Development of Tseung Kwan O Area 137 and Associated Reclamation Sites

Project Profile

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

May 2023

Civil Engineering and Development Department

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1 BASIC INFORMATION

1.1 Project Title

1.1.1 Development of Tseung Kwan O (TKO) Area 137 and Associated Reclamation Sites (hereinafter named as the Project).

1.2 Purpose and Nature of Project

1.2.1 The Government announced in the 2022 Policy Address that TKO Area 137 will be developed into a new community primarily for housing purpose providing about 50,000 residential units, to be served by the existing road network as well as the TKO – Yau Tong Tunnel and the TKO Line Southern Extension (TKOLSE) recommended under the Strategic Studies on Railways and Major Road beyond 2030 (RMR 2030+). At the same time, a review has been conducted to identify suitable locations for accommodating existing public facilities in TKO Area 137 and other public facilities serving the region and requiring marine frontage. Based on the findings of the Planning and Engineering Study for Re-planning of TKO Area 137 – Feasibility Study, a Preliminary Outline Development Plan (PODP) has been formulated for TKO Area 137 and the land to be created off TKO Area 132, which was published in January 2023.

1.2.2 Given the complexity of the planning, infrastructural, transport and environmental issues involved, a study with detailed assessments (refers to the Study) will be carried out to finalise the development proposals of the Project to support the rezoning exercise. According to the current plan, we hope to commence works for TKO Area 137 and land to be created off TKO Area 132 in 2025, with a view to enabling first population intake in TKO Area 137 in 2030.

1.3 Name of Project Proponent

1.3.1 The Project Proponent is East Development Office (EDO), Civil Engineering and Development Department (CEDD) of the Government of HKSAR.

1.4 Location and Scale of Project and History of Site

1.4.1 The tentative development areas in TKO Area 137 and off TKO Area 132 are shown in **Figure 1**.

1.4.2 The proposed development area in TKO Area 137 is about 101 hectares (ha), including about 20ha of land to be created through reclamation in the existing barging basin and along the shoreline.

1.4.3 Currently, the majority of the land in TKO Area 137 is being use as a temporary fill bank. It houses a site office, barging facilities, sorting facilities, and storage areas for different kinds of public fill materials.

1.4.4 The South East New Territories (SENT) Landfill Extension occupies about 13 ha on the north-eastern corner of TKO Area 137, which has been in operation since 21 November 2021 and continues to receive construction waste for disposal. It is expected to be closed and fully restored before 2030 to tie in with the first population intake in TKO Area 137.

1.4.5 A desalination plant, occupying about 8ha on the south-eastern corner of TKO Area 137 is currently under construction. The site is suitable for accommodating a desalination plan on account of quality of the seawater, minimum environmental impact to the surroundings and proximity to strategic water distribution network.

1.4.6 A dangerous goods pier operated by the Mines Division, Geotechnical Engineering Office of CEDD is located on the southeast corner of TKO Area 137. The pier will be operated up to end 2026 and will be relocated before the population intake at TKO Area 137.

1.4.7 We plan to develop TKO Area 137 into a new community with a maximum domestic plot ratio of 7.5 that translates into about 50,000 housing units for a total population of around 135,000. With a public-to-private housing split of 70:30, around 34,500 public housing units and 15,500 private residential units could be provided. As a major source of housing supply in the short to medium term, these housing units will start coming on stream with first population intake of around 34,000 people involving 12,600 units in 2030.

1.4.8 While spaces would be reserved for the development of TKOLSE and its associated station, they are not part of the Project and hence would not be covered in this EIA study. A separate EIA study for development of TKOLSE and its associated station will be carried out by the respective project proponents separately. Nevertheless, TKOLSE and its associated station would be considered as a concurrent project, and their impact on the Project (e.g. rail noise) would be taken into account in the cumulative assessment of this EIA study.

1.4.9 We propose to make available about 25 ha of land off TKO Area 132 through reclamation and slope-cutting for accommodating two existing public facilities in TKO Area 137 and four location-specific public facilities that all require marine frontage for daily operation. Other than the need to reprovision a public fill transfer facility (PFTF) and a concrete batching plant (CBP) from TKO Area 137, the land created off TKO Area 132 will be used to accommodate the strategically important Electricity Facilities (EFs) for enhancing Hong Kong's capability to import zero-carbon energy through regional cooperation and meeting the decarbonisation target of reducing Hong Kong's carbon emissions by 50% before 2035 as compared to the 2005 level, with a view to achieving carbon neutrality before 2050. A construction waste handling facility (CWHF), a refuse transfer station (RTS) and a marine refuse collection point (MRCP) are also proposed for serving the territory east area including TKO. We would confirm the land in-take and layout design for these facilities when conducting detailed assessments.

1.4.10 The land to be created off TKO Area 132 is an offshore area from the eastern part of Devil's Peak. On the slopes of Chiu Keng Wan Shan, Junk Bay Chinese Permanent Cemetery has been built in 1993 and later expanded in 2003. The access road connecting Junk Bay Chinese Permanent Cemetery and Ocean Shores was constructed between 2008 and 2012. O King Road connecting Kwong Tin Estate and Ocean Shores was completed in 1993, but later modified in 2000 and completed in 2003. The area is then remained undeveloped until the construction of TKO Cross Bay Link and the tunnel portal for TKO-LTT started in 2019 and completed in 2022.

1.4.11 To enable the development at TKO Area 137 to be taken forward in a timely manner for first population intake to take place in 2030 as planned, we need to commence the Environmental Impact Assessment (EIA) as early as possible. While the EIA is being undertaken, we will in parallel examine whether the reclamation area could be minimised through slope-cutting and some of these facilities could be relocated in to cavern.

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

1.5.1 In terms of both the population size and the tentative development areas as stated in paragraph 1.4, the Project falls within Item 1 under Schedule 3 of the Environmental Impact Assessment Ordinance (EIAO), i.e. "Engineering feasibility study of urban development projects with a development area covering more than 20 ha or involving a total population of more than 100,000", requiring an EIA report.

1.5.2 Within which, the Project may consist of the potential Designated Projects (DPs) under Part I, Schedule 2 of the EIAO listed in **Table 1.1**, that would be identified in the course of the Study and subject to the final recommendation of the Study.

Table 1.1 Potential Designated Projects in TKO Areas 137 and 132

Item No.	Designated Project	Remarks	Location of the DPs	Separate Schedule 2 EIA Study by Others
Part I, Schedule 2 of the EIAO[1]				
A.8	A road bridge more than 100 m in length between abutments	Bridges more than 100 m in length between abutments may be required	Land to be created off TKO Area 132	Not required, as it would be covered in this EIA study
C.1	Reclamation works (including associated dredging works) more than 5 ha in size	Reclamation works of more than 5 ha in size may be required. No dredging works are anticipated for the reclamation.	TKO Area 137 and Land to be created off TKO Area 132	Not required, as it would be covered in this EIA study
C.2	Reclamation works (including associated dredging works) more than 1 ha in size and a boundary of which – (c) is less than 100 m from an existing residential area.	Reclamation works of more than 1 ha in size may be located less than 100m from On Luen Village	Land to be created off TKO Area 132	Not required, as it would be covered in this EIA study
C.4	A breakwater more than 1 kilometre (km) in length or a breakwater extending into a tidal flushing channel by more than 30% of the channel width	A breakwater more than 1 kilometre (km) in length may be required	Land to be created off TKO Area 132	Not required, as it would be covered in this EIA study
F.1	Sewage treatment works with an installed capacity of more than 15,000 m^3 per day	Sewage treatment works with an installed capacity of more than 15,000 m^3 per day may be required.	TKO Area 137	Not required, as it would be covered in this EIA study
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; and (iii) educational institution	Sewage treatment works with an installed capacity of more than 15,000 m^3 per day may be required. Sewage treatment works may be located less than 200 m from the from the nearest boundary of a planned residential area and educational institution.	TKO Area 137	Not required, as it would be covered in this EIA study
F.6	A submarine sewage outfall	A submarine sewage outfall for the sewage treatment works may be required	TKO Area 137	Not required, as it would be covered in this EIA study

Item No.	Designated Project	Remarks	Location of the DPs	Separate Schedule 2 EIA Study by Others
G.2	A refuse transfer station	A RTS may be accommodated.	Land to be created off TKO Area 132	Yes
G.5	A facility for the treatment of construction waste--- (a) with a designed capacity of not less than 500 tonnes per day; and (b) a boundary of which is less than 200 m from an existing or planned--- (i) residential area.	CWHF may be located within 200m from On Luen Village	Land to be created off TKO Area 132	Yes
H.1	A 400kV electricity substation and transmission line	Electricity substations of 400kV or higher voltage may be required	TKO Area 137 and Land to be created off TKO Area 132	Yes
Q.1	Earthworks partly or wholly in an existing country park	Natural terrain mitigation works may be required in existing country park	The Clearwater Bay Country Park near TKO Area 137	Not required, as it would be covered in this EIA study

1.6 Name and Telephone Number of Contact Person

1.6.1 All queries regarding the Project can be addressed to :

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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 PODP has been developed based on the findings. An EIA will be carried out for the Recommended Outline Development Plan (RODP) and any subsequent design developments.

2.1.2 Specialist environmental consultants will be employed by Project Proponent or other parties for undertaking the EIA study according to the Study Brief to be issued by the Director of Environmental Protection and to respond on behalf of the Project Proponent on issues related to the EIA.

2.1.3 The Project Proponent 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 the EIA study of this Project.

2.1.4 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 under various works contracts.

2.2 Project Time Table

2.2.1 Consultants will be engaged in 2023Q3 tentatively for undertaking the EIA study. The programme of the Project shall be ascertained during the investigation and detailed design stages of the Project, taking into account the results of relevant technical studies. Subject to the necessary statutory procedures, we hope to commence works for TKO Area 137 and land to be created off TKO Area 132 in 2025, with a view to enabling first population intake in TKO Area 137 in 2030.

2.3 Interfacing with Other Projects

2.3.1 The Project may have interface with the following projects. Implementation of some of these projects has yet to be confirmed. This list should be re-visited during the EIA Study to ensure all the latest projects available from the respective stakeholders are incorporated.

(a) Site Formation and Infrastructure Works for Public Housing Sites in TKO;
(b) Developments in Tseung Kwan O Town Lot No. 70;
(c) Proposed TKOLSE and its associated station;
(d) Proposed TKO – Yau Tong Tunnel;
(e) Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) and associated works;
(f) Cross Bay Link, Tseung Kwan O;
(g) Tseung Kwan O Further Development - Infrastructure Works for Tseung Kwan O Stage I Landfill Site - Remaining Works;
(h) Fill Bank at TKO Area 137;
(i) Desalination Plant at TKO and its proposed extension;
(j) South East New Territories Landfill (SENT Landfill) and its extension;
(k) Proposed Water Sports Centre in Area 77, TKO;
(l) Proposed Hong Kong Offshore Wind Farm in Southeastern Waters; and
(m) Pilot Planning and Engineering Study on Development of Selected Strategic Cavern Areas – Feasibility Study.

2.3.2 The EIA Study will consider the environmental effects of the above projects on the development of TKO Area 137 and associated reclamation sites.

3 POSSIBLE IMPACTS ON THE ENVIRONMENT

3.1 General

3.1.1 The PODP for the Project comprises the following elements, which are subject to the RODP and final recommendation of the Study:-

TKO Area 137 – A New Community

- To provide the land for housing and supporting facilities, we will need a total developable area of 101 ha in TKO Area 137, including about 20 ha of land from reclamation in the existing barging basin and along the shoreline.
- To build a community well supported by ancillary facilities, we will also make available land in TKO Area 137 for retail and other commercial facilities, government, institution and community (GIC) uses, recreational and open space, as well as infrastructure.
- The vision of more spacious and better living space in the "Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030" Study has been factored in and reflected in the development parameters by the assumption of larger flat sizes for land use planning (a 10% home space enhancement for both public and private housing) and adoption of higher open space planning ratio (3.5 m^2 per person compared with existing 2 m^2).
- GIC facilities under consideration include healthcare and welfare facilities, schools, community hall, public transport interchanges, sports centres and swimming pool complex, etc.
- Other facilities including liquefied petroleum gas (LPG) filling station, electricity substation and sewage treatment works;
- Having regard to its waterfront location, we will create a stepped building height profile descending from northeast to southwest and towards the waterfront.
- We will also align the roads and development sites with the prevailing wind directions, such that the visual interest and air ventilation could be enhanced.
- Subject to the public consultation of RMR 2030+ and the detailed design of the proposed TKOLSE, the higher-density housing development will be clustered around the railway station proposed to be located in the central area of TKO Area 137.
- Connected to the railway station will be a community park as well as a district civic and commercial hub which will be designed to be the activity node of TKO Area 137 providing quality public space for residents to shop, play and enjoy.
- Roads will run inland so that waterfront areas can be optimised to provide connected waterfront promenade and attractive open space with greenery for public enjoyment.
- Green mobility such as cycling and walking will be promoted through land use planning.
- Natural terrain mitigation works such as flexible barrier along the slope toe, installation of soil nail or slope stabilization works may be required.

Land to be created off TKO Area 132 – Public Facilities

- To make way for the housing development at TKO Area 137, we propose to make available about 25 ha of land off TKO Area 132 through reclamation and slope-cutting for accommodating two existing public facilities in TKO Area 137 and four location-specific public facilities that all require marine frontage for daily operation.
- Other than the need to reprovision a PFTF and a CBP from TKO Area 137, the land created off TKO Area 132 will be used to accommodate the strategically important EFs for enhancing Hong Kong's capability to import zero-carbon energy through regional cooperation and meeting the decarbonisation target of reducing Hong Kong's carbon emissions by 50% before 2035 as compared to the 2005 level, with a view to achieving carbon neutrality before 2050.
- A CWHF, a RTS and a MRCP are also proposed for serving the territory east area including TKO.
- We would confirm the land in-take and layout design for these public facilities when conducting detailed assessments.

- Given that only a few low rise structures/buildings of about 20 – 60 m tall will be built subject to detailed design, the development density in the land created off TKO Area 132 will be generally low.
- Vertical greening will also be considered for buildings to harmonise with surrounding environment whenever possible.
- Whether the reclamation area could be minimised through slope-cutting and whether some of these public facilities could be relocated to cavern will be examined.

3.1.2 Possible impacts on the environment during the construction and operation of the proposed developments, infrastructure of the Project have been broadly examined and are outlined below. The cumulative impact from concurrent projects will also be addressed in the EIA Study.

3.2 Air Quality

Construction Phase

3.2.1 During construction of TKO Area 137, dust is the potential air quality impact which would likely be generated from construction activities such as earthworks, slope cutting, material handling, site formation works, foundation and excavation works, vehicle movements, erosion of exposed areas and stockpiles and the temporary fill bank and construction waste sorting facilities.

3.2.2 The dust generated from filling for the reclamation works would not be significant. However, the marine-based traffic as well as gaseous emissions from construction plants would be expected to the major sources of impact during construction phase.

3.2.3 Cumulative air quality impact for construction at TKO Area 137 should also take into account vehicular emission on neighbouring roads such as Wan Po Road and TKO Cross Bay Link, etc. and other stationary industrial emission sources from TKO InnoPark and SENT Landfill and its Extension.

3.2.4 The operation of leachate treatment plant in SENT Landfill and its Extension might cause potential odour impact. Regarding waste filling activities, SENT Landfill was already closed in November 2021 and its Extension continues to receive only construction waste for disposal. The SENT Landfill Extension is also expected to be closed and fully restored before 2030.

3.2.5 During construction of the land to be created off TKO Area 132, construction dust impact would likely be generated from various construction activities. Dusty construction activities include earthworks, slope cutting, cavern formation (if any), material handling, site formation works, foundation and excavation works, vehicle movements, erosion of exposed areas, stockpiles, marine works and filling works for reclamation, as well as gaseous emissions from marine-based traffic and construction plants would be expected to the major sources of impact during construction phase.

3.2.6 Cumulative air quality impact for the construction of the land to be created off TKO Area 132 should also take into account vehicular emission on neighbouring roads such as TKO Cross Bay Link and TKO-LTT.

Operational Phase

3.2.7 The major sources of air pollutants for the development at TKO Area 137 are the vehicular emissions from traffic on new roads connecting the potential developments to existing road network, such as Wan Po Road. Cumulative air quality impact should also take into account stationary industrial emission sources from TKO InnoPark. Odour from the new sewage treatment works and the restored SENT Landfill & its Extension under aftercare, etc. would also need to be considered. While no major air emission from the Desalination Plant is anticipated, cumulative air quality impact due to the Desalination Plant should be reviewed.

3.2.8 The major sources for operation phase air quality impact on the land to be created off TKO Area 132 would include vehicular emissions from traffic on new proposed connection roads and existing road network, such as TKOLTT and Cross Bay Link. Potential dust and gaseous emissions would be anticipated from the operation of the new PFTF, CWHF and CBP. Potential odour impact would be anticipated from operation of the new RTS. Marine vessel emission associated with the operation of the facilities on the land to be created off TKO Area 132 would also be anticipated.

3.3 Noise

Construction Phase

3.3.1 The noise generated from use of powered mechanical equipment for construction works including but not limited to possible reclamation operation, earthworks, slope cutting, site formation, piling works, construction plant movements and traffic along site access roads would create noise impacts to the adjacent sensitive receivers. Subject to the development schedule to be formulated in the Study, there may be noise impacts to the future residents and other noise sensitive receivers in the potential developments due to concurrent construction activities nearby if there is any phased development and population intake in TKO Area 137 and land to be created off TKO Area 132.

Operational Phase

3.3.2 The future noise sources arising from the potential developments in TKO Area 137 and Area 132 and would be traffic on new roads and fixed noise sources including various installations as stated in **Section 1.4.9,** the sewage treatment works, the restored SENT landfill and its Extension and the Desalination Plant. Cumulative road traffic noise impact from additional traffic on neighbouring roads such as Wan Po Road and TKO Cross Bay Link arising from potential developments in TKO Area 137 and land to be created off TKO Area 132. Cumulative fixed noise impact taking into account fixed noise sources of Tseung Kwan O InnoPark would need to be considered as appropriate. The planned TKOLSE may pose potential ground-borne rail noise impact on potential noise sensitive uses in TKO Area 137 subject to its alignment design. Since the TKOLSE and its associated station are not part of the Project, its potential impacts will be addressed in a separate EIA Study.

3.4 Water Quality

Construction Phase

3.4.1 The potential developments in TKO Area 137 and land to be created off TKO Area 132 will involve various construction activities undertaken at various time durations. Potential major sources of water quality impacts include possible reclamation operation associated with the land formation works, construction of proposed breakwater near the land to be created off TKO Area 132, dredging operation associated with marine channel near the land to be created off TKO Area 132 and a submarine outfall for the proposed sewage treatment works at TKO Area 137. These construction works would release suspended solids and/or alter sedimentation rate that might affect water sensitive receivers such as corals. Hydrodynamics and water quality modelling would be conducted to assess the potential adverse water quality impact on the identified water sensitive receivers. Also, water quality impacts might arise from construction site runoff, groundwater impact (due to drawdown or contamination to groundwater) arising from construction works, and wastewater generated by various construction activities. The potential impacts on the nearby water sensitive receivers (including the seawater intake point(s) of the Desalination Plant and of the existing TKO Sea Water Pumping Station) and the surface runoff due to the construction works will need to be addressed. Cumulative impacts due to other concurrent projects during the construction phase would need to be considered as appropriate.

Operational Phase

3.4.2 The operation of the potential developments in land to be created off TKO Area 132 will result in an increase in generation of sewage, wastewater from workforce as well as some possible commercial / industrial activities, runoff from roads and pedestrian walkways. The

operation of the potential developments in TKO Area 137 will result in an increase in generation of sewage, wastewater from residential use as well as some possible commercial activities, runoff from roads and pedestrian walkways. The capacity of existing sewerage network and the existing sewage treatment works (Tseung Kwan O Preliminary Treatment Works) should be assessed. If effluent from the sewage treatment works would be discharged from new submarine outfalls (less than 1km), the water quality impact due to treated sewage effluent discharge and emergency discharge should be addressed. Hydrodynamics and water quality modelling will be conducted to examine the impact associated to operation of the sewage treatment works. If new salt water pumping station(s) and water service reservoir(s) are required, the water quality in proximity of the saltwater intake point(s) of new and existing salt water pumping station will be studied. For any proposed sewage pumping station, potential impact in the emergency discharge will be assessed. Cumulative impact during the operation phase would need to be considered as appropriate.

3.5 Waste Management

Construction Phase

3.5.1 Solid wastes will mainly be generated from a wide range of construction activities such as earthworks, site formation, construction of roads and drains, construction of the potential developments and infrastructure, and demolition of existing facilities. Furthermore, sediment will be generated from the dredging operation off TKO Area 132 to allow sufficient water depth for marine traffic access. The wastes arising from the construction will largely consist of construction and demolition (C&D) materials. Other than C&D materials, waste such as C&D waste, chemical waste, general refuse and dredged sediment etc. would also be generated. The quantities of wastes to be generated during construction of the potential developments in TKO Area 137 and the land to be created off TKO Area 132 will largely depend on the future land use option, construction method and programme of works packages. Proper solid waste management would be implemented, and consideration would need to be given to the disposal of spoil and any contaminated material, if any.

Operational Phase

3.5.2 The operation of the potential developments and associated infrastructure in TKO Area 137 and land to be created off TKO Area 132 will generate certain amount of municipal solid waste. Operation of the proposed sewage treatment works would potentially generate sludge, which would require disposal, subject to the design for the proposed sewage treatment works. The storage and handling of these wastes as well as the handling of the public fill for the PFTF will have the potential to cause environment impact.

3.6 Land Contamination

3.6.1 The TKO Area 137 is currently used as temporary fill bank for receiving public fill generated by the construction industry. It is a Designated Project under the EIAO (Cap. 499) with respective Environmental Permit. There are regular site walks by the Environmental Team and verification by Independent Environmental Checker. Any sign of land contamination detected should be rectified in accordance with the EIAO during the course of the operation and decommissioning phase of the facilities prior to the construction phase of the Project. Since the land to be created off TKO Area 132 is formed by reclamation and the area which require slope cutting are natural undisturbed area, land contamination is not anticipated.

3.7 Landfill Gas Hazard

3.7.1 The existing SENT Landfill and its Extension are located at the north-east corner of TKO Area 137. Part of the potential developments in TKO Area 137 will fall within the 250 m Consultation Zone of SENT Landfill and its Extension. As such, a landfill gas hazard assessment would need to be carried out, and the EIA Study shall also review the potential hazard risk during the construction phase of the Project and the potential hazard and restriction likely imposed on the potential developments and associated infrastructure in TKO Area 137.

3.8 Hazard to Human Life

Construction Phase

3.8.1 An existing Synthetic Natural Gas (SNG) Production Plant, which is a notifiable gas installation, at the SENT Landfill next to Wan Po Road to convert landfill gas to SNG. A Desalination Plant is being constructed at the south-east corner of the TKO Area 137. The Desalination Plant is not classified as a Potentially Hazardous Installations due to the implementation of the On-Site Chlorine Generation System (OCGS). Liquid chlorine will not be required to be transported to and stored at the desalination plant. However, other chemicals, including Dangerous Goods (DGs), for water treatment will be transported and stored in the plant during the operation phase of the plant. The transport, storage and handling of other DGs including sodium hypochlorite, hydrogen gas by-product, etc. could also cause risk implications to the development at TKO Area 137. As such, a hazard assessment would be conducted to evaluate the risks due to the use, storage and transport of DGs of the desalination plant during its operation phase in the vicinity of the potential developments. The risks due to operation of the explosives off-loading pier and other hazardous facilities identified including the SNG Production Plant, and planned LPG filling station would be addressed in the EIA Study. For the land to be created off TKO Area 132, no potential hazards to human life are identified.

Operation Phase

3.8.2 A hazard assessment would be conducted to evaluate the risks due to the SNG Production Plant at SENT Landfill, due to SNG pipeline along Wan Po Road, due to the use, storage and transport of DGs to the desalination plant during its operation phase, due to a proposed LPG filling station, due to town gas pipelines, due to potential biogas production and storage at the proposed sewage treatment works in the vicinity of the potential developments. The risks due to operation of above-mentioned hazardous facilities would be addressed in the EIA Study. The operation of the explosives off-loading pier will be closed before the operation of the Project and thus hazard associated with its operation is not anticipated during operation phase of the Project. For the land to be created off TKO Area 132, no potential hazards to human life are identified.

3.9 Ecology

Construction Phase

3.9.1 Part of the TKO Area 137 and to be created off TKO Area 132 will be formed by reclamation and/or slope cutting. A breakwater would be constructed next to the land to be created off TKO Area 132. Dredging operation off TKO Area 132 will be conducted to allow sufficient water depth for marine traffic access. There may have potential cavern development to the west of TKO Area 132. Measures to mitigate potential natural terrain hazard (e.g. flexible barrier) would be implemented on natural terrain adjacent to TKO Areas 137 and 132, if necessary. Potential ecological impact could arise from loss or disturbance of terrestrial and marine habitats and their associated flora and fauna.

3.9.2 TKO Area 137 is currently used as public filling area for more than a decade. Most part of the TKO Area 137 is filled with C&D material, and several patches of green areas were found within the area. Given that the TKO Area 137 is consistently disturbed by industrial activities and with low ecological value[1], adverse direct terrestrial ecological impact is not anticipated. Subject to the design of the mitigation measures for natural terrain hazard in the vicinity of the TKO Area 137, which include hillslope in Fat Tong Chau and Clearwater Bay Country Park, natural terrain hazard mitigation measures may lead to loss of natural habitats and associated flora, including those within the country park. Moreover, the proposed reclamation area is situated along the existing vertical seawall at the western side. The reclamation works would lead to permanent and temporary loss of existing seawall and marine habitats in the surrounding (e.g. subtidal and benthic habitats), marine fauna including coral and benthic communities could also be directly impacted. Potential

[1] Water Supplies Department (2015). *Desalination Plant at Tseung Kwan O – Feasibility Study – EIA Report*. Prepared by Black & Veatch Hong Kong Limited for Water Supplies Department, Government of HKSAR

deterioration of water quality in the vicinity of the reclamation area due to site run off or other untreated pollutants is also anticipated. Moreover, potential indirect disturbance (e.g. noise, glare, increased human activities) to the Clearwater Bay Country Park, which covers the ridge of hills that adjacent to the eastern side of the potential development in TKO Area 137, and associated flora and fauna species is anticipated.

3.9.3 The land formation works by reclamation at land to be created off TKO Area 132, construction of the breakwater and the dredging operation off TKO Area 132 would lead to permanent and temporary loss of marine habitats, including intertidal, subtidal and benthic habitats. While potential slope cutting, mitigation measures for natural terrain hazards and construction of cavern portal for potential cavern formation (if any) may lead to permanent and temporary loss of terrestrial natural habitats and associated flora, including species of conservation importance, if any, within the assessment area of TKO Area 132. Moreover, several coral species of conservation importance recorded along the natural shoreline in reclamation and dredging operation off TKO Area 132, including *Cyphastrea serailia*, *Favia favus* and *Goniopora stutchburyi,* could be directly impacted. A coral recipient site for translocated corals under three EIA studies[2] which fall within the southwestern edge of the Project site would potentially be directly impacted as well. Potential indirect disturbance to surrounding coastal habitats and deterioration of water quality in the vicinity of the reclamation area and dredging operation are also anticipated. Potential risk of groundwater drawdown or dewatering of surface settlements (e.g. watercourse) could be possible during the potential cavern formation if any. Proper mitigation measures would be proposed to minimize any potential marine ecological impact.

Operation Phase

3.9.4 If effluent from sewage treatment works would be discharged from new submarine outfalls, potential impacts to marine ecological resources may arise due to changes in water quality resulting from the effluent discharge.

3.10 Fisheries

Construction Phase

3.10.1 The land formation works by reclamation at the land to be created off TKO Area 132, construction of the breakwater and the dredging operation off TKO Area 132 would lead to temporary and permanent loss of fishing ground. Potential deterioration of water quality in the vicinity of the reclamation area, breakwater construction area and dredging operation off TKO Area 132 due to site run off, generation of dredged sediments or other untreated pollutants is also anticipated, and affect the fisheries resource nearby due to changes in water quality (e.g. significant change in sediment, organic and inorganic water pollutants). However, given that the Junk Bay was considered as having low fisheries production and not located within important spawning or nursery grounds for commercial fisheries [3] and not located within important spawning or nursery grounds for commercial fisheries, and the existing barging basin in TKO Area 137 is currently occupied for various barging operations with frequent vessels movements, it is expected that the potential direct and indirect impacts arising from the potential developments of the Project is unlikely to cause significant fisheries impact.

3.10.2 The Tung Lung Chau Fish Culture Zone (FCZ), Po Toi O FCZ and the spawning and nursery grounds of commercial fisheries resources in eastern waters as well as the spawning grounds in the south-eastern waters (e.g. off Tung Lung Chau), being the sites of fisheries

[2] Civil Engineering and Development Department (CEDD) (2009a) *Detailed Coral Translocation Plan – Site formation for Kai Tak Cruise Terminal Development -Design and Construction*; CEDD (2009b) *Coral Translocation Plan and Monitoring Proposal – Wan Chai Development Phase II and Central - Wan Chai Bypass - Baseline Sampling, Field Measurement and Testing Works*; and CEDD (2013) *Tseung Kwan O – Lam Tin Tunnel and Associated Works – Investigation*.

[3] CEDD (2013) *Tseung Kwan O – Lam Tin Tunnel and Associated Works – Investigation*. *– EIA Report*. Prepared by AECOM Asia Limited for Civil Engineering and Development Department, Government of HKSAR

importance, are the identified fisheries sensitive receivers. The FCZs and spawning nursery grounds are located away from the Project Sites (i.e. at least 1.5 km and 2.5 km respectively).

3.10.3 Although significant fisheries impact is not anticipated, the potential marine water quality impacts due to the change in water quality, if any, would have adverse impact to the fisheries resource within the Project Sites and surrounding marine water, and the fisheries sensitive receivers identified in **Section 3.10.2** in the EIA study.

Operation Phase

3.10.4 If effluent from sewage treatment works would be discharged from new submarine outfalls, potential impacts to fisheries resources may arise due to changes in water quality resulting from the effluent discharge. The increased vessels movements in the surrounding of TKO Area 132 may affect fishing activities. Given that the Junk Bay is considered as having low to moderate fisheries site production value and not located within important spawning or nursery grounds for commercial fisheries, the operation of the Project is unlikely to cause significant fisheries impact. Nonetheless, change in water quality, if any, would have adverse impact to the fisheries resource near the Project sites and surrounding marine water, and the fisheries sensitive receivers identified in **Section 3.10.2** in the EIA study.

3.11 Cultural Heritage

3.11.1 Existence of items of archaeological importance is unlikely for both sites. The Victoria Harbour and the causeways that leads to it is a traditional route with heavy maritime traffic. Marine archaeological potential is uncertain for both TKO Area 137 and TKO Area 132. The actual size of the covered seabed would subject to design during the course of the EIA, and a Marine Archaeological Investigation (as part of the EIA) should be conducted to discern if the project would have any impact to marine archaeology.

3.11.2 Site of Chinese Customs Station, Fat Tau Chau (declared monument) located to the north of TKO Area 137. Subject to further study and design, natural terrain mitigation works may be required near Fat Tau Chau House Ruin (Site of Archaeological Interest). In addition, two other Sites of Archaeological Interest (SAI) are also located at Fat Tong Chau. They are Fat Tau Chau SAI and Fat Tau Chau Qing Dynasty Gravestone.

3.11.3 Located to the west and southwest of the land to be created off TKO Area 132 are Fortifications at Devil's Peak (grade 2 historic building), and Old Quarry Site Structures, Lei Yue Mun (grade 3 historic building). Subject to further study and design, natural terrain mitigation works may be required near Fortifications at Devil's Peak (Grade 2 historic building) in the area.

3.11.4 Apart from the natural terrain mitigation works, there is no direct impact to the cultural heritage resources, indirect impact due to ground-borne vibration is anticipated to those resources that is in close proximity to the project site. This EIA study should include impact assessment to the cultural heritage resources, in particular on the graded historic buildings, declared monument, and SAIs, and recommend measures to mitigate any said impact(s).

3.12 Landscape and Visual

3.12.1 The current developable area of TKO Area 137 is occupied with public filling C&D material and some machinery and conveyor systems. The overall landscape character, as per the Landscape Value Mapping of Hong Kong, is classified as 'Industrial Urban Landscape' and the landscape resource in TKO Area 137 is limited. The developable area at TKO Area 132 is classified as 'Bay Landscape' and partially falls into 'Coastal Upland and Hillside Landscape'. The water body is the major landscape resource for TKO Area 132. Since the landscape resources is limited, the impact of proposed works to landscape of TKO Area 137 is slight.

3.12.2 The potential developments of in TKO Area 137 would be visible from part of TKO InnoPark, trail walkers of the Clearwater Bay Country Park and part of Hong Kong Island, e.g. facing residents of the Island Resort and Fullview Garden at Siu San Wan.

3.12.3 The proposed works in TKO Area 132 would be visible by the residents of TKO south and Ocean Shores, LOHAS Park, Heng Fa Chuen of Chai Wan, On Luen Village, trail walkers of Devil's Peak, visitors at Junk Bay Chinese Permanent Cemetery and travellers along the TKO Cross Bay Link, etc.. As reclamation will take place in TKO Area 132, the impact to the 'Bay Landscape' is anticipated. Mitigation measures shall be adopted to mitigate any impacts.

Construction Phase

3.12.4 Potential sources of landscape and visual impacts arising from the Project in the construction phase include the loss of some scattered patches of plantation, loss of visual amenity through removal of the aforesaid landscape element, permanent loss of water resource through reclamation, construction equipment and activities, and obstruction of, or intrusion into views by the new development during phased implementation of the Project.

Operation Phase

3.12.5 In the operation phase, potential sources of landscape and visual impacts are permanent change of the 'Bay Landscape' and 'Industrial Urban Landscape' due to reclamation, visual intrusion and obstruction created by the new residential developments in TKO Area 137 and related support facilities. Potential sources of landscape and visual impacts are permanent change of the 'Bay Landscape' and in TKO Area 132 created for barging operations in connection with the public facilities. In general, there are permanent loss of landscape and visual amenity of the sea and natural landscape due to reclamation. The visual and landscape impacts as a result of the Project would be fully assessed in the EIA Study.

3.13 Electric and Magnetic Fields

Operation Phase

3.13.1 As mentioned in S.1.4.9, an important strategic EFs (which involves electricity substation of 400kV or higher) will be proposed at the land to be created off TKO Area 132. An electricity substation of 400kV or higher may be required at TKO Area 137. Impact due to the presence of the EFs and electricity substation would be reviewed and assessed in the EIA Study.

4 MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

4.1.1 TKO Area 137 is situated in the southern side of TKO and was formed by reclamation. TKO Area 137 is currently occupied by various temporary government land allocations to CEDD for use as a temporary fill bank, namely TKO Area 137 Fill Bank (TKOFB), since 1997 to receive public fill generated from the construction industry. Apart from the TKOFB, there are other existing temporary uses at TKO Area 137 such as barging points for off-loading explosives.

4.1.2 Existing land uses in vicinity of the TKO Area 137 site are all of industrial nature. TKO InnoPark, Fat Tong Chau and SENT Landfill and its Extension are located to the north of the site. To the east of the site is the Clearwater Bay Country Park.

4.1.3 The nearest existing residential development and schools in TKO are located at more than 1.5 km from the TKO Area 137 development. The nearest sensitive receivers on Siu Sai Wan in the Hong Kong Island are located at more than 1.7 km from the Project site.

4.1.4 Land to be created off TKO Area 132 is situated at the northwest inside Junk Bay and will be formed by reclamation and slope-cutting. To the west of the TKO Area 132 is the Junk Bay Chinese Permanent Cemetery. The nearest residential development from the land to be created off TKO Area 132 would be Ocean Shores located about 1000m to the north.

4.1.5 The potential environmental sensitive receivers in vicinity of the Project site are discussed below. Any other sensitive receivers to be identified during the EIA Study will also be considered.

Air Quality, Noise, Landfill Gas Hazard and Hazard to Human Life

(a) East facing residents of the Ma Pui Tsuen at Lei Yue Mun and On Luen Village;

(b) South facing residents of the Ocean Shores, Capri, Alto Residences;

(c) Users of Clearwater Bay Country Park;

(d) User /employees of GIC developments in the vicinity;

(e) Offices and employees in TKO InnoPark;

(f) Offices at the SENT Landfill and its Extension;

(g) Future residents / employees of potential developments in TKO Area 137, and off TKO Area 132;

(h) Future employees at the TKO Desalination Plant; and

(i) Future users of the SENT Landfill open space.

Landscape and Visual

(a) East facing residents of the Ma Pui Tsuen at Lei Yue Mun and On Luen Village;

(b) South facing residents of the Ocean Shores, Capri, Alto Residences, Corinthia By The Sea, Ocean Wings and Monterey;

(c) South and southwest facing residents of LOHAS Park;

(d) North facing residents of the Island Resort and Fullview Garden at Siu San Wan and Heng Fa Chuen;

(e) Users of Clearwater Bay Country Park;

(f) User /employees of GIC developments in the vicinity;

(g) Offices and employees in TKO InnoPark;

(h) Offices at the SENT Landfill and its Extension;

(i) Various developments in TKO Areas 85 & 86;

(j) Future residents / employees of potential developments in TKO Area 137, and off TKO Area 132;

(k) Future employees at the TKO Desalination Plant; and

(l) Future users of the SENT Landfill open space.

Water Quality, Marine and Terrestrial Ecology and Fisheries

(a) Seawater intake point(s) of the desalination plant;

(b) Seawater intake points of Tseung Kwan O Sea Water Pumping Station;

(c) Natural shores of Tai Miu Wan and western Junk Bay (marine ecology);

(d) Coral assemblages in waters of Junk Bay and Tai Miu Wan, and along the coastline of Fat Tong Chau, Cape Collinson and north of Tung Lung Chau (marine ecology);

(e) Coral Recipient Site in western Junk Bay (marine ecology);

(f) Clearwater Bay Country Park (terrestrial ecology);

(g) Fat Tong Chau (terrestrial ecology);

(h) Tung Lung Chau and Po Toi O FCZ (fisheries); and

(i) Spawning and nursery grounds of commercial fisheries resources in eastern and south-eastern waters of Hong Kong (fisheries).

Cultural Heritage

(a) Fortifications at Devil's Peak (grade 2 historic building)

(b) Old Quarry Site Structures, Lei Yue Mun (grade 3 historic building)

(c) Site of Chinese Customs Station, Fat Tau Chau (declared monument); and

(d) Three SAIs, i.e. Fat Tau Chau SAI, Fat Tau Chau House Ruin and Fat Tau Chau Qing Dynasty Gravestone.

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

5.1 General

5.1.1 The EIA Study will investigate those environmental impacts and propose the appropriate mitigation measures with the intention that all potential developments and infrastructure would be environmentally acceptable. The residual impacts would be assessed in the EIA study. Subject to the findings and recommendations of the EIA Study, the following mitigation measures will be incorporated in the design and construction phases of the Project.

5.2 Air Quality

Construction Phase

5.2.1 Dust generation during construction is expected to be reduced with the implementation of dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation. These measures should be incorporated into the specifications of the works contracts.

5.2.2 Moreover, the adoption of the following good site practice could reduce dust and odour:

(a) paving and subsequent regular sweeping of long term haul roads within the site

(b) regular watering of unpaved roads

(c) vehicle washing before leaving site

(d) daily covering of the stockpiling materials with inert material (e.g. selected construction & demolition materials, tarpaulin covers, foam spray etc.)

Operation Phase

5.2.3 The proposed mitigation measures to improve the air quality with the potential developments within TKO Area 137 are considered to be as follows:-

(a) Adequate buffer distance and tree planting is recommended to separate the air sensitive receivers from emission sources, such as roads, TKO InnoPark, landfill site and desalination plant;

(b) Identify opportunities for greening the road transport, including promoting use of electric vehicles;

(c) Proposed sewage treatment works for the potential developments should be designed in accordance with Drainage Services Department's standards, and equipped with proper deodorization system; and

(d) Prevention of septicity in sewerage network to reduce odour nuisance to public.

5.2.4 The proposed mitigation measures to improve the air quality with the potential developments within the land to be created off TKO Area 132 are considered to be as follows:-

(a) Locate the planned facilities, such as roads, PFTF, RTS, CWHF, CBP and MRCP to allow adequate separation distance from the existing air sensitive receivers;

(b) Decking of public facilities such as RTS, PFTF and CWHF as far as practicable;

(c) Identify opportunities for greening the road transport, including promoting use of electric vehicles, as far as practicable;

(d) Use only approved non-road mobile machinery (NRMM) under the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation within the proposed facilities, as far as practicable, including the PFTF, RTS, CWHF, CBP and MRCP to minimise potential air emission; and

(e) Proposed RTS should be equipped with proper deodorization system.

5.3 Noise

Construction Phase

5.3.1 Adverse noise impacts during construction phase are not anticipated due to relatively great distance (more than 1.5 km from the nearest residential development) between the TKO Area 137 and the noise sensitive receivers. Subject to the development schedule to be formulated in the Study, there may be noise impacts to the future residents and other noise sensitive receivers in the potential developments due to concurrent construction activities nearby if there is any phased development and population intake in TKO Area 137. However, the construction activities would be planned and controlled in accordance with the Noise Control Ordinance (Chapter 400). If construction activities require the use of powered mechanical equipment during the restricted hours, particularly at night, the contractors would be required to obtain a Construction Noise Permit and would need to achieve the applicable Acceptable Noise Level with the necessary mitigation measures.

5.3.2 In order to mitigate adverse noise impacts due to construction of land to be created off TKO Area 132, the following general mitigation measures should be considered.

- Quieter construction method;
- Quiet plant will be used to reduce noise generated;
- Movable and temporary barriers will be used to screen NSRs from particular items of plant or noisy operations;
- Noise screening structures or purpose-built noise barriers will be provided along the site boundary to provide additional protection to NSRs nearby; and
- Good site practices will be implemented as effective noise mitigation measures. These will include, 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, proper maintenance of construction plant and devising methods of working to minimise noise impacts on the surrounding environment.

Operation Phase

5.3.3 During operation, it is likely that major noise source would be from the vehicular traffic on planned roads as well as fixed noise impacts including those from the restored landfill, Tseung Kwan O InnoPark, sewage treatment works and the desalination plant, as well as various installations, such as RTS, PFTF, CBP, CWHF, EFs and MRCP. Appropriate mitigation measures and the possibility of implementing direct noise mitigation measures such as low-noise road surfacing, noise barriers/enclosures on planned road infrastructures, as well as use of quiet plants, noise barriers/enclosures at the fixed noise sources would be carefully assessed in the EIA Study. At-receiver mitigation measures, such as acoustic windows and special building design should also be considered. Potential ground-borne noise impact from the TKOLSE will be assessed in separate EIA study, and suitable mitigation measures would be recommended under the separate EIA study, if necessary. Given these mitigation measures would be properly implemented to ensure meeting the relevant criteria, no adverse ground-borne noise impact would be anticipated from the TKOLSE.

5.4 Water Quality

Construction Phase

5.4.1 To avoid potential water quality impact during construction phase, guidelines stipulated in ProPECC PN 1/94 Construction Site Drainage should be properly followed to minimise site runoff, control erosion, and retain and reduce any suspended solids prior to discharge. Silt removal facilities should be provided and soil excavation work should be minimised on rainy days as far as practicable. Apart from these, earthworks final surfaces should be well compacted and the subsequent permanent works or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Temporary sanitary facilities shall also be provided to the workers. The above measures would be incorporated into the specifications of the works contracts as appropriate.

5.4.2 The Study will review and further confirm the land in-take. Marine and filling works would be anticipated during reclamation using non-dredge method where practicable. The rate of filling can be properly controlled. Silt curtain shall be deployed to reduce any potential impact. If there is any demolition and reconstruction of the existing seawall, silt curtain will be adopted to confine any dispersion of suspended solid. Silt curtain will also be installed at the seawater intakes if they are found to be adversely affected. Detailed assessment of the marine water quality impact during construction phase will be conducted in the EIA.

Operation Phase

5.4.3 Subject to the engineering design, wastewater will be properly collected and treated before discharging to the sea. Sewage generated from the development at TKO Area 137 will be treated at the proposed Sewage Treatment Works at TKO Area 137 and discharge. Further liaison with relevant stakeholders will be conducted for agreement on the treatment/discharge arrangement. Detailed marine water quality impact assessment will be conducted to assess the water quality impact due to the effluent discharge from a new sewage treatment works.

5.5 Waste Management

Construction Phase

5.5.1 Waste generated during the construction phases of the Project would be reduced and properly disposed of through proper waste management practices on site including:

(a) compilation of waste management plan;

(b) waste segregation and storage by category on site;

(c) avoidance/minimization;

(d) reuse and recycling of construction material;

(e) monitoring and record the proper disposal of waste generated; and

(f) for handling of dredged/excavated sediment, ETWB TCW No. 34/2002 will be followed.

5.5.2 All waste materials would be stored, handled and transported in compliance with the Waste Disposal Ordinance (Cap 354) and subsidiary regulations such as the Waste Disposal Chemical Waste (General) Regulations.

Operation Phase

5.5.3 During the operation phase, general refuse should be stored in enclosed containers to prevent odour, windblown litter, vermin, water pollution and visual impact. Removal of recyclables should be encouraged, and collection bins for used aluminium cans, waste paper and glass bottles are recommended to be provided at strategic locations of the development site to encourage recycling by residents. The handling of public fill in the PFTF should be carried out under close monitoring of the operators to avoid causing environmental impacts.

5.6 Land Contamination

5.6.1 Subject to the findings of the land contamination issue during the EIA Study, appropriate mitigation measures will be recommended during the construction phase. While the current facility within the TKO Area 137 is being operated with an Environmental Permit, to review and assess whether there would be any land contamination, the potential land contamination issues would be addressed giving due consideration to current and historical land uses which may have the potential to cause or have caused land contamination during the course of EIA study.

5.7 Landfill Gas Hazard

5.7.1 The Project site is partly located within the Consultation Zone of SENT Landfill and its Extension. Standard design / mitigation measures could be adopted minimizing any associated risk during construction and operation phase of the Project.

5.8 Hazard to Human Life

5.8.1 In the hazard assessment, the necessary planning considerations and development control within the developable areas of the respective hazardous facilities would be identified. Mitigation measures to reduce the risks associated with the hazardous facilities and risks due to operation of the explosive off-loading pier and other hazardous facilities will also be proposed subject to the findings of the hazard assessment.

5.9 Ecology

5.9.1 The ground investigation works and potential mitigation measures for natural terrain hazard, if necessary, should be carefully planned to minimize the direct habitat and vegetation loss as far as practicable, especially those within the Clearwater Bay Country Park. The mitigation measures that are to be implemented to minimise the impacts on air, noise and water quality, as mentioned in the above paragraphs will also help to minimise any impacts on ecological resources. Measures to avoid adverse impact on any species of conservation importance found within the Project sites (e.g. flora species of conservation importance, coral assemblage), including careful planning design (e.g. avoidance of direct impact on the coral recipient site of previous EIA studies) and translocation should be implemented. If translocation is deemed necessary, detail translocation plan which includes, selection of proper recipient site, translocation process, monitoring program, etc. should be prepare after the EIA stage. Other measures such as eco-shoreline and environmental-friendly design and material use for the breakwater could also be considered to provide ecological functions to mitigate the loss of general marine habitats due to the reclamation works and the construction of breakwater off TKO Area 132.

5.10 Fisheries

5.10.1 Mitigation measures designed to control water quality impacts to within acceptable levels are also expected to control and minimise impacts to fisheries resources. No fisheries-specific mitigation measures would be expected to be required during the construction and operation of the developments and infrastructure in TKO Area 137 and TKO Area 132.

5.11 Cultural Heritage

5.11.1 One declared monument and three SAIs are near TKO Area 137, one grade 2 and one grade 3 historic building are near the land to be created off TKO Area 132.

5.11.2 If natural terrain mitigation works is required to be conducted at the foot of Devil's Peak, built heritage survey would be required. Surveying by drone device or by visit should be considered, as appropriate, for the built heritage survey works during dry season (for minimal vegetation coverage). If natural terrain mitigation works is required on Fat Tong Chau, archaeological survey would be required, depending on the design and nature of the works. Specific mitigation measures for the contractors of the natural terrain mitigation

works should also be proposed to ensure the concerned works would not disturb the heritage at Devil's Peak and minimise impact to the declared monument and SAIs at Fat Tong Chau.

5.11.3 Mitigation measures against the potential impact, such as vibration monitoring, would be recommended as appropriate. The cultural heritage impact during the construction and operation phase due to the proposed developments and infrastructure should be assessed in the EIA Study.

5.12 Landscape and Visual

Construction Phase

5.12.1 Mitigation measures to minimize the landscape and visual impacts during construction phase may include but not limited to:

(a) Standard site practice and control measures, such as conduct of construction activities in a neat and orderly manner, erection of decorative hoarding where appropriate, early formation of planting area and advance planting of vegetation for the landscape and visual sensitive receivers in operation phase, etc, would be considered in the EIA Study;

(b) 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;

(c) Minimization of light pollution techniques should be explored, including having more lights with focused beams rather than energy wasting floodlighting;

(d) Tree and vegetation protection would be provided as far as possible for retained trees and vegetation within the project site; and

(e) Optimisation of reclamation area, construction area and temporary work areas to avoid adverse impacts on adjacent landscape.

Operation Phase

5.12.2 Mitigation measures to minimize the landscape and visual impacts during operation phase are summarised in **Table 5.1** for easy reading. In general, the design principles including but not limited to the followings will be adopted to minimize the landscape and visual impacts on the development of both TKO Area 137 and TKO Area 132. Urban design principles such as the density of the development and focusing the development around certain functions will be adopted.

Table 5.1 – Mitigation measures

Urban design principle	Apply to TKO Area 137	Apply to TKO Area 132
Controlling building height /profiles, responsive building massing and controlling the walling effect.	Y	Y
Aesthetic design of buildings and structures to promote visual harmony.	Y	Y
Establishing visual and open space links to connect the proposed works in TKO Area 137 and TKO Area 132 to the surrounding site context.	Y	Y
Landscape design principle		
New tree plantings and amenities plantings to mitigate the landscape impact.	Y	Y

Maximizing greenery through provision of green roof, vertical greening and buffer planting in appropriate location.	Y	Y
Roadside planting would be provided along the path toward industrial facilities including public fill transfer facilities, waste handling facilities etc. to minimize the landscape and visual impacts of daily operation from industrial area.		Y
Buffer planting would be provided to minimize the visual obstruction incurred from the daily operation of industrial facilities.		Y

5.13 Electric and Magnetic Fields

Operation Phase

5.13.1 The guidelines issued by the International Commission on Non-ionizing Radiation Protection (ICNIRP) in assessing the impact from the exposure to electric and magnetic fields generated from the EFs and electricity substation should be followed in the EIA report.

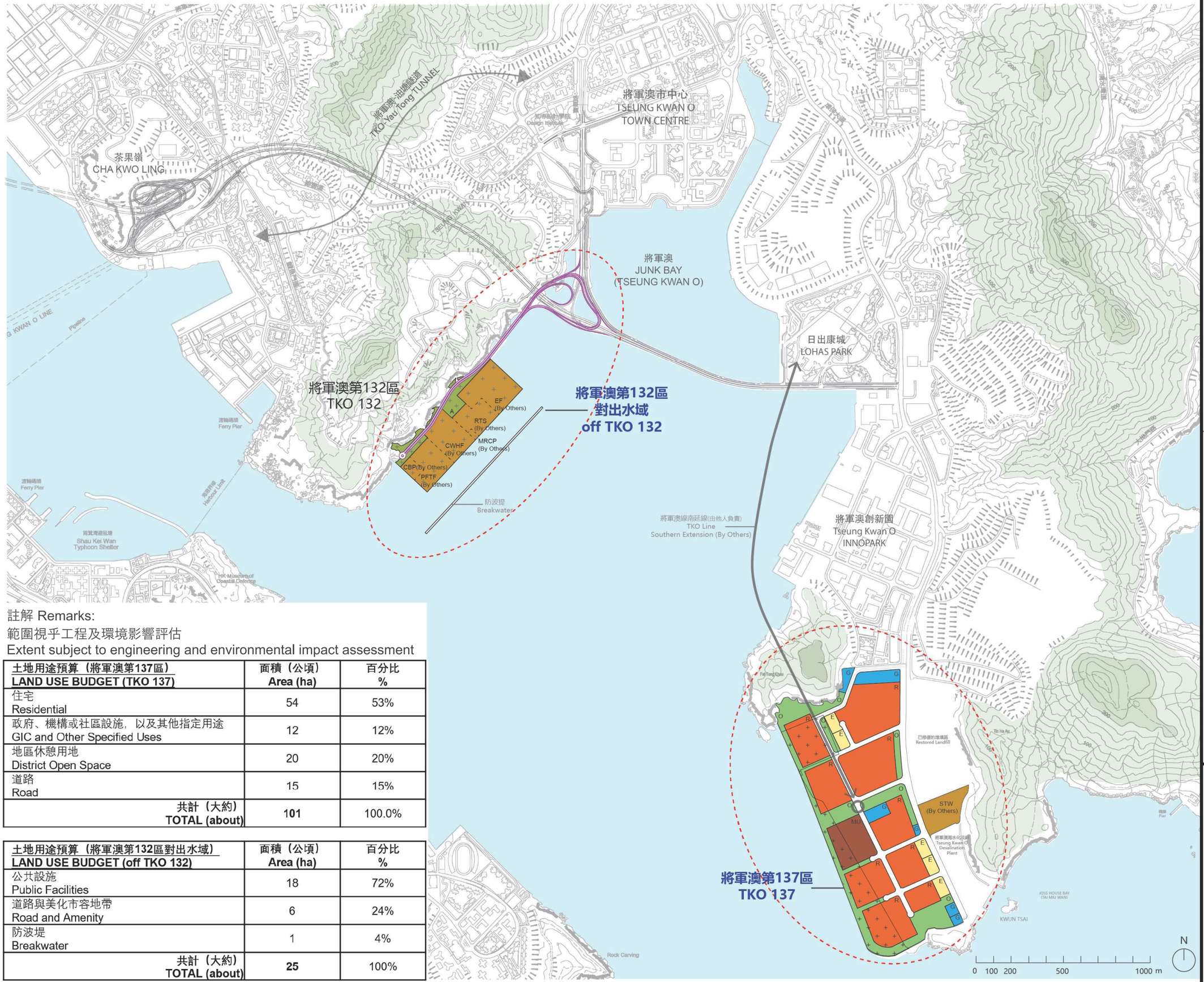
5.13.2 The Electricity Supply Lines (Protection) Regulation and the “Code of Practice on Working near Electricity Supply Lines” established under the Regulation should be observed when carrying out works in the vicinity of the electricity supply lines.

6 USE OF PREVIOUSLY APPROVED EIA REPORTS

6.1.1 No previously approved EIA report covers the full extent of the proposed Project. However, reference would be made to the following relevant EIA reports previously approved:

(a) EIA-229/2015, Desalination Plant at Tseung Kwan O;
(b) EIA-210/2013, Tseung Kwan O – Lam Tin Tunnel and Associated Works;
(c) EIA-209/2013, Cross Bay Link, Tseung Kwan O;
(d) EIA-156/2008, Development of a Biodiesel Plant at Tseung Kwan O Industrial Estate
(e) EIA-143/2007, South East New Territories (SENT) Landfill Extension;
(f) EIA-111/2005, Further Development of Tseung Kwan O Feasibility Study; and
(g) EIA-076/2002, Fill Bank at Tseung Kwan O Area 137.

Figure



土地用途 LAND USE

R	住宅 Residential
MU	混合用途 Mixed Use
G	政府設施 Government
E	教育 Education
STW	污水處理廠 Sewage Treatment Works
EF	電力設施 Electricity Facilities
RTS	廢物轉運站 Refuse Transfer Station
CWHF	建築廢物處理設施 Construction Waste Handling Facilities
MRCP	海上垃圾收集站 Marine Refuse Collection Point
CBP	混凝土配料廠 Concrete Batching Plant
PFTF	公眾填料轉運設施 Public Fill Transfer Facilitiy
O	休憩用地 Open Space
A	市容美化用地 Amenity
	擬議填海 Proposed Reclamation
	道路 Road

圖例 LEGEND

- 研究區界線 Study Area Boundary
- 將軍澳-油塘隧道（為《跨越2030年的鐵路及主要幹道策略性研究》涵蓋） Tseung Kwan O - Yau Tong Tunnel (Subject to RMR2030+ Study)
- 將軍澳第132區對出水域擬議道路 Proposed road to off TKO 132
- 將軍澳線南延線（海底/地底隧道）（為《跨越2030年的鐵路及主要幹道策略性研究》涵蓋） Tseung Kwan O Line Southern Extension (Underwater/Underground Tunnel) (Subeject to RMR2030+ Study)
- 擬議鐵路站（為《跨越2030年的鐵路及主要幹道策略性研究》涵蓋） Proposed Railway Station (Subject to RMR2030+ Study)

* 擬議鐵路站站位僅供參考。
The location for proposed railway station is for reference only

圖則一 Plan 1

初步發展大綱圖 - 概況
Preliminary Outline Development Plan - Overview

註解 Remarks:
範圍視乎工程及環境影響評估
Extent subject to engineering and environmental impact assessment

土地用途預算（將軍澳第137區） LAND USE BUDGET (TKO 137)	面積（公頃） Area (ha)	百分比 %
住宅 Residential	54	53%
政府、機構或社區設施，以及其他指定用途 GIC and Other Specified Uses	12	12%
地區休憩用地 District Open Space	20	20%
道路 Road	15	15%
共計（大約） TOTAL (about)	101	100.0%

土地用途預算（將軍澳第132區對出水域） LAND USE BUDGET (off TKO 132)	面積（公頃） Area (ha)	百分比 %
公共設施 Public Facilities	18	72%
道路與美化市容地帶 Road and Amenity	6	24%
防波堤 Breakwater	1	4%
共計（大約） TOTAL (about)	25	100%