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2. PROJECT DESCRIPTION

2.1 Project Site Location and Site History

TKO 137

2.1.1.1 TKO 137, located to the south of Tseung Kwan O InnoPark (TKOIP), is a sizeable piece of existing formed land which is currently occupied by the operation of public fill bank. It houses the site office, barging facilities, sorting facilities, and storage areas for different kinds of public fill materials.

2.1.1.2 An explosive off-loading pier operated by the Geotechnical Engineering Office (GEO)/Mines Division of CEDD is located on the southeast corner of TKO 137. According to the latest available information from CEDD, the pier may be retained supplying explosives to support the developments within the area under other projects, till end-2029.

2.1.1.3 A marine barging point, originally allocated to Environmental Protection Department (EPD) for the use of South East New Territories (SENT) Landfill for unloading of plant and equipment and building materials, is currently mainly used by CEDD on shared basis.

2.1.1.4 The SENT Landfill Extension (SENTX) (Environmental Permit (EP) No. FEP-01/308/2008/C) site occupies an area of about 13 ha on the north-eastern part of TKO 137 to form an extension of the existing SENT Landfill located immediately to the north-eastern part of TKO 137. The extension has been designated for reception of construction waste and the waste intake started in November 2021 to minimise potential odour problem and provide additional landfill capacity to maintain a continuous disposal service for construction waste in the urban and south-eastern part of the territory. The SENTX is expected to be closed with its restoration works completed prior to the population intake at TKO 137. The existing barging facility used by the SENT/ SENTX Landfill contractor shall be maintained up to the completion of restoration works of the SENT/SENTX. Upon completion of final filling and landfill restoration, the period of aftercare will begin and last for 30 years.

2.1.1.5 The TKOIP, located immediately to the north of TKO 137, and the LOHAS Park development on top of the MTR station and depot for MTR TKO Line, with planning capacity for 25,700 households, are currently connected by a single trunk road to TKO New Town namely Wan Po Road. Besides, the Cross-Bay Link connects the TKOIP and LOHAS Park Development with the Tseung Kwan O - Lam Tin Tunnel (TKO-LTT), which provides a second and direct external road connection for the area including TKO 137.

2.1.1.6 TKO 137 was entirely formed by reclamation land connected Fat Tong Chau, Clear Water Bay Peninsula, and Tit Cham Chau. Between 1994 and 1997, the reclamation works was commenced on the south of Fat Tong Chau, and along the old coastal line at TKO 137. The reclamation works was completed by 2005, and it was operated as a Tseung Kwan O Fill Bank (TKOFB) (EP No. EP-134/2002/Q) after the formation.

Land to be created off Tseung Kwan O Area 132 (TKO 132)

2.1.1.7 The Project Boundary of TKO 132 covers mainly the open seas of Chiu Keng Wan, Junk Bay with inclusion of limited areas of Green Belts along the seashore.

2.1.1.8 The original landscape within the Project Boundary of TKO 132 was generally maintained until early 1970s. Developments at Devil's Peak and Chiu Keng Wan Shan had been slowly taken places, where roads were built to connect the hills and Yau Tong in the 1970s. The most significant alteration to the physical landscape of Devil's Peak is the construction of the Junk Bay Chinese Permanent Cemetery (JBCPC) between 1988 and 2014. Apart from the construction of JBCPC, the landscape within the Project Boundary were mostly unchanged in the following decades. In 2019, in light of the building of Tseung Kwan O- Lam Tin Tunnel, construction and reclamation works were conducted near the north-eastern slope of Chiu Keng Wan Shan and the western coast of Junk Bay.

2.2 Need for the Project

TKO 137

2.2.1.1 As set out in the 2022 Policy Address, a number of initiatives to increase land and housing supply are promulgated. The proposed development at TKO 137 is one of the major sources of land supply. TKO 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 Tseung Kwan O – Yau Tong Tunnel (TKO – YTT) and the TKO Line Southern Extension (TKLSE) recommended under the Strategic Studies on Railways and Major Roads beyond 2030 (RMR 2030+).

2.2.1.2 The majority of the land at TKO 137 is currently being used as a temporary fill bank for storing public fill for reuse in reclamation and/or other earth filling projects. In anticipation of future reclamation works that might take up the public fill from TKO 137 progressively, there is an opportunity to re-plan TKO 137 for gainful uses.

TKO 132

2.2.1.3 To make way for the development in TKO 137 which currently houses two facilities serving the public at TKO 137, namely, a temporary fill bank and the temporary concrete batching plant (CBP) shall be re-provisioned. In this connection, a review has been conducted and a piece of to-be-created land off TKO 132 was identified as a suitable location for accommodating and re-provisioning the above facilities in TKO 137(the temporary fill bank will be re-provisioned as public fill transfer facility (PFTF). The opportunity was also taken to use the to-be-created land off TKO 132 to house a construction waste handling facility (CWHF[1]) upon the closure of SENTX in TKO, a marine refuse collection point (MRCP)[2] to be relocated from Cha Kwo Ling (CKL), electricity facilities (EFs [3]) for housing power infrastructures to receive zero-carbon energy imported from the Mainland, and a refuse transfer station (RTS) which is mainly for serving territories east (including TKO). All of the above six public facilities (hereafter referred to as Public Facilities) are region-specific and all require marine frontage. Hence TKO 132, being away from TKO population centre and with its sea access, is considered an optimal location for the Public Facilities after extensive site search. A table showing the provision or reprovision needs of the above quoted Facilities is at **Table 2.1** below.

[1] The CWHF to be provided in TKO 132 may also incorporate the function of the temporary construction waste sorting facility (temp. CWSF) currently located in TKO 137. Unlike the existing open air operation at the temp. CWSF, such future operation, if any, will be carried out in enclosed environment.
[2] The MRCP was proposed during the PODP stage and has been excluded from the RODP.
[3] The EFs are a strategic infrastructure that will account for about 30% of Hong Kong total fuel mix for electricity generation 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.

Table 2.1 Needs for Public Facilities in PODP Stage

Public Facility	Need of the facilities/ site selection consideration	Marine Frontage Requirement
PFTF	Public fill generated in the territory east is currently received and stockpiled at the TKO 137 temporary fill bank pending transfer to appropriate projects for reuse. With the plan to develop TKO 137, and while the upcoming reclamation projects in Hong Kong would reduce significantly the need for stockpiling public fill, there is still a need to retain a smaller-scale facility to receive and transfer public fill generated in the territory east (including TKO), at a location with marine frontage.	Marine frontage is required for transferring public fill received to appropriate projects through marine transport.
CBP	The temporary CBP at TKO 137 is planned to be decommissioned by 2029. A permanent site for re-provisioning the CBP in the vicinity is required to serve construction sites in East Kowloon and New Territories East (including TKO), as freshly mixed concrete must be delivered within a reasonably short time to construction sites to maintain the quality of concrete.	To facilitate the operation of the CBP, a waterfront site to allow transportation of raw materials by sea for concrete production could avoid increasing loading on road traffic.
EFs	EFs, comprising power receiving and conversion facilities, are important strategic infrastructure 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. TKO 132 is considered as the optimal location as it is situated near the potential connection points at TKO and Island East of the two power companies' existing power grids, and their power systems can be interconnected through submarine cables with a shorter distance.	Marine frontage is necessary for the landing of submarine cables.
CWHF	There is a need to set up a CWHF to receive, handle and bulk transfer construction waste primarily generated from the territory east (including TKO) to other waste handling facilities (e.g. landfill) upon closure of SENTX prior to population intake at TKO 137.	Bulk transfer of mixed construction waste to other waste handling facilities would require marine frontage.

Public Facility	Need of the facilities/ site selection consideration	Marine Frontage Requirement
RTS	There is currently no dedicated RTS in the territory east area (including TKO). Temporary arrangement is put in place to transfer municipal solid waste (MSW) generated in this area to RTSs in Island East, West Kowloon and Shatin for handling. As these three RTSs have reached their capacity limits, there is a need to set up a RTS for serving existing and future developments in the territory east area (including TKO).	Marine frontage is necessary as MSW would be compacted and containerised in purposely built containers for onward shipment to waste management facilities via marine traffic.
MRCP	As the Cha Kwo Ling site is to be developed into part of a waterfront promenade, the MRCP thereat is proposed to be reprovisioned at a location in the territory east to serve the eastern waters. Proximity to the Refuse Transfer Station also allows operational synergy.	Marine frontage is necessary for unloading collected refuse from the vessels.

2.2.1.4 Location-wise, the land to be created off TKO 132 is at a relatively obscure area and with a buffer distance of around 1 kilometre (km) from the nearest residential development in TKO. With direct access to the Tseung Lam Highway, when commuting to and from Kowloon, the traffic induced by the Public Facilities would not route through existing road network in the TKO New Town, thus minimising any possible nuisance to local residents.

2.2.2 Consideration of No Development Scenario

2.2.2.1 Under the no development scenario for the Project, the area would remain at its present state. As a result, no strategic land parcels in the areas of the Project would be developed to provide housing or other development uses to support the increasing population as well as economic growth. The current TKO 137 would be used for the deep-waterfront industry that require marine access, as well as a temporary fill bank for storing public fill for reuse in reclamation.

2.2.2.2 Development of TKO 137 would not only present a major source of housing supply in the short to medium term to meet the public's demand on housing needs, but also capitalise the opportunities of the Site to meet the pressing development needs and aspirations with specific attention to residential, commercial and other development. Without the Project, the formed land situated in the metro waterfront area across the harbour with planned infrastructure and existing road would not be utilised for generating additional social, economic and environmental benefits to the local community and the territory.

2.2.2.3 Under the no development scenario for TKO 132, the temporary CBP and existing TKOFB would remain at TKO 137. The area made available for housing development would be reduced which affect meeting the public's demand on housing needs. The additional environmental benefit of removing the delivery trucks from passing through the TKO town centre cannot be achieved.

2.2.2.4 For the other four Public Facilities (e.g. EFs, CWHF, PFTF and RTS), searches for other suitable locations are required, which would defer the respective commissioning time. Furthermore, by co-locating these facilities, it is anticipated to create synergy in operations which will minimise the internal transportation between these facilities and create additional environmental benefits. These benefits cannot be materialised under the no development scenario.

2.3 Appreciation of Existing Environment

TKO 137

2.3.1.1 TKO 137 falls within the approved TKO Outline Zoning Plan (OZP) No. S/TKO/30 and is currently zoned "Other Specified Uses" annotated Deep Waterfront Industry. It is located at the southern end of Wan Po Road and majority of development area is now a temporary fill bank. To the north of the TKO 137 is TKOIP, while the hill slope areas to the northeast and the east of TKO 137 are the SENT Landfill and its extension area and Clear Water Bay Country Park respectively. The land to the southeast of the TKO 137 is zoned "Other Specified Uses" annotated "Desalination Plant", in which there is a desalination plant (EP No. FEP-01/503/2015/B). There is an explosive off-loading pier operated by Mines Division, Geotechnical Engineering Office of CEDD located on the southeast corner of TKO 137 and it will be relocated outside TKO 137 before the population intake of TKO 137. To the northwest of TKO 137 is the knoll of Fat Tong Chau is zoned as "Green Belt". To the southeast of TKO 137 is the Tit Cham Chau which is zoned as Clear Water Bay Country Park. The current outline zoning plan of TKO 137 is shown in **Figure 2.1**.

TKO 132

2.3.1.2 The Project Boundary of TKO 132 covers mainly the open sea areas of Chiu Keng Wan, and Junk Bay with inclusion of limited areas of Green Belts along the seashore. To the west of the TKO 132 and further are vegetated hill slope areas and JBCPC. The nearest residential development is Ocean Shores which is located at around 1 km at the northeast of the TKO 132.

2.3.1.3 The proposed development area of TKO 132 falls within the planning scheme area of the approved TKO OZP No. S/TKO/30. Yau Tong region across the terrains of Devil's Peak falls within the planning scheme area of the approved Cha Kwo Ling, Yau Tong, Lei Yue Mun OZP No. S/K15/27. The current outline zoning plan of TKO 132 is shown in **Figure 2.2**.

2.4 Development Opportunities for Project Development

TKO 137

- **Housing and Job Opportunities**

2.4.1.1 Being a rare, sizable waterfront formed land available in the metro area across the Harbour with existing and planned infrastructure and road, TKO 137 can be developed as a major source of housing supply to capitalise the assets of TKO 137 in meeting public aspirations and housing needs.

2.4.1.2 Under the policy direction of "Re-industrialisation" and the physical proximity to the TKOIP of where the Data Technology Hub (DT Hub) and Advanced Manufacturing Centre (AMC) based, TKO 137 is strategically located to synergise with the economic activities in proximity. TKO 137 may house the knowledge-based population and offer local job opportunities to reduce the need for cross-district trips.

- **Good Accessibility**

2.4.1.3 The future TKLSE to be undertaken by other project proponent will facilitate Transit-Oriented Development (TOD). It hence enables high density mixed commercial and residential sites around the proposed railway infrastructure. Major population, economic activities and community facilities would be concentrated within walking distance (i.e. 500m) of mass transit and public transport nodes. A convenient and fast mass transportation system would facilitate the residents of TKO 137 and the nearby employment population in using the transport network.

2.4.1.4 Furthermore, the TKO-YTT proposed under separate study as recommended under RMR 2030+ connecting TKO Town Centre and Yau Tong area will strengthen the connection between TKO, Kowloon East and Hong Kong Island East. It also provides alternative route to Yau Tong and the urban area to benefit nearby residents as well as to meet the traffic demand arising from the development at TKO 137.

TKO 132

- **Obscure Locations**

2.4.1.5 TKO 132 is considered suitable for accommodating the Public Facilities as it is at a relatively obscure location, away from existing and planned residential development. This is to minimise any possible environmental impact on the local residents. Land use conflict will be much reduced.

- **Near Tseung Lam Highway**

2.4.1.6 TKO 132 being close to Tseung Lam Highway enables the induced traffic to use Tseung Lam Highway to go to Kowloon East, thereby avoiding routing through the existing district road network in TKO. This would reduce the air and noise impact to the residents of TKO.

2.5 Development Constraints for Project Development

TKO 137

2.5.1 Infrastructure Constraints

- **Limited Development Area in TKO 137**

2.5.1.1 The total development area of TKO 137 is approximately 103 ha including about 83 ha of existing land and area available in Fat Tong Chau after site formation as well as 20 ha of proposed reclamation area. With a planned population of about 135,000, it is anticipated that TKO 137 will be a compact high-density community. To match with the policy direction of enhancing liveability, latest benchmark on open space provision and home space enhancement as advocated in the Hong Kong 2030+ Towards a Planning Vision and Strategy Transcending 2030" ("Hong Kong 2030+") would be adopted to further enhance the living environment of TKO 137.

- **Tathong Channel Traffic Separation Scheme (Tathong Channel TSS)**

2.5.1.2 Eastern Sea water channel designated with TSS including inshore traffic zones on its northern and southern edge is located in the vicinity of TKO 137. A clearance of about 250 m from the boundary of the Tathong Channel TSS is required for in-shore marine traffic. This limits the use of wave-like configuration of ecological enhanced seawall if developable reclaimed is to be maximised.

- **Avoidance and Minimisation of Industrial and Residential Interface Problems**

2.5.1.3 TKOIP is located directly to the north of TKO 137 development. Potential air pollution and noise sources from TKOIP are expected to impact the northern side of TKO 137. Considerations had been made in land use planning to minimise the adverse impact to future development (e.g. separate proposed residential sites with TKOIP by open space and Government Institution and Community (G/IC) sites.)

- **Consideration of Permitted Burial Ground during planning**

2.5.1.4 A permitted burial ground (PBG Site No. SK/1) is located at the west of Fat Tong Chau. The future development should avoid encroachment into the permitted burial ground.

2.5.2 Environmental Constraints

- **Existing Ecological, Natural and Landscape Features**

2.5.2.1 TKO 137 is surrounded by areas of natural value. Various coral communities were recorded in the spot-check dive survey and REA surveys along the shoreline of eastern Junk Bay. A coral recipient site for translocated corals was identified in the southwest coast of Fat Tong Chau. TKO 137 also interfaces with natural hills to the East, along Clear Water Bay Country Park where there are species of conservation importance. Due considerations should be given to avoid/ minimise adverse impacts of the future developments on the existing ecological, natural and landscape features.

- **Declared Monument/ Site of Archaeological Interest**

2.5.2.2 A declared monument, Site of Chinese Customs Station, Fat Tau Chau (also known as Old Chinese Customs Station on Fat Tau Chau) and three Sites of Archaeological Interest (SAIs) are located outside the Project Boundary. These SAIs include Fat Tau Chau (SAI184), Fat Tau Chau House Ruin (SAI185), and Fat Tau Chau Qing Dynasty Gravestone (SAI186). Avoidance of encroachment on the declared monument or site of archaeological interest should be considered.

TKO 132

2.5.3 Infrastructure Constraints

- **Existing Government Land Licences**

2.5.3.1 There are existing government land licences located uphill and along the shoreline where land formation by means of reclamation and slope cutting would be carried out to house the Public Facilities (**Figure 2.3**). This would limit the design and extent of site formation at TKO 132 in order not to affect the existing government land licences.

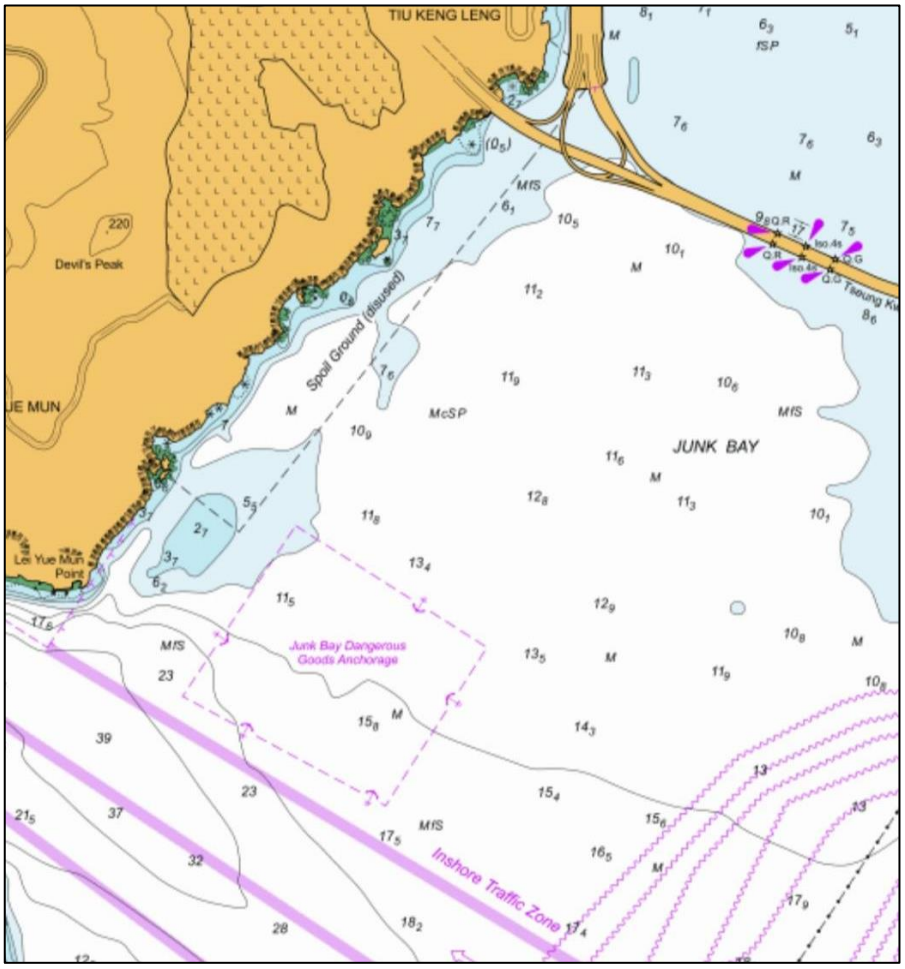
- **Junk Bay Chinese Permanent Cemetery**

2.5.3.2 JBCPC lies on the slopes of Chiu Keng Wan Shan, eastwards of Devil's Peak. Future development of TKO 132 should avoid encroachment into the JBCPC.

- **Junk Bay Dangerous Goods Anchorage (JBDGA)**

2.5.3.3 The JBDGA is located southeast to land to be created off TKO 132 as shown in **Diagram 2.1** below. Reclamation within the JBDGA boundary should be avoided as far as practicable.

Diagram 2.1 – Location of JBDGA[4]



- **<u>Requirements for Public Facilities</u>**

2.5.3.4 The Public Facilities each has its own requirements on site area and length of marine frontages. The planning of TKO 132 needs to take into account the planning requirements as advised by relevant bureaux departments of the Public Facilities which are set out in **Table 2.2** below. Straight seawall is required as marine frontage for berthing operation of the Public Facilities. Wave-like configuration eco-engineering seawalls will not be considered at TKO 132 to suit the operation of the vessels.

[4] Location of JBDGA is extracted from Marine Chart by Marine Department's "eSeaGo"

Table 2.2 Planning Requirements for Public Facilities in PODP stage

Public Facilities	Required Footprint	Maximum Building Height	Minimum Marine Frontage Required
EFs	5.9 ha	60 m	200m for sloping seawall for cable landing
RTS	3.0 ha	40 m (50 m for on-shore crane)	170 m
CWHF	4.5 ha	20 m	18 0 m
PFTF	4.0 ha	25 m	230 m
CBP	0.6 ha	28 m	80 m
MRCP	0.18 ha	14 m	30 m

2.5.4 Environmental Constraints

- **Existing Ecological, Natural and Landscape Features**

2.5.4.1 TKO 132 sites are surrounded by areas of natural value. Coral communities were recorded along the shoreline of western Junk Bay. A coral recipient site for translocated corals is identified in the southwestern coast of Junk Bay. Due considerations should be given to avoid/ minimise adverse impacts of the future developments on the existing ecological, natural and landscape features.

- **Graded Historic Buildings**

2.5.4.2 One grade 2 historic building (Fortifications at Devils' Peak (HB463)) and one grade 3 historic building (Old Quarry Site Structures, Lei Yue Mun) are identified in the vicinity of the TKO 132. Avoidance of encroachment on the graded historic buildings should be considered.

2.6 Description of the Project

2.6.1 Planning Vision and Positioning

TKO 137

2.6.1.1 Capitalising on its strategic location in proximity to the Tseung Kwan O District, the Tathong Channel and the Clear Water Bay Country Park, TKO 137 is positioned as a new community primarily for housing purpose.

2.6.1.2 TKO 137 will be one of the major sources of housing supply in the short to medium term to meet the public's keen demand for housing needs, therefore, TKO 137 should be developed to capitalise the assets and release its development potential to meet the pressing development needs and aspirations with specific attention to residential, commercial and other development.

2.6.1.3 In line with the sustainable development principles, innovative and creative planning design concepts of healthy and sustainable features should be demonstrated in future development to suit for needs of tomorrow. The development potential should be maximised within the infrastructural capacity limits without compromising urban design principles, while minimising impacts on existing communities, cultural heritage as well as the natural environment.

TKO 132

2.6.1.4 The main objective of TKO 132 is to house the Public Facilities needed by the community. Land-in-take and layout design should be optimised to minimise the reclamation extent with

a view to minimising impact to the natural environment. Vertical greening should be considered for buildings to harmonise with the surrounding environment whenever possible.

2.6.2 Proposed land use, design, scale and size of the Project

TKO 137

2.6.2.1 Based on the latest development scheme, the developable area at TKO 137 is approximately 103 ha and will accommodate a planned population of about 135,000 with provision of about 22,100 jobs upon full development. The project will mainly include land for residential, and "G/IC" uses.

2.6.2.2 To put land resources into optimal use, higher development parameters[5] have been adopted, including a domestic plot ratio (PR) of 6.5 to 7.5 for public housing sites and a domestic PR of 4.0 to 6.0 for private housing sites. Non-domestic PR of 0.5 is adopted within the residential sites to create vibrancy and maintain vitality at street level.

2.6.2.3 An overview of the key planning elements and land uses of the RODP is provided in **Table 2.3** and the RODP adopted for this EIA study is shown in **Figure 2.4**. Key amendments from PODP to RODP will be elaborated in **Section 2.10**. The preliminary construction schedule under various phases is summarised **Appendix 2.2**.

Table 2.3 Land Use Budget of the RODP (TKO 137)

Land Uses	Approx. Area (ha) (% of total)
Residential	51.9 (50.8%)
- Public	25.9
- Private	26.0
Government, Institution and Community Facilities	7.3 (7.2%)
- Primary Schools	2.0
- Secondary Schools	1.6
- Sports Centre and Government Reserve	0.8
- Divisional Police Station	0.4
- Sub-divisional Fire Station cum Ambulance Depot	0.5
- Government Complex (includes Swimming Pool Complex, Sports Centre, Public Market, Community Hall, Health Centre, Recycling Store, Refuse Collection Point)	2.0
Open Space	18.8 (18.4%)
Other Specified Uses –	6.9 (6.8%)
- Effluent Polishing Plant	4.5
- Green Fuel Station	0.4
- Electricity Substation	1.0
- Fresh Water Service Reservoir/ Salt Water Service Reservoir	1.0
Roads	17.2 (16.9%)
TOTAL (about)	102.2 (round to 103) (100%)

[5] The proposed development parameter for public and private residential is an assumption adopted for carrying out technical assessments which may be subject to change at implementation stage.

Remarks: The above Land Use Budget is based on the RODP version dated 2024.07.10. Due to rounding, the figures presented may not add up precisely to the totals provided and percentages may not precisely reflect the absolute figures.

Public Housing, Private Housing and Mixed Uses ("RSc", "R1", "R2" & "OU(MU)")

2.6.2.4 The planning intention of public housing ("RSc") sites is primarily for high density subsidised housing developments and may be with compatible non-domestic uses, including retail, commercial, social and community uses. "RSc" sites are reserved for public rental housing (PRH), subsidised sale flat (SSF), other forms of subsidised housing, or a mix of them to cater for the future demand for subsidised housing.

2.6.2.5 The planning intention of private housing ("R1" and "R2") sites is primarily for high-density private residential developments and may be with compatible non-domestic uses to provide local needs and services.

***Government, Institution or Community Facilities* ("G/IC")**

2.6.2.6 "G/IC" sites are intended primarily for the provision of G/IC facilities serving the needs of the local residents and/or a wider district, region or the territory. These facilities will serve the work of Government, instead of residents. These sites are also intended to provide land for uses directly related to or in support of the work of the Government, organisations providing social services to meet community needs, and other institutional establishments. The G/IC provision has been planned in response to relevant departments' request and in accordance with the Hong Kong Planning Standards and Guidelines. Facilities such as schools, police station, fire station, Government Complex etc. have been proposed. The overall provision would be adequate to serve the planned population of the Project.

Infrastructural Facilities

2.6.2.7 One Effluent Polishing Plant (EPP) under "OU" is provided to cater for the sewage flows arising from the development at TKO 137.

2.6.2.8 Fresh and salt water service reservoirs are zoned under "OU" for fresh and salt water supply to the development at TKO 137.

2.6.2.9 Two "OU" sites have been reserved for electricity substation to provide dual power supply to the development at TKO 137.

2.6.2.10 Two Public Transport Interchanges (PTIs) are planned within TKO 137, while one green fuel station is planned for the provision of green fuel stations for vehicles.

Open Space

2.6.2.11 Open space ("O") is primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of both the local residents, workers, as well as the general public. "O" connects major activity nodes to promote active lifestyle and serves as a green buffer between the high-density developments.

TKO 132

2.6.2.12 An overview of the key planning elements and land uses of the RODP is provided in **Table 2.4** and the RODP adopted for this EIA study is shown in **Figure 2.5**. Key amendments from

PODP to RODP will be elaborated in **Section 2.10**. The preliminary construction schedule under various phases is summarised in **Appendix 2.1**.

2.6.2.13 Based on the latest development scheme, the developable area off TKO 132 is approximately 20 ha and will accommodate five Public Facilities namely EFs, CWHF, PFTF, RTS and CBP, and one Sewage Pumping Station (SPS) to support these Public Facilities.

Table 2.4 Land Use Budget of the RODP (TKO 132)

Land Use	Approx. Area (ha) (% of total)
(A) EFs	5.6 (28.3%)
(B) RTS	3.0 (15.2%)
(C) CWHF	4.5 (22.7%)
(D) PFTF	4.0 (20.2%)
(E) CBP	0.6 (3.0%)
(F) Others*	2.0 (10.1%)
Total (about)	19.8 (round to 20) (100%)

Remarks: * include supporting infrastructures (i.e. sewage pumping station (approximate 0.07 ha), roads and amenity area), but exclude marine viaduct

Infrastructural Facilities

2.6.2.14 One SPS is zoned under "OU" for collecting sewage flows from the development at TKO 132 and pumping to the existing sewerage system in TKO area.

Amenity

2.6.2.15 Amenity strips will be provided at roadside as far as possible to enhance the amenity and to serve as visual buffers between green belt and new developments. They offer good opportunities for landscaping and tree planting.

2.6.3 Key Infrastructures of the Project

TKO 137

- **Roadworks**

2.6.3.1 The roads within TKO 137 are designed as local distributor road. Road L8 is the extended section of Wan Po Road with a continuous dual 2-lane connecting the northern and southern ends of TKO 137. Another dual-2-lane carriageway, namely Road L1, will be aligned to the west of TKO 137 in a north-south direction, running through the centre area of TKO 137. Other local distributor roads, namely Road L2, Road L3, Road L4, Road L5, Road L6, and Road L7, will branch off between Road L1 and Road L8 in a form of single-2- lane carriageway to provide access to the proposed housing development and G/IC development. A southbound access road, namely Road L3, will connect Road L2 and Road L4, providing connectivity to the two school sites near Site PU2. A section of existing Wan Po Road near the entrance of TKO 137 will be modified to connect with Road L8.

2.6.3.2 Two permanent PTIs with terminus for buses, minibuses and taxis are proposed within TKO 137 to potentially create a direct link between the PTI and the railway station, enabling synergy between the two. The proposed PTIs will be adequately sized to accommodate future passenger demand and facilitate convenient interchanges between different modes of transportation.

- **Waterworks**

2.6.3.3 New fresh water service reservoir (FWSR) and salt water service reservoir (SWSR) are proposed at Fat Tong Chau to allow sufficient storage capacities for fresh water and flushing water supply, fed by Tseung Kwan O Desalination Plant (TKODP) and Tseung Kwan O Salt Water Pumping Station (TKO SWPS) respectively.

- **Sewerage**

2.6.3.4 As the existing Tseung Kwan O Preliminary Treatment Works (TKOPTW) is not able to cater the full population intakes of the development sites at TKO 137, therefore, an EPP is proposed at the east of the TKO 137. It is located adjacent to the Road L8. The details of EPP is discussed in relevant sections under this EIA report. A new sewerage network with associated gravity sewer for influent and outfall will be laid underneath new access roads / footways within TKO 137. Interim arrangement is proposed in early phases for population intakes of TKO 137 to convey the sewage flow to TKOPTW via a proposed advance sewage pumping station and the associated rising main. Details of this arrangement will be discussed in relevant sections of the EIA report.

- **Drainage**

2.6.3.5 Surface runoff from each parcel of the sub-catchments at TKO 137 and the adjacent hillside areas at the northeast is collected by local branch drains and box culverts for gravity discharge to the outfalls along the coastline of TKO 137. An existing open channel is located at the toe of the hillside area to the east of TKO 137, which has intercepted the runoff from entering into the proposed drainage network.

- **Utility Services**

2.6.3.6 Utility services are the fundamental support to a new development area. Similar to other urban areas, the utility services to be provided at TKO 137 to support the project development and future operation, including but not limited to below:

- Power supply network;
- Gas supply network;
- Telephone and telecommunication services;
- Cable TV service; and
- Street lighting and traffic signals system

- **Landscaping Works at Open Spaces and Slopes**

2.6.3.7 Landscaping works at open space and slopes will be conducted after site formation works and slope works.

- **Natural Terrain Mitigation Works**

2.6.3.8 Natural Terrain Mitigation Works (i.e. flexible barriers) will be provided along the slope toe of Catchment FTC-6, CWB-C1 and CWB-C2 at TKO 137 as shown in **Figure 2.11**.

TKO 132

- **Road Works and Construction of Marine Viaduct**

2.6.3.9 A single-2-lane-carriageway (the main road) will be provided for the land to be created off TKO 132 to provide land access to the Public Facilities. The vehicular access in the form of run-in/out is proposed to be sited at the frontage of each public facility facing the main road. The location and spacing of these proposed run-in/outs will adhere to the design standards stipulated in Transport Planning and Design Manual (TPDM). To facilitate vehicle manoeuvrability on the main road, it will be terminated at a roundabout located at the

southern end of TKO 132, ensuring heavy vehicles to safely turn around on the main road when necessary.

- **Building Works**

2.6.3.10 Building works of each public facility will be carried out by corresponding Project Proponent or Bureaux and Departments (B/Ds) or future developers after site formation works and site handover. Phased implementation of site formation works and building works will be carried out to minimise concurrent construction works, thus minimise the environmental impact and nuisance to the public throughout the course of construction.

- **Waterworks**

2.6.3.11 New fresh water and salt water distribution mains will be constructed, running along the proposed marine viaduct and at-grade road at TKO 132, to provide water supply for fresh water, flushing water and fire-fighting. The new fresh and salt watermains are proposed to be extended from existing distribution networks in Tiu Keng Leng, fed by Tiu Keng Leng Fresh Water Service Reservoir (TKL FWSR) and TKO SWPS respectively.

- **Sewerage**

2.6.3.12 TKO 132 is currently unsewered. Local sewage networks and a SPS with associated twin rising mains are proposed at TKO 132 to cater for the sewage generated from the Public Facilities and conveyed to the existing sewerage network at TKO via the proposed viaduct and roads at TKO.

- **Drainage**

2.6.3.13 Surface runoff from TKO 132 and the adjacent hillside areas at the northwest is collected by local branch drains and box culverts for discharge via outfall to the sea.

- **Utility Services**

2.6.3.14 Utility services are the fundamental support to a new development area. Similar to other urban areas, the utility services to be provided at TKO 132 to support the project development and future operation, including but not limited to below:

- Power supply network;
- Telephone and telecommunication services; and
- Street lighting and traffic signals system

- **Landscaping Works at Amenity Areas and Slopes**

2.6.3.15 Landscaping works at amenity areas and slopes will be conducted after site formation works and slope works. As these will mainly involve planting and pedestrian facilities, environmental impact is not anticipated.

- **Natural Terrain Mitigation Works**

2.6.3.16 Natural Terrain Mitigation Works (i.e. flexible barriers and rigid barrier) will be provided along the slope toe of Catchment CKW-C6 to CKW-C10, CKW-C12 to CKW-C16 at TKO 132 as shown in **Figure 2.12**.

2.6.4 Transport Network

- **Road Transport - External Connectivity**

2.6.4.1 TKO 137 is located at the southeastern end to TKO New Town and is connected to the TKO New Town by Wan Po Road. External road traffic to and from TKO New Town and TKO 137 relies primarily on TKO tunnel and TKO-LTT and to a lesser extent Po Lam Road and Clear

Water Bay Road. Currently, the vast majority of the existing traffic on Wan Po Road south of LOHAS Park Development is generated by the SENT landfill site and TKOFB. In the future, as recommended in the Hong Kong Major Transport Infrastructure Development Blueprint in 2023 (the Development Blueprint), the planned TKO-YTT proposed under separate study by TD will become the third external major connection in TKO. Once completed, the TKO-YTT will help meet the increasing traffic demand in TKO by diverting traffic from the two existing TKO tunnels to unleash the overall development potential of TKO and enhance the connectivity between TKO and Kowloon East.

2.6.4.2 TKO 132 will be connected to the existing Tseung Lam Highway through at-grade carriageway and viaducts, aiming at providing a direct and convenient connection to the proposed Public Facilities in TKO 132.

2.6.4.3 Considering the nature of these facilities, those heavy vehicles generated from the Public Facilities should be diverted away from TKO New Town to minimise disturbance to local residents. With the planned direct access to the TKO-LTT, the traffic to/from Kowloon induced by the Public Facilities in TKO 132 will not need to route through the existing road network in TKO New Town, thus minimising any possible nuisance to residents. Given the anticipated low traffic demand routing between TKO 132 and the area covering LOHAS Park, TKOIP and TKO 137, it is proposed that other than the slip roads to/from TKO-LTT, only one further pair of slip roads for connection to/from Tseung Kwan O New Town via Tseung Lam Highway (Road P2) will be constructed. Furthermore, minimising the scale of the access road could expedite the reprovision of the existing public facilities in TKO 137 to TKO 132 as early as possible, thereby making way for the subsequent housing development in TKO 137. Traffic to/from those areas can make use of Tseung Lam Highway and Wan Po Road.

- **Road Network**

TKO 137

2.6.4.4 The section of Wan Po Road south of Po Yap Road and Chiu Shun Road is currently classified as a Local Distributor. With this in mind, the extended section of Wan Po Road within TKO 137, namely Road L8, is designed as a local distributor road with a continuous dual 2-lane configuration connecting the northern and southern ends of TKO 137.

2.6.4.5 Another dual-2-lane carriageway, namely Road L1, will be aligned to the west of TKO 137 in a north-south direction. Road L1 will serve as a local distributor road running through the centre area of TKO 137. The northern end of Road L1 connects to Road L2, while its southern end connects to Road L7. Road L1 will be the main access road to the proposed railway station, PTIs and open spaces and G/IC / recreational facilities in TKO 137.

2.6.4.6 Other local distributor roads, namely Road L2, Road L4, Road L5, Road L6 and Road L7, will branch off between Road L1 and Road L8 in a form of single 2-carrigeway to provide access to the proposed housing development and G/IC developments in TKO 137. A southbound access road, namely Road L3, will connect Road L2 and Road L4, providing connectivity to the two school sites near Site PU2.

2.6.4.7 Considerations have been given to minimise the use of cul-de-sacs in TKO 137. Nevertheless, cul-de-sacs will be introduced at the southern end of both Road L1 and Road L8 to enhance road network connectivity in TKO 137. Traffic travelling on Road L1 and Road L8 southbound will be able to make U-turn to access the developments alongside the northbound carriageway (i.e. PR4, PR5 and the three school sites), avoiding unnecessary detours within the internal road network. The cul-de-sac at Road L8 also allows the heavy vehicles of EPP and desalination plant to leave TKO 137 without diverting to the centre area of TKO 137.

2.6.4.8 In order to accommodate the pick-up/drop-off (PU/DO) and loading/unloading (L/UL) demands for the three school sites near Site PU6, a roadside layby will be provided alongside the northbound carriageway of Road L8. At the same time, roadside laybys will be provided on

one side of selected east-west roads (i.e. Roads L4, L5, L6 and L7) to cater for the PU/DO and L/UL activities in TKO 137. The length of the laybys is subject to detailed design.

TKO 132

2.6.4.9 A single-2-lane carriageway (the main road) will be provided for the land to be created off TKO 132 to provide land access to the Public Facilities. The vehicular access in the form of run-in/out is proposed to be sited at the frontage of each public facility facing the main road. The location and spacing of these proposed run-in/outs will adhere to the design standards stipulated in TPDM subject to detailed design. To facilitate vehicle manoeuvrability on the main road, it will be terminated at a roundabout located at the southern end of TKO 132, ensuring heavy vehicles to safely turn around on the main road when necessary.

- **Public Transport**

Rail-based Public Transport

2.6.4.10 The future TKLSE recommended under the Development Blueprint will establish the heavy rail system as the primary mode of public transport in TKO 137 supplemented by other public transport services to support the development of TKO 137.

2.6.4.11 The proposed underground station of TKLSE at TKO 137 will be positioned at the centre of TKO 137 beneath Road L1. The majority of the population in TKO 137 is anticipated to be well-served by the railway system. This will encourage residents to utilise mass transit and reduce the demand for road traffic.

Road-based Public Transport

2.6.4.12 It is proposed using railway system as backbone supplemented by long haul bus services for external connections to and from TKO 137. In addition, short-haul franchised bus shuttles will also be proposed plying different housing developments, heavy rail station and the proposed PTIs within TKO 137 to facilitate the mobility needs of the population within TKO 137.

2.6.4.13 Two permanent PTIs with terminus for buses, minibuses and taxis are proposed within TKO 137. One PTI will be located at the northern part of TKO 137 to maximise the catchment area of PTI facilities and capture more passengers from the northern part of the area. Another PTI will be situated adjacent to the future railway station concourse, to potentially create a direct link between the PTI and the railway station, enabling synergy between the two. The proposed PTIs will be adequately sized to accommodate future passenger demand and facilitate convenient interchanges between different modes of transportation. En-route bus stops will be scattered throughout the internal road network to facilitate the first and last-mile connections. Furthermore, sufficient layby areas will be provided in the PTIs to facilitate the pick-up and drop-off activities.

2.6.4.14 In addition to railway transport, road-based public transport services are proposed to cater the passenger demands within TKO 137.

- **Pedestrian Walkway and Cycle Track Networks**

TKO 137

2.6.4.15 A connected pedestrian walkway system will be provided within TKO 137, linking up the major planned and proposed activity nodes, including the proposed railway stations, PTIs, housing development, open spaces and G/IC / recreational facilities. Footpaths will be provided along both sides of the road network, following the guidelines outlined in TPDM. The proposed

footpaths will be joined to the existing footpath network at the periphery of the Project Boundary of TKO 137 at Wan Po Road.

2.6.4.16 A comprehensive cycling network has been planned for TKO 137 to promote cycling as an environmentally friendly transport mode for first and last-mile commuting trips and leisure purposes.

2.6.4.17 Convenient cycle parking facilities will be provided near major destinations including the proposed railway station, PTIs and major open spaces subject to detailed design.

TKO 132

2.6.4.18 For TKO 132, a continuous footpath will be provided along one side of the carriageway to ensure the connectivity within TKO 132. The footpath will seamlessly connect to the pedestrian network near Tseung Lam Highway via the proposed viaduct, ensuring pedestrian connectivity to/from TKO 132 and TKO New Town.

2.7 Designated Projects

2.7.1.1 Based on the RODP, the Project would comprise the following designated projects by virtue of items A.8, C1, C2, F1, F2, G.2, G5 and H.1 under Part I, of Schedule 2 of EIAO.

DP1 – Construction of Carriageway Bridge at TKO 132

2.7.1.2 A single-2-lane carriageway in the form of viaduct structure for motor vehicles with minimum length of about 700 m between abutments and supported by piers, over the sea, will be constructed near TKO-LTT to provide a direct and convenient connection to the proposed facilities at TKO 132.

2.7.1.3 The proposed carriageway bridge at TKO 132 will fall into the category of Item A.8, Part I, Schedule 2 of EIAO - 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 general layout of proposed carriageway bridge is presented in **Figure 1.2.**

DP2 – Reclamation works at TKO 137 and off TKO 132

2.7.1.4 In order to create more land for the development of TKO 137, around 20 ha of land will be formed by reclamation. The reclamation is located at the barging basin at the north of TKO 137 and area along the southwest shoreline of TKO 137. The location of the reclamation works of TKO 137 development is shown in **Figure 2.8**.

2.7.1.5 TKO 132 will be formed by reclamation (around 19 ha) and the remaining by slope-cutting/ site formation to house the Public Facilities. The location of the reclamation works of TKO 132 development is shown in **Figure 2.9**. The boundary of the reclamation works at TKO 132 is around 30 m from the nearest boundary of On Luen Village (location of existing government land licences).

2.7.1.6 The proposed reclamation works at TKO 137 will fall into the category of Item C.1 Part I, Schedule 2 of EIAO - Reclamation works (including associated dredging works) more than 5 ha in size and the proposed reclamation works off TKO 132 will fall into the category of Item C.1 - Reclamation works (including associated dredging works) more than 5 ha in size and Item C.2, Part I, Schedule 2 of EIAO - Reclamation works (including associated dredging works) that are of more than 1 ha in size, and a boundary of which is less than 100 m from the nearest boundary of an existing residential area.

DP3 – Construction and Operation of Effluent Polishing Plant

2.7.1.7 An effluent polishing plant will be built at TKO 137 to support the population of TKO 137. The treatment capacity of the EPP is proposed to be at 54,000 m^3 per day. The EPP is around 100 m from the planned residential area and around 30 m from the planned educational institution at TKO 137.

2.7.1.8 The proposed EPP at TKO 137 will fall into the category of Item F.1 - Sewage treatment works with an installed capacity of more than 15,000m^3 per day and Item F.2, Part I, Schedule 2 of EIAO - Sewage treatment works (a) with an installed capacity of more than 5,000m^3 per day; and (b) a boundary of which is less than 200m from the nearest boundary of an existing or planned (i) residential area and (iii) educational institution. The location and general layout of EPP is presented in **Figure 2.10.1** and **Figure 2.10.2**.

DP4 – Construction and Operation of Refuse Transfer Station

2.7.1.9 A Refuse Transfer Station will be built at land to be created off TKO 132 for serving existing and future developments in the territory east area (including TKO).

2.7.1.10 The proposed RTS at land to be created off TKO 132 will fall into the category of Item G.2, Part I, Schedule 2 of EIAO - A refuse transfer station. The location of the RTS is presented in **Figure 1.2**.

DP5 – Construction and Operation of Construction Waste Handling Facility

2.7.1.11 A Construction Waste Handling Facility with handling capacity of approx. 3,000 tonnes per day will be built at land to be created off TKO 132 to receive, handle and bulk transfer construction waste primarily generated from the territory east (including TKO) to other waste handling facilities upon the closure of SENTX prior to population intake at TKO 137. The CWHF is around 140m from On Luen Village (location of existing government land licences).

2.7.1.12 The proposed CWHF at land to be created off TKO 132 will fall into the category of Item G.5, Part I, Schedule 2 of EIAO - A facility for the treatment of construction waste (a) with a designed capacity of more than 500 tonnes 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. The location of the CWHF is presented in **Figure 1.2**.

DP6 – Construction and Operation of Electricity Facilities

2.7.1.13 Electricity Facilities comprising power receiving and conversion facilities will be built at land to be created off TKO 132 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. EFs are planned to house equipment up to 400kV.

2.7.1.14 The proposed EFs at land to be created off TKO 132 will fall into the category of Item H.1, Part I, Schedule 2 of EIAO - A 400kV electricity substation and transmission line. The location of the EFs is presented in **Figure 1.2**.

2.7.2 Environmental Acceptability of the Schedule 2 Designated Projects

2.7.2.1 With reference to the Project scope as stated in Section 1.2, the EIA has provided an assessment of the potential environmental impacts associated with the construction and operation of the Project, based on the engineering design information available at this stage. For DP1, DP2 and DP3, application of environmental permit would be made based on the specific assessments with specific mitigation measures recommended within the individual chapters. Separate EIA studies would be prepared for application of the environmental permit for DP4, DP5 and DP6.

2.8 Benefits of the Project

2.8.1.1 The Project make use of the formed land of TKO 137 which is currently used as a temporary fill bank into a new community primarily for housing purpose. The land to be created off TKO 132 which is at a relatively obscure area, is able to accommodate the Public Facilities. The development of the Project could result in the following benefits:

Direct Benefits

2.8.1.2 **Diverse housing options to meet long-term housing needs of Hong Kong** – Different housing types will be provided to meet long-term housing needs of Hong Kong, engendering a sense of belonging for people and ultimately enhancing their quality of life. The Project will provide about 50,000 new flats.

2.8.1.3 **Provide G/IC facilities** – To support both existing and planned population, G/IC facilities including educational, social welfare, sports, cultural and recreational, healthcare, youth facilities, etc. will be provided. The provision of G/IC facilities is essential for the well-being, development, and social fabric of a community which contribute to public services, infrastructure, job and educational opportunities, and community engagement, ultimately enhancing the overall quality of life for residents.

Environmental Benefit and Initiatives

2.8.1.4 **Reduce heavy vehicles at Wan Po Road** – Currently, vast majority of the existing traffic on Wan Po Road south of LOHAS Park is generated by TKOFB. The heavy vehicles, such as diesel fuel dump trucks, are driving through the existing road network of TKO to TKOFB which could cause disturbance to local residents. With TKOFB converting into a housing development, the traffic on Wan Po Road is expected to shift predominantly to electric and petroleum vehicles, which emit fewer pollutants. By locating the PFTF at TKO 132, those heavy vehicles generated could be diverted away from TKO New Town and access to Kowloon directly via Tseung Lam Highway. This would minimise any possible nuisance to local residents.

2.8.1.5 **Facilitate low-carbon energy transition** – The reclaimed land off TKO 132 creates land to accommodate the important strategic 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 for the benefit of members of the public in Hong Kong.

2.8.1.6 **Co-locating public facilities** – TKO 132 houses the five location-specific public facilities that require marine frontage and rely on water transport. Co-locating these Public Facilities at TKO 132 can generate significant operational synergies by allowing shared use of access road and berthing areas.

2.8.1.7 **Optimisation of ecological resources** – The design of infrastructure can integrate more features that benefit nature. An Eco-shoreline at TKO 137 fuses robust seawall and marine infrastructure with design that creates the ecological environments required by marine habitats. A variation of the shoreline that coheres three ecological strata—sub-tidal, inter-tidal, and terrestrial—is proposed for the Project. The terrestrial layer integrates vibrant programming for the community.

2.8.1.8 **Walkability and cycling** – Walkability and cycling are the key elements for the Project. A comprehensive and attractive pedestrian walkway and cycle track network is planned throughout the TKO 137. Key destinations, such as key public transport nodes, major employment nodes and residential communities, would be linked up by pedestrian walkways, cycle track and open spaces. This would allow a safe, convenient and comfortable movement within TKO 137 and create local communities with easily accessible daily necessities to promote an active and healthy lifestyle to reduce mechanised vehicular trips and hence carbon emissions.

- **Comprehensive pedestrian network** – Comprehensive pedestrian network of TKO 137 connects residential and employment nodes to provide continuous walkways for pedestrians. It could promote walking from homes to workplaces, retail and services for various purposes.
- **Open space network / green linkages** – A series of open space corridors branching off the main comprehensive pedestrian network, including the open spaces along

drainage channel and linear parks along major road. They shall provide additional pedestrian connections to the surrounding residential communities and employment areas, and further to the green and natural areas.

- **Robust cycling network** – TKO 137 provides a robust cycling network which link effectively to the existing and planned cycling tracks within and outside TKO 137. The proposed cycling network would connect to the existing tracks from Wan Po Road to create a continuous cycling environment that extends to other destinations beyond TKO 137. Routes within TKO 137 would be provided parallel to the major roadways to serve commuting needs, as well as to provide some other routes within the proposed open space areas for leisure.

2.8.1.9 **Preserve and promote cultural heritage resources** – For TKO 137, no declared monument, proposed monument or graded historic building is identified within the Project boundary of TKO 137. For TKO 132, no declared monument, proposed monument or graded historic building is identified within the Project boundary of TKO 132. Adverse impacts to the existing cultural heritage resources have been avoided.

Promoting Biodiversity

2.8.1.10 **Create liveable environment** - The landscape framework should be formulated based on the findings of the ecological survey. Following principles applied in the landscape framework: (i) Optimise key existing ecological capital where possible. (ii) Maximise green space coverage for habitat creation and leisure activities; (iii) Diversify landscape typologies through a rich mix of landscape characters and activities for both people and wildlife; and (iv) Create a mutual respect culture between people and nature through design.

2.9 Overview of PODP

2.9.1 Summary of Public Engagement Views

2.9.1.1 Further to the briefing at the Legislative Council (LegCo) Panel on Development on 31 January 2023 (LC Paper No. CB(1)44/2023(05)), the project team of P&E Study also made pro-active efforts in reaching out to the local community to collect their views on the PODP. In the course of the exercise, over ten meetings and two Sai Kung District Council meetings were held in February and March 2023, for example, between the project team of P&E Study and various local stakeholders, involving representatives from around 30 organisations such as the owners' committees of the residential estates in Tseung Kwan O, estates' representatives, local personalities, villagers and concern groups, etc.. Key comments received are summarised as follows.

Proposed Development at TKO 137

2.9.1.2 The public generally have no objection to the proposed primarily housing development at TKO 137 which would alleviate the acute demand for housing supply.

2.9.1.3 In response to the concerns on transport facilities to support the new community, it is anticipated that the proposed TKLSE and TKO-YTT would accommodate the external road traffic originating from TKO 137 and improve the external road network of TKO. Thus, alleviating congestions within TKO.

Proposed Reclamation off TKO 132

2.9.1.4 Some local residents from Tiu Keng Leng concerned that the proposed public facilities at TKO 132, particularly odour from the RTS and air pollution from the CBP, would have potential adverse impacts on the environment and might cause nuisance to the nearby residents. In view of the above, the operators of these public facilities will be required to implement effective mitigation measures which have been adopted in other similar existing facilities. Furthermore, the reclamation of TKO 132 and the proposed RTS and CWHF are designated projects according to Environment Impact Assessment Ordinance.

Environmental Permits (EPs) are required for the construction and operation of these public facilities and control measures/mitigation measures as stipulated in its EIA reports and EPs should be implemented to avoid adverse impact on nearby environment.

2.9.1.5 There were opinions on the extent of reclamation and slope-cutting that might adversely affect the natural shoreline, landscape, coral and other species with high ecological value. Fishing industry also concerned that reclamation would adversely affect fisheries in these waters. In this connection, the revised reclamation extent will be further discussed in **Section 2.10**.

2.9.1.6 There were also suggestions for alternative locations for the proposed public facilities, including the ex-Lei Yue Mun Quarry and Joss House Bay to the southeast of TKO. Nevertheless, both were found not suitable due to maritime requirements at the waters near Lei Yue Mun and the operational need of TKO Desalination Plant respectively.

2.9.1.7 Key comments received during public inspection of the project profile are summarised in **Table 2.5.** All the comments received have been taken into consideration in formulating the RODP. The PODP of TKO 137 and TKO 132 are shown in **Figure 2.6** and **Figure 2.7** respectively.

Table 2.5 Summary of Key Concerns to Environment

Key Issue	Key Comments	Responses
Reclamation	• Straightening of the coastline and narrowing the bay of Tseung Kwan O may increase the risk of flooding when a typhoon strikes and cause damage to the Tseung Kwan O Waterfront Promenade and Heng Fa Chuen	• Computer wave model analysis with and without the reclamation of TKO 132 and TKO 137 have been conducted under separate study of the Project. The simulation results indicates that the direction of incident ocean waves is governed by the local geometry of Tathong Channel and focused on the south-east direction. It also verifies that the proposed reclamation will have no adverse impact to Tseung Kwan O Waterfront Promenade and Heng Fa Chuen in terms of exposure to extreme waves and corresponding risks.
	• Reclamation of 25 ha for TKO 132 is too large and suggested using slope-cutting method or relocation to caverns to create land	• Reclamation has been reduced to approximately 19 ha by optimising land use layout and making use of slope-cutting for land creation. Total length of the marine frontage has been reduced from around 1270 m to 1190 m by shared use of marine access. • Feasibility to accommodate the Public Facilities to cavern have been considered. As all public facilities require marine frontage for the normal operation, only part of the public facilities could have potential to be relocated into caverns. Cavern options induce

Key Issue	Key Comments	Responses
		higher design and construction risks, longer construction period and increases capital and recurrent costs compared with land reclamation option. The benefit and dis-benefits are discussed in detail in **Section 2.11.8**.
	• Adopting offshore reclamation to reduce the impact to the natural shoreline of great geodiversity value	• Direct land access is required by the Public Facilities, especially for Electricity Facilities where cable wayleave to inland is necessary. • Off-shore reclamation, particularly when extending towards the existing shoreline for EFs cables, presents several disbenefits. It significantly reduces tidal flushing and water circulation, leading to decreased current velocities that enhance sediment deposition and increase the need for maintenance dredging, which can compromise water quality at coral recipient sites. The capability for self-cleansing and water quality recovery diminishes, resulting in depleted dissolved oxygen levels. Additionally, vessel operations become closer to noise-sensitive areas, raising concerns about marine traffic noise. The reclamation further extends into the sea which exacerbates visual and landscape impacts on nearby residential developments. Finally, this approach entails longer construction times and higher costs due to increased seawall requirements and the volume of Deep Cement Mixing needed. Details are discussed in **Section 2.11.3**.
	• Public Facilities at TKO 132 should be incorporated into the reclamation area at TKO 137.	• Accommodating the Public Facilities at TKO 137 will occupy a large section of the waterfront and require a certain buffer distance from the residential area. This will not make good use of the land and will not be conducive to the creation of a new livable community in the future. In addition, vehicles using the facilities, such as dump trucks, concrete lorry, will drive through the existing road network of TKO New Town to reach TKO-LTT, putting

Key Issue	Key Comments	Responses
		pressure on the road network of TKO.
Traffic and Transportation	• Development in TKO 137 would aggravate traffic pressure in TKO district with new population	• Traffic and traffic impact assessment shows the traffic conditions on roads in TKO are acceptable.
	• Concern about traffic arrangements and mitigation measures during construction period. Suggested future residents to move in after establishing transportation infrastructure. Utilisation of environmental-friendly vehicles is also suggested.	• Traffic noise impact has been assessed under this EIA. With the implementation of the proposed mitigation measures for construction phases, no adverse environmental impacts on the sensitive receivers would be anticipated. • Green fuel station is proposed at TKO 137 to encourage residents to use environmental- friendly vehicles.
	• Increased number of heavy vehicles in TKO will increase traffic pressure and cause traffic noise	• The heavy vehicle generated from existing TKO 137 Fill Bank via Wan Po Road would be diverted to TKO 132 after relocation. • Heavy vehicles generated from the Public Facilities at TKO 132 would be diverted away from TKO and access to Kowloon directly via TKO-LTT to minimise disturbance to local residents.
Ecology and Fisheries	• Potential ecological impact on fish of conservation importance (Philippine Neon Goby (*Stiphodon atropurpureus*)) and coral communities	• Extent of reclamation has been reduced to 19 ha to minimise direct impact on fish of conservation importance and coral communities. The footprint of reclamation has avoided the coral recipient site. Coral translocation is also recommended, as to minimise the ecological impact on coral colonies to be affected by the Project. • The associated foundation and pier of the marine viaduct would locate away from the downstream section to avoid direct impact and blockage of natural watercourse S2 which the concerned fish species was recorded, and works including natural terrain mitigation works and

Key Issue	Key Comments	Responses
		construction of marine viaduct would be also conducted at least 20m away from natural watercourse S2.
	• Potential impact to marine habitats at TKO 132	• The extent of the reclamation has been reduced to minimise the direct impact on the marine habitats at TKO 132. • Enhancement measures such as ecological enhanced seawall have been proposed to enhance the marine habitats during the operation of TKO 132 and provide opportunity to marine organisms. • For impact on fisheries, there would be around 22 ha loss of fishing ground and fisheries habitats due to reclamation and the marine viaduct piles. However, the loss only constitutes an insignificant proportion of fishing ground and fisheries habitats in Hong Kong, which the fisheries operations primarily consist of small, flexible sampans, and the low to moderate fisheries production consisting mainly of non-commercial or low valued species, the direct impacts on fisheries are considered to be minor.
Public Facilities	• Cumulative impact of proposed Public Facilities	• Cumulative impact from the construction and operation of the Public Facilities at TKO 132 have been assessed under this EIA. With the implementation of the proposed mitigation measures for construction and operation phases, no adverse cumulative environmental impacts on the sensitive receivers would be anticipated. • The operation of the Public Facilities is regulated by relevant legislation or contract.
	• Potential environmental impact (e.g. noise quality, air quality, water quality, landscape and visual, hazard to life etc.) to sensitive receivers in close proximity to TKO 132	• EIA has been conducted according to the requirement as stipulated in the EIA Study Brief. Based on the assessment results, the Project would be environmentally acceptable with the implementation of the proposed mitigation

Key Issue	Key Comments	Responses
		measures for construction and operation phases. Details of the assessment under different aspect are presented in S.2 to S.17 of this EIA Report.

2.10 Major Amendments from PODP to RODP

2.10.1.1 As mentioned in **Section 1** of the EIA Report, the Government announced in the 2016 Policy Address to carry out the re-planning for the development of the land at TKO 137 and examine the feasibility of using the site for residential, commercial and other development purposes. To take forward the re-planning process, CEDD and PlanD jointly commissioned the P&E Study in December 2016, with a view to ascertaining and optimising the development potential of the available land in TKO 137. Based on the findings of the P&E Study, a PODP was formulated for TKO 137 and the land to be created off TKO 132 in January 2023. A Project Profile for the Project (No. PP-654/2023) of the proposed development of Tseung Kwan O Area 137 and associated reclamation sites was submitted to the EPD on 11 May 2023 for application for an EIA Study Brief under section 5(1)(a) of the EIAO. The EIA Study Brief (No. ESB-360/2023) was issued on 23 June 2023 under the EIAO. Taking into account comments received from LegCo members, the public and key stakeholders on the PODP under the P&E Study, and on-going liaison with relevant Government B/Ds, the following refinements to the PODP are proposed.

TKO 137

- **Road, Pedestrian, Cycling Connectivity and Public Transport Interchange**

2.10.1.2 Some refinements on the road alignment, including footpaths and cycle tracks have been made as appropriate for better design and connectivity. Cycle track arrangement has also been reviewed and refined to promote better connectivity and proximity to developments. Footpath have also been reserved to accommodate potential laybys. Road L1 has shifted eastward.

2.10.1.3 Development boundaries have been reviewed to suit the latest planning after the PODP. The plot ratio have been reviewed and adjusted with the stepped down development intensity towards the waterfront maintained.

- **Government Facilities**

2.10.1.4 Based on departmental requests, a fire station cum ambulance depot has been reserved. A swimming pool, a public market and a refuse collection point are also to be accommodated in the Government Complex together with the planned community hall, health centre and sports centre.

A recycling store is proposed to be co-located with the refuse collection point within the Government Complex at Site.

- **Interface with TKLSE**

2.10.1.5 In terms of the land use, re-alignment of the lot boundaries of several public housing sites has been made to avoid encroaching on the works areas and potential station facilities of TKLSE such that the implementation of the public housing development will not be affected.

- **Infrastructures**

2.10.1.6 As coordinated with CLP, a 400kV Electricity Substation (ESS) is no longer required while two 132kV ESS should still be reserved. Two sites are reserved for provision of a 132kV Bulk ESS and a 132kV Primary ESS.

2.10.1.7 In view of the Government's initiatives in promoting greener fuels, annotation of the petrol & LPG station has been updated as Green Fuel Station.

2.10.1.8 In reviewing infrastructural demand arising from development of TKO 137, fresh and salt water service reservoirs have been reserved at Fat Tong Chau.

2.10.1.9 In order to minimise the water quality impacts, the use of a submarine effluent outfall from the EPP proposed during the PODP stage is not recommended. Instead, both storm drains and effluent from the EPP will be directed to the seawall via an underground pipe or box culvert, ensuring that the outfall remains submerged below the marine water surface. Therefore, DP Item F.6-A submarine sewage outfall, as stated in the EIA Study Brief, is removed from this EIA study.

- **Natural Terrain Mitigation Works**

2.10.1.10 The proposed natural terrain mitigation works (i.e. flexible barrier) has been re-located to be within the EPP site to avoid any works encroaching into Clear Water Bay Country Park (CWBCP). Therefore, DP Item Q.1- Earthworks partly or wholly in an existing country park, as stated in the EIA Study Brief, is removed from this EIA study.

- **Development Parameters**

2.10.1.11 ***Residential -*** Comparing to PODP, the layout has been re-juggled such that all the private housing land parcels are now located along the waterfront, in order to minimise the impact of the construction of TKLSE on the handover of public housing sites. To create a stepped building height profile from northeast to the southwest, the domestic plot ratio (PR) of private housing sites along waterfront has been updated to a range of 4.0 to 6.0, whilst the domestic PR of public housing sites is updated to a range of 7.0 to 7.5. With the adjustment on layout and plot ratio, the building height restrictions (BHR) of the residential sites has been updated in RODP, ranging 120 mPD to 200 mPD for private housing and 175 mPD to 200 mPD for public housing. The non-domestic PR of two private housing sites PR1 and PR2 have been lowered from 0.5 in PODP stage to 0.3 in RODP stage to achieve a ratio similar to the current retail provision to population status in TKO District.

2.10.1.12 ***G/IC/OU –*** To address the departmental request of having a swimming pool of minimum 2 ha according to Hong Kong Planning Standards and Guidelines (HKPSG), the site G4 has been increased in site area from 1 ha to 2 ha to accommodate various G/IC facilities, including Swimming Pool, sports centre, public markets, community hall, health centre, refuse collection point and recycling store. A set of more appropriate BHR has been reflected on RODP for the G/IC or OU facilities. For utilities, the proposed Electricity Substations (ESS) (OU1 and OU2) are subject to maximum building height of 3 storey. The proposed Green Fuel Station (GFS) (OU3) is subject to maximum building height of 1 storey. The proposed Effluent Polishing Plant (EPP) (OU4) subject to maximum building height of 30 mPD. The proposed Fresh Water Service Reservoir (FWSR) (OU5) and Salt Water Service Reservoir (SWSR) (OU6) are subject to maximum building height of 80 mPD. As for Government Reserve and Sport Centre (G3) and the Divisional Police Station (OU1), both BHRs are revised as 110mPD, in response to the operational needs of Hong Kong Police Force (HKPF) and referencing existing similar G/IC facilities.

TKO 132

- **Road**

2.10.1.13 Other than the slip roads to/from TKO-LTT, one further pair of slip roads to/from Tseung Lam Highway would be provided. Road layout have been reviewed.

- **Public Facilities**

2.10.1.14 With regards to optimising land use layout in order to reduce the reclamation area, the following changes were made for the site configuration of each facility.

- EFs – Previous proposed L-shaped land parcel for EFs is revised to rectangular shape. Site area is reduced from 5.9ha (under PODP) to 5.6ha.
- CWHF – CWHF is relocated adjacent to EFs and configuration of the land parcel is revised to make use of the 190m frontage of EFs.
- PFTF – PFTF is relocated adjacent to CWHF and configuration of the land parcel for PFTF is revised.
- RTS – RTS is relocated further away from the nearest residential development adjacent to PFTF and configuration of the land parcel for RTS is revised.
- CBP - Configuration of the land parcel for CBP is revised to minimise the reclamation area.
- MRCP – In view of the public aspiration to reduce the number of Public Facilities, the MRCP will not be relocated to TKO 132.

- **Breakwater**

2.10.1.15 In accordance with the computer wave simulation, the significant wave height at the proposed TKO 132 under tropical cyclone warning signal no.3 is approximately 1 to 2 m. Common vessels to be used at TKO 132 such as working barges and material transport vessels are relatively resilience to wave impacts and are capable to operate under the 1 to 2m wave conditions.

2.10.1.16 After liaison with the future operators of the Public Facilities, it is noted that the breakwater is not necessary for their operations and is therefore removed from the RODP. It reduces the reclamation extent. Therefore, the DP Item C.4- A breakwater more than 1km in length or a breakwater extending into a tidal flushing channel by more than 30% of the channel width, stated in the EIA Study Brief, is removed in this EIA study.

2.10.2 Comparison of Development Parameters of PODP and RODP

2.10.2.1 As a result, the development parameters have been updated in **Table 2.6** and **Table 2.7** as follows:

Table 2.6 Comparison of Key Development Parameters and Land Use Budget between PODP and RODP for TKO 137

	PODP	**RODP**
Area (ha)	~101	~102.2
Population	~135,010	
Estimated Employment	~21,300	~22,100
No. of flats	~50,000 (with ~70% public housing)	

Table 2.7 Comparison of Key Development Parameters and Land Use Budget between PODP and RODP for TKO 132

	PODP	RODP
Area* (ha)	~25	~20
Estimated Employment	~219	~389

Remarks: * Marine Viaduct is not included.

2.11 Consideration of Alternatives and Development of the Preferred Option

2.11.1 Consideration of Siting for the Public Facilities

2.11.1.1 TKO 137 is an urban site with the potential for large-scale development. The Government announced in the 2022 Policy Address that TKO 137 will be developed into a new community primarily for housing purpose. different land use options were formulated and evaluated during the P&E Study. A development option was recommended at early stages of the P&E Study (August 2020) where numbers of flats for 75,000 population were proposed with the Public Facilities (Territory East Material Recovery and Transfer Station (TETS), previous name for RTS), public fill transfer facility (PF, previous name for PFTF), CBP and CWHF) located at the barging basin.

2.11.1.2 However, having considered the pressing need for land supply for housing developments and the Government's commitment to boosting land supply in short, medium and long term, it is considered TKO 137 is suitable for development primarily for housing purpose to establish a new community. The reclamation off TKO 132 is considered suitable for accommodating the Public Facilities as it is at relatively obscure location, away from existing and planned residential developments, and with direct access to TKO-LTT and therefore generating no traffic to the inner part of TKO, thus minimising the possible environmental impact on the local residents. The needs and site selections of the Public Facilities are discussed in **Table 2.1**.

2.11.1.3 At later stage of the P&E study, it was proposed to reclaim about 6 ha of land in the existing barging basin and 14 ha of land along the shoreline at TKO 137 to accommodate a planned population of about 135,000. The extent of reclamation at TKO 137 could not be further expanded in order to provide a clearance of 250m from boundary of the Tathong Channel.

2.11.1.4 The environmental benefits and dis-benefits were also considered in formulating the preferred option as summarised in **Table 2.8** below.

Table 2.8 Benefits and Dis-benefits of the Land use Option

Options	Benefits	Dis-benefits
Accommodate Public Facilities at barging basin of TKO 137	• Reclamation off TKO 132 would not be required	• As the existing marine frontage at the barging basin TKO 137 is not sufficient, this option will occupy a large section of the waterfront at TKO 137 • As the Public Facilities might require a certain buffer distance from the residential area, thus TKO 137 could not be developed into a predominantly residential community for a population of around 135,000 • Pollution source from the Public Facilities is close to sensitive receivers (i.e. future residential of TKO 137) • Potential noise, air and landscape and visual impact to future residents of TKO 137
Accommodate Public Facilities at reclamation off TKO 132 (Preferred Option)	• Distant the potential pollution source from the Public Facilities away from sensitive receivers (around 1km away from Ocean Shores) • Avoid directing traffic arisen from proposed Public Facilities along heavily populated areas • Reduce visual impact to nearby residents with the Public Facilities located away around 1km away from Ocean Shores	• Reclamation off TKO 132 would be required

2.11.2 Consideration of Alternatives Layout for TKO 132

2.11.2.1 In the PODP for TKO 132, the original layout for the development could optimise the use of the local terrain to alleviate the visual impact of the reclaimed site on the residents of Tiu Keng Leng, the layout and road alignment takes up around 790m of the natural shoreline which causes direct impact to the coral recipient site. The layout in the PODP also requires more extensive reclamation. Therefore, the layout option in PODP was no longer recommended. The following table **(Table 2.9)** summarises the benefits and dis-benefits identified.

Table 2.9 Benefits and Dis-benefits of the Layout of TKO 132

Options	Benefits	Dis-benefits
Alternative Option – PODP scheme	• Optimise the use of the local terrain to alleviate the visual impact of the reclaimed site on the residents of Tiu Keng Leng	• Direct impact to coral recipient site • Impact to the natural shoreline (only around 1000m out of total length of 1600m of natural shoreline can be maintained) • Large area of permanent loss for subtidal hard substrata is anticipated. • More potential direct ecological impact on coral communities
Preferred Option (Current RODP of TKO 132)	• Avoid direct impact to coral recipient site • Reduced reclamation extent and shortened road alignment minimise the impact to the natural shoreline. Approximately 1km of natural shoreline can be maintained • Area of permanent loss for subtidal hard substrata is considered smaller than the alternative option • Minimise potential direct ecological impact on coral communities by avoiding reclamation at area with higher coral coverage	• Less use of the local terrain to alleviate the visual impact of the reclaimed site on the residents of Tiu Keng Leng

2.11.3 Consideration of Alternative Configuration of the TKO 132

2.11.3.1 Comments have been received regarding adopting off-shore reclamation to preserve the natural shoreline off TKO 132. Therefore, an alternative layout was explored as shown in **Diagram 2.2**.

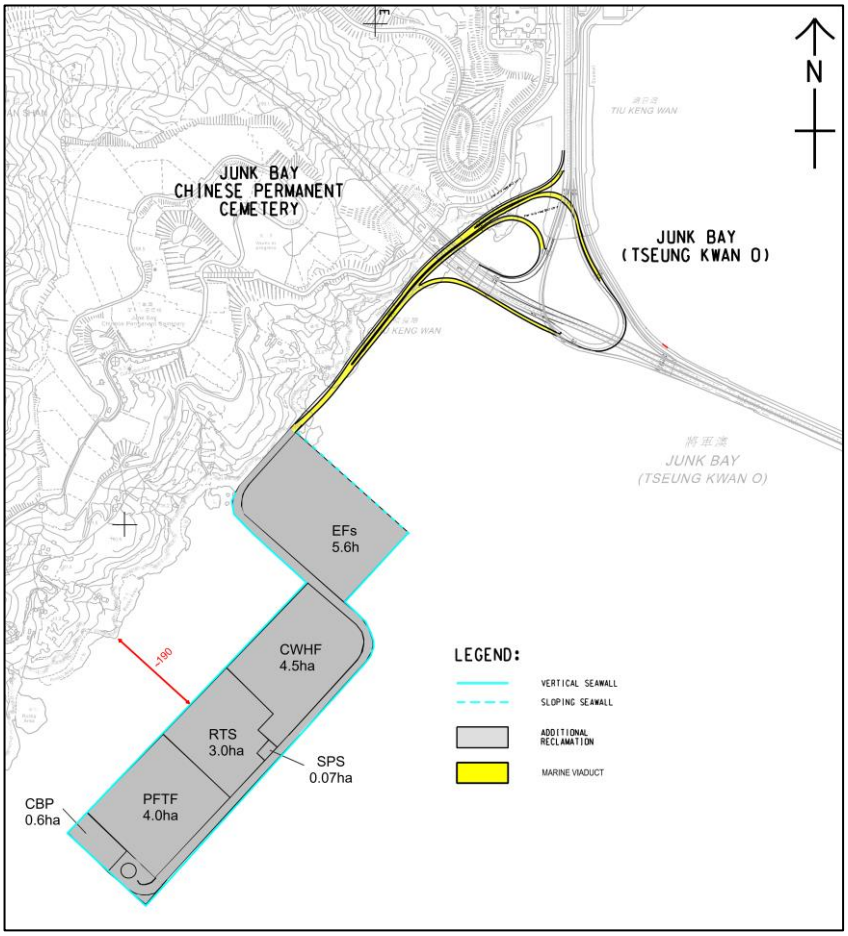


Diagram 2.2 Alternative Configuration of TKO 132 (L-shaped Layout)

2.11.3.2 Direct land access is required by the Public Facilities, especially for EFs where cable wayleave to inland is necessary, leaving a water channel between the reclaimed land and TKO 132 would not be feasible. Instead of a square-shaped, a L-shaped reclamation area with one side extruding towards the existing shoreline is considered. This layout creates an embayment area of around 190m (W) x 550m (L) for vessel operation of the Public Facilities. The benefits and dis-benefits of the alternative configuration of TKO 132 are summarised in **Table 2.10**.

Table 2.10 Benefit and Dis-benefits of Alternative Configuration of TKO 132

Options	Benefits	Dis-benefits
Alternative Configuration – L-shaped Layout	• Maintain majority of the natural shoreline.	• Significantly diminish the tidal flushing capacity and water circulation around TKO 132 as compared to the proposed layout. • Footprint of the reclaimed land encroach into the shallow water region so more sediment would need to be dredged to ensure marine safety for vessel operation at inner basin.

		• Velocity of the current inside the water surrounded by the reclamation will be reduced which increase the sediment deposition rate and increase the frequency of maintenance dredging. • Self-cleansing and water quality recovery capability would reduce, and cause DO depletion. • Vessel operations are closer to the Nosie Sensitive Receivers at TKO 132. Higher marine traffic noise level is anticipated. • The reclaimed land is situated further out to the sea which increases the landscape and visual impact to the nearby residents. • Longer construction time and greater cost are required due to increase in seawalls and Deep Cement Mixing (DCM) volumes. • Longer construction noise period is anticipated to the Noise Sensitive Receivers at TKO 132. • There will be a bottle-neck at the EFs that the access to all other facilities would be totally relied on the public road where the buffer area would not be available due to facing the open water. • Security concerns on the exposed EFs' cables where the cables trough would be subject to damages.
Preferred Option (Current RODP of TKO 132)	• Use of the local terrain to alleviate the visual impact of the reclaimed site on the residents of Tiu Keng Leng. • Reduce reclamation extent by slope-cutting. • No embayment area is created, hence tidal flow and water circulation can be maintained. Frequent routine dredging for vessel operation is not necessary.	• Less use of the local terrain to alleviate the visual impact of the reclaimed site on the residents of Tiu Keng Leng. • Direct impact to the natural shoreline.

2.11.3.3 Based on the dis-benefits listed above, the alternative L-shaped layout of TKO 132 is not recommended. To minimise the impact on the natural shoreline, the layout of TKO 132 has been optimised in the RODP to preserve as much of the natural shoreline as possible.

2.11.4 Consideration of Alternative Alignment of the Road Connecting to TKO 132

2.11.4.1 TKO 132 is located in an obscure location with no existing road connection. During the P&E Study, we have proposed a dual-2-lane carriageway with slip roads connecting TKO 132 to/from TKO-LTT, to/from Tseung Kwan O Town Centre and to/from Cross Bay Link. After detailed traffic review, the proposed dual-2-lane carriageway is changed to a single-2-lane carriageway with slip roads to/from TKO-LTT and to/from Tseung Kwan O Town Centre. Connection to/from Cross Bay Link is removed due to the low traffic demands to Lohas Park.

Table 2.11 Benefit and Dis-benefits of Alternative Road Connecting to TKO 132

Options	Benefits	Dis-benefits
Alternative Option - Dual-2-lane carriageway with slip roads connecting TKO 132 to/from TKO-LTT, to/from Tseung Kwan O Town Centre and to/from Cross Bay Link	• Provide connection between TKO 132 and TKO East.	• The construction involves foundation and superstructure of the marine viaduct. Hence, longer construction noise period will be anticipated to the Noise Sensitive Receivers at TKO 132. • Higher construction cost and longer construction time with the additional slip road to/from Cross Bay Link. • Larger extent of the slip roads, hence, more affected areas on landscape resources and larger visual obstruction to the public viewers will be anticipated.
Preferred Option - Single-2- lane carriageway with slip roads to/from TKO-LTT and to/from Tseung Kwan O Town Centre	• Shorter construction time which minimise the environmental impact to the nearby sensitive receivers. • Smaller affected areas on landscape resources and reduce visual impact to the public viewers in Tiu Keng Leng. • Lower construction cost.	• No connection between TKO 132 and Lohas Park.

2.11.5 Consideration of Alternative Sewerage System for TKO 132

2.11.5.1 TKO 132 is out of any existing sewerage system. Several options have been explored for evaluating the sewage conveyance scheme at TKO 132. Gravity collection system towards existing sewerage network at Tseung Kwan O is not feasible due to its remote nature. A local sewage treatment works is not recommended as the estimated flow of TKO 132 is low and therefore not cost effective. The following table (**Table 2.12**) summarises the benefits and dis-benefits identified.

Table 2.12 Comparison of Benefits and Dis-benefits for Sewerage System Options

Options	Benefits	Dis-benefits
Provision of a local sewage treatment works	• Minimise the impact to existing sewerage network in TKO.	• Larger footprint is required for the treatment works which may require additional reclamation and cause greater disturbance to the seabed. • Require disposal of residual sludge and other waste materials; therefore, it increases traffic emissions. • Larger visual impact is anticipated. • Longer construction period is anticipated.
Provision of gravity sewer pipeline	• Simple to operate and maintain if no intermediate / downstream SPS is required.	• Long gravity sewer would result in very deep sewer pipe and manholes at the downstream end, being costly to construct, and possibly requiring an intermediate SPS to lift sewage to a shallower depth to improve sewerage pipeline construction practicality, and to lift flows into the existing downstream sewerage network. • Longer construction period is anticipated.
Provision of a sewage pumping station (Preferred Option)	• Less land required for pumping station than local Sewage Treatment Works, to reducing the need of marine dredging works due to reclamation. • Smaller footprint and building size such that to having less visual impact.	• Increase in traffic emissions anticipated due to waste disposal.

2.11.6 Consideration of Alternative Outfall System for TKO 137

2.11.6.1 Outfall discharge options have been evaluated for both storm drains and effluent from the EPP at TKO 137. The proposed system will utilise a seawall outfall only, with no submarine intakes or outfalls included in the Project. Model results indicate that the marine water quality effects from the EPP's seawall discharges are insignificant, and these discharges will not lead to any water quality non-compliance during normal or emergency operations. Therefore, the seawall discharge location is deemed the most effective option for minimising water quality impacts, and the use of a submarine effluent outfall is not recommended. Both storm drains and effluent from the EPP will be directed to the seawall via an underground pipe or box culvert, ensuring that the outfall remains submerged below the marine water surface. The following table (**Table 2.13**) summarises the benefits and dis-benefits identified.

Table 2.13 Environmental Benefits and Dis-benefits of Effluent Outfall Options

Options	Benefits	Dis-benefits
Alternative Submarine Outfall Option	• Submarine outfall with multiport diffusers on seabed would potentially provide better effluent dispersion during the operational phase.	• Need of dredging for construction of new outfall diffusers with waste / sediment management issue. • Release of sediments and sediment-bound contaminants during construction of new outfall diffusers, causing indirect marine water quality, fisheries and marine ecological impacts. • Temporary loss of fishing ground and marine habitat during the construction of new outfall diffuser. • Permanent loss of fishing ground and marine habitat due to operation of new outfall diffuser.
Preferred Seawall Outfall Option	• No loss of fishing ground / marine habitat during construction and operational phases. • No disturbance to seabed sediment and no release of sediment and sediment-bound contaminants.	• Potentially inducing greater water quality impact to nearby water sensitive receivers but the impact is predicted to be insignificant and acceptable, in view that the seawall outfall is located at Tathong Channel with deep water depth and high flushing capacity.

2.11.7 Consideration of Alternatives for Optimising Building Height and Built-From

2.11.7.1 Strategy on building height and built-form are applied to form a pleasant vertical image of the waterfront neighbourhood. A diminution in development height from the hinterland to the waterfront area has been adopted to enhance variety in building height and massing of development. A stepped building height profile descending from the northeast to the southwest and towards the waterfront is proposed with respect to the mountain backdrop. As compared to options of having more uniform building height, the current option of having stepped building height would avoid “wall effect” development along the coastal area as far as possible. In terms of built-form, monotonous and continuous built-form has been avoided with the introduction of open space corridor, in order to reduce visual obstruction and enhance the landscape character. The following table (**Table 2.14**) summarises the benefits and dis-benefits identified.

Table 2.14 Environmental Benefits and Disbenefits of the Preferred Option

Options	Benefits	Dis-benefits
More uniform building height and built-form across different land lots	• Nil.	• Create "wall effect" developments along the coastline. • Resultant building mass and built-form would be stereotype or monotonous. • Substantial visual obstruction to the public viewers would be anticipated.
Stepped building height from inland towards the waterfront together with varied built-form (Preferred Option)	• Reduce visual impact to the residents of Siu Sai Wan by having stepped building height profile descending from the northeast to the southwest and towards the waterfront. • Avoid "wall effect" from continuous built-form improve air ventilation. • Encourage diversity and variety in building mass and built-form. • Enhance the landscape character with introduction of open space corridor.	• Nil.

2.11.8 Consideration of Locating Public Facilities in Caverns

2.11.8.1 During the public consultation in the P&E stage, some publics suggested locating the Public Facilities in caverns. Review on use of cavern was undertaken to assess the feasibility of accommodating Public Facilities in caverns based on design and construction risks, land requirements, operational requirements, cost and time implications. In view of the bulky components of EFs which require a space of at least 80m in diameter, the cavern option for EFs would be infeasible from geotechnical point of view. As all Public Facilities require marine frontage for the normal operation, only part of the Public Facilities could have potential to be relocated into caverns. Cavern options have the advantage of less environmental impact to surface land and marine area. However, it induces higher design and construction risks, longer construction period and increases capital and recurrent costs compared with land reclamation option. Moreover, additional cavern and tunnel ventilation systems will be required in order to maintain a satisfactory working environment in an underground condition. More stringent operational and maintenance implications due to sole accessibility through tunnel and portal are also anticipated. In contrast to land reclamation option, the cavern portal is away from the berthing area, double handling of the materials for most of the Public Facilities is inevitable. Based on the preliminary assessment on costs for cavern and reclamation options, the cavern development for all Public Facilities would likely to incur a higher initial cost and operational costs compared with reclamation option given the additional ventilation and associated E&M facilities are required. In terms of the implementation programme, its target commissioning dates will be delayed due to the longer construction time for the cavern option. In conclusion, it is not recommended to consider further on cavern

option for these Public Facilities. The following table (**Table 2.15**) summarises the benefits and dis-benefits identified.

Table 2.15 Benefit and Dis-benefit of Locating Public Facilities in Caverns

Options	Benefits	Dis-benefits
Locating part of the Public Facilities to Cavern	• Reduce reclamation area.	• Increase in construction and operation cost due to additional need of ventilation system and E&M facilities. • Longer construction time led to programme mismatch for site handover site for CBP and PFTF. This affects the closure of temporary CBP and decanting of PFTF at TKO 137 and therefore affect the population intake schedule. • The cavern portal is away from the berthing area, double handling of the materials for most of the Public Facilities is inevitable.
Locating Public Facilities to Reclaimed Land (Preferred Option)	• Lower construction cost and operation cost compared to cavern option. • Construction is relatively faster compared to cavern option.	• More reclamation area

2.11.9 Consideration of Use of Eco-shoreline

2.11.9.1 Eco-shoreline and eco-engineering seawall provide beneficial functions to the local ecosystem through a range of active and passive solution, while the function of coastal and shoreline protection is provided by seawall structure. Eco-shoreline and eco-engineering seawall will be tailored along TKO 137 and TKO 132 coastline respectively to enhance marine ecology. The following table **(Table 2.16**) summarises the benefits and dis-benefits identified.

Table 2.16 Benefits and Dis-benefits of Eco-shoreline

Options	Benefits	Dis-benefits
Adopt Eco-shoreline	• Welcome intertidal species back to coastlines by increasing microhabitats within the shoreline by grooves or holes. • Encourage the attachment of marine flora and fauna and enhance water filtration.	• Increase in construction cost.
No Eco-shoreline	• Lower construction cost in compared with seawall with eco-shoreline features	• Diminish the ecological values/systems along coastline.

2.12 Proposed Construction Methodologies

2.12.1.1 **Section 2.6** has presented the key elements for the RODP. The construction methodologies for these key elements have been duly examined to take into account of many considerations including environmental considerations and practicability. The recommended construction methodology of different key construction works is summarised below.

2.12.1 Reclamation and Seawall Construction

2.12.1.1 Approximately 20ha[6] of water at TKO 137 is proposed to be reclaimed to form land for housing development. Sloping seawall with a length of approximately 1200 m and vertical seawall with a length of approximately 500 m (at southern end of TKO 137) are required to support the proposed reclamation and protect it against wave and current action. Similarly for development off TKO 132, approximately 19 ha[6] of water off TKO 132 is proposed to be reclaimed to form land for accommodation of the Public Facilities. Sloping and vertical seawall with a length of approximately 1250 m will be constructed. Barging points with conveyor belts will be provided to facilitate the reclamation and seawall construction.

2.12.1.2 The actual construction sequences and processes of reclamation filling shall be further developed by the contractor, but the envisaged construction processes of the reclamation are summarised below:

TKO 137

Stage 1: Installation of Silt Curtain
Commencement of installation of silt curtain for the whole site to prevent muddy water from flowing out of the site boundary.

Stage 2: Removal of Rock Armour of Existing Seawall
Commencement of removal of rock armour of existing seawall to facilitate the installation of geotextile.

Stage 3: Installation of Sand Blanket
Commencement of placement of sand blanket (around 2 m thick) to facilitate future ground treatment works. Deposition of the sand blanket would be carried out in layers not exceeding 0.5 m thick with a leading edge between consecutive layers to prevent mud wave formation.

[6] Reclamation area is based on developable area.

Stage 4: Construction of DCM for Proposed Seawall
Commencement of marine DCM works for the non-dredged seawall region.

Stage 5: Construction of Proposed Seawall
Staged construction of proposed seawall after completion of DCM works. Reusing some of the existing rock armour.

Stage 6: Construction of DCM for Main Reclamation
Commencement of DCM works for the non-dredged main reclamation region.

Stage 7: Reclamation Filling to +3.0mPD (Above Water)
Carry out earth filling works to +3.0mPD above water to facilitate future ground treatment works.

Stage 8: Jet Grouting on Land
Carry out jet grouting for the dredged trench region.

Stage 9: Construction of Temporary Seawall
Temporary seawall to enclose the area

Stage 10: Filling to Formation Level / Surcharge
Continue earth filling up to the future formation level and establish surcharge filling where necessary.

TKO 132

Stage 1: Installation of Silt Curtain
Commencement of installation of silt curtain for the whole site to prevent muddy water from flowing out of the site boundary.

Stage 2: Removal of Obstruction/ Dumped Material
Commencement of removal of obstruction to facilitate the construction of DCM.

Stage 3: Installation of Sand Blanket
Commencement of placement of sand blanket (around 2 m thick) to facilitate future ground treatment works. Deposition of the sand blanket would be carried out in layers not exceeding 0.5 m thick with a leading edge between consecutive layers to prevent mud wave formation.

Stage 4: Construction of DCM for Proposed Seawall
Commencement of marine DCM works for the non-dredged seawall region.

Stage 5: Construction of Proposed Seawall
Staged construction of proposed seawall after completion of DCM works.

Stage 6: Construction of DCM for Main Reclamation
Commencement of DCM works for the non-dredged main reclamation region.

Stage 7 Reclamation Filling to +3.0mPD (Above Water)
Carry out earth filling works to +3.0mPD above water to facilitate future ground treatment works.

Stage 8: Jet Grouting
Carry out jet grouting for regions with thick layer of dumped materials.

Stage 9: Filling to Formation Level / Surcharge
Continue earth filling up to the future formation level and establish surcharge filling where necessary. Reusing some of the excavated dumped materials.

2.12.2 Site Formation

2.12.2.1 Site formation to be carried out mainly at TKO 132. Surplus inert Construction & Demolition (C&D) materials generated would be reused in the concurrent projects especially for the reclamation filling works at TKO 132 and TKO 137.

2.12.3 Road Works and Utilities

2.12.3.1 The proposed road works and utilities including road networks, drainage system, sewerage networks, water supply system and utility construction to support the development in TKO 137 and TKO 132. Except for the construction of marine viaduct, typical construction method for at-grade road would be adopted. The works involve earthworks, utilities laying, laying of sub-base materials and laying of bituminous or concrete surfacing layers.

2.12.4 Marine Viaduct at TKO 132

2.12.4.1 The proposed marine viaduct at TKO 132 will take the form of reinforced concrete columns and pile caps founded on piles. It is envisaged that the superstructure of the marine viaduct, for accommodating the single-2-lane carriageway, will be constructed by the following method:

Precast segmental method: With the bridge deck constructed as precast segments (each a few metres long) which are lifted into position and then stitched & prestressed together.

2.12.4.2 The above method do not differ significantly in terms of environmental impacts. The selection of method is, rather, driven by consideration on engineering constraints and the individual contractors' available equipment/resources in-hand.

2.13 Consideration of Alternatives for Construction Methodologies

2.13.1 Alternative Methodology for Seawall Construction

2.13.1.1 Various options of seawall design have been adopted in Hong Kong or overseas reclamation projects to achieve the necessary stability requirements of the seawall. A discussion of these options is presented below.

Option 1 – Fully Dredged Seawall

2.13.1.2 Fully dredged seawall involves removal of the marine sediment in existing seabed for forming the seawall base so as to ensure the stability of the seawall and minimise the settlement of the seawall. A fully dredged trench will be required to form and fill by sandfill/ rockfill or rockfill only, followed by laying of seawall core then the armour layers on the sloping seawall surface. This method is well-recognised in past reclamation projects in Hong Kong. However, the adoption of fully dredged seawall will involve large amount of dredging for the formation of dredged trench which will lead to significant impact to the water quality. Moreover, a large amount of sand/ rock fill materials to be used for backfilling the dredged trench for the foundation of the seawall will also contribute some adverse impact to the water quality. Necessary disposal of the dredged marine sediment is another key concern of the adoption of the fully dredged option. Furthermore, in order to transport the dredged marine sediment to designated location for disposal and bring sufficient amount of the sand/rock fill materials to backfill the dredged trench, it may require marine barges which will lead to possible increase of the marine traffic issues. The noise and emission from the marine barges will also

contribute to the noise impact and air pollution impact to the adjacent areas and marine ecology.

Option 2 – Partial Dredged Seawall

2.13.1.3 Partial dredged seawall is similar to Option 1: Fully dredged seawall although not all the soft marine sediment underneath seawall will be removed and replaced by sand/rock fill to form the foundation of seawall. The marine sediment will only be removed to a certain extent such that sufficient level of the stability of the seawall can be achieved. Compared to Option 1, the amount of dredged marine sediment to be disposed and fill materials to be required for filling up of the dredged trench can be reduced to certain extent. However, those concerns similar to fully dredged seawall including need of the disposal site for dredged materials, water quality impact due to dredging, need of large amount of filling materials for dredged trench and induced marine traffic can only be relieved to certain extent but still cannot be eliminated.

Option 3 – Non-dredged Seawall with Ground Improvement

Option 3a – Non-dredged Seawall with Prefabricated Vertical Drain (PVD) and Surcharge

2.13.1.4 During reclamation, with a gradual increase in overburden load, excess pore water pressure will be built up within soil clay. The application of a surcharge above the final formation level can further accelerate the consolidation process. The objective of surcharging is to induce maximum overburden stress greater than that predicted under the service loading. As a result, Marine Deposit will be in an over-consolidated state, which allows residual settlements over the design life to be significantly reduced.

2.13.1.5 PVD can be installed by both marine and land methods subject to site constraints, type of fill materials and water depth. Normally, the marine-based method has a programme advantage due to the early commencement of consolidation during reclamation filling.

2.13.1.6 The success of PVD lies in the adequacy of quality control, monitoring and acceptance criteria. Inadequacy in site and quality control has often led to local instability and underperformance of the PVD method. Examples of the requisite site controls required are control on leading edge filling. The stability of the temporary leading edge is highly sensitive to the height and width of each intermediate fill platform. Any misstep may result in local instability and significant deformation. Consequently, the PVD may be bent / damaged, or there may be lost of embedment. This will lead to reduced drainage efficiency, stagnation of pore water pressure and long consolidation periods.

Option 3b – Deep Cement Mixing (DCM)

2.13.1.7 DCM is an in-situ ground treatment method in which binder material, typically cement, is injected and simultaneously mixed into soft soils. The result of the mixing is a compound cluster with higher strength and stiffness. Based on the size and load of overhead facilities, the extent and replacement ratio of the DCM may be designed accordingly.

2.13.1.8 Prior to the mixing, a blanket layer of granular fill is placed on top of the original seabed to minimise any binder material escape to the waters. Afterwards, the DCM plant is positioned in the designated area and inserted into the soft layer at the designated level. Cement slurry is injected and mixed by mixing blades. To achieve the required strength and size, the mixing plant needs to control the penetration/withdrawal rate, water/cement injection rate, and blade rotation speed.

2.13.1.9 DCM has been proven to be a reliable ground treatment in local projects such as the Airport 3rd Runway Reclamation System, Integrated Waste Management Facilities (IWMF) Reclamation, and Tung Chung New Town East Reclamation Projects.

2.13.1.10 DCM method solidified the soft marine deposits with a cementitious material. The solidification process of DCM columns is rapid, with major strength gained within 28 days of mixing. Thus, reducing the construction time and the DCM columns could swiftly support the seawall and filling materials. According to previous local projects, DCM methods is an

environmentally friendly method which does not require dredging and disposal of dredged material. The prior process of laying sand blanket limits the loss of fine material due to the mixing process of DCM.

Recommendations of Construction Methodology for Seawall Construction

2.13.1.11 The above sections have described a total of 3 main options for the construction of seawall. The following table (**Table 2.17**) summarises the benefits and dis-benefits identified.

Table 2.17 Comparison of Seawall Design Options

Options	Benefits	Dis-benefits
Option 1 – Fully Dredged Seawall	• Well proven technology in Hong Kong. • Relatively fast if dumping site for marine sediment is available and fill source is sufficient. • Familiar by most of the local contractors. • Better control of the stability and settlement as all the compressible soft sediment underneath the seawall are removed.	• Large amount of dredged marine sediment to be disposed. • Large amount of the fill materials to be required to fill the dredged trench as the foundation to support the seawall on top. • Increase of marine vessels trips for the transportation of the relatively large amount of dredged marine sediment and fill materials. • More frequent marine vessel journeys will increase the noise and air impact. • Dredging of the marine sediment will inevitably induce impact to the water quality to certain extent.
Option 2 – Partial Dredged Seawall	• Well proven technology in Hong Kong. • Relatively fast if dumping site for marine sediment is available and fill source is sufficient. • Familiar by most of the local contractors. • Relative less marine sediment to be disposal compared to fully dredged seawall. • Relative less fill materials to be required compared to fully dredged seawall.	• Dredging of the marine sediment will inevitably induce impact to the water quality to certain extent. • Relative higher risk of settlement and instability compared to fully dredged seawall. • Even though less than fully dredged seawall, relative large amount of dredged marine sediment is still required to be disposed. • Even though less than fully dredged seawall, large amount of the fill materials is still required to fill the dredged trench as the

Options	Benefits	Dis-benefits
		foundation to support the seawall on top. • Even though less than fully dredged seawall, increase of the marine vessels trips for the transportation of the relatively large amount of dredged marine sediment and fill materials. • Even though less than fully dredged seawall, more frequent marine vessel journeys will increase the noise and air impact.
Option 3a and 3b – Non-dredged Seawall with Ground Improvement	• Minimal or even no marine sediment are required to be disposed. • Significantly reduced demand of fill materials for filling of the dredged trench compared to fully dredged / partial dredged seawall. • Significantly reduced marine vessels trips are required for transportation of dredged marine sediment and fill materials compared to fully / partial dredged seawall. • DCM methods is an environmentally friendly method which does not require dredging and disposal of dredged material • Largely reduce water quality impact associated with dredging works	• Relative longer construction period (if PVD and surcharge method is adopted) may be required compared to fully dredged seawall. • Relative higher cost compared to fully dredged / partial dredged seawall.

2.13.1.12 It can therefore be seen that Option 3b (ground improvement by DCM) have the most environmental benefits in terms of minimisation of the dredging, reduced amount of marine sediment to be disposed, reduced amount of required fill materials and reduction of the marine vessels' movement with their correlated air and noise impact, while best fulfilling the tight construction programme as compared with Option 3a. On this basis, Option 3b have been selected as the preferred option for implementation.

2.13.2 Alternative Methodology for Reclamation

2.13.2.1 In general, the reclamation methodology may be summarised as (1) Fully dredged, (2) Partially dredged and (3) Non-dredged reclamation.

Option 1 – Fully Dredged Reclamation

2.13.2.2 The fully dredged method is a technique to remove the soft marine sediment layer down to the competent stratum, commonly firm to stiff alluvium clay layer. The dredging trench extends outward, sloping with an angle corresponding to the seabed level. The slope for dredging shall be in a manner which does not compromise the slope stability. On top of the stability consideration, the act of dredging would also disturb the seabed and affect the water quality in the region. The dredging shall be conducted at a rate which limits the contamination of water.

2.13.2.3 After the dredging works, granular fill, including but not limited to rock fill, sand fill, or public fill, will be deposited onto the dredged basin. Public fill is preferable as one of the methods to recycle the construction and demolition waste. However, the relatively high fine content of public fill will limit the rate of filling that generate sediment plume and affect the water quality. The filling process of sand fill is generally more rapid compared to public fill due to hydraulic pumps machine utilised. The backfilled area then served as the foundation for the proposed seawall and other site formation works.

2.13.2.4 The fully dredged method would expedite the programme as the downtime in the surcharge period and strength-gaining period is limited or removed. The following filling process does not require compaction of granular fill below seawater level as long as the residual settlement satisfies the corresponding requirements. With such scheme, the construction time will be shortened, and the settlement problem will be minor as the settlement of underlying granular soils is rapid and predictable.

Option 2 – Partially-dredged Reclamation

2.13.2.5 Partially dredged reclamation method is similar to those of fully dredged method while not all the underlying soft marine sediment are to be removed. Partial removal of marine or alluvial deposits, leaving the lower, stiffer or stronger deposits in place reduces the dredging and fill quantities compared to the fully dredged method. However, it should be noted that better control is required than for full removal for the final trimming in dredging and for initial fill placement, to avoid future differential settlement. The remaining layer of marine or alluvial deposits will consolidate by vertical drainage upward through the fill and downward, if the layer beneath the soil is sufficiently permeable. The construction programme must still allow time for this consolidation and band drains with preloading may still be required if the available time is short. The extent of marine or alluvial deposits to be left in place must be decided after investigation and is subject to detailed design. It will depend on the amount of settlement predicted to occur after the completion of the reclamation compared to the magnitude of differential settlement which can be tolerated in the particular situation.

2.13.2.6 Partially-dredged still leads to concern on the necessary disposal of marine sediment, import of large amount of the fill materials for the dredged trench and increased amount of marine traffic, although the concern is relatively less than the fully-dredged method.

Option 3 – Non-dredged Reclamation (using Deep Cement Mixing)

2.13.2.7 DCM method solidified the soft marine deposits with a cementitious material. The solidification process of DCM columns is rapid with major strength gained within 28 days of mixing. Thus, reducing the construction time and the DCM columns could swiftly support the

filling materials. Additionally, the binding material, mainly cement, is widely available in the local market, which scales down any potential risk of material unavailability.

2.13.2.8 According to previous local projects, DCM is a relatively environmentally friendly method which does not require dredging and disposal of dredged material. The prior process of laying sand blanket limits the loss of fine material due to the mixing process of DCM.

Recommendations of Construction Methodology for Reclamation

2.13.2.9 The above sections have described a total of 3 main options for the reclamation. The following table (**Table 2.18**) summarises the benefits and dis-benefits identified.

Table 2.18 Comparison of Reclamation Options

Options	Benefits	Dis-benefits
Option 1 – Fully Dredged Reclamation	• Well proven technology in Hong Kong. • Relatively fast if dumping site for marine sediment is available and fill source is sufficient. • Familiar by most of the local contractors. • Better control of the stability and settlement as all the compressible soft sediment are removed.	• Large amount of dredged marine sediment to be disposed. • Large amount of the fill materials to be required to fill the dredged trench. • Increase of marine vessels trips for the transportation of the relatively large amount of dredged marine sediment and fill materials. • More frequent marine vessel journeys will increase the noise and air impact. • Dredging of the marine sediment will inevitably induce impact to the water quality to certain extent.
Option 2 – Partial Dredged Reclamation	• Well proven technology in Hong Kong. • Relatively fast if dumping site for marine sediment is available and fill source is sufficient. • Familiar by most of the local contractors. • Relative less marine sediment to be disposal compared to fully dredged reclamation. • Relative less fill materials to be required compared to fully dredged reclamation.	• Dredging of the marine sediment will inevitably induce impact to the water quality to certain extent. • Relative higher risk of settlement and instability compared to fully dredged reclamation. • Even though less than fully dredged reclamation, relatively large amount of dredged marine sediment is still required to be disposed. • Even though less than fully dredged reclamation, large amount of the fill materials is still required to fill the dredged trench.

Options	Benefits	Dis-benefits
		• Even though less than fully dredged reclamation, increase of the marine vessels' trips for the transportation of the relatively large amount of dredged marine sediment and fill materials. • Even though less than fully dredged reclamation, more frequent marine vessel journeys will increase the noise and air impact.
Option 3 – Non-dredged Reclamation (using Deep Cement Mixing)	• No marine sediment is required to be disposed. • Significantly reduced demand of fill materials for filling of the dredged trench compared to fully dredged / partial dredged reclamation. • Significantly reduced marine vessels trips are required for transportation of dredged marine sediment and fill materials compared to fully / partial dredged reclamation. • DCM methods is an environmentally friendly method which does not require dredging and disposal of dredged material.	• Relative higher cost compared to fully dredged / partial dredged seawall reclamation.

2.13.2.10 It can therefore be seen that Option 3 has the most environmental benefits in terms of reduced amount of marine sediment to be disposed, reduced amount of required fill materials and reduction of the marine vessels' movement with their correlated air and noise impact. On this basis, Option 3 has been selected as the preferred option for implementation.

2.13.3 Alternative Methodology for Marine Viaduct

2.13.3.1 The proposed marine viaduct connection from land to be created TKO 132 to existing Tseung Lam Highway can be constructed by erecting precast segment or cast-situ method. Having considered the scale and site condition of the proposed marine viaduct, it is recommended to adopt precast segment method where applicable as it is a more effective and environmentally friendly approach. The benefits and dis-benefits of these two construction methods is shown in **Table 2.19** below.

Table 2.19 Comparison of Marine Viaduct Construction Options

Options	Benefits	Dis-benefits
Precast Segment (Preferred Option)	• Minimise concrete mixing truck travelling in site area, thus minimise potential air and noise impact. • Shorten construction time, minimising on-site potential environmental impacts and cumulative environmental impacts with concurrent project. • Better control of quality and workmanship for works in fabrication yard. • Proven record for the construction of marine viaducts with no land access in the Tseung Lam Highway.	• Require another trade of skilled workers and additional construction equipment for erecting precast segments.
Cast-situ	• Conventional construction method and require relatively less special skilled labour when comparing with other construction methods.	• Longer construction time to carry out the bridge deck construction, i.e. span by span. • Required concrete mixing truck and concrete pump truck travelling in site area, thus induce potential air and noise impact. • Require substantial temporary steel platform/ falsework for construction especially the bridge is to be constructed over water. • Use of timber formwork thus more C&D waste/ materials will be generated.

2.14 Consideration of Alternatives for Reclamation Sequencing at TKO 132

2.14.1.1 Reclamation at TKO 132 can be carried out from either south (CBP) to north (EFs) or north to south. Proceeding the reclamation with the would result in similar water quality impact. However, the major factor in deciding the sequence of works is the site handover date for construction of EFs. In order to meet the target commissioning date of EFs, the reclaimed land is required to be formed in priority. Therefore, an alternative sequence of reclamation works is proposed in which the reclamation works will start from the north (EFs) to the south (CBP). Mitigation measure will be implemented to minimise the impact on water quality. Details will be discussed in **Section 5** of the EIA report.

2.15 Key Environmental Problems

2.15.1.1 **Table 2.20** presents the key environmental problems that have been avoided and any sensitive areas protected by environmentally friendly options in the development of the Draft RODP.

Table 2.20 Summary of Key Environmental Problems Avoided and Environmental Options

Design Approaches	Environmental Problems Avoided and Environmental Options
Avoidance of encroachment into CWBCP	• The proposed natural terrain mitigation works (i.e. flexible barrier) has been re-located to be within the EPP site to avoid any works encroaching into CWBCP
Preservation of natural shoreline	• Reclamation extent of TKO 132 has been optimised to minimise the impact to the natural shoreline. Approximately 1km out of 1.6km of natural shoreline can be maintained
Minimise direct impact to hard and black corals colonies and coral recipient site at western Junk Bay	• Reclamation extent of TKO 132 has been optimised to avoid encroachment into the coral recipient sites at Junk Bay and minimise direct impact to hard and black corals colonies and coral recipient site at western Junk Bay
Minimise direct impact to subtidal habitats and associated coral colonies in Western Junk Bay	• Reclamation extent of TKO 132 has been optimised to minimise direct impact to subtidal habitats and associated coral colonies in Western Junk Bay
Avoidance of encroachment on the existing government land licences at On Luen Village	• Site formation at TKO 132 has been designed to avoid encroachment into the existing government land licences at On Luen Village
Avoidance of direct impacts on natural water course	• Pier locations of the marine viaduct has been designed to avoid direct impact on the natural watercourse near TKO 132
Minimise impact to the terrestrial ecology at Devil's Peak	• The natural terrain mitigation works have been optimised to ensure that the works area is limited to the toe of Devil's Peak as far as possible in order to minimise the terrestrial ecology impact
Minimise potential odour impact	• The EPP emission points are designed to be located away from the sensitive receivers to minimise the potential odour impact
Providing sustainable transport infrastructure to promote low-carbon living	• Pedestrian-friendly environment and robust cycling network are proposed to promote walkability and cycling for low-carbon living
Appropriate Planning of Building Configuration and Setback	• With appropriate planning on building configuration and setback from roads, potential road traffic noise impact on future noise sensitive uses within the development would be minimised. The potential noise impacts could be alleviated by the use of low-

Design Approaches	Environmental Problems Avoided and Environmental Options
	noise road surfacing, acoustic windows and / enhanced acoustic balcony, blank wall, fixed window, architectural fin, etc., thereby avoiding the use of roadside noise barriers or enclosures. Without roadside noise barriers or enclosures, the associated visual impacts and bird collisions would also be avoided / minimised.
Create buffer distance between TKOIP and sensitive receivers/uses in TKO 137	• To minimise the impact from the TKOIP to the sensitive receivers/uses in TKO 137, G/IC and open spaces have been positioned between TKOIP and residential sites to sufficient buffer distance
Adoption of Non-dredged Reclamation	• Non-dredged reclamation with in-situ ground treatment methods (including marine-based deep cement mixing and land-based jet grouting) would be adopted to minimise the associated water quality impacts from dredging and additional filling, the waste management implications from sediment disposal and the secondary environmental impacts from induced marine traffic.
Adoption of Environmentally Friendly Construction Method	• The precast method would be adopted for the construction of the proposed marine viaduct to reduce the overall C&D materials to be generated on-site, shorten construction duration and minimise on-site environmental impacts (e.g. dust and noise) on nearby sensitive receivers.

2.16 Development Programme for the Project

2.16.1.1 To optimise the provision schedule of the proposed public facilities and supply of housing units, phased population intake would be necessary. Site formation, reclamation and key engineering infrastructure works will be implemented in stages while associated drainage, sewerage, water supply and utilities will process alongside road construction in respective development stages.

2.16.1.2 The Project would be commissioned in phases with the targeted first population intake in Year 2030. The tentative preliminary construction schedule under various phases is summarised in **Table 2.21** with reference to **Figure 2.8** for reclamation works and **Appendix 2.1** for the tentative site development works. The tentative construction programme and site phasing plan are presented in **Appendix 2.2** and **Appendix 2.3**, respectively.

Table 2.21 Preliminary Construction and Population Intake Schedule

Development Stage	Site	Major construction activities and Areas	Rationale of Phasing	Earliest Date for Commencement of infrastructure Works	Earliest Date for Availability of Land for Building Works	Anticipated First Occupation/ Population Intake Date
Initial Phase (End 2025 – End 2030)	**TKO 137**	Phase 1 Reclamation for TKO 137: reclamation, seawall works, site formation, box culvert(s) and seawall outfall(s) for the middle portion along the southwest shoreline and the existing barging basin at the north of the Project area of TKO 137 (1A, 1B and 1C referred to Figure 2.8) Site development works mainly at north of the TKO 137, targeting to achieve the first population intake in 2030 (initial phase of development of TKO 137 referred to Appendix 2.1)	- Land resumption and availability for reclamation and site formation - Land to be created to handover to Railway Development Office of Highways Department (HyD/RDO) in Sep 2028[2] for the railway construction to be completed with priority - To commence infrastructure works for targeted population intake	End 2025	End 2025	End 2030
	TKO 132	Reclamation, seawall works, box culvert(s), seawall outfall(s), slope-cutting, site formation, marine viaducts, site development works to support TKO 132 (Preliminary Development of TKO 132 referred to Appendix 2.1)	- The land to be created for relocation of Public Facilities to allow the site at TKO 137 to be vacated for residential development and accommodating other Public Facilities - To commence infrastructure works for accommodating the location-specific Public Facilities	End 2025	End 2028	-

Development Stage	Site	Major construction activities and Areas	Rationale of Phasing	Earliest Date for Commencement of infrastructure Works	Earliest Date for Availability of Land for Building Works	Anticipated First Occupation/ Population Intake Date
		Marine viaducts and infrastructure works (including sewage pumping station) to support TKO 132	- To provide infrastructure to Public Facilities at TKO 132	End 2025	End 2030	End 2030
Main Phase (Feb 2027 – End 2035)	**TKO 137**	Phase 2 Reclamation for TKO 137: reclamation, seawall works, site formation, box culvert(s) and seawall outfall(s) for the southern portion along the southwest shoreline of TKO 137 (2A and 2B referred to Figure 2.8) Site development works mainly at east and north of the project area of TKO 137 (excluding the HyD/RDO reserved area) to support the targeted population intake (main phase of development of TKO 137 referred to Appendix 2.1)	- Land resumption and availability for reclamation and site formation works for targeted population intake - Interim infrastructure for meeting 1st population intake - Areas with road connection from existing road networks - Key infrastructures - To commence infrastructure works for targeted population intake	End 2028	End 2028	End 2033
	TKO 132	Construction of Public Facilities (EFs, CWHF, RTS, PFTF and CBP) – **by others**	- Upon completion of reclamation and site formation works, respective land will be handed over to the Public Facilities' operators to construct EFs, CWHF, RTS, PFTF and CBP	End 2028 (Building Works)	End 2028 (Building Works)	2030 (PFTF and CBP) 2031 (CWHF) 2032 (RTS) 2035 (EFs)
Remaining Phase	**TKO 137**	Site development works mainly for the HyD/RDO reserved area and the west	- Land availability after releasing from HyD/RDO for commencing infrastructure	End 2036	End 2036	End 2038

Development Stage	Site	Major construction activities and Areas	Rationale of Phasing	Earliest Date for Commencement of infrastructure Works	Earliest Date for Availability of Land for Building Works	Anticipated First Occupation/ Population Intake Date
(End 2033 – End 2041)		of the Project area of TKO 137, and the remaining site development and interfacing works for TKO 137 to support the targeted population intake (remaining phase of development of TKO 137 referred to Appendix 2.1)	works for targeted population intake - Remaining works to suit the programme of other interfacing works			

Remarks:
1. Phasing plan is subject to further liaison with LandsD and further review at Design & Construction stage.
2. Site formation works will have interface with the construction works of TKLSE (in services by 2036 subject to RDO's later formulation of the railway construction works).
3. The lands under each phase will be available for building and infrastructure works with taking over of the sites in phases from LandsD.

2.16.2 Initial Phase Development

2.16.2.1 Initial Phase Development comprises mainly Phase 1 Reclamation for TKO 137 primarily for the land to be formed to handover to HyD/RDO by Q3 2028 for the railway construction works at TKO 137 and the site development works at the North of the project area of TKO 137 for the first population intake in Year 2030.

2.16.2.2 The major works in TKO 137 will include:

- Phase 1 Reclamation including associate seawall works, site formation, box culvert and seawall outfall works for the middle portion along the southwest shoreline and the existing barging basin at the north of TKO 137.
- Site development works for two “Public Housing” (“PU”) sites and two “Education” (“E”) sites at north of the project area, including associated local roads and the interchange/junction works connecting with Wan Po Road, pedestrian connectivity, drainage, waterworks, sewerage (including construction of advance SPS), utilities, electrical and mechanical, paving, road marking and street furniture works to support the first population intake.

2.16.2.3 Initial Phase Development also includes the reclamation, slope-cutting, site formation, construction of marine viaduct and infrastructure works at TKO 132 for development of the proposed Public Facilities, so that the phase 2 reclamation at TKO 137 can then be commenced after the facilities relocated to TKO 132.

2.16.2.4 The major works for TKO 132 will include:

- Reclamation, seawall construction, slope-cutting, site formation, box culvert(s) and seawall outfall(s) to form about 20 ha for the proposed developments.
- Construct of marine viaducts and road network to connect the land to be created off TKO 132 to existing Tseung Lam Highway.
- Other engineering infrastructure works including roads, interchange/junction, pedestrian connectivity, drainage, sewerage including construction of SPS, waterworks, landscape to support the development.

2.16.3 Main Phase Development

2.16.3.1 Main Phase Development comprises mainly Phase 2 Reclamation for TKO 137 and the development works at the east and north of the project area of TKO 137 (excluding the areas reserved by HyD/RDO for the construction of TKLSE). The development works in this phase is to support the targeted population intake in Year 2033 and the targeted mass population intake in Year 2035 respectively at TKO 137.

2.16.3.2 The remaining reclamation, major site development works to support TKO 137 in this development will include:

- Phase 2 Reclamation including associated seawall works, site formation, box culvert(s) and seawall outfall(s) for the southern portion along the southwest shoreline.
- Site development works for four “Public Housing” (“RSc”) sites at east of the Project area.
- Site development works for one ‘Private Housing” (“R1”) site at northwest of the Project area.
- Site development works for “Government, Institution or Community” (“G”) sties.

- Site development works for “Education” (“E”) sites.
- Site development works for “Other Specified Uses” (“OU”) sites for key infrastructures, including EPP, FWSR and SWSR.
- Associated local roads, interchange/junction, pedestrian connectivity, drainage, waterworks, sewerage, UU, E&M, paving, road marking and street furniture works.

2.16.3.3 The major works for TKO 132 will include:

- Upon completion of the reclamation and site formation works at TKO 132, respective formed land will be handed over to the operators of the Public Facilities for their building construction and other facilities within their sites.

2.16.4 Remaining Phase Development

2.16.4.1 Remaining Phase Development is the last phase of the development for TKO 137, mainly including development works at the land area that was occupied by HyD/RDO for the TKLSE construction at initial phase (subject to HyD/RDO’s later formulation of the railway construction works), as well as any remaining infrastructure and interfacing works from the last development phase. The development works in this phase is to support the targeted population intake in Year 2038 and the targeted mass population intake in Year 2041 respectively at TKO 137.

2.16.4.2 The major development works in this development phase will include:

- Site development works for two ‘Private Housing” (“R1”) sites and two ‘Private Housing” (“R2”) sites at west of the Project area.
- Associated local roads, interchange/junction, pedestrian connectivity, drainage, waterworks, sewerage, UU, E&M, paving, road marking and street furniture.
- Interfacing works from the last development phase.

2.17 Concurrent Projects

2.17.1.1 The EIA has assessed the potential cumulative impacts of the Project and associated works that may arise through interaction or in combination with other existing, committed and planned developments in the vicinity of the Project and associated works. In addition, interactions between different impacts (i.e. synergistic impacts) for key sensitive receptors have also been considered.

2.17.1.2 The following projects that are considered as concurrent project.

1. Tseung Kwan O Desalination Plant;
2. Large Scale Solar Farm at South East New Territories Landfill;
3. Existing SENTX;
4. SENT Landfill;
5. Construction of Relocated Berthing Facilities and Associated Structures within Tseung Kwan O Area 137 Fill Bank;
6. Cavern Development in Area around Tseung Kwan O;
7. Proposed Tseung Kwan O Line Southern Extension;
8. Existing explosives off-loading pier at Fat Tong O;
9. Fill bank at Tseung Kwan O Area 137 - Handling of Surplus Public Fill;
10. Tseung Kwan O – Lam Tin Tunnel and its associated works;
11. Cross Bay Link, Tseung Kwan O;
12. Water Sports Centre in Area 77, Tseung Kwan O;

13. Power cables connecting to the Electrical Facilities at TKO 132 and Electrical Substations at TKO 137;
14. Upgrading works for existing explosives off-loading pier at Fat Tong O;
15. Tiu Keng Leng Park;
16. Potential Hiking Trail at TKO 137; and
17. Potential Hiking Trail at TKO 132.

2.17.1.3 Several major projects are identified in 500 m assessment area as having the potential to run concurrently with the proposed Project and hence have the potential to result in cumulative impacts on the environment. The planned construction period and a brief description of the projects identified has been summarised in **Table 2.22** Cumulative impacts from the concurrent projects have been assessed in the individualsections of this EIA Report and summarised in **Table 2.22** and the locations of the concurrent projects are shown in **Figure 2.13**.

2.17.1.4 Cumulative impacts from projects that are outside of the 500 m assessment area such as housing development in TKO, are also not anticipated. Cumulative impact from TKO-YTT is not anticipated. Therefore, these projects are excluded in **Table 2.22** and **Figure 2.13**.

Table 2.22 Summary of Potential Cumulative Impacts

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
1.	Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant under WSD Contract 13/WSD/17	Water Supplies Department	The design and build period commenced at the end of December 2019 and started supplying portable water to public from 22 December 2023		- Construction of First Stage of Desalination Plant at Tseung Kwan O	-	• Air Quality • Noise • Water Quality • Landscape and Visual • Hazard to Life
2.	Second Stage of Desalination Plant at Tseung Kwan O – Investigation, Design and Construction under WSD Contract CE 92/2022 (WS)	Water Supplies Department	The Investigation, Design and Construction Consultancy commenced in Early June 2023 and the estimated works completion date is in January 2031. The construction works have not yet commenced.		- Construction of Second Stage of Desalination Plant at Tseung Kwan O	• Air Quality • Noise • Ecology	• Air Quality • Noise • Water Quality • Landscape and Visual • Hazard to Life • Ecology
3.	Implementation of a Large Scale Solar Farm at South East New Territories Landfill for Supplying Renewable Energy to the Tseung Kwan O Desalination Plant - Investigation, Design and	Water Supplies Department	The Investigation, Design and Construction Consultancy commenced at the end of February 2023 and the estimated completion date is in October 2028.		- The project comprises constructing a solar farm in South East New Territories Landfill for producing renewable energy with proposed approx. capacity of 10MW. - The power generated from the solar farm would be used by the desalination plant exclusively.	• Ecology • Landscape and Visual	• Ecology • Landscape and Visual

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
	Construction under WSD Agreement No. CE 39/2022 (EM)						
4.	Existing SENTX	Environmental Protection Department	Construction works of SENTX commenced in end 2018 and all works (incl. landfill restoration) to be completed prior to the population intake at TKO 137.		- SENTX occupies 13 ha of the Tseung Kwan O Area 137 and 30 ha of the original SENT Landfill area to the north. - It has a capacity of about 6.5 Mm^3 and receives only construction waste for disposal. - Landfill restoration works will be carried out in phases with the last phase to be completed prior to the population intake at TKO 137.	• Air Quality • Noise • Ecology • Landscape and Visual • Landfill Gas Hazard	• Air Quality • Noise • Water Quality • Ecology • Landscape and Visual • Landfill Gas Hazard
5.	SENT Landfill	Environmental Protection Department	SENT Landfill commenced operation in September 1994. It was exhausted and closed on 21 November 2021. At present, restoration works for the closed SENT Landfill are on-going for completion prior to the population intake at TKO 137.		- SENT Landfill commenced operation in September 1994 and received domestic, commercial and industrial, construction and demolition, chemical and clinic wastes, dewater sewage sludge and stabilised incineration residues. - Since January 2016, SENT landfill has been designated to receive only construction waste for disposal. - SENT landfill was exhausted and closed on 21 November	• Landfill Gas Hazard	• Landfill Gas Hazard

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
					2021. At present, restoration works for the closed SENT Landfill are on-going for completion prior to the population intake at TKO 137.		
6.	Construction of Relocated Berthing Facilities and Associated Structures within Tseung Kwan O Area 137 Fill Bank	Civil Engineering and Development Department	The construction will commence in Q4 2025 and target to complete in Q4 2026.		- The primary objective of the works is to facilitate the development of TKO 137, and the works involves construction of berthing facilities and associated structures within TKO 137 Fill Bank as a replacement for the berthing facilities at the barging basin in TKO 137. - The concerned berthing facilities (with berthing length of around 500m) will be located near the southern end of TKO 137 Fill Bank. - The berthing facilities will be in use from Q4 2026 to Q4 2031, subject to the availability of the re-provisioned PFTF in TKO 132.	• Air Quality • Noise • Water Quality • Ecology • Landscape and Visual	• Landscape and Visual
7.	Cavern Development in Area around Tseung Kwan O	Civil Engineering and Development Department	The project is under planning and expected to complete in 2032 and beyond.		- The Government has been adopting a multi-pronged approach to enhance land supply, including cavern development. The project is	• Air Quality • Noise • Ecology • Landscape and Visual	• Noise • Ecology • Landscape and Visual

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
					under planning and subject to review.		
8.	Proposed Tseung Kwan O Line Southern Extension	Transport and Logistics Bureau and Highways Department	The project is under planning. Construction will commence in 2028 and expected to complete in 2038.		- The TKO Line Southern Extension, aims to support the development of TKO 137 and provide a convenient and efficient mass transit system to the 135,000 new population. The Government recommends using the heavy rail system of the existing TKO Line as the basis and extending the railway from LOHAS Park Station southward to the underground station at TKO 137.	• Air Quality[7] • Noise[7] • Ecology[7] • Fisheries[7] • Water Quality[7]	• Noise • Water Quality[7] • Ecology[7] • Fisheries[7]
9.	Existing explosives off-loading pier at Fat Tong O	Civil Engineering and Development Department	The project is currently in operation and the tentatively end date of operation is end of 2029.		- The Mines Division of CEDD operates a pier at TKO 137 (TGLA No. SK 567) for off-loading explosives from vessels. - This pier is used for the explosives delivery operation from the Government Explosives Depot at Kau Shat	• Hazard to Life • Landscape and Visual	-

[7] There is no confirmed details on the design/alignment and construction method of the TKLSE during this EIA study. Therefore, cumulative impact arising from TKLSE was evaluated based on the best available information (i.e. land area reserved for underground railway development). Nevertheless, since TKLSE is a designated project under Schedule 2 of the EIAO, the potential environmental impacts of TKLSE (including cumulative impact of concurrent project) will be assessed and addressed under a separate EIA study.

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
					Wan, Lantau, to projects throughout the HKSAR.		
10.	Fill bank at Tseung Kwan O Area 137 - Handling of Surplus Public Fill	Civil Engineering and Development Department	The fill bank has been in operation since 2002 through a series of construction contracts. The current contract is Contract No. CV/2023/10 - Handling of Surplus Public Fill (2024 - 2027) commenced in August 2024 for about 36 months.		- The fill bank at TKO 137 (TKOFB) is for handling of public fill (including reception, temporary storage, etc.) generated from the local construction projects for subsequent beneficial reuse (including reclamation projects, delivery to the Mainland, etc.). - To facilitate the development of Tseung Kwan O Area 137, there are plans to surrender the land parcels of TKOFB progressively in phases starting from end 2025. Subject to further discussions and deliberations, the facilities in the TKOFB may have to be relocated internally, such as combined reception and exit offices, berthing facilities, etc. - The overall surrendering programme will also depend on the absorption programme of local reclamation projects under planning and the availability of facilities reprovisioning in TKO 132,	• Air Quality • Landscape and Visual	-

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
					such as Public Fill Transfer Facility.		
11.	Tseung Kwan O – Lam Tin Tunnel and its associated works	Civil Engineering and Development Department	Construction commenced in July 2016 and was substantially completed for road opening in December 2022.		- The project is for the construction of a dual two-lane highway approximately 3.8 km long connecting Tseung Kwan O (TKO) at Po Shun Road in the east with proposed Trunk Road T2 in Kai Tak Development in the west. - About 2.2 km of the highway is in the form of tunnel. TKO-LTT will meet the TKO external traffic demand as a result of continual development of TKO. TKO-LTT, together with the proposed Trunk Road T2 and Central Kowloon Route, will form the Route 6 which will provide an east-west express link between West Kowloon and TKO areas.	The project has been completed, therefore no potential cumulative impact under construction stage	Air Quality
12.	Cross Bay Link, Tseung Kwan O	Civil Engineering and Development Department	Construction commenced in July 2018 and completed in December 2022.		- Cross Bay Link (CBL) connects TKO–LTT to Wan Po Road in Area 86 of Tseung Kwan O (TKO). - It provides an alternative access route to the south-eastern part of TKO, so as to cope with the	The project has been completed, therefore no potential cumulative impact under construction stage	Air Quality

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
					anticipated traffic demand in TKO. With the completion of CBL, traffic from the south-eastern part of TKO can commute to and from the western part of TKO via CBL, as well as commute to and from Kowloon East via TKO–LTT, without travelling through Wan Po Road and TKO town centre. - Hence, the traffic load to these roads during peak hours is relieved, and thereby minimising the traffic and environmental impacts on residents in the vicinity. - The project includes an about 1.8 kilometres long dual -2-lane carriageway with cycle track and footpath across Junk Bay mainly on viaduct. The works include construction of connecting roads and implementation of associated traffic control and surveillance system, drainage, waterworks, marine, landscaping, electrical and mechanical and ancillary works.		

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
13.	Water Sports Centre in Area 77, Tseung Kwan O	Leisure and Cultural Services Department	To be confirmed (Note: As this project is at early planning stage, there is no concrete implementation schedule/construction programme.)		- A Water Sports Centre in Area 77, Tseung Kwan O. Possible marine works include coastal facilities (including steps or levels on the seawall to serve as spectator stand for competitions) and construction of a pier with landing steps and mooring points for rescue boats.	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under construction stage cannot be assessed under this EIA and will be addressed in separate studies	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under operation stage cannot be assessed under this EIA and will be addressed in separate studies
14.	Power cables connecting to the Electrical Facilities at TKO 132 and Electrical Substations at TKO 137	To be determined	The project(s) is under planning. Construction commencement is subject to separate study. Completion date is expected to be tally with the EFs and ESS.		- Laying of power cables is expected to connect to the proposed EFs at TKO 132 and the proposed ESSs at TKO 137. The actual alignment and design are under planning.	Design information on the cable alignment are unavailable, therefore, impact under construction stage cannot be assessed under this EIA and will be addressed in separate studies	• Electric and Magnetic Field
15.	Upgrading works for existing explosives off-loading pier at Fat Tong O	Civil Engineering and Development Department	To be confirmed (Note: As this project is at feasibility stage, there is no concrete implementation schedule/construction programme.)		- Upgrade of existing explosives off-loading pier for public use	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under construction stage	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under operation

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
						cannot be assessed under this EIA and will be addressed in separate studies	stage cannot be assessed under this EIA and will be addressed in separate studies
16.	Tiu Keng Leng Park	Leisure and Cultural Services Department	To be confirmed (Note: As this project is at feasibility stage, there is no concrete implementation schedule/construction programme.)		- Under the planning of the Tseung Kwan O Outline Zoning Plan, there is a district open space in Tseung Kwan O Area 72 for the proposed provision of the Tiu Keng Leng Park	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under construction stage cannot be assessed under this EIA and will be addressed in separate studies	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under operation stage cannot be assessed under this EIA and will be addressed in separate studies
17.	Potential Hiking Trail at TKO 137	Civil Engineering and Development Department	To be confirmed (Note: As this project is at feasibility stage, there is no concrete implementation schedule/construction programme.)		- Construction of hiking trail connecting existing hiking trails to TKO 137	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under construction stage cannot be assessed under this EIA and will be addressed in	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under operation stage cannot be assessed under this EIA

Ref. no.	Concurrent Project	Project Proponent	Construction Programme		Brief Description	Potential Cumulative Impact from the Concurrent projects	
			Start	Complete		Construction	Operation
						separate studies	and will be addressed in separate studies
18.	Potential Hiking Trail at TKO 132	Civil Engineering and Development Department	To be confirmed (Note: As this project is at feasibility stage, there is no concrete implementation schedule/construction programme.)		- Construction of hiking trail/ boardwalk connecting existing hiking trails to TKO 132	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under construction stage cannot be assessed under this EIA and will be addressed in separate studies	Design information is unavailable at the time of preparation of this EIA. Therefore, potential impact under operation stage cannot be assessed under this EIA and will be addressed in separate studies

Note: "—" = Potential cumulative impact not anticipated.