul style="list-style-type: none"> Implement facilities for the removal of sand and silt particles from runoff. Implement effective site management procedures to eliminate debris and refuse from the building site, therefore preventing their ingress into public sewers or drainage systems. 		
	The contractor shall obtain the WPCO licence	Contractor	Construction phase
	The Contractor will ensure all effluent discharge from the works meets the standard of WPCO-TM	Contractor	Construction phase
	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance (WDO). The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance should be followed to avoid leakage or spillage of chemicals.	Contractor	Construction phase
Waste Management			
5.7	Reused of inert C&D materials on-site wherever practicable.	Contractor	Construction phase
	Reduce, reuse and recycle of non-inert C&D waste shall be prioritized and appropriately implemented.	Contractor	Construction phase
	A Waste Management Plan (WMP) shall be prepared in accordance with PNAP No. 243 (ADV-19) and submitted to the AP or Engineer of the Project for agreement.	Contractor	Construction phase
	<p>Considering construction methods and construction programme during planning stage to minimize the generation of C&D materials</p> <ul style="list-style-type: none"> No heavy demolition, earthworks, site formation and foundation works will be carried out Construction programme is carefully arranged to prevent overlapping of work 	Contractor	Construction phase
	Implement a recording system for the amount of waste generated, recycled, delivered and disposed, including delivery destinations or disposal sites.	Contractor	Construction phase
	Implement trip-ticket system for dump truck.	Contractor	Construction phase
	All waste will be stored, handled and disposed in accordance with the Waste Disposal Ordinance.	Contractor	Construction phase
	Recycling bins will be provided to maximize recycling of general refuse during construction.	Contractor	Construction phase

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 Appendix III - Summary of Mitigation Measures

	All asbestos works shall be carried out by registered asbestos contractor in accordance with the Air Pollution Control Ordinance (Cap.311) and Codes of Practice on Asbestos Control.	Contractor	Construction phase
	The Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the requirements stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes for the disposal of chemical waste.	Contractor	Construction phase
	Maintain site cleanliness and tidiness and to properly manage construction waste in the restoration works area	Contractor	Construction phase

Works Stages	Works /Month	1	2	3	4	5	6
Stage 1 (Commencement of works)	Mobilization, scaffolding access, site clearance and necessary protection by appointed contractor						
	Brick test and asbestos removal preparation, including application to EPD						
Stage 2 (External Repairing)	Cleaning and repair of external walls, doors and windows						
	Installation of new roof						
Stage 3 (Internal Repairing)	Repair works for door, internal wall, loft, flooring and drainage						
	Installation of signs						
Stage 4 (completion)	Site cleaning						

Table 1.1: Proposed Construction Programme



DOOR
ENTRANCE
MIN. 6M

Remark

1. Final site layout plan will be subject to coordination with Main Contractor.
2. Loading and unloading place is proposed to arrange at car park adjacent with larger open space.

- BOUNDARY OF PROJECT AREA
- PROTECTIVE COVER WITH PLASTIC SHEET/PLYWOOD BOARD (WALL)
- PROTECTIVE COVER WITH PLASTIC SHEET/PLYWOOD BOARD (FLOOR)
- STORAGE AREA/SITE OFFICE
- FENCE OFF AREA BY SCAFFOLDING/WATER BARRIER
- DELIVERY ROUTE

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REV.	DESCRIPTION	DATE

PROJECT TITLE
TUNG CHUNG FORT - EX-TUNG CHUNG PUBLIC PRIMARY SCHOOL

DRAWING TITLE
SITE LAYOUT PLAN

PROJECT NO. 24090EB	DRAWN BY HUL
SCALE 1: 500 @ A3	CHECKED BY TI
DATE 01/2026	APPROVED BY TI
DRAWING NO. GP003	REV. NO.

DRAWING PURPOSE

PLOT DATE = 4/2/2026 5:50 PM