Civil Engineering and Development Department

Lung Kwu Tan Development and Road Infrastructural Works

Project Profile

Job number 299073

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1. Basic Information

1.1 Project Title

1.1.1 Lung Kwu Tan Development and Road Infrastructural Works (hereinafter referred to as "the Project").

1.2 Purpose and Nature of the Project

1.2.1 According to the Report of the Task Force on Land Supply (TFLS) submitted to the Government in December 2018 and accepted in full by the Government in February 2019, Lung Kwu Tan (LKT) reclamation and re-planning of Tuen Mun West (TMW) area are worthy of study and implementation with priority as two of the medium-to-long term land supply recommendations. These two recommendations were subsequently included in the Government's Final Report of "Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030" promulgated in October 2021 to boost land supply for meeting development needs and build up land reserve. In the "10-year Supply Forecast of Developable Land" announced by the Government in October 2023 (further updated in the "10-Year Formation Forecast of Spade-ready Sites" in 2025), LKT reclamation and the re-planning of TMW area are to provide "developable land" to meet development needs starting in 2029-2030.

1.2.2 Located at the western end of the New Territories, LKT and TMW areas have extensive sea frontage and is in proximity to the Northern Metropolis, the Hong Kong International Airport (HKIA) and the Pearl River Delta region, with excellent transport connectivity through land transport and marine access. LKT area leads north to Pak Nai, Lau Fau Shan, Tsim Bei Tsui and Hung Shui Kiu/ Ha Tsuen New Development Area, which is the "high-end professional services and logistics hub" of the Northern Metropolis connecting with Qianhai in Shenzhen. TMW area is located in close proximity to multiple existing and planned transport infrastructure facilities. Apart from the Hong Kong-Zhuhai-Macao Bridge providing land access to the other cities of the Greater Bay Area (GBA), LKT and TMW areas are also connected through marine access to various ports in the GBA including Nansha Port in Guangzhou and Zhongshan Port in Zhongshan, with the potential of developing a coastal economic belt between Hong Kong and western Shenzhen.

1.2.3 Taking on board the aforesaid land supply recommendations, Civil Engineering and Development Department (CEDD) and Planning Department (PlanD) jointly commenced a consultancy agreement "Planning and Engineering Study for Lung Kwu Tan Reclamation and the Re-planning of Tuen Mun West Area - Investigation" (hereinafter referred to as "LKT & TMW Study") in December 2023. The LKT & TMW Study is to formulate land use proposals for LKT and TMW areas for meeting part of the medium-to-long-term land requirements in Hong Kong, taking into consideration in fully leveraging the unique geographical advantages of LKT and TMW areas and making use of their connectivity with the Northern Metropolis, the HKIA and other areas to bring development opportunities to the areas. A two-month Public Engagement (PE) was conducted from 1 August to 30 September 2025, under which the public generally expressed support to the overall development positioning as a "Smart and Green Industrial

Port" in LKT and TMW areas [(1)].

1.2.4 The major components of the proposed development at LKT and TMW areas include the followings:

(i) Reclamation at LKT and associated works;

(ii) Reclamation at River Trade Terminal (RTT) and associated works; and

(iii) Land use/ top-side developments on the newly reclaimed lands and existing lands in the vicinity and associated infrastructural works.

1.2.5 To support the future traffic demands generated by the existing and new developments at LKT and TMW, road-based transportation is proposed to be strengthened by the provision of various road infrastructural works under development component (iii) as stated in **Section 1.2.4** above. A sea-crossing bridge (hereinafter referred to as "LKT Sea-crossing Bridge") linking up the LKT development area to the existing Lung Mun Road (LMR) near Castle Peak Power Station (CPPS) will be constructed to provide a more direct driving route leading to LKT and Black Point to cope with the increase in traffic flow, and hence reducing the traffic load, as well as the associated vehicular air quality and road traffic noise impacts along the existing Lung Kwu Tan Road (LKTR), especially the section near the LKT Village. Upgrading of existing LMR which connects LKT to Tuen Mun Town Centre, including widening a section of LMR, junction modifications and slip road construction at or in the vicinity of LMR, will also be required to raise traffic capacity of LMR and support the additional traffic demand from the developments.

1.2.6 While the entire LKT and TMW Study Areas have been considered cumulatively throughout the LKT & TMW Study, having regard to the large scale and extent of the developments and infrastructures aforementioned, the proposed works are covered in separate Environmental Impact Assessment (EIA) Studies to facilitate more focused discussions individually on the associated environmental impacts, mitigations, etc. This Project Profile (PP) solely covers the EIA Study for LKT Development and Road Infrastructural Works (i.e. the Project), which focuses on the potential environmental impacts and corresponding mitigation measures in relation to the development at LKT, LKT Sea-crossing Bridge and upgrading of LMR, including but not limited to those on air quality, noise, water quality, ecology, hazard to life, etc., and is prepared to provide the Director of Environmental Protection (DEP) with sufficient information in determining the scope of the EIA Study together with the technical and procedural requirements that the EIA Study for the Project shall meet. Cumulative environmental impact arising from all the relevant concurrent projects, including the reclamation at LKT, will be taken into account during the preparation of the EIA Study. Measures to manage cumulative impacts associated with the proposed works in TMW area will also be coordinated as appropriate.

1.2.7 The EIA Study for Reclamation at LKT (including associated works) (AEIAR-273/2026) has been conducted in accordance with the corresponding EIA Study Brief (ESB-367/2024), and was approved with conditions by the DEP on 1 April 2026 [(2)].

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[1] The relevant Legislative Council Paper on Development Proposal for Lung Kwu Tan Reclamation and the Re-planning of Tuen Mun West Area is available on https://www.legco.gov.hk/yr2025/english/panels/dev/papers/dev20250722cb1-1200-5-e.pdf. A Broad Land Use Concept Plan has been developed and is under further refinement.

[2] Green channels, eco-shorelines and artificial reef deployment were proposed under the EIA Study for Reclamation at LKT (AEIAR-273/2026) with a view to preserving the existing natural shorelines and enhancing biodiversity.

1.2.8 Separate EIA Study (ies) will be prepared for the proposed reclamation at RTT and associated works as well as land use/ top-side development on the newly reclaimed land and existing land at TMW area and associated infrastructural works, or other proposed works that may require such under the Study in due course, to be carried out by the respective project proponents in accordance with the implementation timeframes of the reclamation and development works at TMW area. Detailed environmental assessments and measures for mitigating the cumulative impacts, phasing, and programme arrangement of the proposed works in both LKT and TMW areas will be included.

1.3 Name of Project Proponent

1.3.1 The Project Proponent is Civil Engineering Office, Civil Engineering and Development Department of the Government of Hong Kong Special Administrative Region.

1.4 Location and Scale of Project and History of the Site

Location and Scale of Project

1.4.1 The Project comprises LKT development and road infrastructural works. The tentative location plan of the Project is shown in **Figure 1.1**.

1.4.2 The proposed LKT development area is located at the north of LKT, abutting Black Point Headland to the north, Castle Peak to the east, LKT headland to the southeast which provides a natural screening to the LKT Village, as well as Urmston Road from north to south. The total developable land in LKT is approximately 179 hectares (ha), including about 145 ha of new land to be created through near-shore reclamation (as covered under the EIA for Reclamation at LKT) and about 34 ha of existing land predominantly occupied by brownfield operations, subject to the finalised Recommended Outline Development Plan (RODP). The LKT development is proposed to be a modern and orderly park-type development focusing on green/ new energy (e.g. biodiesel, green methanol, green ammonia, liquefied hydrogen, etc.) and advanced construction industries. Noting there are currently some brownfield operations scattered in LKT, designated sites (including open-air sites or sites for developing multi-storey buildings) will be reserved within the LKT development area as well for the relocation and reorganisation of these operations according to their industries, thereby also facilitating their upgrading and transformation along with the development.

1.4.3 To support the proposed development and the associated working population as well as serving territorial needs, the following land uses, major infrastructures and utilities will be potentially required within the LKT development area, subject to detailed investigation during the EIA Study.

(a) Green/ new energy and advanced construction-related developments;

(b) Petrochemical storage plant;

(c) Sustainable concrete production plant;

(d) Rock handling and storage area;

(e) Construction waste sorting facilities;

(f) Road networks within LKT development area;

(g) Community building cum public transport interchange (PTI);

(h) Public vehicle parks;

(i) Piers/ landing steps and berthing facilities;

(j) Sewage treatment works (STW) (with an installed capacity of less than 15 000 m^3 per day), food waste pre-treatment facility, seawater pumping station, sewage pumping stations (SPS) and sewerage system;

(k) Electricity substations;

(l) Fire station and ambulance depot;

(m) Offtake and pigging station;

(n) Green fuel station; and

(o) Other necessary utilities supporting the LKT development area, etc.

1.4.4 Additionally, for accommodating larger, deep-draft vessels which would be required for the operations of green/ new energy industries, offshore jetty(ies) is/ are preliminarily proposed near CPPS to utilise the natural water depths and hence avoiding extensive dredging along the sea frontages of LKT development area. The jetty(ies) will be connected to the LKT development area through submarine pipeline(s). The design details, including the locations of off-shore jetty(ies) and submarine pipeline(s) as well as construction methodology, are not available at the time of preparing this PP and would be developed at later stage. A possible location for off-shore-jetty is shown in **Figure 1.1** for indicative purpose only.

1.4.5 As mentioned in **Section 1.2**, several road infrastructural works are required to cope with the additional traffic arising from the LKT development. A LKT Sea-crossing Bridge is proposed to extend from the southern internal road network of the LKT development area, crossing the LKT bay area and connecting to the existing LMR near CPPS. To ensure the overall traffic efficiency, an existing section of the LMR near CPPS will be widened, alongside with some further junction modifications and slip road construction at LMR, Siu Lang Shui Road (SLSR), Lung Fai Street (LFS), and Lung Fu Road (LFR). Based on the latest design, the scope of the road infrastructural works mainly comprises the followings:

(a) Construction of an approximately 1,800 m long dual two-lane LKT Sea-crossing Bridge;

(b) Widening of an existing section of LMR of approximately 1,500 m from a single two-lane to dual two-lane carriageway;

(c) Junction modifications and slip road construction; and

(d) Associated civil, structural, marine, geotechnical, road, drainage and sewerage, electrical and mechanical, traffic aids, directional signs, street lightings, landscaping and environmental protection and mitigation works, etc.

1.4.6 While the alignment of the LKT Sea-crossing Bridge is still under design, it will avoid relatively deeper water areas where Chinese White Dolphins are more likely to utilise as practicable. To minimise potential impacts in water quality, marine ecology and fisheries during construction, open sea dredging will also be avoided. The bridge foundation works will be generally conducted by bored piling with the aid of temporary working platforms. Any excavation of spoil and concreting will be carried out within the steel casings. Silt curtains will be deployed to contain the marine works area prior to the construction works

for confining dispersion of suspended solids (SS).

1.4.7 The proposed land uses, work components and construction methodology mentioned above are tentative and subject to review during the course of EIA Study. The alignments of the road infrastructural works as illustrated in **Figure 1.1** are indicative only and subject to changes during the course of EIA Study with reference to planning, engineering and traffic considerations, environmental impact, construction programme and cost, etc.

1.4.8 Temporary works areas for supporting the construction of the Project (e.g. for manoeuvring and mooring of construction vessels, temporary storage of construction materials or machineries, etc.), if required, will be developed during the course of EIA Study in accordance with the latest project design and construction methodology.

History of the Site

1.4.9 Historically, the LKT development site primarily consisted of open sea, undeveloped vegetated land, and clusters of rural settlements in the form of agricultural land and village houses. From the early 1990s onwards, the site landscape began to transform as various infrastructural works were introduced. These included reclamation for the formation of a barging point at the northern part of the development site, which altered a portion of the natural shoreline of Lung Kwu Sheung Tan (LKST), as well as the construction of LKTR. A submarine outfall was also built to discharge the treated effluent from the STW in Northwest New Territories (NWNT) and treated leachate from the West New Territories (WENT) Landfill into Urmston Road.

1.4.10 Since then, the LKT development site underwent a transition to brownfield uses, taken up predominantly by open storages, container yards, warehouses, workshops, etc. These operations expanded rapidly from around 2005 and have remained the dominant land use of the LKT development site up to the present day.

1.4.11 LMR was first constructed in 1970s and was extended westwards in 1980s, whilst the construction of LFR was commenced in late 1990s and was completed in early 2000s.

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

1.5.1 The Project involves a development of about 179 ha and hence constitutes as a Designated Project (DP) under Item 1 of Schedule 3 of the Environmental Impact Assessment Ordinacne (EIAO) (Cap. 499), i.e. “an urban development or redevelopment project covering an area of more than 50 ha”.

1.5.2 Additionally, the Project would consist of other various Schedule 2 DPs under the EIAO (Cap. 499), as identified and summarised in **Table 1.1** below. The list is not exhaustive and subject to further review and update according to the finalised RODP in the course of the EIA Study.

Table 1.1 List of Designated Project

Item No.	Designated Project	Remarks
Schedule 2 of the EIAO		
A.1	A carriageway for motor vehicles that is an expressway, trunk road, primary distributor road or district distributor road.	• The LKT Sea-crossing Bridge, upgraded LMR including the associated junction modifications and slip road construction, and internal roads within LKT development area would potentially be categorised as the mentioned road types.
A.8	A carriageway bridge for motor vehicles, or a railway bridge, the length between abutments for which is more than 100 m, with bridge piers over the sea supporting the bridge.	• The LKT Sea-crossing Bridge would be in a form of marine viaduct, for which the length between abutments would be more than 100 m.
H.2	A submarine gas pipeline or submarine oil pipeline.	• Submarine gas pipeline(s) or submarine oil pipeline(s) may be installed to connect the LKT development area to the offshore jetty(ies).
K.5	A cement works or concrete batching plant with a total silo capacity of more than 10 000 tonnes in which cement is handled and manufactured.	• Sustainable concrete production plant(s) with a total silo capacity of more than 10 000 tonnes in which cement is handled and manufactured may be planned.
K.6	A chemical or biochemical plant with a storage capacity of more than 500 tonnes and in which substances are processed or produced.	• Chemical or biochemical plant(s) with a storage capacity of more than 500 tonnes and in which substances are processed or produced may be planned.
K.12	A bulk chemical storage facility with a storage capacity of more than 80 000 tonnes.	• Bulk chemical storage facility(ies) with a storage capacity of more than 80 000 tonnes may be planned.
K.13	A dangerous goods godown with a storage capacity of more than 500 tonnes.	• Dangerous goods godown(s) with a storage capacity of more than 500 tonnes may be planned.
L.2	A storage, transfer and trans-shipment of liquefied natural gas or hydrogen facility with a storage capacity of more than 200 tonnes.	• Storage, transfer and trans-shipment of hydrogen facility with a storage capacity of more than 200 tonnes may be planned.
L.4	A storage, transfer and trans-shipment of petroleum facility with a storage capacity of more than 1 000 tonnes.	• Storage, transfer and trans-shipment of petroleum facility with a storage capacity of more than 1 000 tonnes may be planned.

Note:

[1] Any Schedule 2 and Schedule 3 DPs under the EIAO identified for the reclamations at LKT and RTT and associated works, as well as land use/ top-side development on the newly reclaimed lands and existing lands at TMW area and associated infrastructural works were/ are to be covered in separate PP(s) or EIA(s) as discussed in **Section 1.2**.

1.6 Name and Telephone Number of Contact Person

1.6.1 All enquiries regarding the Project can be addressed to:

Mr. WONG Chi Yung, Chief Engineer / Land Works
Land Works Division
Civil Engineering Office
Civil Engineering and Development Department
2/F, Civil Engineering and Development Building
101 Princess Margaret Road
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Tel.: 2762 5620
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2. Outline of Planning and Implementation Programme

2.1 Project Implementation

2.1.1 The Project Proponent, subject to the final recommendation of the LKT & TMW Study, will be responsible for implementing the proposed LKT development and the road infrastructural works, together with all the environmental mitigation measures and environmental monitoring and audit (EM&A) requirements as specified in the EIA Report of the Project.

2.1.2 The Consultants of the LKT & TMW Study are responsible for undertaking the EIA Study according to the Study Brief to be issued by DEP and responding to issues related to the EIA on behalf of the Project Proponent.

2.1.3 The construction works of the proposed LKT development and the road infrastructural works will be carried out in phases by contractors to be appointed under various works contracts.

2.2 Project Timetable

2.2.1 With reference to the latest "10-year Formation Forecast of Spade-ready Sites" announced by the Government in September 2025, the LKT Reclamation and the Re-planning of TMW Area is targeted to materialise this land supply source in stages starting from 2029-30. The construction works of the proposed LKT development and road infrastructural works will tentatively commence in around Q2 2031, subject to the funding arrangement and necessary statutory procedures.

2.3 Interactions with Other Projects

2.3.1 Potential projects that would have interface with the Project have been identified and are listed below. Some of these projects are under implementation or planning of which are yet to be approved. This list should be revisited during the EIA Study to ensure all the latest projects available from the respective stakeholders are incorporated.

- Reclamation at LKT and associated works, reclamation at RTT and associated works, as well as land use/ top-side developments on the newly reclaimed lands and existing lands at TMW area and associated infrastructural works (see **Sections 1.2.7** and **1.2.8**);
- Development of Integrated Waste Management Facilities Phase 2 (I·PARK2);
- West New Territories Landfill Extensions (WENTX);
- Nim Wan Road (South);
- Upgrading of Nim Wan Road (North);
- Rehabilitation and Construction of Sewage Rising Mains (Package 4) – Tuen Mun; and
- Tuen Mun Bypass.

3. Possible Impacts on The Environment

3.1 General

3.1.1 All the prevailing legislative requirements will be considered in the EIA Study to assess the possible environmental impacts during the construction and operational phases.

3.2 Air Quality

Construction Phase

3.2.1 During construction phase, significant dust generation due to the marine-based works is not expected. Dust will mainly arise from the land-based construction activities including site clearance, site formation, slope works, excavation works, backfilling, materials handling, wind erosion of open sites and stockpiling area, etc. Exhaust emissions may also be induced by the use of constructional plants, construction vessels and construction vehicles. Cumulative construction air quality impacts taking into account any concurrent projects within the assessment area will be reviewed and assessed in the EIA Study.

Operational Phase

3.2.2 During operational phase, air pollution sources associated with the Project will potentially include industrial emissions from the green/ new energy industries, advanced construction industry-related facilities, petrochemical plant, sustainable concrete production plant, rock/ construction waste handling facilities and reprovisioned brownfield operations (if any) etc., marine emissions from the induced marine operations, as well as vehicular emissions from the internal road networks of LKT development, LKT Sea-crossing Bridge, upgraded LMR including the associated modified junctions and slip roads. Cumulative air quality impacts will be considered, taking into account all other existing and planned industrial, marine and vehicular emission sources within the assessment area. Emissions from the major point sources located within 4 km from the identified ASRs, such as Black Point Power Station (BPPS), I·PARK2 and T·PARK, will also be reviewed and included as appropriate if they have direct contributions of air quality impacts to the ASRs on the concerned pollutants of the assessment.

3.2.3 The proposed STW, food waste pre-treatment facility and SPS will be potential odour sources, and the associated impacts will be addressed in the EIA Study.

3.3 Noise

Construction Phase

3.3.1 The potential sources of noise impacts during construction phase will mainly be noise generated from the use of powered mechanical equipment (PME), such as backhoes, cranes, generators, construction vessels, construction vehicles, etc., for various construction activities including but not limited to site clearance, site formation, slope works, excavation with backfilling, piling, superstructure works, formation and demolition of temporary piling platform, bridge deck installation, etc. Cumulative construction noise quality impacts contributed by any concurrent projects within the assessment area will be reviewed and assessed in the EIA Study.

Operational Phase

3.3.2 During the operation of the Project, the road traffic noise arising from the induced traffic on the internal road networks of LKT development, LKT Sea-crossing Bridge, upgraded LMR including the associated modified junctions and slip roads will be the major noise source. Besides, fixed noise will also be generated by the PTI(s), STW, SPS, fire station, ambulance depot, etc. Cumulative road traffic noise and fixed noise impacts considering both existing and planned noise sources in the vicinity will be assessed in the EIA Study.

3.3.3 Given that no noise sensitive uses will be planned within the LKT development area and the nearest existing Noise Sensitive Receivers (NSR), i.e. Lau Ancestral Hall at LKTR and LKT Village, are located more than 300 m from the new sea frontages and the offshore jetty(ies), adverse marine traffic noise impacts are not anticipated.

3.4 Water Quality

Construction Phase

3.4.1 The Project will involve both marine-based and land-based construction works. In accordance with latest design, the major marine activities include piling works for the LKT Sea-crossing Bridge and piers, construction of seawater intakes, landing steps and offshore jetty(ies), as well as installation of submarine pipeline(s), all of which will be enclosed by silt curtains to minimise SS dispersion.

3.4.2 For the construction of LKT Sea-crossing Bridge and piers, there will be no open sea dredging required. It is anticipated that marine piling as well as the erection and demolition of temporary working platform will only cause minor displacement of marine sediment, which will quickly settle without significant increase in SS. Any excavation of marine sediment and concreting will be carried out within steel casings. While seawall modification is required for the construction of seawater intakes and landing steps, the scale will be relatively limited and localised, and the resulting water quality impacts are therefore expected to be minimal. Potential water quality impacts may also arise from the construction of offshore jetty(ies) and installation of submarine pipeline(s), subject to detailed construction methodology to be developed at later stage.

3.4.3 Diversion of inland watercourses (if required), construction site runoff and drainage, wastewater generated construction activities, sewage arising from on-site construction workforce and accidental spillage may also contribute to water pollution.

3.4.4 Cumulative water quality impacts arising from any concurrent projects in the vicinity will be reviewed and assessed in the EIA Study.

Operational Phase

3.4.5 During operational phase, the pier foundation of the LKT Sea-crossing Bridge, piers and offshore jetty(ies) will permanently alter the local flow pattern of the nearby water bodies and hence may potentially affect the associated water quality. Besides, the LKT development will generate additional sewage and wastewater, which will be collected by the new LKT STW for treatment before discharging to the Urmston Road via the submarine outfall rearranged under LKT Reclamation. The LKT STW will not only serve the proposed LKT development but will also be designed with sufficient treatment capacity to accommodate sewage loading from LKT Village, with a view to improving the water quality in both areas where the individual premises are currently relying on their own small-scale facilities to treat the wastewater generated. To ensure no adverse water

quality impacts in association with normal and emergency discharges, the treatment level of the STW will be properly designed with provision of standard preventive measures such as standby/ spare pumps, buffer tanks and backup power supply of the sewerage system, etc. Other potential water pollution sources include the increased surface runoff from the newly paved development area, LKT Sea-crossing Bridge, upgraded LMR including the associated modified junctions and slip roads, accidental leakage of operating vehicles on these proposed roads, as well as ballast water discharge (if any) during loading/ unloading of green/ new energy at the offshore jetty(ies).

3.4.6 Taking into account other concurrent projects, cumulative impacts on water quality will be reviewed and assessed in the EIA Study.

3.5 Waste Management

Construction Phase

3.5.1 While open sea dredging is not required, marine sediments will be inevitably excavated during marine piling for the construction of LKT Sea-crossing Bridge, piers and offshore jetty(ies). Subject to the sediment quality assessment to be conducted, the marine sediments will be disposed of at designated marine dumping grounds in accordance with relevant guidelines and ordinances and to be agreed with relevant departments.

3.5.2 Construction and demolition (C&D) materials and chemical waste will be generated from the construction works under the Project, and may pose environmental hazards if not handled properly. Besides, the construction workforce will generate general refuse comprising food scraps, waste paper, empty containers etc., which may give rise to adverse environmental impacts such as odour generation, windblown litter and vermin.

3.5.3 Floating refuse may also be washed up due to the effects of currents and wind and will then be trapped and accumulated near the pile caps of the LKT Sea-crossing Bridge, piers and offshore jetty(ies) as well as landing steps during construction phase.

Operational Phase

3.5.4 Wastes which may arise from the Project during operational phase include municipal solid waste (MSW) and chemical wastes from the industrial and G/IC uses, as well as screenings, grits and dewatered sludge from the STW. Besides, floating refuse will be potentially trapped and accumulated near the pile caps of the LKT Sea-crossing Bridge, piers and offshore jetty(ies) as well as landing steps [3].

3.6 Land Contamination

3.6.1 There is no land contamination potential associated with the construction of the marine section of LKT Sea-crossing Bridge, offshore jetty(ies) and the associated submarine pipeline(s) which are located in open sea, as well as the development area on the LKT newly reclaimed land.

[3] Maintenance and management strategies for the green channels have been formulated and covered under the EIA Study for Reclamation at LKT (AEIAR-273/2026) to address the potential accumulation of floating refuse.

3.6.2 For the remaining road infrastructural works including the land-based connection section of LKT Sea-crossing Bridge to the existing LMR, and upgrading of LMR including the associated junction modifications and slip road construction, they are proposed within vegetated areas, pavements or carriageways, while historical and current potentially contaminating land uses such as warehouses, cements works, workshops, open storages, etc. are identified within the development area on the existing land at LKST. A detailed site appraisal will be undertaken to further review the concerns in land contamination and if any, site investigation and necessary remediation works shall be completed prior to the commencement of the construction works.

3.7 Landfill Gas Hazard

3.7.1 The proposed upgrading of LMR including the associated junction modifications and slip road construction will partly fall within both the 250 m Consultation Zones of the Siu Lang Shui Landfill (SLSL) and Pillar Point Valley Landfill (PPVL). As such, a landfill gas hazard assessment shall be undertaken to evaluate the potential hazard risk during the construction and operation of the Project, as well as to identify the necessary mitigation measures required.

3.8 Ecology

3.8.1 The potential terrestrial and marine ecological impacts induced by the Project will be associated with:

Construction Phase

- Permanent and/ or temporary habitat loss, habitat degradation and habitat fragmentation induced during the construction phase;
- Disturbance to nearby habitats and wildlife, such as possible air pollution, water pollution, noise and glare, and underwater sound, arising from marine-based and/or land-based construction activities, especially to the ecological sensitive receivers (e.g. intertidal, subtidal and benthic habitats, LKST Egretry);
- Impact to flora and fauna species of conservation importance, e.g. coral communities, marine mammals, horseshoe crabs, etc.;
- Increased marine traffic;
- Increased sediment load; and
- Pollutants from construction works, including but not limited to construction site runoff and accidental spillage of chemicals.

Operational Phase

- Permanent habitat loss and habitat fragmentation;
- Potential impacts arising from change of water flow, hydrodynamic regime, water quality, erosion and sedimentation patterns due to permanent structures of the LKT Sea-crossing Bridge, piers, landing steps and offshore jetty(ies) (e.g. pier foundations), and the consequential impacts to ecological sensitive receivers;

- Disturbance to habitats and wildlife due to possible air pollution, water pollution, noise, glare, increased level of traffic and human disturbance, etc., especially to the ecological sensitive receivers (e.g. LKST Egretry);
- Potential obstruction of avifauna flight paths by proposed development;
- Potential impingement and entrainment of marine ecological resources from the seawater intake and ballast water exchange during loading/ unloading of green/ new energy at the offshore jetty(ies); and
- Increased marine traffic.

3.9 Fisheries

Construction Phase

3.9.1 Marine-based construction works of the Project may lead to potential temporary and permanent loss and/ or disturbance of fishing grounds, important spawning ground of commercial fisheries resources at North Lantau waters and Government tenancy area for oyster farming activities in Deep Bay, whereas the Project will not encroach upon any fishponds. The marine-based construction works may cause impacts to water quality and hence indirect impact to fisheries resources due to potential increase in SS concentration. In addition, disturbance from underwater sound associated with construction activities might pose indirect impact on fisheries resources. In the vicinity of the Project, the increase in marine traffic of working vessels during construction may affect the fisheries resources and fishing operations in nearby waters. There may also be potential risk of accidental chemical spillage to the surrounding water during marine construction, which may affect fisheries resources near the Project.

3.9.2 The abovementioned fisheries impacts associated with the reclamation at LKT were assessed to be insignificant to minor in the recently approved EIA report for Reclamation at Lung Kwu Tan (Register No.: AEIAR-273/2026). Considering both projects share the same assessment area and the scale of the Project in terms of fisheries habitat loss and disturbance will be smaller than the reclamation at LKT, adverse fisheries impacts due to the construction of the Project are thus not anticipated with the implementation of preventive measures/ good practice (e.g. adoption of major transportation routes for construction vessels, good site practice on water quality control).

Operational Phase

3.9.3 During operational phase, the permanent structures (e.g. pier foundations of the LKT Sea-crossing Bridge, piers, and offshore jetty(ies)) will lead to a direct loss of fishing grounds and fisheries habitats which may affect fisheries resources/ production and fishing operations within and adjacent to the Project. Besides, there may be disturbance to fisheries resources and fishing operations associated with increased human activities and possible water quality impacts from sewage and runoff from the Project. There may also be potential impingement and entrainment of fisheries resources from the seawater intake and ballast water exchange during loading/ unloading of green/ new energy at the offshore jetty(ies).

3.9.4 Potential impacts on fisheries due to the construction and operation of the Project and the related changes in water quality or hydrodynamics regime on fisheries resources near the Project will be assessed in the EIA Study.

3.10 Landscape and Visual

3.10.1 The landscape and visual impacts of the proposed works will be associated with the LKT development and the associated road infrastructural works, including construction of LKT Sea-crossing Bridge and upgrading of LMR including junction modifications and slip road construction.

Construction Phase

3.10.2 During construction phase, landscape impacts will be anticipated from construction at sea, aboveground construction sites and construction traffics, etc. The major landscape resources (LRs) affected include Artificial Shoreline, Natural Shore, Seawater Body, Natural Watercourse, Modified Watercourse, Shrubland/ Grassland, Hydroseeded Surface, Developed Area, Hillside Plantation and Roadside Plantation along LMR, Lung Fai Street, Lung Fat Street, LFR and in the vicinity of Tuen Mun Chek Lap Kok Tunnel Road, while the main landscape character areas (LCAs) affected include Inshore Water Landscape, Foothill Fringe Landscape, Mixed Modern Industrial Urban Landscape and Transportation Corridor Landscape, which will suffer from landscape impacts. It is anticipated that the potential landscape impact due to the Project would cause the loss of the aforesaid LRs and LCAs including loss of landscape with distinctive character/ resources and Trees of Particular Interests (TPIs). The construction landscape impacts as well as associated residual impacts, if any, will be further assessed in the Landscape Impact Assessment (LIA) in EIA Study.

Operational Phase

3.10.3 During operational phase, there would be landscape impacts due to site formation works and road works. The potential sources of landscape impacts including the potential permanent loss of LRs (Seawater Body, Shrubland/ Grassland, Hydroseeded Surface, Hillside Plantation, Roadside Plantation, Developed Area, etc.) and LCAs (Inshore Water Landscape, Foothill Fringe Landscape, Mixed Modern Industrial Urban Landscape and Transportation Corridor Landscape) including loss of landscape with distinctive character/ resources and TPIs. The operational landscape impacts as well as associated residual impacts, if any, will be further assessed in the LIA in EIA Study.

3.10.4 Regarding visual impacts, the proposed LKT development is expected to bring about an overall improvement to the existing visual amenity of LKST, which is presently characterised by unorganised brownfield operations. Notwithstanding this, the Project may give rise to potential visual impacts including the permanent loss of visual amenity of sea views and natural landscape due to visual intrusion and obstruction created by the Project, as well as associated residual impacts, if any, will be further assessed in the Visual Impact Assessment (VIA) in EIA Study.

3.11 Cultural Heritage

Construction Phase

<u>Terrestrial Archaeology & Built Heritage</u>

3.11.1 The LKT development area will encroach onto the Lung Kwu Sheung Tan Site of Archaeological Interest (LKST SAI). To ascertain the terrestrial archaeological impact arising from the proposed construction works (e.g. excavation, site formation, piping works, road infrastructural works, etc.), an archaeological impact assessment (AIA) as part of cultural heritage impact assessment (CHIA) covering the entire Study Area will be

conducted. Where necessary, archaeological action and/ or mitigation measures in accordance with Antiquities and Monuments Ordinance (A&M Ordinance) (Cap. 53) and in agreement with the Antiquities and Monuments Office (AMO) will be undertaken.

3.11.2 There is no declared and proposed monument, graded historic building, new item for grading assessment, and government historic site identified by AMO within or near the Project [4]. Hence, adverse impacts on built heritage due to the Project are not anticipated.

Marine Archaeology

3.11.3 The construction of LKT Sea-crossing Bridge, offshore jetty(ies) and submarine pipeline(s) may cause potential impacts on the marine archaeological resources, if present. An archaeological review of geophysical survey data has been conducted for the tentative alignment of LKT Sea-crossing Bridge, concluding the archaeological potential within the associated area is low. Subject to the finalised Project design, for any other marine works area beyond the area currently reviewed, a marine archaeological investigation (MAI) in agreement with AMO will be conducted to identify the archaeological potential of the affected seabed and to ascertain the marine archaeological impact arising from the proposed marine works.

3.11.4 Subject to the findings of the MAI, if there are any engineering works affecting any identified marine archaeological assets, appropriate mitigation measures, if required, should be proposed for consideration and agreement by AMO, and implemented by the project proponent to the satisfaction of AMO.

Operational Phase

Terrestrial Archaeology & Built Heritage

3.11.5 No potential adverse impacts on terrestrial archaeology and built heritage is anticipated during operational phase, subject to further review and findings under the EIA Study.

Marine Archaeology

3.11.6 Adverse impact on marine archaeology during operational phase is not anticipated.

3.12 Hazard to Life

3.12.1 Several existing installations with potential risks are identified within or in proximity of the Project, including a high pressure natural gas pipeline of CLP Power Hong Kong Limited (CLP) running from BPPS and CPPS, liquefied petroleum gas (LPG) storage installations at CPPS, as well as the Rise Smart LPG Terminal located to the east of LKTR. In addition, green/ new energy facilities, offshore jetty(ies) and associated submarine pipeline(s) for green methanol, green ammonia, liquefied hydrogen, etc., offtake and pigging station, as well as green fuel station, are planned under the Project.

3.12.2 To assess the potential hazard to life during the construction and operation of the Project, a Quantitative Risk Assessment (QRA) taking into account the cumulative risks arising from the interaction and combination of all existing, committed and planned hazardous installations will be undertaken under the EIA Study. Necessary design measures, planning considerations and development control will also be identified.

[4] A Lau Ancestral Hall at LKST with no grading is identified within the LKT development area.

4. Major Elements of the Surrounding Environment

4.1 General

4.1.1 The LKT development area and LKT Sea-crossing Bridge is in proximity to natural hillsides, village settlements (i.e. LKT Village), brownfield operations and seawater bodies of Urmston Road, while the upgrading works of LMR including the associated junction modifications and slip road construction lie between vegetated uphill slopes and industrial operations. Neighbouring existing road networks mainly include LKTR, LMR, LFR, Nim Wan Road and Tuen Mun Chek Lap Kok Tunnel Road being mostly utilised by heavy vehicles.

4.1.2 The major existing, committed and planned sensitive receivers and sensitive parts of the natural environment relating to respective environmental aspects that may be affected by the Project have been reviewed by means of Hong Kong Environmental Database (HKED), topographic maps, aerial photos, etc. The identified sensitive receivers are not exhaustive and indicative only, and are subject to further review and update in the course of the EIA Study according to the latest project layout and the assessment area to be stipulated in the EIA Study Brief.

4.2 Air Sensitive Receivers

4.2.1 Potential ASRs that may be affected by the Project are identified as follows:

- Residential dwellings (e.g. village houses at LKT Village, Yee Tsui House, etc.);
- Offices of industrial premises (e.g. offices in BPPS, CPPS, EcoPark, etc.);
- Government, Institution and Community (G/IC) facilities (e.g. Pillar Point Fire Station, Administration Building of Pillar Point Sewage Treatment Works, Tuen Mun – Chek Lap Kok Tunnel Road Main Control Building, etc.);
- Recreational facilities (e.g. LKT Seaside BBQ, Butterfly Beach Park, etc.);
- Places of worship (e.g. Tin Hau Temple, etc.);
- Lau Ancestral Hall (LKST); and
- Potential offices or G/IC uses within LKT development area.

4.3 Noise Sensitive Receivers

4.3.1 Potential NSRs that may be affected by the Project are identified as follows:

- Residential dwellings (e.g. village houses LKT Village, etc.); and
- Lau Ancestral Hall (LKST).

4.4 Water Sensitive Receivers

4.4.1 Potential WSRs that maybe affected by the Project are identified as follows:

- Gazetted and non-gazetted beaches in Tuen Mun District;
- Existing, planned and proposed water abstractions for cooling, flushing and/ or other industrial purposes along the coast of LKT and TMW;

- Tuen Mun Typhoon Shelter and Yacht Bay Berthing Facilities;
- Secondary Contact Recreation Subzones in North Lantau waters;
- Watercourses;
- Coral communities in North Lantau waters;
- Artificial reefs in Sha Chau and Lung Kwu Chau Marine Park, Chek Lap Kok Marine Exclusion Zone and The Brothers Marine Park;
- Shellfish reefs near Hong Kong International Airport Approach Area (HKIAAA);
- Chinese White Dolphins in North Lantau waters;
- Sha Chau and Lung Kwu Chau Marine Park, The Brothers Marine Park and North Lantau Marine Park;
- Siu Lang Shui Site of Special Scientific Interest (SSSI);
- The important spawning ground for commercial fisheries resources at North Lantau waters; and
- Government tenancy area for oyster farming activities in Deep Bay.

4.5 Landfill Gas Hazard

4.5.1 As discussed in **Section 3.7**, part of the road infrastructural works will fall within the 250 m Consultation Zones of the SLSL and PPVL. The construction workers and future users may be exposed to the landfill gas hazards, and the risk level will be dependent on the construction methods, work locations, excavation depth, structural form, etc.

4.6 Ecological Sensitive Receivers

4.6.1 Potential ecological sensitive receivers that may be affected by the Project are identified as follows:

- Sha Chau and Lung Kwu Chau Marine Park;
- North Lantau Marine Park;
- The Brothers Marine Park;
- Chinese White Dolphins in North Lantau waters;
- Coral communities in North Lantau waters;
- Intertidal, subtidal and benthic habitats;
- Lung Kwu Tan Valley SSSI;
- Siu Lang Shui SSSI;
- Lung Kwu Chau, Tree Island & Sha Chau SSSI;
- Pak Long and Nam Long Fung Shui Woodlands;
- LKST Egretry;
- Night Roost of Black Kite at Black Point; and

- White-bellied Sea Eagle nesting site at Lung Kwu Chau.

4.7 Fisheries Sensitive Receivers

4.7.1 Potential fisheries sensitive receivers that may be affected by the Project are identified as follows:

- The important spawning ground for commercial fisheries resources at North Lantau waters;
- Artificial reefs deployed in Sha Chau and Lung Kwu Chau Marine Park, Chek Lap Kok Marine Exclusion Zone and The Brothers Marine Park;
- Shellfish reefs near HKIAAA; and
- Government tenancy area for oyster farming activities in Deep Bay.

4.8 Landscape Elements and Public Viewing Points

4.8.1 No country park, coastal protection area, conservation area, wetland, historic landscapes, site of cultural heritage, nature reserves and SSSI are identified within the Project. Meanwhile, landscape with distinctive character/ resources (e.g. natural shore, natural watercourse) have been identified within the Project.

4.8.2 No registered Old and Valuable Trees (OVT) or stone wall trees (SWT) are identified within the Project. Nevertheless, a number of TPIs, namely mature trees with DBH of over 1m, are located within the Project. There might also be other potential sensitive LRs, such as rare and precious, endangered and protected plants of Hong Kong, located in the hillside plantation.

4.8.3 The key visual resources enjoyed by the public within the assessment area mainly comprise the ridgelines from Castle Peak and the seascape in Urmston Road. The value of the current view is primarily attached to the open sky, bay shore of LKT and the natural hillside.

4.8.4 The composition of existing LCAs within the assessment area consists of Inshore Water Landscape, Foothill Fringe Landscape, Mixed Modern Industrial Urban Landscape and Transportation Corridor Landscape.

4.8.5 Potential landscape elements and public viewing points that may be affected by the Project are identified as follows:

<u>Landscape Resources</u>

- Artificial shoreline;
- Natural shore;
- Shrubland/ grassland;
- Hydroseeded surface;
- Hillside plantation;
- Roadside plantation;
- Seawater body;
- Natural watercourse;

- Modified watercourse; and
- Developed area.

Landscape Character Areas

- Inshore Water Landscape;
- Foothill Fringe Landscape;
- Mixed Modern Industrial Urban Landscape; and
- Transportation Corridor Landscape.

Public Viewing Points

- Tip Shek Teng;
- Black Point Radar Station;
- Lung Kwu Chau;
- Lung Kwu Tan Chinese White Dolphin Lookout;
- Lung Kwu Tan Promenade;
- LKTR;
- Lung Kwu Tan Sitting-out Area;
- Tsing Dip Ridge; and
- LMR.

4.9 Cultural Heritage Resources

4.9.1 The cultural heritage resources and other identified items that may be affected by the Project are identified as follows:

Terrestrial Archaeology & Other Identified Items [5]

- LKST SAI.

Marine Archaeology

- The presence of marine archaeological resources will be established during the MAI, under which a review of previous MAI studies in the vicinity will also be completed.

4.10 Hazard to Life

4.10.1 The existing installations with potential risks located within and in proximity of the Project as mentioned in **Section 3.12** and the proposed green/ new energy facilities, offshore jetty(ies) and associated submarine pipeline(s), offtake and pigging station as well as green fuel station, may pose risks to the nearby LKT Village, employees in BPPS and LKT, as well as future users within the LKT development area and on the proposed new roads (in

[5] A Lau Ancestral Hall at LKST with no grading is identified within the LKT development area.

particular the land-based road sections proposed near the junction of LMR, LKTR and Lung Fai Street).

5. Environmental Protection Measures to be Incorporated in the Design and Further Environmental Implications

5.1 General

5.1.1 The EIA Study will determine the significance of environmental impacts (both cumulative impacts and those arising from the Project) and any avoidance or mitigation measures to ensure that all proposals recommended by the Project would be environmentally acceptable. Reference will be made to the relevant legislation and other requirements including but not limited to the EIAO and Hong Kong Planning Standards and Guidelines (HKPSG), etc. EM&A of potential impacts that may arise from implementation of the works proposed by the Project will be provided for the construction and operational phases where necessary. Subject to the findings of the EIA Study, the following mitigation measures will be considered in the design, construction and operation of the Project.

5.2 Air Quality

Construction Impacts

5.2.1 In order to prevent adverse impacts on air quality, the control measures stipulated in the Air Pollution Control (Construction Dust) Regulations should be implemented, wherever applicable, to limit the dust emissions from the construction of the Project. Subject to investigation, the following mitigation measures, which are not exhaustive, will be considered during construction period to minimise air quality impacts on nearby ASRs.

- Separation of the construction site into multiple workfronts and well scheduling and careful planning of the construction activities to avoid carrying out earth works in the entire construction site simultaneously;
- Any vehicles/ marine vessels with an open load compartment used for transferring dusty materials off-site will be properly fitted with side and tail boards and cover;
- Stockpiles of sand and aggregate will be enclosed on three sides and water sprays will be used to dampen stored materials and when receiving raw material;
- The construction site will be frequently cleaned and watered to minimise fugitive dust emissions;
- In the process of material handling, any material which has the potential to create dust will be treated with water or sprayed with a wetting agent where practicable;
- Implementation of wheel washing facilities at access roads into and out of construction sites; and
- Speed control of vehicles on-site.

5.2.2 To control and reduce the exhaust emissions from Non-road Mobile Machinery (NRMM) and marine vessels, the following mitigation measures, which are not exhaustive, will be considered during construction period to minimise air quality impacts on nearby ASRs.

- Connect construction plant and equipment to main electric supply and avoid use of diesel generators and diesel-powered equipment as far as practicable;

- Restrict the use of exempted NRMMs as far as practicable;
- Deploy electrified NRMMs as far as practicable;
- Control routing of marine vessels to optimise the separation distance from nearby ASRs;
- Minimise the number of trips of marine vessels;
- Use clean fuel for marine vessels as far as practicable; and
- Adopt on-shore power, etc.

Operational Impacts

5.2.3 Subject to EIA findings, the following mitigation measures, which are not exhaustive, will be considered to improve the air quality within the proposed development:

- Well planning of building layout such as adequate buffer distance is recommended to separate the ASRs away from roads, marine operations, industrial emission sources and odorous sources;
- Odour control measures for LKT STW, food waste pre-treatment facility and SPS such as covering/ enclosure of odorous sources and installation of deodorisers; and
- Appropriate measures for prevention of septicity of sewage due to the operation of SPS and the associated rising mains.

5.2.4 The alignments of the proposed LKT Sea-crossing Bridge and upgraded LMR including the associated modified junctions and slip roads shall also be duly designed to minimise the associated air quality impacts on the nearby ASRs.

5.3 Noise

Construction Impacts

General Construction Works

5.3.1 Subject to EIA findings, the following measures will be considered during construction period to minimise construction noise impacts on NSRs in the vicinity.

- Well scheduling and careful planning of the construction activities to avoid overlapping of noisy construction activities at different workfronts;
- Adoption of quieter construction methods as far as practicable;
- Use of quieter powered mechanical equipment and plant, and/ or fitted with muffler/ silencers/ sound reduction devices;
- Provision of temporary noise barriers and enclosures, where practicable;
- Provision of noise screening structures or purpose-built noise barriers along the site boundary to provide additional protection to NSRs nearby; and
- Implementation of good site practices as effective noise mitigation measures, including but not limited to, locating noisy equipment and activities as far from NSRs as practical, scheduling noisy activities to minimise exposure of nearby NSRs to high levels of construction noise, limiting the use and number of equipment operating close

to the NSRs, proper maintenance of construction plant and devising methods of working to minimise noise impacts on the surrounding environment.

Operational Impacts

5.3.2 To minimise the operational noise impacts on the NSRs within the LKT development area and near the road infrastructural works proposed, the following mitigation measures are to be considered:

- Proper arrangement of land uses to locate the NSRs away from roads, fixed noise sources and marine operations;
- Proper design of the alignment of LKT Sea-crossing Bridge;
- Use of low-noise road surfacing, noise barriers/ enclosures on planned road infrastructures as appropriate;
- Use of acoustic louvers, silencer for ventilating fan, acoustic door/ absorptive wall lining for fixed noise sources; and
- Enclosing noisy machineries within building structures, or locating them underground as far as practicable.

5.4 Water Quality

Construction Impacts

5.4.1 In order to prevent adverse impacts on water quality, the following general mitigation measures will be put in place where appropriate.

General Construction Works

- Good site practice will be adopted in accordance with the ProPECC PN 2/24 "Construction Site Drainage" and "Recommended Pollution Control Clauses for Construction Contracts" issued by EPD and the procedures in the Environment, Transport and Works Bureau (ETWB) Technical Circular (Works) No. 5/2005 "Protection of Natural Stream/ Rivers from adverse impact arising from construction works";
- Provision of adequate construction site drainage according to the established good practices;
- Open stockpiles of materials on site will be avoided or where unavoidable covered with tarpaulin or similar fabric during rainstorms;
- All runoffs arising from the construction site should be properly collected and treated to ensure the effluent comply with Water Pollution Control Ordinance. Silt trap and oil interceptor will be provided to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before being pumped to the public stormwater drainage system. The silt traps and oil interceptors will be cleaned and maintained regularly;
- Minimisation of impacts of concrete washings, use of infiltration/ sedimentation pits to settle out the washings before treatment/ re-use/ discharge, and adoption of treatment units with pH adjustment if necessary;

- 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;
- For bore piling operations, the resulting suspension will be settled in sedimentation/ infiltration pit until supernatant is clear and the bentonite solids will be disposed appropriately; and
- Mobile toilets or other appropriate means will be provided to store sewage before disposal through licensed collection agent or discharging to main sewerage system.

Marine-based Works

- Sequencing of works and location of works shall be carefully optimised to minimise adverse impacts on the WSRs;
- Silt curtains should be deployed for marine works below seawater level (e.g. marine piling, etc.);
- For marine piling works, steel pile casing will be installed and the fluid will be continuously pumped out during concreting to minimise the release of SS; and
- Size of vessels should be limited to maintain adequate clearance between vessels and the seabed to avoid undue turbidity generation from turbulence of vessel movement or propeller wash.

Land-based Works

- For works at the vicinity of watercourses, construction methods will be properly designed and disturbance will be avoided as far as practicable; and
- Where possible, works entailing soil excavation will be minimised during the rainy season.

Operational Impacts

5.4.2 The following mitigation measures are to be considered as appropriate:

- Optimisation of piling locations and extents to minimise the potential hydrodynamic and water quality impacts;
- Provision of sand/ silt and oil/ grease traps to prevent ingress of pollutants to the stormwater system/ natural streams;
- Implementation of proper sewerage system to divert the sewage flows generated by the development to LKT STW for treatment;
- Provision of standby/ spare pumps, buffer tanks and backup power supply to prevent emergency discharge from LKT STW and SPS, with a contingency plan to be prepared by the operators; and
- Establishment of emergency plans and clean up procedures to deal with accidental oil leakage of operating vehicles on the proposed roads.

5.5 Waste Management

5.5.1 The Waste Disposal Ordinance (Cap. 354) prohibits any unauthorised disposal of wastes. Under the WDO, wastes can only be disposed of, if necessary, at designated waste disposal facilities licensed by EPD. The WDO also stipulates the requirements for issuing licences for the collection and transportation of wastes.

Construction Impacts

5.5.2 The following mitigation measures, which are not exhaustive, will be considered during the construction phase to minimise waste generation and provide good control on waste management.

General

- Good site practice and implementation of Waste Management Plan (WMP) will be adopted to minimise any potential waste impacts. The WMP shall be submitted to the Engineer for approval;
- Nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;
- Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;
- Provision of sufficient waste disposal points and regular collection for disposal;
- Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;
- Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;
- A recording system for the amount of wastes generated, recycled and disposed shall be implemented;
- Regular site inspections and auditing of waste materials generated during construction activities should be conducted to ensure that proper storage, transportation and disposal practices are being implemented; and
- All dump trucks/ marine vessels engaged in the Project will be equipped with Global Positioning System (GPS) or equivalent automatic system for real time tracking and monitoring of their travel routings and parking locations to prohibit illegal dumping and landfilling of waste.

C&D Materials

- Careful design, planning and good site management to encourage on-site sorting of C&D materials and minimise their generation during the course of construction;
- Use of reusable non-timber formwork to reduce the amount of C&D material;
- Proper storage and site practices to minimise the potential for damage or contamination of construction materials;
- Yard waste will be sorted for reuse or recycling on-site before considering recycling at Y·Park/ other suitable facilities; and

- Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials is properly handled, so as to avoid the illegal dumping and disposal to landfill sites.

Sediments

- Treatment measures for excavated sediment shall follow the guidelines in Section 4.2.1, Chapter 4 of Project Administration Handbook for Civil Engineering Works (PAH) and Dumping at Sea Ordinance (Cap. 466);
- All bottom dumping vessels (hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material;
- The excavated sediment shall be placed into the disposal pit by bottom dumping; and
- Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Sediment adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site.

Chemical Waste

- Suitable chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility;
- Storage, handling, transport and disposal of chemical waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by the EPD; and
- The chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre (CWTC) in Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C).

General Refuse

- General refuse will need to be stored in enclosed bins and reputable waste collector should be employed to remove the generated refuse from the site, separately from construction and chemical wastes, on a daily basis to minimise odour, pest and litter impacts.

Floating Refuse

- Regular inspection and monitoring of floating refuse should be conducted by contractor(s) and waste collection should be arranged for any floating refuse trapped within the site.

Operational Impacts

5.5.3 The following measures should be implemented to minimise the amount of waste to be disposed of at landfill.

MSW

- MSW from the development should be collected with lidded bins and delivered to a central collection point and stored in enclosed containers to prevent windblown, vermin, water pollution and visual impact. At least daily collection should be arranged by the waste collector.

Chemical Waste

- Localised chemical waste storage areas should be located close to the source of waste generation for temporary storage. Drum-type containers with proper labelling should be used to collect chemical wastes for storage at the designated areas;
- Storage, handling, transport and disposal of chemical waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by the EPD;
- Chemical waste should be disposed of at either the CWTC in Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C); and
- Emergency response plan for potential accidental chemical spillage shall be established by future operators.

Screenings, Grits and Dewatered Sludge

- The screenings, grits and dewatered sludge shall be delivered in watertight containers or skips to avoid odour emission during transportation. The solid waste unloading process shall be operated in the enclosed designated room inside the STW and served by negative pressure by extracting odorous gas to deodorising unit. The dewatered sludge should be disposed of on a regular basis.

Floating Refuse

- The floating refuse potentially trapped and accumulated within the vicinity will be collected during the regular operation of Marine Department's appointed contractor.

5.6 Land Contamination

5.6.1 The following mitigation measures will be considered during the construction phase to minimise any potential exposure to contaminated soils or groundwater.

- Remediation works on land contamination (if required) will be carried out prior to the commencement of construction works;
- Construction workforce should wear gloves, masks and other protective clothing where exposure to vapour or contaminated soil may be encountered;
- Contaminated materials should be removed with bulk earth movers to prevent human contact;
- Adequate washing facilities should be provided and smoking/ eating should be prohibited in the area;
- Any contaminated soil that may need stockpiling or need to be transported should be covered with tarpaulin;
- Leakage of pollutants or leaching from excavated soil should be prevented by storing on an impermeable surface;
- Only licensed waste hauliers should be used to collect and transport any contaminated material to an appropriate disposal site and procedures should be developed to ensure that illegal disposal of wastes will not occur; and

- The necessary waste disposal permits should be obtained, as required, from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354C), as required.

5.7 Landfill Gas Hazard

5.7.1 While a detailed landfill gas hazard assessment will be conducted under the EIA for identifying the necessary design/ mitigation measures to be adopted, the following general precautionary and protective measures, which are not exhaustive, are recommended:

- A Safety Officer, trained in the use of gas detection equipment and landfill gas related hazards, should be present on site throughout the works. The Safety Officer should be provided with an intrinsically safe portable instrument, which is appropriately calibrated and able to measure methane, carbon dioxide and oxygen;
- All works within the confined space shall comply with the Factories and Industrial Undertakings (Confined Spaces) Regulation and all applicable guidance notes and codes of practice;
- All personnel who work on site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it;
- Those staff who work in, or have responsibility for "at risk" areas, including all excavation workers, supervisors and engineers working within the Consultation Zone, should receive appropriate training on working in areas susceptible to landfill gas hazards;
- An excavation procedure or code of practice to minimise landfill gas related risk should be devised and carried out by the Project Proponent;
- No worker should be allowed to work alone at any time in or near to any excavation. At least one other worker should be available to assist with a rescue if needed;
- Ground level construction plant should be fitted with vertical exhausts at least 0.6 m above ground level and with spark arrestors;
- Any electrical equipment, such as motors and extension cords, should be intrinsically safe;
- During piping assembly or conduiting construction, all valves/ seals should be closed immediately after installation. As construction progresses, all valves/ seals should be closed as installed to prevent the migration of gases through the pipeline/ conduit. All piping/ conduiting should be capped at the end of each working day;
- Smoking and naked flames should be prohibited within confined spaces. "No Smoking" and "No Naked Flame" notices in Chinese and English should be posted prominently around the construction site. Safety notices should be posted warning of the potential hazards;
- Welding, flame-cutting or other hot works should be confined to open areas at least 15 m from any trench or excavation;
- Welding, flame-cutting or other hot works may only be carried out in confined spaces when controlled by a "permit to work" procedure, properly authorised by the Safety Officer;

- The permit to work procedure should set down clearly the requirements for continuous monitoring of methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure should also require the presence of a competent environmental specialist who shall be responsible for reviewing the gas measurements as they are made, and who shall have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise should be permitted to carry out hot works in confined areas; and

- During the construction works, adequate fire extinguishers and breathing apparatus sets should be made available on site and appropriate training given in their use. Fire drills should be organised at not less than six monthly intervals. Besides, a health and safety policy standards and instructions should be formulated for site personnel to follow.

5.8 Ecology

Construction Impacts

5.8.1 The mitigation measures that are to be implemented to minimise the impacts on air quality, noise and water quality will also help to minimise any impacts on ecological resources.

5.8.2 As regards ecological impact, the best mitigation is avoidance and will be used wherever practicable. For impact that is considered unavoidable, mitigation measures will be adopted to minimise such impact, e.g. translocation of important species, confining works in specific area/ season, avoiding percussive piling, minimising the number/ size of piles of LKT Sea-crossing Bridge, alternative design/ construction methods, good site practice, etc.

Operational Impacts

5.8.3 Implementation of water pollution control measures (refer to **Section 5.4.2**) will minimise the potential ecological impact on marine wildlife during the operational phase of the Project. Subject to investigation, mitigation measures to address disturbances to habitats and wildlife will be proposed, where appropriate. For minimising the potential impacts on LKST Egretry, in particular, design measures such as preservation of vegetation in proximity, adopting of stepped building height profile, use of non-reflective building materials etc. will be duly considered, subject to the detailed findings of the EIA Study.

5.9 Fisheries

Construction Impacts

5.9.1 Mitigation measures proposed for minimising the impact to potential water quality mentioned in **Section 5.4.1** will be considered to minimise the impact on fisheries. Other mitigation measures will also be implemented if considered necessary.

Operational Impacts

5.9.2 Relevant water quality impact mitigation measures proposed in **Section 5.4.2** would be effective in minimising potential impact on fisheries resources. Other possible mitigation measures, if necessary, will be studied in the EIA.

5.10 Landscape and Visual

Construction Impacts

5.10.1 Subject to the findings of the LIA in EIA Study, mitigation measures to minimise the landscape impacts during construction phase may include but not limited to:

- Standard site practice and control measures, such as conducting construction activities in a neat and orderly manner, erection of decorative hoarding where appropriate, early formation of planting area and advance planting of vegetation, etc, would be considered in the EIA Study;
- Implementation of erosion control mechanisms would be established during construction phase so that construction equipment and construction works are protected if heavy rains occur. Measures should be taken to store and use construction equipment and building materials where they are not visually intrusive and easily be washed away or where they produce less dust;
- Minimisation of light pollution techniques should be explored, including having more lights with focused beams rather than energy wasting floodlighting;
- Trees and vegetation protection would be provided as far as possible for retained trees and vegetation within the Project;
- Optimisation of construction area and temporary work areas to avoid adverse impacts on adjacent landscape; and
- Optimisation of construction period.

Operational Impacts

5.10.2 Subject to the findings of the LIA and VIA in EIA Study, mitigation measures to minimise the landscape and visual impacts during operational phase may include but not limited to:

- Aesthetic design and treatment of buildings and structures including building height and massing control and chromatic architectural treatment on building facades;
- For the aboveground structures of the proposed roads, the layouts, forms, materials and finishes shall be sensitively designed with an integrated design approach, so as to blend in the structures to the adjacent landscape and visual context. Relevant submission to the Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS) upon completion of conceptual design should be in accordance with ETWB TC(W) No. 36/2004 –ACABAS;
- New tree plantings and roadside amenities plantings;
- Tree transplanting and compensatory planting for compensation of the loss of existing vegetation (including trees and shrubs, etc.), if any, in accordance with DEVB TC(W) No. 4/2020 – Tree Preservation and relevant guidelines;
- Incorporation of green roof, vertical greening and/ or buffer plantings as far as practicable; and
- Open space provision.

5.11 Cultural Heritage

Construction Phase

5.11.1 Subject to the availability of existing data, archaeological survey may be required to establish the significance and extent of archaeological deposits within the development area which will encroach onto the LKST SAI. If necessary, the fieldworks should be conducted by an archaeologist licensed under A&M Ordinance (Cap. 53) prior to the construction phase and in agreement with AMO. Mitigation may be required after the results of the fieldworks are known and may include Archaeological Watching Brief, further survey or rescue excavation.

5.11.2 With respect to marine archaeology, a MAI in agreement with AMO will be conducted by a marine archaeologist to ascertain the archaeological value of the seabed affected by the proposed works. The potential impact on marine archaeology caused by the Project will be assessed during the EIA Study. Direct encroachment onto the archaeological resources, if any, will be avoided and preservation in-situ will be considered as far as practicable for minimising the impacts. If unavoidable, appropriate mitigation measures will be designed and agreed with AMO and implemented to the satisfaction of AMO.

Operational Phase

5.11.3 With no adverse impacts on terrestrial archaeology, built heritage and marine archaeology during operational phase expected, mitigation measure is deemed not required.

5.12 Hazard to Life

Construction Phase

5.12.1 In order to minimise the risks arising from the construction activities on the existing hazardous installations, the following mitigation measures will be duly considered.

- Buffer zones shall be set up to restrict excavation and piling works from taking place in close proximity to the high pressure natural gas pipeline and LPG storage;
- No manhole, chamber or other structure shall be built over, around or under a gas pipe and no works shall be carried out which may result in a reduction of cover or protection over a gas pipe without first consulting the gas pipe owner/ operator;
- Where gas pipes cross or are parallel and close to excavations, changes in backfill etc. may cause differential ground settlement and increased stress in the pipe. The degree of risk depends upon the depth of the excavation, the distance of the pipe from the excavation, and the type of soil. Wherever an excavation may affect support for a gas pipe, the gas pipe owner/ operator shall be consulted;
- Where an excavation uncovers a gas pipe, the backfill shall be adequately compacted, particularly beneath the pipe, to prevent any settlement which would subsequently damage the pipe. Backfill material adjacent to gas pipe shall be fine material or sand, containing no stones, bricks or lumps of concrete etc., and shall be suitably compacted to give adequate support and protection to the gas pipe. No power compaction shall take place until 300 millimetres cover of selected fine fill has been suitably compacted;

- No concrete or other hard material shall be placed or left under or adjacent to any gas pipe as this can cause pipe fracture at a later date. Concrete backfill must not be used within 300 millimetres of a gas pipe;
- A proper communication channel with the owner/ operator of the hazardous installations shall be established to consult the necessary precautions and to communicate the proposed excavation and piling works near the installations;
- Provision of adequate instruction and training to workers and supervision on-site to ensure that all necessary precautions are in place; and
- Establishment of emergency plan in case a gas leak is suspected.

Operational Phase

5.12.2 To minimise the risks associated with the planned green/ new energy facilities, offshore jetty(ies) and associated submarine pipeline(s), offtake and pigging station as well as green fuel station, design measures such as provision of adequate buffer from the existing LKT Village, employment of bunding system, optimisation of the operation capacity, rationalising the disposition of the storage tanks and/ or production facilities (if any), etc., will be explored and adopted where appropriate subject to the findings of the EIA Study. Emergency response plans and action plans shall also be set up and defined to the satisfaction of relevant Government Departments such as Electrical and Mechanical Services Department (EMSD).

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

5.13.1 Subject to the findings of assessments, effective control and mitigation measures will be identified to ensure the impacts are within 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 transboundary effects will be considered and addressed in the EIA Study, where applicable.

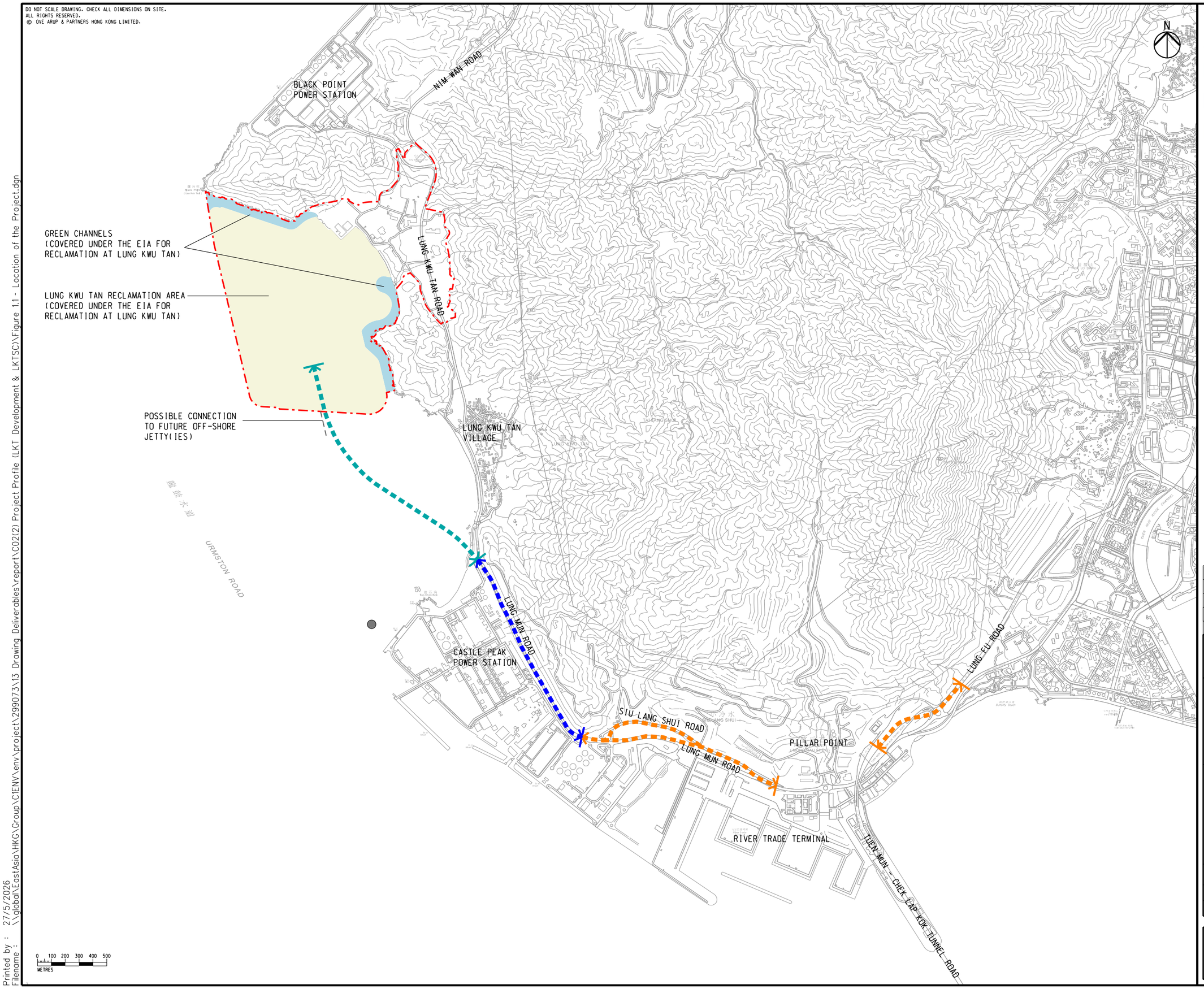
6. Use of Previously Approved EIA Reports

6.1.1 There is no previously approved EIA report covering the full extent of the Project. However, the following EIA Studies are considered relevant and will be referred to in the subsequent EIA Study:

Table 6.1 List of Previously Approved EIA Reports for Reference

Item	Application No./ Register No.	Title
(i)	AEIAR-273/2026	Reclamation at Lung Kwu Tan
(ii)	AEIAR-272/2026	Road P1 (Tai Ho - Sunny Bay Section), Lantau
(iii)	AEIAR-263/2024	Development of Integrated Waste Management Facilities Phase 2 (I·PARK2)
(iv)	AEIAR-256/2023	Tuen Mun Bypass
(v)	AEIAR-255/2023	Route 11 (Section between Yuen Long and North Lantau)
(vi)	AEIAR-218/2018	Hong Kong Offshore LNG Terminal
(vii)	AEIAR-150/2010	Black Point Gas Supply Project
(viii)	AEIAR-147/2009	West New Territories (WENT) Landfill Extensions
(ix)	AEIAR-146/2009	Tuen Mun - Chek Lap Kok Link
(x)	AEIAR-106/2007	Liquefied Natural Gas (LNG) Receiving Terminal and Associated Facilities

Figure



LEGEND

- TENTATIVE LUNG KWU TAN DEVELOPMENT AREA
- TENTATIVE ALIGNMENT OF LUNG KWU TAN SEA-CROSSING BRIDGE
- TENTATIVE LUNG MUN ROAD WIDENING SECTION
- TENTATIVE ALIGNMENT OF JUNCTION MODIFICATIONS AND SLIP ROAD CONSTRUCTION
- POSSIBLE LOCATION FOR OFF-SHORE JETTY(IES)

REMARKS:
THE ALIGNMENTS OF THE ROAD INFRASTRUCTURAL WORKS AND LOCATIONS OF THE JETTY(IES) AND ASSOCIATED CONNECTION ARE INDICATIVE ONLY SUBJECT TO FURTHER REVIEW.
IN PARTICULAR, THE LKT SEA-CROSSING BRIDGE WOULD BE PROPOSED WITHIN THE LKT BAY AREA.
THE ASSOCIATED WORKS AREAS ARE TO BE DETERMINED AT LATER EIA STAGE SUBJECT TO FURTHER INVESTIGATION AND DESIGN.

Rev	Description	By	Date
A	FIRST ISSUE	GL	05/26

Consultant
ARUP AtkinsRéalis
Arup - Atkins Joint Venture

Project Title
Lung Kwu Tan Development and Road Infrastructural Works

Drawing title
LOCATION OF THE PROJECT

Drawing no.			Rev.
FIGURE 1.1			A
Drawn	Date	Checked	Approved
GL	05/26	JN	FC
Scale		Status	
1:25000 @ A3			

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Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\299073\13 Drawing Deliverables\report\C02(2) Project Profile (LKT Development & LKTSC)\Figure 1.1 - Location of the Project.dgn