

Development of Ma Tso Lung Area

Project Profile

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

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1 BASIC INFORMATION

1.1 Project Title

1.1.1 Development of Ma Tso Lung Area (MTL Area) (hereinafter referred to as “the Project”).

1.2 Purpose and Nature of the Project

1.2.1 The Northern Metropolis Development Strategy (NMDS), promulgated in the Policy Address 2021, stated that the agricultural land and slope areas in Ma Tso Lung to the north of the Kwu Tung North New Development Area (KTN NDA) can be included within the KTN NDA to provide in estimate an additional 12,000 to 13,500 residential units. With the construction of the link road connecting the eastern part of the Hong Kong-Shenzhen Innovation and Technology Park (HSITP) in Lok Ma Chau Loop (the Loop) and the KTN NDA, Ma Tso Lung and its surrounding areas can serve as an intersection linking the HSITP and the KTN NDA, providing Innovation & Technology (I&T) enterprises with convenient community services and daily life support.

1.2.2 As mentioned in the Northern Metropolis Action Agenda announced in October 2023, the planning and engineering study (P&E Study) is being conducted to determine the proposed land uses / developments, and infrastructure works. Development proposal will be released in 2024.

1.3 Name of Project Proponent

1.3.1 The Project Proponent is North Development Office (NDO), Civil Engineering and Development Department (CEDD).

1.4 Location and Scale of Project and History of Site

1.4.1 The Project, with approximately 68ha, is situated in a plain flanked by Crest Hill at the east, KTN NDA at the south, Tse Koo Hang and Tit Hang at the west, as well as Hoo Hok Wai Area at the northwest. According to the approved Kwu Tung North Outline Zoning Plan (OZP) (No. S/KTN/4) and the approved Ma Tso Lung and Hoo Hok Wai OZP (No. S/NE-MTL/3), the existing land use zonings within the Project area include agriculture (“AGR”), green belt (“GB”), government, institution or community (“G/IC”) and other specified uses (“OU”). The boundary of MTL Area and the associated infrastructure works would be subject to review findings under this Project. The tentative location plan of the Project is shown in **Figure 1.1**.

1.4.2 The Project mainly comprises residential development, various G/IC facilities and other suitable land uses, as well as the proposed road network scheme connecting MTL Area with the surrounding areas (e.g. KTN NDA, the Loop, New Territories North (NTN)).

1.4.3 The works under the Project would include site formation works and the associated infrastructure works, such as slope works, roadworks, construction works of sewage pumping station(s) (SPS(s)), district cooling system (DCS) and service reservoirs, drainage works, waterworks and utility works, subject to the findings of P&E Study, within or outside the tentative boundary of MTL Area.

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

1.5.1 As mentioned in **Section 1.4.1**, the Project includes development of an area of approximately 68ha. Therefore, the Project is considered as a Designated Project (DP) by virtue of Item 1 under Schedule 3 of the Environmental Impact Assessment Ordinance (EIAO):

- Item 1 – An urban development or redevelopment project covering an area of more than 50 ha.

1.5.2 Besides, a comprehensive road network constituting district distributor (DD) roads is proposed to connect MTL Area to its surrounding areas and different parts of Hong Kong. The proposed DD roads will act as the main access road serving MTL Area from and to the KTN NDA, including the connection roads between MTL Area and the Loop via the future ECR (to be developed under another project). A new interchange and slip roads will also be proposed to connect NM Highway (to be developed under another project). The proposed DD roads will fall into the category of Item A.1 of Schedule 2 of EIAO:

- Item A.1 – A carriageway for motor vehicles that is an expressway, trunk road, primary distributor road or district distributor road.

1.5.3 New drainage systems would be required as part of the infrastructure works of the Project, and the associated drainage works will potentially comprise the DP Item I.1 of Schedule 2 of EIAO:

- Item I.1 – A drainage channel or river training and diversion works—
 - (a) with a channel width of more than 100 m; or
 - (b) located less than 300 m from the nearest boundary of an existing or planned—
 - i. site of special scientific interest;
 - ii. site of cultural heritage;
 - iii. marine park;
 - iv. marine reserve;
 - v. fish culture zone;
 - vi. wild animal protection area;
 - vii. coastal protection area; or
 - viii. conservation area.

1.5.4 The feasibility and requirement, including scale and scope, of the Project will be investigated and ascertained under the P&E Study, with the associated environmental impacts to be studied in Environmental Impact Assessment (EIA).

1.6 Name and Telephone Number of Contact Person(s)

1.6.1 All queries regarding the Project can be addressed to:

Contact Person:	Mr. Cheung Fu Keung, Tommy
Post:	Chief Engineer / North 1
Address:	Civil Engineering and Development Department North Development Office North Division (1) Unit 813, Level 8, Tower I, Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T.
Telephone:	3547 1628
Facsimile:	3547 1659

2 OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1 Project Planning and Implementation

2.1.1 A P&E Study is being conducted to formulate a development and infrastructure proposal for the Project, and a Recommended Outline Development Plan (RODP) will be developed based on the findings. An EIA Study will be carried out for the RODP and the associated infrastructures.

2.1.2 The Project Proponent or other parties will be responsible for implementing the proposed works, together with all the environmental mitigation measures, environmental monitoring and audit requirements as recommended in future EIA Study of this Project.

2.1.3 Subject to the findings of the EIA Study, the construction works of the proposed development and infrastructure for the Project may be carried out in phases by the Project Proponent's appointed contractors under various works contracts.

2.2 Project Time-table

2.2.1 The P&E Study of the Project commenced at the end of October 2022 and would formulate the outline implementation programme. Subject to the recommendations of the P&E Study, a detailed design of the Project and the associated statutory procedures will follow.

2.3 Interactions with Other Projects

2.3.1 The Project may have interface with the following projects:

- Development of the KTN NDA;
- Strategic Feasibility Study on the Development of Wetland Conservation Parks System under the Northern Metropolis Development Strategy;
- ECR; and
- NM Highway.

2.3.2 The list of concurrent projects will be reviewed during the course of the EIA Study such that all the relevant projects available from the respective stakeholders are considered in the EIA Study. Any cumulative impact from the construction and operational phases of the identified concurrent project(s) will be addressed as appropriate in the EIA Report, subject to the availability and appropriateness of information for assessment during the EIA stage.

3 POSSIBLE IMPACTS ON THE ENVIRONMENT

3.1 General

- 3.1.1 It is anticipated that the construction of the Project would only involve land-based construction works including site clearance, site formation works, construction of infrastructures and utilities including roads, SPS(s), DCS, service reservoirs, retaining structures, noise barriers / enclosures as well as the associated potential slope works. Subject to the details of the proposed infrastructures and developments under this Project, it is anticipated that the surrounding sensitive receivers may be affected during the construction and operational phases of the Project.
- 3.1.2 The potential impacts arising from the construction and the operation of the Project have been identified based on the available information and are discussed below.

3.2 Air Quality

Construction Phase

- 3.2.1 The potential sources of air quality impact during the construction phase would include the exhaust emission from construction machinery, and dust generated from site clearance, site formation, stockpiling works, movements of construction vehicles, and the erosion of unpaved area and stockpiles, etc. Construction dust generated from any concurrent projects within 500m assessment area would also contribute to cumulative dust impact.

Operational Phase

- 3.2.2 The major air pollution sources during the operation of the Project would include vehicle exhaust emissions from the existing local roads (e.g. Liu Pok Road) and the proposed road networks. In addition, emission from the proposed public transport interchange (PTI), SPS(s) and refuse collection points (RCP(s)) under the Project may be another potential source of air pollution. No existing and proposed chimney emissions associated with the industrial activities within and in the vicinity of the Project area.

3.3 Noise

Construction Phase

- 3.3.1 Construction noise generated from the use of Powered Mechanical Equipment (PME) during site clearance, site formation, building and infrastructure works, the construction traffic along site access roads, as well as the neighbouring concurrent construction works would potentially pose adverse noise impacts on the surrounding sensitive receivers.

Operational Phase

- 3.3.2 Main sources of operational noise include road traffic noise and fixed noise. The potential sources of road traffic noise include the traffic on the existing local roads (e.g. Liu Pok Road), proposed road networks within the northern part of the KTN NDA, ECR and NM Highway, as well as the proposed road networks of the Project. Fixed noise sources namely the proposed SPS(s), DCS and electric substations under the Project would contribute to the overall operational noise impacts.

3.4 Water Quality

Construction Phase

- 3.4.1 The Project will involve various construction activities that may be undertaken in phases. Sources of potential water quality impacts during the construction phase would include wastewater generated by general construction activities, construction site runoff, accidental spillage of chemicals and contaminated surface water and groundwater, sewage effluent from construction workforce, and runoff from removal / diversion of existing watercourses, if any.

Operational Phase

- 3.4.2 Sources of potential water quality impacts during the operational phase would include increased surface runoff from paved areas, domestic and non-domestic (e.g. commercial, retail, dining and entertainment, G/IC, etc.) sewage. Potential water quality issues may also

arise from the potential emergency discharge from the proposed SPS(s), and spent cooling water discharged from DCS plant.

3.5 Waste Management Implications

Construction Phase

- 3.5.1 Wastes generated during the construction phase mainly include construction and demolition (C&D) materials, chemical waste, general refuse, pond and stream sediment / mud from a wide range of construction activities such as site clearance and formation, construction of roads, proposed housing developments and infrastructure development. The quantities of waste to be generated during the construction phase largely depend on the extent of the proposed development and the programme of various works packages.

Operational Phase

- 3.5.2 The majority of wastes generated during the operational phase is anticipated to be municipal solid waste from domestic uses (e.g. residential development) and non-domestic uses (e.g. commercial, retail, dining and entertainment, G/IC, etc.). The storage, handling and disposal of the waste, if not carried out properly, may have the potential to cause adverse environmental impacts.

3.6 Ecology

Ecological Baseline

- 3.6.1 Based on the preliminary desktop review, existing ecologically sensitive areas within and in the vicinity of the 500m assessment area include Priority Site for Enhanced Conservation (PSEC), Conservation Area (CA), Wetland Conservation Area (WCA), Wetland Buffer Area (WBA), and Inner Deep Bay and Shenzhen River Catchment Importance Bird Area. Part of the Project area falls within the WBA.
- 3.6.2 Based on the preliminary desktop review, habitats were recorded within the Project area and its adjacent area, including seasonally wet grassland, marsh, pond, natural watercourse and modified watercourse, mixed woodland, shrubland, grassland, plantation, wet and dry agricultural land, village / orchard and developed area / wasteland. Majority of the Project area was covered by village / orchard, developed area and plantation habitat. The Ma Tso Lung Stream (MTL Stream) and its tributaries run through MTL Area from Tit Hang to Hoo Hok Wai, seasonally wet grassland and marsh were found along this watercourse and form a riparian corridor for wildlife.
- 3.6.3 Outside the Project area, hilly areas (e.g. at Crest Hill and She Leng) were mainly covered by shrubland and grassland, with mixed woodland, orchard and plantation recorded in the foothill area. Fish ponds and marshes were identified to the northwest margin of the assessment area, which are parts of the larger wetlands complex in Hoo Hok Wai area and fall within sites of conservation importance including CA, WBA, and Priority Site.
- 3.6.4 According to the findings of the preliminary desktop review, species of conservation importance recorded within and in the vicinity of the assessment area include:
- Plant (e.g. *Aquilaria sinensis*, *Gnetum luofuense*);
 - Mammals (e.g. *Rhinolophus affinis*, *Muntiacus vaginalis*);
 - Avifauna (e.g. *Phalacrocorax carbo*, *Halcyon smyrnensis*, *Dendrocitta formosae*);
 - Amphibians (e.g. *Hoplobatrachus rugulosus*, *Kalophrynus interlineatus*);
 - Reptiles (e.g. *Ptyas mucosus*, *Naja atra*, *Cuora trifasciata*);
 - Butterflies (e.g. *Telicota colon*, *Caprona alida*, *Ypthima norma*, *Hypolimnas misippus*);
 - Dragonflies (e.g. *Rhodothemis rufa*);
 - Freshwater Fishes (e.g. *Channa asiatica*, *Parazacco spilurus*); and
 - Aquatic Invertebrates (e.g. *Somanniathelphusa zanklon*).

Construction Phase

- 3.6.5 Potential ecological impacts arising from the construction works would include direct habitat loss resulting from the proposed development (including wetland habitats within WBA); direct mortality of inactive / less mobile / habitat-specific wildlife inhabiting the affected area; indirect impact to aquatic fauna due to deterioration of water quality as a result of site runoff; and

indirect impacts to the surrounding habitat and associated wildlife due to disturbance (e.g. noise, glare) and increased human activity.

Operational Phase

- 3.6.6 Potential ecological impacts arising from the operational phase would include indirect impacts to the surrounding habitat and associated wildlife due to the proposed developments and increased human activities / disturbance under the Project.

3.7 Fisheries

Construction Phase

- 3.7.1 Some inactive fish ponds were identified within the Project area, while several active and inactive fish ponds were located in the Hoo Hok Wai area outside the Project area. Potential impacts from the Project during the construction phase would include permanent loss of inactive fish ponds within the Project area and deterioration of water quality due to site runoff and accidental spillage, as well as degradation of the environmental conditions of the fish ponds at Hoo Hok Wai Area.

Operational Phase

- 3.7.2 During the operational phase, there would be degradation / deterioration of water quality of active and inactive fish ponds in Hoo Hok Wai area due to potential induced-water quality impacts from emergency discharge and surface runoff from the Project.

3.8 Cultural Heritage

Construction Phase

- 3.8.1 Potential impacts arising from the Project may include direct and indirect impacts to the identified built heritage and archaeological resources arising from the various construction activities.

Operational Phase

- 3.8.2 No potential operational impacts are anticipated, subject to further review and findings under the EIA Study.

3.9 Land Contamination

- 3.9.1 According to the findings of the EIA Study of the North East New Territories New Development Areas (NENT NDA EIA Study) (Register No.: AEIAR-175/2013), one of the potentially contaminated land uses ("A" Rating Sites) at KTN NDA (i.e. KTN-58c: Waste recycling workshop) falls within the Project area. It is expected that areas identified with land contamination issues within KTN NDA will be decontaminated before the site formation works. Associated land contamination impacts within KTN NDA are therefore considered surmountable to this Project.

- 3.9.2 While there are no extensive areas of contaminated land such as landfills within the Project area, there is potential for the presence of residues from brownfield land uses such as vehicle maintenance, warehouse and waste recycling to create an adverse impact that will need to be cleaned up during the site formation phase. The existing land uses of the remaining part of the Project area mainly include agricultural land, vegetation, village development and scattered low-rise residential development in low density. Although land uses such as open storage and recycling workshops as potentially contaminated sites were identified near She Leng within the Project area, these sites are located within the site formation works boundary under Agreement No. CE 19/2019 (CE) - "Development of Kwu Tung North New Development Area, Remaining Phase – Design and Construction", and the land contamination issues, if exist, will be cleaned before commencement of site formation works under CE19/2019 (CE). Hence, the associated land contamination impacts at these sites are therefore considered surmountable to this Project.

- 3.9.3 Desktop study and site visits will be conducted at later stage to identify any historical and existing land contamination uses within the Project area. Potential contaminated land impacts, if any, would be related to the health risks to site workers during the handling and disposal of contaminated soils, where encountered, and potential health risks to future users

of the Project. The land contamination issue and its impact within MTL Area will be identified and assessed in the EIA Study.

- 3.9.4 Besides, according to Appendix 8.4 of the NENT NDAs EIA Report and the Geochemical Atlas of Hong Kong issued by CEDD/GEO, some portions of the Project area were predicted to have high arsenic concentration (i.e. >571mg/kg). Follow-up actions on site investigation for confirmation of the extent of treatment area as well as the mitigation measures will be discussed in the EIA Study.

3.10 Landscape and Visual

- 3.10.1 Significant change in land use pattern and impacts are expected within the Project area due to the loss of existing landscape resources (LRs), the formalisation of the existing disparate land uses, the change of landscape setting near existing villages and the altered relationship between the natural uplands and the valley floor.

- 3.10.2 The following are the potential sources of landscape / visual impacts which will be assessed in the EIA Study:

Construction Phase

- Potential loss of LR / Landscape Character Areas (LCAs) (e.g. trees, ponds and natural topography) and those with distinctive character / resources, e.g. rivers, woodland, tree of particular interest (TPIs); and
- Construction activities on newly formed areas and existing available land.

Operational Phase

- Potential permanent loss of LR / LCAs (e.g. trees, ponds and natural topography) and the landscape with distinctive character / resources, e.g. rivers, woodland, and TPIs;
- Residual impacts from loss of trees and vegetation during the construction phase would generate negative landscape and visual impacts in the short term until compensation planting has established and replaced these resources;
- Visual intrusion and obstruction created by the proposed developments; and
- Visual quality of the new developments.

- 3.10.3 Landscape impact with an assessment area of 100m on LR and LCAs, and visual impact arising from the Project as well as associated residual impacts, if any, will be assessed in the EIA Study. Appropriate mitigation measures for prevention and alleviation of impacts on the LR and LCAs will also be proposed in the EIA Study.

3.11 Landfill Gas Hazard

- 3.11.1 The closed Ma Tso Lung Landfill (MTLL), to the southwest of the Project area, is located at the head of a small valley in Tit Hang. The south-western portion of the Project encroaches into the 250 m consultation zone (CZ) of MTLL, and therefore there is a potential landfill gas (LFG) hazard to the proposed development within the CZ during both construction and operational phases.

4 MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

4.1 General

4.1.1 Existing and planned sensitive receivers and sensitive areas in the surrounding environment which might be affected by the Project include the following:

- (a) Villages (e.g. Ma Tso Lung San Tsuen and Ma Tso Lung Shun Yee San Tsuen);
- (b) Squatter houses at Tit Hang (i.e. northeast to the closed MTLL), southwest to the Hong Kong Police Lo Wu Range, She Leng, Tse Koo Hang, etc;
- (c) Planned residential developments in KTN NDA;
- (d) Planned educational uses in KTN NDA;
- (e) Watercourses (i.e. Ma Tso Lung Stream and its tributaries);
- (f) Fish ponds within the Project area and at Hoo Hok Wai Area outside the Project area;
- (g) Areas of conservation value (i.e. CA, WCA, WBA and Inner Deep Bay and Shenzhen River Catchment Importance Bird Area);
- (h) Built heritage (e.g. MacIntosh Fort (Ma Tso Lung) (Grade 2)); and
- (i) Sites with identified medium archaeological potential.

4.2 Air Quality

4.2.1 Representative air sensitive receivers (ASRs) within in the vicinity of the Project area mainly include existing villages (e.g. Ma Tso Lung San Tsuen and Ma Tso Lung Shun Yee San Tsuen), squatter houses and planned developments (e.g. potential housing developments, G/IC facilities and educational institutions) within the northern part of KTN NDA and the Project area. The EIA Study would further identify the ASRs and assess the associated air quality impacts on the identified ASRs and recommend feasible air quality mitigation measures as necessary.

4.3 Noise

4.3.1 Representative noise sensitive receivers (NSRs) within in the vicinity of the Project area mainly include existing villages (e.g. Ma Tso Lung San Tsuen and Ma Tso Lung Shun Yee San Tsuen), squatter houses and planned developments (e.g. potential housing developments, educational institutions, etc.) within the northern part of KTN NDA and the Project area. The EIA Study would further identify the NSRs and assess the associated noise impacts on the identified NSRs and recommend feasible noise mitigation measures as necessary.

4.4 Water Quality

4.4.1 Major water sensitive receivers (WSRs) located in the vicinity of the Project area include CA, WCA, WBA, MTL Stream and its tributaries, and ponds (**Figure 4.1** refers). The EIA Study would assess the associated water quality impacts on the identified WSRs and recommend feasible water quality mitigation measures as necessary.

4.5 Waste Management

4.5.1 The existing solid waste arising from the Project area mainly include domestic waste from village / squatter houses, and commercial / industrial waste generated from open storage and industrial uses. The EIA Study would assess the waste management implications.

4.6 Ecology

4.6.1 The terrestrial habitats in the Project area consist of seasonally wet grassland, marsh, ponds, natural and modified watercourses, mixed woodland, shrubland, grassland, plantation, wet and dry agricultural land, orchard / village and developed area / wasteland. Species of conservation importance are identified within the Project area. Existing ecologically sensitive areas include WBA and MTL Stream located within the Project area (**Figure 4.1** refers). Ecological impact assessment will be carried out in the EIA Study to assess the potential direct and indirect ecological impacts due to the implementation of the Project, and proposed mitigation measures if necessary.

4.7 Fisheries

4.7.1 As mentioned in **Section 3.7.2** above, some inactive fish ponds were identified within the Project area, and several active and inactive fish ponds were located outside the Project area. Fisheries impact assessment will be carried out in the EIA Study to address the associated fisheries impacts and recommend feasible fisheries mitigation measures as necessary.

4.8 Cultural Heritage

4.8.1 No Sites of Archaeological Interest are within and in the vicinity of the Project area. According to the archaeological study which was conducted in 2010 for the NENT NDAs, debris flow area at the foothill of the valley in Ma Tso Lung was identified with medium archaeological potential. Some medium archaeological potential areas are partially located within the Project area.

4.8.2 There is one Grade 2 Historic Building, i.e. MacIntosh Fort (Ma Tso Lung), located within in the vicinity of the Project area (**Figure 4.1** refers). Site visit will be conducted at later stage to identify other cultural heritage resources that are within and in the vicinity of the Project area, and impact assessment will be conducted in the EIA Study for determination of necessary mitigation measures.

4.9 Land Contamination

4.9.1 As mentioned in **Section 3.9**, the existing land use of the Project area out of KTN NDA mainly includes agricultural land, vegetation and village / squatter houses in low density. Site visit(s) would be conducted to review the current land uses of the Project area at later stage. Site appraisal will be carried out at the area(s) identified with potentially contaminated land uses, if any, when access is granted by the land occupant. The EIA Study would assess any potential land contamination issues due to historical and existing land contamination uses, and formulate contamination assessment plans and remediation action plans as necessary.

4.10 Landscape and Visual

4.10.1 The composition of LRs within the Project area consists of urban and/or rural land uses, which include but not limited to seasonally wet grassland, marsh, mixed woodland, woodland, shrubland, natural and modified watercourses, ponds, wet and dry agricultural land, village and orchard, and developed area.

4.10.2 No country parks, coastal protection areas, conservation areas, areas of high landscape value, scenic spots, hilltops, ridgeline, nature reserves and Sites of Special Scientific Interest (SSSI) are identified within the Project area.

4.10.3 No registered Old and Valuable Tree (OVT) or stone wall trees are identified within the Project area. Nevertheless, there might be potential sensitive LRs such as TPis, rare, precious, endangered and protected plants of Hong Kong.

4.10.4 The composition of existing LCAs within the Project area consists of upland and hillside landscape, rural and urban peripheral village landscape, lowland agricultural landscape, industrial landscape, major water body landscape, etc.

4.10.5 The major visual resources enjoyed by the public within the Project area mainly comprise the adjacent ridgelines from Tit Hang to the west and Crest Hill to the east. A series of receiver group areas can be identified based on existing land use and physical conditions. Subject to the development proposal of the Project, the following areas where receiver groups located would be covered by the major visual resources:

- (a) Hoo Hok Wai;
- (b) Tse Koo Hang;
- (c) Tit Hang Hiking Trails;
- (d) Crest Hill Hiking Trails;
- (e) Ho Sheung Heung; and
- (f) Kwu Tung North.

4.10.6 The scale of the proposed development is of such a nature that it will alter the existing landscape character as a whole. Visual sensitive receivers and appropriate vantage points will be identified for visual impact assessment during the EIA Study.

4.11 Landfill Gas Hazard

4.11.1 As mentioned in **Section 3.11.1** above, the closed MTL is located at the southwest to the Project area of which a small portion near Tit Hang encroaches into the 250m CZ of MTL (**Figure 4.1** refers). LFG hazard assessment will be conducted in the EIA Study, and if necessary, design suitable precautionary / protection measures to render the development(s) within the CZ as safe as reasonably practicable.

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

5.1 Mitigation Measures for the Project

5.1.1 Practicable and effective mitigation measures will be adopted for construction and operation of the Project, as necessary, to ensure compliance with relevant environmental standards. Possible key measures to be adopted, subject to the findings of EIA study, are listed below.

5.2 Air Quality

Construction Phase

5.2.1 In order to alleviate the potential air quality impacts, dust mitigation measures as stipulated in the Air Pollution Control (Construction Dust) Regulation (Cap. 311R) will be implemented, whenever applicable, to control fugitive dust emission during construction phase of the Project. Possible key measures include:

- Regular watering on all exposed and unpaved surface, particularly during dry weather;
- Frequent watering for particularly dusty construction areas and areas close to ASRs;
- Minimise temporary storage stockpiles on site;
- Cover outdoor stockpiles of excavated or dusty material by impervious sheeting or spraying with water to maintain the entire surface wet;
- Wheel washing facilities at the exit points of the site;
- Covering all dusty vehicle loads transported to, from and between site locations with impervious sheeting; and
- Properly treat the exposed earth by compaction, turving, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.

5.2.2 Requirements stipulated in the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation will also be followed to control potential emissions from non-road mobile machinery during the construction phase where appropriate. In addition, on-site electricity supply should be provided for construction plant and equipment and the use of diesel generators and diesel-powered equipment should be avoided as far as practicable.

Operational Phase

5.2.3 In order to minimise and mitigate the potential air quality impacts on the existing and planned ASRs from the operational phase of the Project, the following general mitigation measures will be put in place where appropriate:

(a) *Vehicular Emissions from Existing and Proposed Open Roads*

- Provide adequate buffer distance, tree planting and dense shrub plantation, where appropriate, to separate the pedestrians and heavily trafficked roads.

(b) *Emissions from PTI*

- Design the PTI according to the design consideration recommended in the Control of Air Pollution in Semi-Confined Public Transport Interchanges (ProPECC PN 1/22).
- Provide adequate ventilation and dilution of vehicle exhaust;
- Direct ventilation exhaust, if any, away from the nearest ASRs; and
- Install control equipment such as filter or scrubbing units at the exhausted air outlets, if necessary, as per Control of Air Pollution in Semi-Confined Public Transport Interchanges (ProPECC PN 1/22).

(c) *Odour Emission from SPS(s)*

- Provide adequate buffer distances to sensitive receivers;
- Design in accordance with DSD's Standard Design on SPS(s), with all pumps located underground or enclosed within a structure / building; and
- Install deodorization system and adopt good housekeeping practice.

(d) *Odour Emission from RCP(s)*

- Provide odour removal system for the RCP(s) to reduce odour nuisance in the vicinity; and
- Direct the discharge of the odour removal system away from the ASRs to avoid the odour nuisance.

5.2.4 The mitigation measures proposed above are not exhaustive and will be reviewed under the EIA Study. Reference will be made to the Air Pollution Control Ordinance (APCO) (Cap. 311) and the Hong Kong Air Quality Objectives (AQOs) for the accepted levels of pollutants at the sensitive receivers. Mitigation requirements will be subject to the findings of the EIA, and the necessary performance and implementation of the recommended mitigation measures will be documented in the EIA Report.

5.3 Noise

Construction Phase

5.3.1 Use of quieter construction methods should be prioritized to mitigate the construction noise impact. Mitigation measures, where necessary, as listed below would be applicable to reduce construction noise impact:

- Use of quiet PMEs / construction methods and minimise the use of PMEs as far as practicable;
- Quiet plants, silencers or mufflers on construction equipment;
- Movable and temporary barriers to screen particular items of plant or noisy operations;
- Noise screening structures or purpose-built noise barriers along the site boundary;
- Good site practices such as locating noisy equipment and activities as far from NSRs as practical, scheduling noisy activities to minimise noise exposure of nearby NSRs to high levels of construction noise, proper maintenance of construction plant, devising quiet methods of working, and regular noise monitoring; and
- Proper planning of travelling route of construction vehicles and transport vehicles.

Operational Phase

5.3.2 Mitigation measures, where necessary, as detailed below would be applicable to reduce operational noise impact:

- Enclose the noisy fixed plant inside a building structure or locate them underground as far as practicable;
- Select quiet plants properly;
- Locate and orientate fixed noise sources / louver away from any NSRs as far as practicable;
- Install direct noise reduction equipment such as silencers, acoustic louvers and acoustic enclosure on fixed noise sources;
- Adopt special building design (e.g. architectural fin, building orientation, noise tolerant building, podium, etc.) and other direct noise mitigation measures (e.g. acoustic window, acoustic balcony, etc.) of noise sensitive premises as appropriate; and
- Explore and install noise barrier or enclosure as well as low noise road surfacing for the proposed roads and other feasible direct noise mitigation measures as necessary to provide effective screening / reduction to the noise sensitive premises.

5.4 Water Quality

Construction Phase

5.4.1 In order to prevent adverse impacts on water quality during the construction phase of the Project, general mitigation measures including but not limited to the below listed should be implemented where appropriate:

- Site run-off from construction sites should be reduced and directed into temporary sand traps or other silt removal facilities before discharging into the outlets;
- Silt removal facilities will be maintained regularly;
- Open stockpiles of materials on site will be avoided or where unavoidable covered with tarpaulin or similar fabric during rainstorms;

- Silt curtains or sand bag barriers will be used to confine the disturbed area during sediment removal activities;
- Where possible, works entailing soil excavation will be minimised during the rainy season (April to September);
- To minimise the impacts of concrete washings, infiltration / sedimentation pits will be used to settle out the washings before treatment / re-use / discharge. If necessary, treatment units with pH adjustment will be adopted;
- Oil interceptors will be provided and properly maintained for collecting spillage or leakages from site workshops. The waste oil removed will be collected by licensed collectors;
- Mobile toilets or other appropriate means will be provided to store sewage before disposal through licensed collection agent or discharging to main sewerage system; and
- For bored piling operations, the resulting suspension will be settled in sedimentation / infiltration pit until supernatant is clear and the bentonite solids will be disposed appropriately.

5.4.2 The practices outlined in Environment, Transport and Works Bureau Technical Circular (ETWB TC) (Works) No. 5/2005 "Protection of natural streams/ivers from adverse impacts arising from construction works" should also be adopted where applicable to minimize the water quality impacts upon any natural streams or surface water systems. Relevant mitigation measures from the ETWB TC(W) No. 5/2005 include the use of less or smaller construction plant, careful planning of temporary access locating far from watercourses, and proper covering up or disposal of construction debris and spoil.

5.4.3 In case that removal or diversion of watercourses is required, the works should be conducted under dry condition during dry season. The permanent or temporary water paths for carrying the diverted flow from existing watercourses to be removed should be constructed and completed before dewatering of those existing watercourses.

Operational Phase

5.4.4 Proper drainage and sewerage systems should be provided for serving the Project. Surface run-off from the open paved areas should be discharged into storm drains via adequately designed sand / silt removal facilities such as sand traps, silt traps and sedimentation basins. Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm. During emergency or maintenance condition of DCS plant, spent effluent, if any, should also be discharged to the sewerage system. Precautionary measures will be incorporated in the design of the proposed SPS(s) and contingency plan will also be developed to avoid and minimise the emergency sewage bypass.

5.5 Waste Management

Construction Phase

5.5.1 Apart from exploring alternatives through design modifications and programming of works, good site practices and waste reduction measures to minimise the quantities of C&D materials, chemical waste, general refuse, etc. during the construction phase for offsite disposal would include:

- Sorting and reuse on site as far as practicable;
- Handle by registered and licensed waste hauliers under Waste Disposal Ordinance (Cap. 354) and Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C);
- Nomination of an approved person for waste management;
- Separate chemical wastes for handling and treatment at licensed facilities;
- Proper record system for wastes generated, recycled and disposed of;
- Ticket-trip system in accordance with Development Bureau Technical Circular No. 6/2010 Trip Ticket System for Disposal of Construction & Demolition Materials;
- Waste Management Plan in accordance with ETWB TC(W) No. 19/2005 Environmental Management on Construction Sites;
- Segregate different types of waste for storage;
- Recycle unused chemicals with remaining functional capacity;
- Use of non-timber form work; and

- Proper storage and site practices.

Operational Phase

- 5.5.2 During the operational phase, general refuse should be stored in enclosed containers to prevent odour, windblown litter, vermin, water pollution and visual impact. Removal of recyclables should be encouraged, and collection bins for used aluminium cans, waste paper and glass bottles are recommended to be provided at strategic locations of the development site to encourage recycling by residents.

5.6 Ecology

- 5.6.1 Careful planning would be adopted to avoid any potential impacts on natural habitats and areas supporting significant abundance of species of conservation importance within the Project area as far as practicable. Where avoidance is infeasible, impact minimising and compensatory measures would be proposed, subject to the findings of ecological surveys.

- 5.6.2 The mitigation measures that are to be implemented to minimise the impacts on air quality, noise and water quality, as mentioned in the above paragraphs will also help to minimise any impacts on ecological resources. Measures to avoid adverse impact on any species of conservation importance found within MTL Area, including careful planning design (e.g. avoidance of direct impact on ecologically valuable habitat, wetland habitats within WBA) and translocation / translocation of species of conservation importance should be implemented. If translocation / translocation of species of conservation importance is deemed necessary, detailed translocation / translocation plan which includes, selection of proper recipient site, translocation / translocation process, monitoring program, etc. should be prepared after the EIA stage.

5.7 Fisheries

- 5.7.1 Good site practices should be fully implemented to control the construction site runoff and minimise impacts on the ponds in the vicinity of the Project. In addition, careful planning of works would be recommended to minimise potential fisheries impacts, where appropriate.

5.8 Cultural Heritage

- 5.8.1 A detailed cultural heritage impact assessment including Archaeological Impact Assessment and Built Heritage Impact Assessment will be conducted during the EIA stage. Direct impacts on the identified cultural heritage resources should be avoided as far as practicable. Mitigation measures to minimise the direct and indirect impacts on cultural heritage will be proposed in the EIA Study according to the assessment findings.

5.9 Land Contamination

- 5.9.1 Site appraisal should be carried out at later stage to identify areas with potential soil or groundwater contamination, subject to the observation during detailed site inspection at later stage. A Contamination Assessment Plan (CAP) should be prepared and approved by EPD before the commencement of site investigation works. Prior to the construction works at the areas of concern, site investigations and land contamination assessment should be conducted in accordance with the approved CAP. A Contamination Assessment Report (CAR), which presents the findings of site investigations and identifies the need for remediation actions, should be prepared and submitted to EPD for approval. The required remediation actions, if required, should be detailed in a Remediation Action Plan (RAP) for EPD's approval. Upon the completion of remediation actions, a Remediation Report (RR) should also be prepared for EPD's endorsement. No construction works or development should be carried out at the area(s) identified with land contamination issues prior to the endorsement of the RR.

5.10 Landscape and Visual

- 5.10.1 The landscape and visual impact assessment will be conducted according to the latest version of the Guidance Note of EIAO on "Preparation of Landscape and Visual Impact

Assessment under EIAO” and relevant Annexes of the Technical Memorandum of the EIA Process (EIAO-TM), as well as relevant technical circulars. Appropriate mitigation measures as listed below will also be recommended as necessary to minimise potential landscape and visual impacts:

Construction Phase

- Adoption of standard site practice and control measures, such as the conduct of construction activities in a neat and orderly manner, erection of decorative hoarding where appropriate, early formation of planting area, etc;
- Preservation of existing vegetation and trees as far as possible, transplantation of trees of high amenity value affected by the Project and tree compensation for tree felled under DEVB TC(W) No. 4/2020 Tree Preservation;
- Minimise disturbance to natural watercourses under ETWB TCW No. 5/2005 – Protection of Natural Streams / Rivers from adverse Impacts Arising from construction Works;
- Reinstatement of all hard and soft landscape areas temporarily disturbed upon completion of construction works on a like-to-like basis.

Operational Phase

- Adoption of buffer planting and roadside planting;
- Adoption of tree transplanting and compensatory planting as part of mitigation for the loss of existing trees / woodland;
- Controlling building height / profiles and responsive building massing;
- Provision of aesthetic architectural design for aboveground structures to enhance landscape and visual aesthetic of the area in proximity; and
- Provision of landscape treatment on cut slopes.

5.11 Landfill Gas Hazard

Construction Phase

- 5.11.1 Precautionary measures to be adopted by the contractors (for both site formation and infrastructure development) for the period of construction of infrastructure within the landfill consultation zone are outlined in EPD’s Guidance Note.

Operational Phase

- 5.11.2 General precautionary measures, which mainly apply to developments fallen within the CZ, should be reviewed as part of the Qualitative Landfill Gas Hazard Assessment (QLFGHA) during the detailed design stage of the proposed development for consideration include the following:

Utility Companies

- All utility companies should be made aware of the location and features of the site by the developers of the sites within the Consultation Zone during the respective detailed design stage as part of the QLFGHA. The utilities companies should have a responsibility to train and ensure their staff to take appropriate precautions at all times when entering enclosed spaces or plant rooms.

Developers of Sites

- The developers will hold a special responsibility to ensure that the occupants of the building, its staff and maintenance workers are protected from landfill gas and that visitors to the site are also made aware as to the dangers and the precautions required to be taken;
- To ensure that strict procedures for maintaining control over all temporary and / or permanent works proposed at the sites are reviewed with regard to the landfill gas hazard. This needs to be accompanied by a comprehensive contingency plan in case of incidents, including liaison with EPD officers, Fire Services Department, Landfill Restoration Contractors and others, as necessary;
- All construction and maintenance (including utilities) personnel working at the site should be made aware of the hazards of landfill gas and its possible presence on site. This should be achieved through a combination of posting warning signs in prominent places

and also by access to detailed information on landfill gas hazards and the designs and procedural means by which these hazards are being minimised on site; and

- Entry to confined spaces such as refuse / store rooms, drainage manholes, etc. should be preceded by a period of “airing” the space by opening the door widely allowing fresh air to enter. Where appropriate, monitoring of gas should also precede entry.

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

5.12.1 Subject to the findings of detailed impact assessments, control measures will be identified in the EIA Study to mitigate the impacts from the Project to acceptable levels. The possible severity, distribution and duration of environmental effects such as beneficial and adverse effects; short- and long-term effects; secondary and induced effects; cumulative effects and trans-boundary effects from concurrent projects, and further implications will be considered and addressed in the EIA, where applicable.

6 USE OF PREVIOUSLY APPROVED EIA REPORTS

6.1.1 The previously approved EIA reports that are of relevance to the Project are listed in **Table 6.1** below.

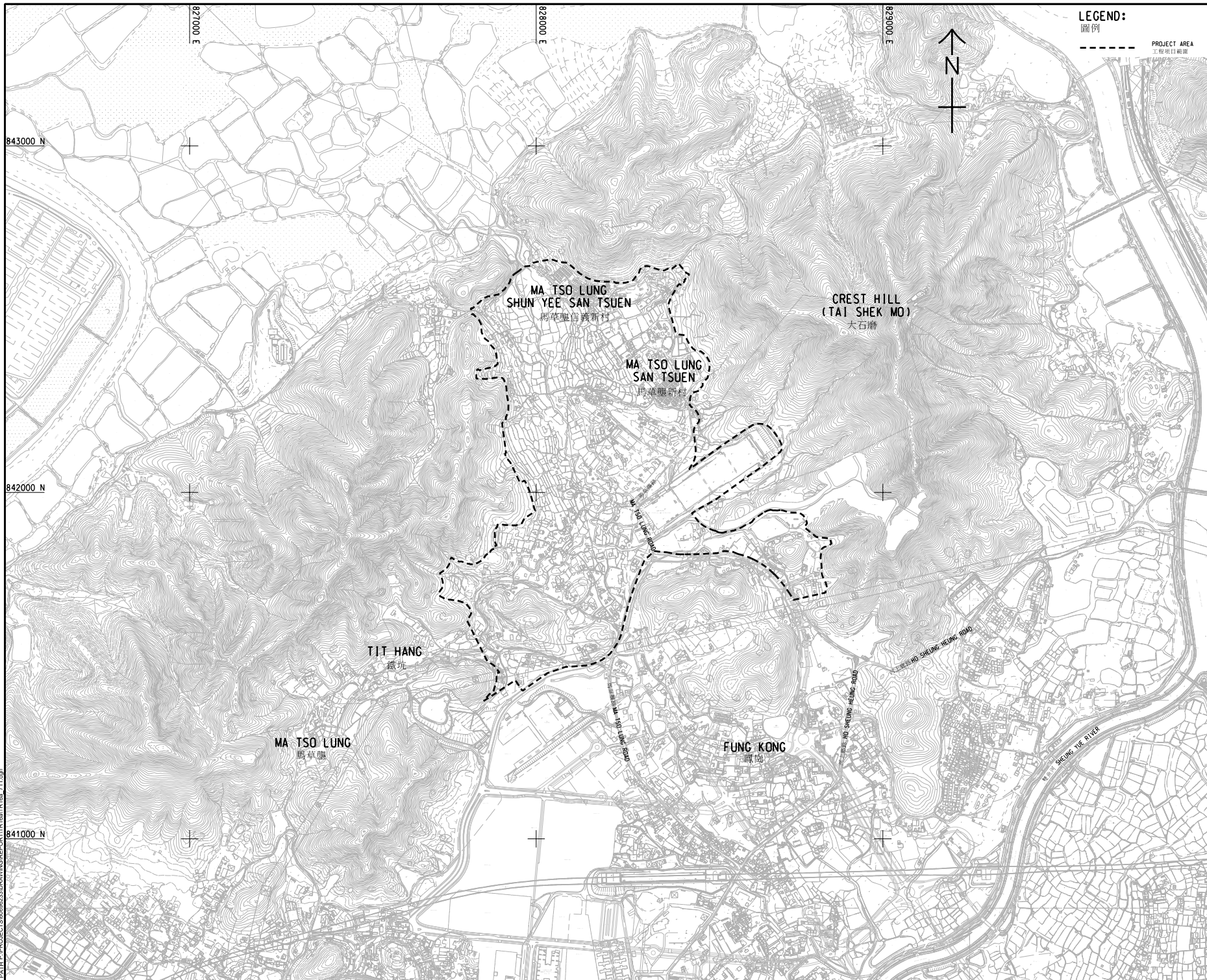
Table 6.1 Previously Approved EIA Reports Relevant to the Project

Registered No.	Report Title	Date of Approval	Relevance of this Project
AEIAR-175/2013	North East New Territories New Development Areas	18 Oct 2013	The Project area covers the northern part of KTN NDA

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FIGURES

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LEGEND:

圖例

PROJECT AREA
工程項目範圍



AECOM

PROJECT

MA TSO LUNG AREA AND OTHER SITES IN KWU LUNG NORTH NEW DEVELOPMENT AREA AND NORTH DISTRICT - FEASIBILITY STUDY

馬草壩一帶及位於古洞北新發展區和北區的其他用地-可行性研究

CLIENT



CONSULTANT

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ISSUE/REVISION

IR	DATE	DESCRIPTION	CHK.

STATUS

SCALE DIMENSION UNIT

A3 1:10000 METRES

KEY PLAN

PROJECT NO. AGREEMENT NO.

60696233 CE46/2022 (CE)

SHEET TITLE

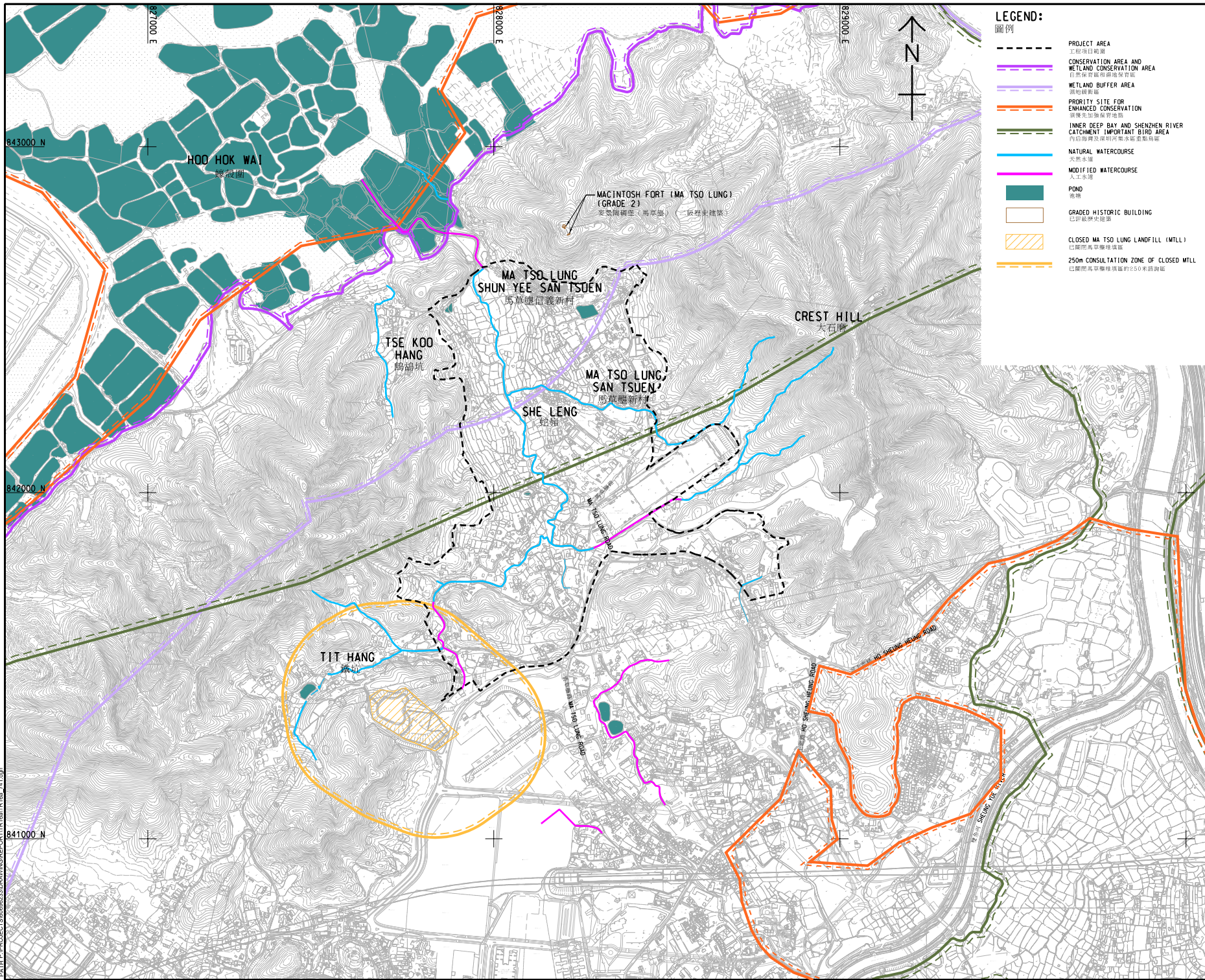
LOCATION OF THE PROJECT

工程項目位置圖

SHEET NUMBER

60696233/TR16a/FIGURE 1.1
60696233/TR16a/圖1.1

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LEGEND:

圖例

- PROJECT AREA
工程項目範圍
- CONSERVATION AREA AND WETLAND CONSERVATION AREA
自然保育及濕地保育區
- WETLAND BUFFER AREA
濕地緩衝區
- PRIORITY SITE FOR ENHANCED CONSERVATION
須優先加強保育地點
- INNER DEEP BAY AND SHENZHEN RIVER CATCHMENT IMPORTANT BIRD AREA
內河及深圳河集水區重要鳥區
- NATURAL WATERCOURSE
天然水道
- MODIFIED WATERCOURSE
人工水道
- POND
塘
- GRADED HISTORIC BUILDING
已評級歷史建築
- CLOSED MA TSO LUNG LANDFILL (MTLL)
已關閉馬草壙堆填區
- 250m CONSULTATION ZONE OF CLOSED MTLL
已關閉馬草壙堆填區的250米諮詢區



PROJECT
項目

MA TSO LUNG AREA AND OTHER SITES IN KWU TUNG NORTH NEW DEVELOPMENT AREA AND NORTH DISTRICT - FEASIBILITY STUDY
馬草壙一帶及位於古洞北新發展區及北區的其他用地-可行性研究

CLIENT
客戶

土木工程發展局
Civil Engineering and Development Department

規劃署
Planning Department

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ISSUE/REVISION
修訂

NO.	DATE	DESCRIPTION	CHK.

STATUS
狀態

SCALE
比例

A3 1:10000

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60696233

AGREEMENT NO.
協議編號

CE46/2022 (CE)

SHEET TITLE
圖紙名稱

LOCATIONS OF NEARBY SENSITIVE AREAS
鄰近敏感地區位置

SHEET NUMBER
圖紙編號

60696233/TR16a/FIGURE 4.1
60696233/TR16a/圖4.1

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