Development at Ngau Tam Mei Area

Project Profile

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

November 2023

Civil Engineering and Development Department

Project Profile

TABLE OF CONTENTS

LIST OF FIGURES

1. INTRODUCTION

1.1 Project Title

1.1.1 Development at Ngau Tam Mei Area (hereinafter referred to as "the Project").

1.2 Purpose and Nature of the Project

1.2.1 At present, there is a vast amount of agricultural land in the New Territories (NT), especially the north-eastern and north-western parts, mainly occupied by open storage yards, warehouses and other industrial/rural workshops, which can generally be referred to as brownfield sites.

1.2.2 Land Use Review Study for Ngau Tam Mei Area (NTMA) (hereinafter referred to as "the Study") was conducted to ascertain the feasibility of comprehensive development of the brownfield cluster and its wider area at Ngau Tam Mei taking account the development opportunities to be brought by the proposed Ngau Tam Mei Station under Northern Link (NOL) railway project and San Tin Technopole.

1.2.3 The Study reviewed the feasibility of comprehensive development of the NTMA taking account of the development opportunities brought by NOL and San Tin Technopole and the proposed broad land uses, and identified new and upgraded infrastructure that is required to support the Project.

1.2.4 The Project of about 129 ha comprises public and private housing, government, institution and community (GIC) facilities, as well as the associated infrastructure works (e.g. road networks, sewage pumping stations, etc.), while the Ngau Tam Mei (NTM) Station and the associated railway facilities will be implemented by other project proponent (i.e. MTR Corporation Limited) under a separate Environmental Impact Assessment (EIA) study under EIA Study Brief No. ESB-346/2021, and thus railway facilities within NTMA are not included in this Project.

1.3 Name of the Project Proponent

1.3.1 The project proponent is West Development Office, Civil Engineering and Development Department (CEDD).

1.4 Location and Scale of the Project and History of Site

1.4.1 The proposed Potential Development Area (PDA) is approximately 129 ha, and is surrounded by indigenous villages to its north and south. Tam Mei Barrack is located to its north, while Ngau Tam Mei Water Treatment Works (NTMWTW) is located to its immediate east. To its further north and south are dominated by hill and mountainous terrain. The tentative location and extent of the proposed PDA 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 No. **60672559/R10/FIGURE 1.1**.

1.4.2 The Project would comprise residential development, various GIC facilities and the proposed road network scheme connecting NTMA with the existing San Tin Highway as well as the future San Tin Technopole.

1.4.3 The major infrastructures/developments proposed under the Project, subject to the findings of land use review, would include:

- Road networks connecting San Tin Technopole and existing San Tin Highway;
- Retention lake;
- Underground storage tanks;
- Sewerage pumping station (SPS) and sewage treatment works (STW);
- Electricity substations;
- Residential developments;

- District cooling system;
- Refuse collection points (RCPs);
- Utilities supporting the NTMA, e.g. drainage system and petrol filling station; and
- Government, institution and community uses, e.g. hospital, education institutions, as well as uses to complement the development in San Tin Technopole.

1.4.4 Historically, the area was predominately rural occupied by agricultural land and village developments. Some of the most notable village settlements include the village of Chuk Yuen, Wai Tsai Tsuen, San Wai Tsuen and Yau Tam Mei Tsuen which remain today. Existing land use and development profile of the area mainly comprises rural village type housing and residential developments, warehouses, brownfield sites and agricultural lands and military related facilities, etc.

1.5 Number and Types of Designated Projects

1.5.1 As mentioned in **Section 1.4**, the Project is a development of approximately 129 ha. 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 The Project might also constitute the following DPs in Schedule 2 of the EIAO, subject to further planning and design at later stage of the Study and are discussed below.

Roads

1.5.3 A comprehensive road network constituting primary distributor (PD) and district distributor (DD) roads will connect NTMA to its surrounding and different parts of Hong Kong. The PD road will act as the main access road serving the NTMA from and to San Tin Highway via a new interchange and slip roads. A connection road which would be a DD is also proposed to connect NTMA with San Tin Technopole. The planned PD and DD roads are DP under Item A.1, Schedule 2 of the EIAO:

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

Railway and Associated Railway Facilities

1.5.4 The proposed NTM Station and the associated railway facilities under NOL serving transportation needs of residents within NTMA and its vicinity would be located within the Project. The potential environmental impacts arising from the NOL is being assessed under a separate EIA study (EIA Study Brief No. ESB-346/2021) and therefore is not included in this Project. The railway station and its associated railway facilities are DPs under Items A.2, A.4 and A.7, Schedule 2 of the EIAO:

- Item A.2 – A railway and its associated stations;
- Item A.4 – A railway siding, depot, maintenance workshop, marshalling yard or goods yard; and
- Item A.7 – A road tunnel or railway tunnel more than 800m in length between portals.

Sewage

1.5.5 A STW might be proposed to serve the NTMA. Subject to the design capacity and the location of the STW, it might be a DP under Items F.1 and F.2, Schedule 2 of the EIAO:

- Item F.1 – Sewage treatment works with an installed capacity of more than 15 000 m^3 per day; and
- Item F.2 – Sewage treatment works —
  (a) with an installed capacity of more than 5 000 m^3 per day; and

(b) a boundary of which is less than 200 m from the nearest boundary of an existing or planned —
  (i) residential area;
  (ii) place of worship;
  (iii) education institution;
  (iv) health care institution;
  (v) site of special scientific interest;
  (vi) site of cultural heritage;
  (vii) bathing beach;
  (viii) marine park;
  (ix) marine reserve; or
  (x) fish culture zone.

Substation

1.5.6 It is estimated that two new electricity substations might be proposed for NTMA within the PDA. Depending on its transient voltage, it might be a DP under Item H.1, Schedule 2 of the EIAO:

- Item H.1 – A 400kV electricity substation and transmission line.

Retention Lake, Underground Storage Tank and River Revitalization

1.5.7 Any proposed retention lake and underground storage tanks, if applicable, would not exceed more than 10 ha in size, therefore it will not be considered as a DP under Item I.2, Schedule 2 of the EIAO (i.e. a flood storage pond more than 10 ha in size).

1.5.8 The existing Ngau Tam Mei Drainage Channel (NTMDC) might be revitalised for enhancing the functioning and ecological value of the Channel. As it is located at more than 300m from Conservation Area (CA), it will not be considered as a DP under Item I.1, Schedule 2 of the EIAO (i.e. river training and diversion works located less than 300m from the nearest boundary of an existing or planned CA).

1.6 Name and Telephone Number of Contact Person

1.6.1 All queries regarding the Project can be addressed to:

Name:	Mr. NG Kam Leung, Julian
Post:	Chief Engineer/West 1
Address:	Civil Engineering and Development Department West Development Office West Division (1) 9/F, Sha Tin Government Offices, 1 Sheung Wo Che Road, Sha Tin, New Territories
Telephone:	2158 5612
Fax:	2693 2918

2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1 Project Implementation

2.1.1 Preliminary planning, engineering and environmental studies have been conducted to formulate development and infrastructure proposal for the Project, and a Preliminary Outline Development Plan (PODP) has been developed based on the findings. An Environmental Impact Assessment (EIA) will be carried out for the Recommended Outline Development Plan (RODP) and any subsequent design developments.

2.1.2 The Project Proponents or other parties will be responsible for implementing the proposed works, together with all the environmental mitigation measures, the 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 contractors to be appointed by the Government under various works contracts.

2.2 Project Time Table

2.2.1 Subject to further refinement of the construction programme in later stage, the construction works will commence in 2028 Q1 and complete in 2036 Q4, with population intake between 2034 and 2036.

2.3 Project Interface

2.3.1 The Project may have interface with the following projects:

- San Tin Technopole;
- NOL;
- Ngau Tam Mei Water Treatment Works Extension;
- Proposed Road Works under Site Formation and Infrastructure Works for Public Housing Development at Sha Po; and
- Northern Metropolis (NM) Highway.

2.3.2 Environmental impact arising from the construction and operation of San Tin Technopole, NOL and Ngau Tam Mei Water Treatment Works Extension would be assessed in their EIA studies according to their respective EIA Study Brief (i.e. ESB-340/2021, ESB-346/2021 and ESB-333/2020), and at-source mitigation measures, if required, will be recommended in the respective EIA studies for compliance of relevant environmental requirements. However, any subsequent changes since the approval of these EIA reports that will have environmental implications on this Project will be addressed in the EIA study of this Project.

2.3.3 The list of concurrent projects will be reviewed during the course of 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 in the EIA Report, subject to the availability of information for assessment and appropriateness during EIA stage.

3. POSSIBLE IMPACT ON THE ENVIRONMENT

3.1 General

3.1.1 It is anticipated that the construction of the Project would involve land-based construction works including site clearance, site formation works, construction of infrastructures and utilities including roads as well as the associated potential slope works. River revitalization works may also involve river-based construction works like dredging. 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 operation stages of the Project.

3.1.2 The potential impacts arising from the construction and the operation of the Project have been identified are discussed below.

3.2 Air Quality

Construction Phase

3.2.1 The potential sources of air quality impact during construction phase would include the exhaust emission from construction machinery, and dust generated from site clearance, site formation, stockpiling works, movements of construction vehicles, the erosion of unpaved area and stockpiles, etc. Construction dust generating from any concurrent projects within 500m Assessment Area would also contribute to cumulative dust impact. Odour impact from construction activities such as dredging and handling of riverbed materials would be potential odour emission source.

Operational Phase

3.2.2 The major air pollution sources during the operation of the NTMA would include vehicle exhaust emissions from the existing major roads (e.g. San Tin Highway, Ngau Tam Mei Road and Castle Peak Road – Tam Mei) and the future road networks for this Project and Northern Metropolis (NM) Highway. In addition, odour from existing chicken farms, the existing lard boiling factory, NTM Animal Waste Composting Plant (AWCP), the existing sewage treatment plant (STP) at Tam Mei Barracks (TMB), the proposed on-site SPS, the proposed RCPs and the proposed STW, if any, under the Project are other potential sources of air pollution.

3.2.3 According to the best available information at the time of the preparation of this Project Profile, there would be no planned air emission sources within the 500m Assessment Area of the PDA. Nevertheless, any existing emission sources (including chimneys from NTM AWCP and the lard boiling factory) and the potential/planned industrial emission sources (e.g. chimney(s) from the planned hospital within the PDA and within San Tin Technopole) within the assessment area would be further reviewed during the course of the EIA Study, and their air quality impacts, if any, will be included in the cumulative impact assessment.

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, fixed plant noise and ground-borne noise. The potential sources of road traffic noise include the traffic on the existing major roads (e.g. San Tin Highway, Tam Mei Road – Tam Mei and Castle Peak Road) and local access roads, as well as the proposed road networks to be constructed under this Project and the future NM Highway. Fixed plant noise sources namely existing firing range and the STP at TMB, the proposed SPS and electricity substations within NTMA, as well as operation of the future railway facilities for NOL, etc would contribute to the overall operational noise impacts.

The operation of NOL may pose potential ground-borne rail noise impact to the sensitive receivers within NTMA, while the operation of the associated railway facilities may also pose airborne rail and fixed plant noise impact to the sensitive receivers within NTMA.

3.4 Water Quality

Construction Phase

3.4.1 Sources of potential water quality impacts during construction phase would include wastewater generated by general construction activities, construction site runoff (including the runoff from removal and filling of ponds and revitalization of existing NTMDC), groundwater infiltration, accidental spillage and potential contamination of surface water, inland watercourse and groundwater, sewage effluent from construction workforce, revitalization of existing NTMDC, and removal/diversion of existing watercourses/meanders, if any.

Operational Phase

3.4.2 Sources of potential water quality impacts during operational phase would include polluted surface runoff from paved roads, domestic and non-domestic (e.g. commercial, retail, dining and entertainment, GIC, etc) sewage. Potential water quality issue may also arise from the potential emergency discharge from the proposed SPS. There might also be changes to the hydrological regime of the drainage channel/water course due to the Project.

3.5 Waste Management

Construction Phase

3.5.1 Potential wastes generated during construction phase include construction and demolition (C&D) materials, chemical waste, general refuse, pond and river sediment/mud, from a wide range of construction activities. The quantities of wastes to be generated during construction phase are largely depended on the extent of the proposed new developments and infrastructures of the Project.

Operational Phase

3.5.2 The majority of wastes generated during operation 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, GIC, etc.).

3.6 Land Contamination

3.6.1 The existing land uses within the PDA including open storage, motor vehicle service centre, sawmill and cement products factory, warehouses and workshops are potentially contaminating sites. Potential contaminated land impacts would be related to the health risks to site workers, disposal of contaminated soils, where encountered, and potential health risks to future users of the NTMA.

3.7 Terrestrial Ecology

3.7.1 The ecological resources recorded within the PDA include marsh/reed, watercourse, ponds (both active, inactive and abandoned), dry agricultural land, woodland (including a mitigation woodland managed by Agricultural, Fisheries and Conservation Department (AFCD)), plantation, shrubland, grassland, village/orchard and developed area/wasteland. Species of conservation importance including various flora, avifauna, butterfly, mammal and herpetofauna species are also recorded in low abundancies.

3.7.2 Existing ecological sensitive areas include Lam Tsuen Country Park (LTCP), CAs, Wetland Conservation Area, Wetland Buffer Area, comprehensive development and wetland protection area.

Construction Phase

3.7.3 Potential terrestrial ecological impacts arising from the construction phase would be associated with:

(a) direct habitat loss (including partial loss of the mitigation woodland managed by AFCD) resulting from land take for development;

(b) direct impacts on inactive/less mobile/habitat-specific wildlife inhabiting the affected area and surrounding habitats;

(c) direct impacts to water quality as a result of construction runoff; and

(d) indirect impacts to the surrounding habitat and associated wildlife due to physical disturbance of the habitat and increased human activity.

Operational Phase

3.7.4 Potential terrestrial ecological impacts arising from the operation phase would include indirect impacts to the surrounding habitat and associated wildlife due to increased human activities/disturbance.

3.8 Fisheries

3.8.1 No capture fisheries and mariculture are known within the PDA. Active, inactive and abandoned fish ponds were identified along both sides of the NTMDC, scattered fish ponds were also found across the PDA. Some of the active fish ponds at the southeast part of the PDA were located within the village area and inaccessible. These active fish ponds were covered by nets, likely to prevent birds from preying on the edible/ornamental fish. Fisheries impact assessment will be carried out in the EIA study to address the possible fisheries impacts due to the implementation of the Project.

3.9 Cultural Heritage

Construction Phase

3.9.1 Potential impacts arising from the Project may include direct and indirect impact to Ngau Tam Mei Site of Archaeological Interest (NTM SAI), graded historic buildings, and other heritage resources arising from the various construction activities.

Operational Phase

3.9.2 No potential operational impacts are anticipated, subject to further review and findings under the EIA study.

3.10 Landscape and Visual

3.10.1 There will be significant change in land use pattern within the PDA and both landscape resources (e.g. village/orchard) and characters (e.g. settled valley) within the PDA of distinctive character and value to the area will experience impact. The degree of impact will be subject to further study and findings of the Study. Provision of landscape mitigation measures will be proposed, including but not limited to preservation of existing vegetation, aesthetical-pleasing structure treatment and new tree planting etc., to reduce impact arise from the proposed developments within the PDA.

3.10.2 A broad-brush tree survey was conducted within the PDA in June-Oct 2022, existing trees, including 6 Tree of Particular Interest (TPIs), their distribution, condition and proposed preservation recommendation were presented under the broad-brush tree survey report. The current development will result in tree felling due to conflict with site formation and road works. Tree loss will be compensated by new tree planting across the PDA to maintain greening quality. TPIs and an existing area of woodland at the south-eastern edge of PDA are proposed to be preserved where feasible.

3.10.3 There will be discernible obstruction to visual resources access within and outside the site and change in visual quality due to proposed new developments. The degree of changes will be subjected to further study and the findings and assessment of the Study to be captured in the EIA study.

3.11 Hazard to Life

Construction Phase

3.11.1 As advised by Water Supplies Department, the stored chlorine in NTMWTW would be used up by Q3 2023 and NTMWTW would be delisted from PHI Register. Therefore, no hazard-to-life impact during construction phase is anticipated.

Operational Phase

3.11.2 An existing 600mm diameter high pressure (HP) underground town gas transmission pipeline running along the Sam Tam Road is located to the East of the PDA. The length of the section of HP gas pipeline interacting with the PDA is around 400m. This may pose risks to the proposed development, subject to further review and findings under this Project.

3.11.3 A petrol filling station is proposed to serve the needs of the future users within NTMA. If the filling station would be converted to/provided with electric vehicle charging facility or hydrogen filling station in the subsequent RODP stage, the potential risk would be assessed as appropriate in the EIA study.

3.11.4 The operation of the proposed STW, if any, which might involve generation, storage, use and on-site transport of biogas, might impose risk to the users within the NTMA. The potential hazard would be investigated in the EIA study.

4. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

4.1 General

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

(a) Villages (e.g. Chuk Yuen, Wai Tsai Tsuen, San Wai Tsuen, Yau Tam Mei Tsuen, etc.);
(b) Residential developments (e.g. Fairview Park, Maple Garden, Casa Paradizo, The Vineyard, etc.);
(c) Barrack (i.e. Tam Mei Barrack);
(d) Home for the Aged (e.g. Hongtai Home for the Aged Limited);
(e) Ponds and watercourses (e.g. NTMDC);
(f) Water catchment areas (e.g. Upstream / tributaries of Kam Tin River, Chuk Yuen Floodwater Pond, etc.);
(g) Areas of conservation value (e.g. LTCP, wetland conservation area, wetland buffer area, etc.);
(h) Publicly accessible hiking trail (e.g. at Kai Kung Leng and Ngau Tam Shan); and
(i) Cultural heritage resources (e.g. NTM SAI).

4.2 Air Quality

4.2.1 Representative air sensitive receivers (ASRs) in the vicinity include existing residential development (e.g. La Maison Vineyard, The Vineyard, Greenacres Villa House and Faye Villa), village houses (e.g. Wai Tsai Tsuen and Yau Mei San Tsuen), places of worship (e.g. China Bible Seminary) and home for the aged (e.g. Chuk Yuen Home for Aged and Hong Tai Home for Aged Limited). Planned ASRs would include potential housing developments, educational institutions, home for the aged, hospital, etc, within the PDA. The EIA study would further identify the ASRs and assess the air quality impact on the identified ASRs.

4.3 Noise

4.3.1 Representative existing noise sensitive receivers (NSRs) include existing residential development, village houses, temporary housing accommodation, places of worship and home for the aged, etc. Planned NSRs would include potential housing developments, convalescent homes, educational institutions, home for the aged, hospital, etc, within the PDA. The EIA study would assess the noise impact on the sensitive receivers.

4.4 Water Quality

4.4.1 Major water sensitive receivers (WSRs) located in the vicinity of the Project include Wetland Buffer Area, Wetland Conservation Area, NTMDC, LTCP, CA and waterbodies (including rivers, streams, nullahs, ponds etc.). The EIA study would assess the water quality impact on the sensitive receivers.

4.5 Waste Management

4.5.1 The existing solid waste arising within the PDA include domestic waste from village houses, commercial/industrial as well as chemical waste generated from the operation of open storage and industrial uses. The EIA study would assess the waste management implications.

4.6 Land Contamination

4.6.1 The existing environment within the PDA include open storage and industrial uses such as motor vehicle service centres, warehouses and workshops. The use and/or storage of chemicals and metals may pose potential contaminated land impacts. The EIA study would assess the land contamination issues due to historical and existing land contamination uses, and formulate appropriate contamination assessment plans and remediation action plans as necessary.

4.7 Terrestrial Ecology

4.7.1 The terrestrial habitats in the PDA consist of marsh/reed, watercourse, ponds (both active, inactive and abandoned), dry agricultural land, woodland, plantation, shrubland, grassland, village/orchard and developed area/wasteland. Species of conservation importance are identified within the PDA. Existing ecological sensitive areas include LTCP, Wetland Buffer Area and Wetland Conservation Area also exist in the vicinity of the PDA. Ecological impact assessment will be carried out in the EIA study to address the potential direct and indirect ecological impacts on the environment due to the implementation of the Project.

4.8 Cultural Heritage

4.8.1 The southern portion of the PDA would partially encroach into the NTM SAI, while the graded built heritage resources, including one grade 2 historic building (i.e. No. 57 San Wai Tsuen) and nine grade 3 historic buildings (i.e. Nos. 35, 36, 50, 51, 62, 70, 71 and 87 San Wai Tsuen, and Hon Lo No. 61 San Wai Tsuen) are located within the tentative study area. Other cultural heritage resources within and in the vicinity of the PDA will be identified and assessed in the EIA study.

4.9 Landscape and Visual

4.9.1 The PDA and corresponding Assessment Area is comprised of a mixture of rural and urban fringe landscape character and a mixture of landscape resources including but not limited to areas of grassland, natural/modified watercourses, dry agricultural land, woodland etc. The PDA is currently occupied by open storage, workshop, agricultural area and parking with modified watercourse running along the northern portion of the PDA in a west-east axis.

4.9.2 A large portion of the PDA is situated within a settled valley landscape. Visual elements surrounding the PDA consists of the following: at the north by developments of The Vineyard and Wai Tsai Tsuen, in the north-east by ridges of Ngau Tam Shan where it meets Kai Kung Leng ridges at the east edge of the PDA near NTMWTW. At the southeast to south of the PDA, village settlements of Sheung Chuk Yuen, San Wai Tsuen and Chuk Yuen Tsuen are observed near the base of a continuous ridgeline, part of LTCP, including Lung Tam Shan, Kai Kung Leng and Kai Kung Shan, forming a natural backdrop across the entire south fringe of the PDA. On the west of the PDA, it is bounded by residential developments Fairview Park, and Palm Spring at the north-west.

4.9.3 Within and beyond the PDA and Assessment area, the identified several types of visually sensitive receivers (VSRs) that might be affected by the proposed works would include Recreational VSRs representing recreational users and hikers to Ngau Tam Shan, Kai Kung Leng, and travellers/visitors along Yau Pok Road and Mai Po area near Tam Kon Chau Road; Occupational VSR(s) representing workers from the industrial area at the southern portion of the Assessment Area and workers at NTM Ventilation Building for High Speed Rail and NTM AWCP; and Traveller VSR(s) representing commuters along San Tin Highway.

4.9.4 Potential impact on the above VSRs will be assessed through publicly accessible viewing points identified within the visual envelope. Viewing points would include but not limited to views along San Tin Highway, hiking trails at Ngau Tam Shan and Kai Kun Leng, and long range views along public paths near Nam Shan Wai and Mai Po.

4.10 Hazard to Life

4.10.1 An underground HP gas pipeline is located to the east of the PDA. The potential hazard to life implications would be subject to further review and findings under this Project.

4.11 Landfill Gas Hazard

4.11.1 The PDA is located marginally outside the consultation zone (CZ) of NTM Landfill which has ceased operation since 1975. Therefore, no landfill gas hazard during construction and operational phases is anticipated. However, should there be any changes on the extent of the PDA and/ or any development/infrastructure works that would fall within the CZ, a landfill gas hazard assessment would be carried out under the EIA study.

4.12 Impact from Electric and Magnetic Field

4.12.1 There are existing high voltage overhead transmission lines running across the southern part and along the southern and eastern part of the PDA. The requirements stipulated in Hong Kong Planning and Standard Guidelines (HKPSG) as well as the guideline issued by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) would be observed and followed in subsequent design stage and to address potential health hazard to humans due to exposure of electric and magnetic field arising from the overhead transmission lines if necessary.

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

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 of relevant environmental standards. Possible key measures to be adopted, subject to studies, are listed below.

5.2 Air Quality

Construction Phase

5.2.1 To minimize air quality impact to the nearby ASRs, the following mitigation measures would be adopted as appropriate during construction and operational phases.

5.2.2 Dust mitigation measures as stipulated in the Air Pollution Control (Construction Dust) Regulation (Cap. 311R) will be implemented to control fugitive dust emission during construction and operational phases. 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;
- Cover dusty materials on vehicles leaving the site;
- Dust suppression measures; and
- Properly treat the exposed earth by compaction, turfing, 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.

5.2.3 Requirements stipulated in the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation and Air Pollution Control (Fuel Restriction) Regulation should also be followed to control potential emissions from non-road mobile machinery and construction equipment respectively during construction phase where appropriate. Construction plant and equipment should be connected to the mains electricity supply and the use of diesel generators and diesel-powered equipment should be avoided as far as practicable.

5.2.4 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 these measures will be documented in the EIA study.

Operational Phase

5.2.5 As there would be potential odour impact from the existing and planned odour emission sources, and potential air quality impact from the existing and planned chimney emissions, mitigation measures, where necessary, as detailed below would be applicable to reduce potential odour impact:

- Provide air pollution control equipment (e.g. deodourising units and air treatment system) at the planned emission exhaust where necessary;
- Enclose the planned odorous facilities/sources (e.g. SPS, RCPs and STW, if any);
- Avoid locating air sensitive uses or fresh air intake within the exceedance zone, if any, due to the existing (e.g. livestock farms, animal waste composting plant, lard boiling factory and STP at TMB) and planned (e.g. SPS, RCPs and STW, if any) odour sources; and

- Allow sufficient buffer distance between air sensitive uses and emission sources where appropriate.

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 detailed below would be applicable to reduce construction noise impact:

- Use of quieter construction methods and equipment for proposed construction works over the conventional methods and equipment, where applicable;
- Use of quiet PMEs and minimize 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 locate noisy equipment and activities at farthest practicable distance, schedule noisy activities to minimise noise exposure, proper maintenance of construction plant, devise quiet methods of working, and regular noise monitoring; and
- Proper planning of travelling route of construction vehicle 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 fixed plant properly;
- Locate and orientate fixed plant/louver away from any NSRs as far as practicable;
- Install direct noise mitigation measures such as silencers, acoustic louvers and acoustic enclosure;
- Adopt at-source mitigation measures, including installation of noise barrier or enclosure as well as low noise road surfacing for the proposed roads as far as practicable to provide effective screening/reduction to the noise sensitive premises if road traffic noise exceedance is predicted; and
- Consider special building design (e.g. architectural fin, building orientation, noise tolerant building, podium, etc.) and other at-receiver mitigation measures (e.g. acoustic window, acoustic balcony, etc.) of noise sensitive premises as appropriate.

5.4 Water Quality

Construction Phase

5.4.1 During construction phase, mitigation measures for water quality impacts would be implemented in accordance with the Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN 1/94).

5.4.2 Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins.

5.4.3 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.

5.4.4 In minimizing the groundwater infiltration during construction, probing ahead of excavation work and pre-grouting can be conducted. Where water inflow quantities are excessive, post-

grouting will be conducted as far as practical to reduce the water inflow into the construction adits. Any uncontaminated groundwater from seepage or dewatering processes should be discharged to the storm water system via silt removal facilities.

5.4.5 The practices outlined in Environment, Transport and Works Bureau Technical Circular (ETWB TC) (Works) No. 5/2005 "Protection of natural streams/rivers 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.

5.4.6 Construction works should be properly programmed to minimize soil excavation works in rainy seasons (April to September) as far as practical. If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary haul roads should be protected by crushed stone or gravel, as excavation proceeds.

5.4.7 Excavated materials (e.g. soil overburden and aggregates) stockpiled in outdoor areas should be covered with tarpaulin or similar fabric during rainstorms.

5.4.8 In case that removal or diversion of watercourses is needed, the works should be undertaken within a dry zone 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 that existing watercourse.

Operational Phase

5.4.9 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.

5.5 Waste Management Implications

5.5.1 Mitigation measures to reduce the quantities of C&D materials, chemical waste, general refuse, etc. during the construction and operational phases 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.

5.6 Land Contamination

5.6.1 Site appraisal should be carried out to identify areas with potential soil or groundwater contamination. A Contamination Assessment Plan (CAP) should be prepared and approved by Environmental Protection Department (EPD) before 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 identify the need for remediation inactions, 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 prior to the endorsement of the RR.

5.7 Terrestrial Ecology

5.7.1 Avoidance and minimization of any direct impacts/ disturbance to habitats and associated wildlife would be taken into account in the ecological impact assessment before proposing the mitigation measures. Direct impact on Lam Tsuen Country Park is avoided and careful planning of developments and construction works would be recommended during the design stage to minimize potential ecological impacts, where appropriate.

5.7.2 It is anticipated that there would be partial loss of the mitigation woodland managed by AFCD due to the land take for development, and therefore woodland compensation due to the partial loss will be proposed with details to be agreed with AFCD during the EIA study.

5.8 Fisheries

5.8.1 Good site practices for the control of construction site runoff should be fully implemented to minimise impacts on the ponds in the vicinity of PDA. Careful planning of works and adoption of good site practice would be recommended to minimize potential fisheries impacts, where appropriate.

5.9 Cultural Heritage

5.9.1 A detailed cultural heritage impact assessment including archaeological survey, if necessary, will be conducted during the EIA stage. Impacts on cultural heritage resources should be avoided as far as practicable. If unavoidable, mitigation measures to minimise the impacts on cultural heritage will be proposed and implemented with prior agreement with the Antiquities and Monuments Office.

5.10 Landscape and Visual

5.10.1 Mitigation measures to reduce potential landscape and/or visual impacts would include:

Construction Phase (Landscape Impact Only)

- Transplanting trees of high amenity value affected by the Project;
- Tree compensation for tree felled due to the Project;
- Control on the height of facilities and careful arrangement of the ancillary operations; and
- Reinstatement of all hard and soft landscape areas temporarily disturbed during construction phase on like-to-like basis.

Operational Phase

- Provision of aesthetic architectural design for aboveground structures to enhance landscape and visual aesthetic of the area in proximity;

- Provision of landscape treatment on cut slopes and along the NTMDC;
- Maximise greening provision for infrastructural structures and transport corridor design; and
- Landscape integration at built developments, e.g. green roof, vertical greening and screen planting at site edges.

5.11 Hazard to Life

5.11.1 Subject to the findings of quantitative risk assessment, appropriate controls measures and safeguards would be recommended to further reduce the risk issue during operational phase.

5.12 Landfill Gas Hazard

5.12.1 As mentioned in **Section 4.12.1**, the current PDA is located marginally outside the CZ of NTM Landfill. Nevertheless, if future refinement on the extent of the PDA and/or any development/infrastructure works would fall within the CZ of NTM Landfill, appropriate mitigation measures would be proposed if landfill gas hazard implications are identified in the EIA study.

5.13 Impact from Electric and Magnetic Field

5.13.1 Given that relevant guidelines (i.e. HKPSG and guideline issued by ICNIRP) would be observed and followed in subsequent design stage and addressing potential health hazard, if any, adverse health impact is not anticipated.

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

5.14.1 Subject to the findings of detailed impact assessments, control measures will be identified to mitigate the impacts 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 committed projects, and further implications will be considered and addressed in the EIA, where applicable.

6. USE OF PREVIOUSLY APPROVED EIA REPORTS

6.1.1 No previous approved EIA report was used as a reference for the Project.

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

823100 E

824300 E

825500 E

838500 N

837300 N

836100 N

LEGEND:

TENTATIVE LOCATION AND EXTENT OF THE PROPOSED POTENTIAL DEVELOPMENT AREA

TENTATIVE STUDY AREA BOUNDARY

N

PALM SPRINGS

BARRACKS

NGAU TAM MEI ROAD

NGAU TAM MEI DRAINAGE CHANNEL

SAN TIN HIGHWAY

CHING YAU ROAD

NGAU TAM MEI

牛潭尾

NGAU TAM MEI

Plot File by: vicky.yiu1 5/5/2023
PATH P:\PROJECTS\60672559\DRAWING\REPORT\R10\R10_743.dgn

AECOM

PROJECT
項目

LAND USE REVIEW STUDY
FOR NGAU TAM MEI AREA
- FEASIBILITY STUDY

CLIENT
業主

土木工程拓展署
Civil Engineering and Development Department

規劃署
Planning Department

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核

STATUS
階段

SCALE 比例
A3 1 : 12000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60672559

AGREEMENT NO. 協議編號
CE 33/2021

SHEET TITLE
圖紙名稱

LOCATION OF THE PROJECT

SHEET NUMBER
圖紙編號

60672559/R10/FIGURE 1.1

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

823100 E

823300 E

825500 E

838500 N

837300 N

836100 N

PALM SPRINGS

BARRACKS

SEWAGE TREATMENT PLANT

NGAU TAM MEI ROAD

NGAU TAM MEI DRAINAGE CHANNEL

NO. 36, SAN WAI TSUEN (GRADE 3)

SAN TIN HIGHWAY

CHING YAU ROAD

HON LO, NO. 61, SAN WAI TSUEN (GRADE 3)

NGAU TAM MEI

NGAU TAM MEI

NO. 35, SAN WAI TSUEN (GRADE 3)

NO. 87, SAN WAI TSUEN (GRADE 3)

NO. 51, SAN WAI TSUEN (GRADE 3)

NO. 57, SAN WAI TSUEN (GRADE 2)

NO. 70, SAN WAI TSUEN (GRADE 3)

CHICKEN FARM LK723

NGAU TAM MEI SITE OF ARCHAEOLOGICAL INTEREST

LARD BOILING FACTORY

CHICKEN FARM LK1106

NGAU TAM MEI ANIMAL WASTE COMPOSTING PLANT

NO. 62, SAN WAI TSUEN (GRADE 3)

NO. 50, SAN WAI TSUEN (GRADE 3)

NO. 71, SAN WAI TSUEN (GRADE 3)

N

LEGEND:

- TENTATIVE LOCATION AND EXTENT OF THE PROPOSED POTENTIAL DEVELOPMENT AREA
- TENTATIVE STUDY AREA BOUNDARY
- CONSULTATION ZONE OF NGAU TAM MEI LANDFILL
- EXISTING OVERHEAD TRANSMISSION LINES
- LAM TSUEN COUNTRY PARK
- WETLAND CONSERVATION AREA
- WETLAND BUFFER AREA
- CONSERVATION AREA
- MAJOR WATERCOURSE
- EXISTING ODOUR EMISSION SOURCE
- LISTED HERITAGE
- SITE OF ARCHAEOLOGICAL INTEREST

Plot File by: CAOPA 7/14/2023

PATH: P:\PROJECTS\60672559\DRAWING\REPORTR10\R10_741.dgn

AECOM

PROJECT
項目

LAND USE REVIEW STUDY
FOR NGAU TAM MEI AREA
- FEASIBILITY STUDY

CLIENT
業主

土木工程拓展署
Civil Engineering and Development Department

規劃署
Planning Department

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核

STATUS
階段

SCALE
比例

A3 1 : 12000

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60672559

AGREEMENT NO.
協議編號

CE 33/2021

SHEET TITLE
圖紙名稱

LOCATION OF THE PROJECT
AND SURROUNDING ENVIRONMENT

SHEET NUMBER
圖紙編號

60672559/R10/FIGURE 4.1