

Agreement No. CE 61/2007 (CE) North East New Territories New Development Areas Planning and Engineering Study – Investigation

Executive Summary

(Rpt Ref: 179-01)



Civil Engineering and Development
Department and Planning
Department

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North East New Territories New
Development Areas Planning and
Engineering Study- Investigation**

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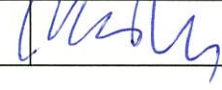
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1 Introduction

1.1 Background of the Study

1.1.1 The Territorial Development Strategy Review in 1990s first identified that there was potential for strategic growth in the North East New Territories (NENT). The Planning and Development Study on North East New Territories (the NENT Study) commissioned in 1998 had identified areas in Kwu Tung North (KTN), Fanling North (FLN) and Ping Che/Ta Kwu Ling (PC/TKL) to be suitable for New Development Areas (NDAs).

1.1.2 The Hong Kong 2030: Planning Vision and Strategy (the HK2030 Study), promulgated in 2007, recommended to proceed with the KTN, FLN and PC/TKL NDAs as well as the Hung Shui Kiu NDA to address the long-term housing demand and provide employment opportunities. Following the announcement of the development of the NDAs as one of the ten major infrastructure projects for economic growth in the 2007-08 Policy Address, the NENT NDAs Planning and Engineering Study (the Study) was commissioned jointly by the Civil Engineering and Development Department (CEDD) and the Planning Department (PlanD) in June 2008 with a view to formulating a planning and development framework for the implementation of the KTN, FLN and PC/TKL NDAs.

1.1.3 This summary provides the key findings and recommendations of the Study.

1.2 Main Objectives of the Study

1.2.1 The main objectives of the Study are as follows:

- Carry out planning, engineering studies and environmental assessments with a view to reviewing and updating the findings and recommendations of the NENT Study to formulate revised proposals for the NENT NDAs;
- Confirm the feasibility of the revised proposals for the NDAs to meet the medium to long-term housing, social, economic and environmental needs; and
- Formulate the implementation strategies and programme for the NDAs with the first population intake by 2023.

1.3 Study Process

1.3.1 The Study could be divided into five stages:

- Formulation of Guiding Principles

At the beginning of the Study, the Consultants compiled an inventory of baseline conditions of the Study Area, as well as reviewed and identified the key issues so as to facilitate the subsequent planning and engineering tasks. The Stage 1 Public Engagement (PE) was held to solicit public views on their visions and aspirations for the NDAs and discuss key issues relating to the development of the NDAs.

- Formulation of Preliminary Outline Development Plans

Preliminary Outline Development Plans (PODPs), the Preliminary Master Urban Design and Landscape Plans for the KTN, FLN and PC/TKL NDAs were formulated taking into account the public comments and guiding principles for the NDAs. Initial technical assessments were undertaken to confirm the technical feasibility and Stage 2 PE was held to collect public views on the PODPs.

- Formulation of Recommended Outline Development Plans

Recommended Outline Development Plans (RODPs), Recommended Master Urban Design and Landscape Plans and Preliminary Layout Plans (PLPs) for KTN, FLN and PC/TKL NDAs were formulated after incorporating the comments received in Stage 2 PE. Technical assessments were then carried out, followed by Stage 3 PE to gauge public views on the RODPs.

- Revision of Recommended Outline Development Plans

RODPs for the KTN and FLN NDAs were revised taking into account public views received in Stage 3 PE and planning and engineering assessments were completed, whilst PC/TKL NDA is being critically reviewed and replanned in the Preliminary Feasibility Study on Developing the New Territories North (the NTN Study), in order to comprehensively review relevant planning considerations. Further technical assessments were undertaken to confirm the technical feasibility of the Revised RODPs.

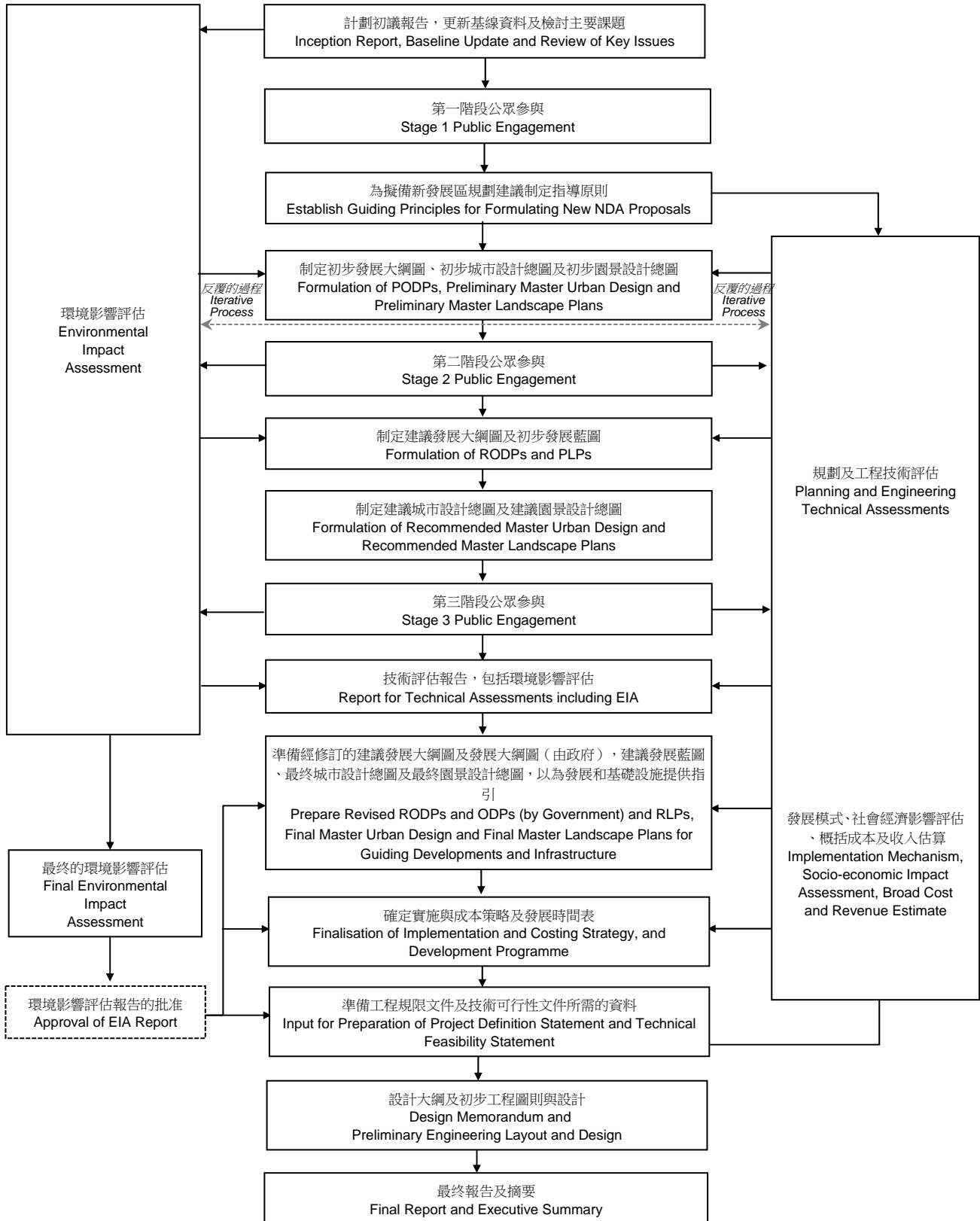
- Formulation of Outline Development Plans

The Consultants assisted the PlanD to formulate the Outline Development Plans (ODPs) for the two NDAs on the basis of the Revised RODPs. The Recommended Layout Plans (RLPs) and Final Master Urban Design and Landscape Plans for the two NDAs were developed based on the ODPs.

1.3.2 An Environmental Impact Assessment (EIA) was conducted as part of and in parallel with other technical assessments under the Study. The findings and recommendations of the EIA served as inputs to various stages of the Study.

1.3.3 The Study examined and recommended the implementation mechanism and institutional framework for the implementation of the NDAs. It also formulated a development programme outlining the timing required for implementing the proposed developments and infrastructures.

1.3.4 The Study process is shown in the flow chart below.



圖例 Legend

- 由研究顧問進行
Tasks to be undertaken by the Study Consultants
- 由其他人進行
Tasks to be undertaken by others

1.4 Study Area

1.4.1 The Study Area covers a total area of about 3,500 ha in the north-eastern part of the New Territories, including the proposed locations of the three proposed NDAs. The Study Area generally extends from the former Frontier Closed Area (FCA) in the north to a limit of around 500 m beyond the existing Fanling Highway in the south. The eastern side of the Study Area stretches to include Tai Hom Tuk, while the western side extends to a limit of some 350 m beyond Pak Shek Au and Tit Hang villages. The Study Area is presented in **Figure 1**.

1.4.2 PC/TKL NDA was included in the first three stages of the Study. It was decided to review and replan it in the NTN Study. In this context, the PC/TKL NDA will not be discussed in details in this summary. Further technical assessments were undertaken to confirm the technical feasibility of developing KTN and FLN NDAs only.

2 Existing Conditions, Planning Context, Development Opportunities & Constraints and Key Issues

2.1 Existing Conditions

KTN NDA

2.1.1 KTN NDA is located to the northwest of the existing Fanling/ Sheung Shui New Town and to the west of the FLN NDA. It is generally bounded by Shek Sheung River in the east, Castle Peak Road and Fanling Highway in the south, Pak Shek Au and Tit Hang villages in the west and Tai Shek Mo (Crest Hill) in the north.

2.1.2 KTN NDA is rural in nature with limited infrastructure. Two recognised villages, namely Ho Sheung Heung and Yin Kong, and some scattered rural settlements are found in the KTN NDA. Agriculture activities are located mainly in Ho Sheung Heung and Long Valley, while rural industries and open storage sites are identified along Ho Sheung Heung Road and Ma Tso Lung Road from Shek Tsai Leng, through the area of Tong Kok and Tung Fong, to the foothill of Fung Kong Shan.

2.1.3 According to the 2011 Population Census, the existing population of the KTN NDA was about 5,400 persons. The Consultants carried out a survey in 2009 and estimated that there were about 1,150 households in the KTN NDA.

FLN NDA

2.1.4 Encompassing the floodplain alongside the trained Ng Tung River, FLN NDA is located immediately to the north of the existing Fanling/ Sheung Shui New Town and to the east of the KTN NDA. It is bounded by Wa Shan and Cham Shan in the north, Ma Wat River in the east, Ma Sik Road and Tin Ping Road in the south, a section of Ng Tung River in the southwest, and Sheung Yue River in the west.

2.1.5 FLN NDA is also rural in nature with limited infrastructure. Rural settlements scatter in the FLN NDA. Major agricultural activities are found at Ma Shi Po and Ting Ping Shan Tsuen. Container storage, container vehicle parking areas and open storage sites are concentrated along Man Kam To Road and located to the north of Fung Kai schools.

2.1.6 According to the 2011 Population Census, the existing population of the FLN NDA was about 950 persons. The Consultants carried out a survey in 2009 and estimated that there were about 425 households in the FLN NDA.

2.2 Planning Context

2.2.1 The HK2030 Study promulgated in 2007 had recommended planning work for NENT NDAs and Hung Shui Kiu NDA to commence as soon as possible. These NDA schemes would be nodal developments located adjacent to existing new towns. The NDAs should be developed for multiple purposes, including the provision of land for housing and community facilities, improvement of the rural environment, better protection of resources of high conservation value, and timely development of land for high value-added, non-polluting industries.

2.2.2 The findings and recommendations of the NENT Study (completed 2003), Study on Land Use Planning for the Closed Area (completed 2010), Planning and Engineering Study on Development of Lok Ma Chau Loop (ongoing), the Lingtang/Heung Yuen Wai Boundary Crossing Point Project (under construction), the Review and Update of the Railway Development Strategy 2000 (ongoing) and the local planning context were given due consideration in the Study.

2.3 Development Opportunities & Constraints and Key Issues

Development Opportunities

2.3.1 KTN NDA

- KTN NDA is highly accessible via Fanling Highway. The proposed Kwu Tung railway station provides convenient connection from the KTN NDA to other areas and promotes the use of public transport.
- KTN NDA is strategically located near various boundary control points and can capitalise on the economic interactions between Hong Kong and the Mainland.
- Long Valley, Sheung Yue and Shek Sheung Rivers, and hills to the north, within and in the surroundings of the area can be utilised to create a quality living environment.
- Fung shui woodland at Ho Sheung Heung, a declared monument and a number of graded historic buildings within the KTN NDA can be incorporated in the NDA developments for the benefits of existing and future residents.

2.3.2 FLN NDA

- The FLN NDA enjoys a strategic location abutting the existing Fanling/Sheung Shui New Town to its south. The future residents of the NDA and residents in the existing New Town can share various retail and Government,

Institution or Community (G/IC) facilities and open spaces in both the NDA and the existing New Town.

- Ng Tung River and the green mountainous areas of Cheung Po Tau, Cham Shan, Wa Shan, High Hill and Ma Tau Leng provide opportunities for planning and design of the NDA based on a “riverside community” theme with a natural green backdrop.
- A graded historic building (Man Ming Temple) and part of the Sheung Shui Wa Shan Site of Archaeological Interest are within the FLN NDA, and Lung Yeuk Tau Heritage Trail is located to the east immediately outside the NDA. Preservation of the historic building and good linkages to the heritage trail could help incorporate the valuable historic resources into the NDA developments for the benefits of future residents and visitors.

Development Constraints

2.3.3 KTN NDA

- Sheung Shui Water Treatment Works (SS WTW), Sheung Shui Slaughter House and Shek Wu Hui Sewage Treatment Works (SWH STW) located to the northeast of the KTN NDA impose environmental constraints to the NDA developments. Fanling Highway and Lo Wu/Ma Tso Lung Firing Ranges with a helicopter pad in the KTN NDA generate air pollution and noise.
- Various infrastructures, including 400 kV overhead power lines, Dongjiang watermains and Lok Ma Chau Spur Line, pose development constraints to NDA. For new developments in the NDA, apart from provision of proper sewage treatment facilities, measures to improve the quality of existing sewage discharge are required to ensure no net increase of pollution load to the sensitive Deep Bay Area.
- Due consideration should be made to ecological resources within and in the vicinity of the KTN NDA, including Long Valley and Ho Sheung Heung, Ng Tung River, Sheung Yue River, Shek Sheung River, Ma Tso Lung Stream, Ma Tso Lung San Tsuen Stream, Ho Sheung Heung Egrettry together with its associated flight paths, fung shui woods and secondary woodlands, to avoid/minimise adverse effects on their ecological values and natural habitats.
- The planning of the NDA should minimise the impact to the two recognised villages, rural settlements and permitted burial grounds as far as possible. However, it may be unavoidable to resume land at the core areas of the NDA

for the provision of road infrastructure, public housing, public facilities as well as residential and commercial developments.

2.3.4 FLN NDA

- SS WTW located at the northwest, Sheung Shui Slaughter House and SWH STW located to the west of the FLN NDA impose environmental constraints to the NDA developments.
- The existing Dongjiang watermains within the FLN NDA, the policy requirement of no net increase of pollution load to the sensitive Deep Bay Area and insufficient traffic capacity of several key junctions outside the FLN NDA pose infrastructural constraints to the NDA developments.
- Due consideration should be made to ecological resources within and in the vicinity of the FLN NDA, including Ng Tung River and some of the mitigation meanders, Man Kam To Road Egrettry together with its associated flight path and Siu Hang San Tsuen Stream, to avoid/minimise adverse effect on their ecological values and natural habitats.
- Site formation and the drainage system should be designed to minimise flooding risk to the planned developments and the nearby existing settlements.

Key Issues

2.3.5 The following key issues would have implications on the formulation of development proposals:

- Achieving sustainable development in planning the NDAs;
- Meeting other strategic land use requirements, such as high value-added, non-polluting industries as recommended in the HK2030 Study to capitalise on the increasing economic interaction with the Mainland, which will also provide job opportunities;
- Promoting people-oriented communities by timely provision of adequate community facilities, infrastructures, employment opportunities, and appropriate housing mix;
- Pursuing quality living environment through quality urban design and integration of cultural and natural conservation with development;
- Creating green living environment; and
- Devising a fair and equitable implementation mechanism.

3 Outline Development Plans and Recommended Layout Plans

3.1 Guiding Principles

3.1.1 Taking into account the public views received in the Stage 1 PE, the following guiding principles were formulated as a basis for preparing the development proposals for the NDAs:

- **Strategic Roles of NDAs:** to reserve land in the NDAs for the industries where Hong Kong enjoys clear advantages to promote the economic development of Hong Kong;
- **People-Oriented Communities:** to respect the existing and surrounding communities; adopt a balanced mix of public and private housing; ensure timely provision of community facilities and diversified employment opportunities to establish balanced, harmonious communities;
- **Sustainable Living Environment:** to respect, preserve and optimise the use of the existing valuable natural and cultural resources as well as adopt green and energy-saving initiatives;
- **Implementation Mechanism:** to adopt appropriate development approach to ensure timely provision of infrastructures and completion of developments and explore appropriate arrangements to rehouse the affected residents.

3.2 Preliminary Outline Development Plans

3.2.1 Taking into account the public aspirations gathered in the Stage 1 PE, as well as the findings and recommendations of various initial technical assessments, the PODPs for KTN and FLN NDAs were formulated based on the guiding principles mentioned above. The development themes, major land uses and development parameters of the KTN and FLN NDAs under the PODPs are in **Table 3.2.1**.

Table 3.2.1 The Development Themes, Land Uses and Development Parameters of the KTN and FLN NDAs

	KTN NDA	FLN NDA	Total
Development Theme	Mixed Development Node	Riverside Township	-

	KTN NDA	FLN NDA	Total
Major Uses	Residential, Commercial, Research & Development, Long Valley Ecological Area	Residential, Government Facilities	-
Total Area (ha)	450	180	630
Developable Area^(a) (ha) (% Total)	305 (67%)	165 (92%)	470 (75%)
Total Population	About 65,000	About 48,000	About 113,000
New Residential Units	About 22,000	About 17,500	About 39,500
Housing Mix (Public:Private)	54 : 46	41 : 59	49 : 51
Maximum Plot Ratio	1 - 5	1 - 5	1 - 5
Maximum Building Height	35 storeys	35 storeys	-
New Employment	About 26,000	About 6,200	About 32,200

Remark:

(a) *Developable Area refers to area with proposed/ possible new developments on the PODPs. This excludes areas zoned “Village Type Development” (“V”), “Green Belt” (“GB”) and “River Channel” and those areas already occupied by existing developments which have to be retained in the future.*

(b) *The figures are rounded to the nearest integers.*

3.3 Recommended Outline Development Plans

3.3.1 Taking into account the public comments gathered in the Stage 2 PE on the PODPs, as well as the findings and recommendations of various technical assessments, the RODPs for KTN and FLN NDAs were formulated. Under the RODPs, besides the other amendments and in response to the public aspirations for increasing development intensity of the lower residential zones, the plot ratios of “Residential Zone 2” (“R2”) and “Residential Zone 3” (“R3”) sites were increased. The development themes, major land uses and development parameters of the KTN and FLN NDAs under the RODPs are in **Table 3.3.1**.

Table 3.3.1 The Development Themes, Land Uses and Development Parameters of the KTN and FLN NDAs

	KTN NDA	FLN NDA	Total
Development Theme	Mixed Development Node	Riverside Township	-
Major Land Uses	Residential; Commercial, Research & Development; Long Valley Nature Park	Residential; Government Facilities	-
Total Area (ha)	450	166	616
Developable Area^(a) (ha) (% Total)	251 (56%)	129 (78%)	380 (62%)
New Population^(b)	About 81,900	About 52,100	About 134,000
New Residential Units	About 28,700	About 18,600	About 47,300
Housing Mix (Public:Private)	55 : 45	39 : 61	49 : 51
Maximum Plot Ratio	1.5 – 5	2 – 5	-
Maximum Building Height	35 storeys	35 storeys	-
New Employment	About 35,400	About 6,000	About 41,400

Remarks:

- (a) Referring to areas with new developments on the RODPs, excluding areas zoned “V”, “Conservation Area” (“CA”), “GB”, “Agriculture” (“AGR”) and “River Channel”, as well as those already occupied by existing/committed developments which have to be retained in future.
- (b) Excluding those in indigenous villages and existing/committed developments.
- (c) The figures are rounded to the nearest integers.

3.4 Revised Recommended Outline Development Plans

3.4.1 After taking into account public views received in the Stage 3 PE on the RODPs and the findings and recommendations of technical assessments, the RODPs of the KTN and FLN NDAs were revised. It was decided to implement the KTN and FLN NDAs first as the extensions to the existing Fanling/ Sheung Shui New Town to form Fanling / Sheung Shui/ Kwu Tung (FL/SS/KT) New Town, which will have a total population of about 460,000 upon full development. The FL/SS/KT New Town will be an integrated community providing a wide range of employment opportunities as well as commercial, community, recreation and cultural facilities given the more significant population scale. Taking into account infrastructural capacities, environmental constraints, urban design, etc., the development intensity

had also been maximised and the supply of subsidised housing units had been increased in the NDAs in response to public views. Under the Revised RODPs, KTN and FLN NDAs will accommodate some 174,900 new population in about 60,700 housing units, of which about 60% will be subsidised housing units (including Home Ownership Scheme flats). Some 37,700 job opportunities will also be created in the area (refer to **Table 3.4.1**).

Table 3.4.1 The Development Themes, Land Uses and Development parameters of the KTN and FLN NDAs

	KTN NDA	FLN NDA	Total
Development Theme	Mixed Development Node	Riverside Community	-
Major Land Uses	Residential; Commercial; Research & Development; Long Valley Nature Park; Agricultural Use; Recreational Facilities	Residential; Government Facilities	-
Total Area (ha)	450	164	614
Developable Area ^(a) (ha) (% Total)	208 (46%)	125 (76%)	333 (54%)
New Population ^(b)	About 101,600	About 73,300	About 174,900
New Residential Units	About 35,400	About 25,300	About 60,700
Subsidised Housing Units (including HOS) (% Total)	About 20,400 (58%)	About 16,200 (64%)	About 36,600 (60%)
Private Housing Units (% Total)	About 15,000 (42%)	About 9,100 (36%)	About 24,100 (40%)
Maximum Plot Ratio (for residential and composite developments)	3.5 – 6	2 ^(c) – 6	-
Maximum Building Height (for residential and composite developments)	20 – 35 storeys	12 ^(c) – 35 storeys	-
New Employment	About 31,200	About 6,500	About 37,700

Remarks:

- (a) Referring to areas with new developments on the Revised RODPs, excluding areas zoned “V”, “CA”, “GB”, “AGR”, “Other Specified Use (Nature Park)” (“OU(NP)”) and “River Channel”, as well as those already occupied by existing/committed developments which have to be retained in future.

- (b) *Excluding those in indigenous villages and existing/committed developments.*
- (c) *Maximum plot ratio of 2 and maximum building height of 12 storeys are applicable to only 1 site zoned “Residential Zone 3” (“R3”) at the periphery of the FLN NDA.*
- (d) *The figures are rounded to the nearest integers.*

3.5 Outline Development Plans

3.5.1 The Outline Development Plans (ODPs), which are Government departmental plans, aim to provide the following information to guide the future development of the KTN and FLN NDAs in an integrated and co-ordinated manner:

- A comprehensive planning framework;
- Relevant proposed land use patterns; and
- Information on major infrastructures.

3.5.2 The proposed land use patterns of the ODPs generally follow those of the Revised RODPs. The amendments made were mainly in response to the Advisory Council on the Environment (ACE)’s conditions of endorsement and recommendations in its consideration of the EIA report on NENT NDAs. The domestic and non-domestic gross floor areas (GFAs) and plot ratios of individual sites provided under the ODPs are generally the same as those provided under the Revised RODPs.

3.5.3 In formulating the ODPs, refinements were made to the layouts to provide space for supporting transport and utility facilities, slopes and amenity, and to enhance the greening and open space network. Opportunities were also taken to designate more land for government reserve and incorporate minor refinements.

3.5.4 The ODPs of KTN and FLN NDAs were adopted by the Secretary for Development on 20 December 2013. The ODPs No. D/KTN/1 and D/FLN/1 are shown on **Figure 2** and **Figure 3** respectively. The latest development parameters of the KTN and FLN NDAs under the ODPs are in **Table 3.5.1**.

Table 3.5.1 Flat Production, Population and Employment Estimation of KTN & FLN NDAs

	KTN NDA	FLN NDA	Total
New Flats	About 35,300	About 24,600	About 59,900
New Population	About 101,500	About 71,200	About 172,700
New Subsidised Housing Flats	About 20,400	About 16,200	About 36,600

Proportion of Subsidised Housing Flats	58%	66%	61%
Total Site Area for Subsidised Housing	21.2 ha	18.3 ha	39.5 ha
Total Population to be Housed in Subsidised Housing Flats	About 61,100	About 48,700	About 109,800
New Private Housing Flats	About 14,900	About 8,400	About 23,300
Proportion of Private Housing Flats	42%	34%	39%
Total Site Area for Private Housing ^(a)	28.6 ha	14.7 ha	43.3 ha
Total Population to be Housed in Private Housing Flats	About 40,400	About 22,500	About 62,900
Total Employment Opportunities	About 31,200	About 6,500	About 37,700

Remarks:

(a) Excluding areas zoned as “V” and “Residential Zone 4” (“R4”) and existing/committed residential developments.

(b) The figures are rounded to the nearest integers.

KTN ODP

3.5.5 The Planning Scheme Area of the KTN ODP is about 447 ha and will accommodate a total population of 105,500 and provide 31,200 job opportunities upon full development. The distribution of new housing units in the KTN NDA is around 58:42 in public and private housing developments.

3.5.6 Capitalising on its strategic location in proximity to the railway link, highways and the existing BCPs, and respecting the rich natural and ecological resources within the area, the KTN NDA is proposed to be developed as a ‘Mixed Development Node’ with a mix of residential, commercial, research and development (R&D) and agricultural uses as well as retail and services, community and government facilities and land for natural and ecological conservation.

3.5.7 A future town centre accommodating a mix of residential use, retail, leisure and social and community facilities is planned around the proposed Kwu Tung railway station and public transport interchange (PTI) in the central part of the KTN NDA to serve as a major activity node. To emphasize the function of the Town Centre, a Town Plaza for pedestrians will be developed. There should be good design integration between the proposed railway station, the shopping streets on both sides of the Town Plaza and the residential/commercial developments around the proposed station. The Business and Technology Park at the south-eastern part, with emphasis on commercial and R&D uses, constitutes an important economic and employment node for the KTN NDA. The Recreational Area, comprising Fung Kong Shan Park, a swimming pool, a sports centre and a sports ground/ sports complex in the

north-eastern portion of the NDA, is another focal point to create a recreational hub for the future residents.

3.5.8 The north-south and east-west running open spaces across the Town Centre serve as major pedestrian spines connecting to the existing communities in Kwu Tung South to the south and Ho Sheung Heung and Yin Kong in the eastern portion of the KTN NDA. A comprehensive cycle track network is also planned with linkages to the major activity nodes in the KTN NDA as well as to the existing cycle track network in the Fanling/ Sheung Shui area and the proposed cycle track network in the FLN NDA to provide convenient connections for the local communities.

3.5.9 The KTN NDA has a comprehensive network of recreation and green spaces comprising regional, district and local open spaces. The ecologically important Long Valley area (about 37 ha) is planned as “Long Valley Nature Park” (LVNP) which will be a “green lung” contributing to a quality living environment for the NDAs. Apart from the LVNP, which showcases the harmonious blending of farming activities with nature conservation, about 45 ha of land to the north and south of the LVNP is also retained for agricultural uses.

3.5.10 Other urban design elements, e.g. stepped building height and view corridors and breezeways, have been adopted for the NDA developments.

3.5.11 The KTN ODP is shown on **Figure 2**.

FLN ODP

3.5.12 The Planning Scheme Area of the FLN NDA is about 165 ha and will accommodate a total population of 71,400 and provide about 6,500 job opportunities upon full development. The distribution of new housing units in the FLN NDA is around 66:34 in public and private housing developments.

3.5.13 Located right next to Ng Tung River with a succession of grassy, hilly terrain to the north, the FLN NDA is proposed to be developed as a ‘Riverside Community’ making the best use of its beautiful riverside scenery and hilly backdrop to create a comfortable living environment with a mix of residential, retail and services and agricultural uses, community and government facilities.

3.5.14 Two district nodes with a mix of residential use, retail, social and community facilities, PTI and public open space are planned in the eastern portion to the immediate north of the existing market town of Luen Wo Hui and in the western portion to the north of Tin Ping Shan Tsuen respectively to serve as major activity

nodes of the FLN NDA. To create a social and recreational hub easily accessible by the future residents and the existing communities in Fanling/ Sheung Shui New Town, the current Shek Wu San Tsuen area, which is centrally located, will be developed into the Central Park with social welfare and recreational facilities in the vicinity, forming the civic core of the area. The north-western portion of the NDA is planned for government uses, including police training facilities and expansion for SWH STW. About 12 ha of land for agricultural use at Fu Tei Au is retained.

3.5.15 Four green spines stretching from Fung Kai Secondary School, Tin Ping Shan Tsuen, Luen Chit Street and Wo Tai Street to the two district nodes are planned to provide easy access for pedestrians between the Fanling/ Sheung Shui area and the NDA. A comprehensive cycle track network is also planned with linkages to major activity nodes in the FLN NDA as well as to the existing cycle track network in the Fanling/ Sheung Shui area and the proposed cycle track network in the KTN NDA to provide convenient connections for the local communities.

3.5.16 A cruciform pedestrian shopping street with 2-storey terraces on both sides lined with retail shops, cafés and restaurants is planned in the major north-south and east-west running open space corridors in the eastern District Centre to promote street vibrancy.

3.5.17 The FLN NDA has a comprehensive network of recreation and green spaces comprising regional, district and local open spaces. Other urban design elements, e.g. stepped building height and provision of view corridors and breezeways, were adopted for the NDA developments.

3.5.18 The FLN ODP is shown on **Figure 3**.

3.6 Recommended Layout Plans

3.6.1 Based on the adopted ODPs, the Recommended Layout Plans (RLPs) were formulated at a scale of 1:1,000/1:2,000 to provide more detailed information about how the Planning Areas of each NDA could be developed for site planning, development control and infrastructure provision purposes. RLPs had been prepared for distinctive Planning Areas (six for KTN and four for FLN) within each NDA to provide more detailed planning information for the specific planning areas. These RLPs are for internal departmental reference only and subject to future refinements.

3.7 Final Master Urban Design Plan and Final Master Landscape Plans

Urban Design

3.7.1 Various urban design elements, such as activity nodes, landmarks, focal points, etc. were incorporated in the NDAs. These elements are linked up by a well-connected pedestrian and cycle track network and an open space system. The KTN and FLN NDAs are further characterised into nine and four different character areas respectively based on unique urban design themes. The Final Master Urban Design Plan (**Figure 4**) illustrates the urban design framework.

3.7.2 The following urban design principles were adopted in the design of NDAs:

- Designating sufficient land for a comprehensive range of G/IC uses;
- Introducing regional, district and local open space for public enjoyments as well as serving as ‘breathing space’ for spatial and visual relief;
- Stepping building height profile;
- Clustering high density residential and commercial developments within the 500m catchment of the railway station or PTI;
- Providing comprehensive open space, pedestrian and cycle track systems;
- Promoting a more pedestrian friendly town centre;
- Providing landscaped retail corridors to enhance street vibrancy;
- Making the best use of natural features;
- Creating strong north-south and east-west view corridors to the green backdrops;
- Providing breezeways to promote better air ventilation;
- Preserving significant heritage features; and
- Preserving and enhancing the ecologically sensitive areas.

Landscape

3.7.3 The major objective of the landscape design principles is to preserve and enhance the landscape resources of the area to create a sense of community and uniqueness for the KTN and FLN NDAs.

3.7.4 The landscape and open space design frameworks for the NDAs give emphasis to the creation of an inter-related and continuous landscape system which will link the existing landscape areas with the proposed open space network. In KTN NDA, the proposed open space system, including the Town Plaza, Fung Kong Shan Park and riverside promenades, will be linked with the existing important landscape resources, such as Long Valley, Fung Kong Shan and Ho Sheung Heung Fung Shui Woodland. The proposed open space system in FLN NDA, including the Central Park, district open space and riverside parks and promenade, will be linked with the existing important landscape resources and the existing open spaces of North District Park and North District Sports Ground in Fanling/ Sheung Shui New Town.

4 Public Engagement

4.1.1 In order to engage the public and incorporate public views into the planning and design of the NDAs, three stages of public engagement (PE) were adopted.

4.1.2 The Stage 1 was launched in November 2008 for three months. It aimed to engage the public in the discussions of key issues relating to the development of the NDAs.

4.1.3 The Stage 2 commenced in November 2009 and lasted for about two months. Its main purpose was to collect views from the public, relevant organisations and stakeholders on the PODPs.

4.1.4 The Stage 3 was conducted from mid-June to end-September 2012. It aimed to collect public comments on the RODPs as well as the implementation mechanism of Conventional New Town (CNT) Approach for developing the NDAs.

4.1.5 Briefings/meetings to relevant statutory bodies (the Legislative Council Panel on Development, North District Council, Town Planning Board, etc.), various Rural Committees, professional bodies, local people and other stakeholders were held in the all three stages of PE. To encourage public participation, a community workshop was held in Stage 1 PE; a public forum was conducted during Stage 2 PE and a public meeting and a public forum were held in Stage 3 PE.

4.1.6 Public comments/suggestions received and our responses in each stage of PE were set out in the Public Engagement Reports, which were uploaded onto the Study website (<http://www.nentnda.gov.hk>).

5 Technical Assessment

5.1 Introduction

5.1.1 Various technical assessments were undertaken based on the Revised RODPs to confirm the technical feasibility of the KTN and FLN NDAs. The assessments found that the KTN and FLN NDAs would not create insurmountable impact to the surrounding areas upon adopting mitigation measures.

5.1.2 The major refinements under the ODPs have no insurmountable adverse impact from the technical and environmental perspectives.

5.2 Geotechnical Assessment

5.2.1 In addition to the ground investigation (GI) data obtained from CEDD, 46 and 10 drillholes were installed within the KTN and FLN NDAs respectively. GI fieldwork and associated laboratory tests were carried out to derive design parameters for the soil and rock under the Study.

5.2.2 In general, the NDAs are underlain by soft alluvial deposits, which are generally low in bearing resistance and will cause settlement, with high groundwater level, and rockhead of various levels.

5.2.3 The Natural Terrain Hazard Study identified hillside catchments in the two NDAs. Other areas of natural terrain within or abutting the NDAs were found to either fall outside the Alert Criteria screening zone or to have existing facilities, which could be considered as potential buffers between the hillside areas and the proposed NDAs developments. Further detailed study, including field mapping and hazard assessment, is recommended to assess the possible impact of such features.

5.2.4 A review of the registered man-made slopes within and immediately adjacent to the NDAs was carried out under this Study. Both the potential impact of slope failure on the proposed developments and impact of the proposed developments on existing features were considered. A detailed investigation of these slopes is recommended in the detailed design stage to determine the geological profile, groundwater levels, and geotechnical parameters necessary to conduct stability assessments.

5.2.5 It is concluded that the proposed developments in the KTN and FLN NDAs are geotechnically feasible. In the detailed design stage, additional GI is required to

better define the extent and potential impacts of the key hazards and constraints in order to determine suitable engineering solutions.

5.3 Land Requirement Study

5.3.1 Since private land accounts for about half of the total developable areas of the NDAs, land resumption is inevitable. Existing activities on developable land will be cleared before site formation. The land resumption boundary and activities/features affected will be ascertained in the detailed design stage.

Table 5.3.1 Summary of Private and Government Land Area in KTN and FLN NDAs

Feature \ Area (ha)	KTN NDA	FLN NDA	Road Works outside NDAs	Total
Total Areas	450	164	28	643
Total Private Land Area (%)	173 (38%)	73 (44%)	4 (15%)	250 (39%)
Total Government Land Area (%)	278 (62%)	91 (56%)	24 (85%)	393 (61%)
Developable Areas	208	125	28	361
Private Land within Developable Areas (%)	83 (40%)	71 (58%)	4 (15%)	159 (44%)

Remarks:

1. *Developable Land refers to areas for proposed new developments on the Revised RODPs. This excludes areas zoned “V”, “CA”, “GB”, “AGR”, “OU(NP)”, “River Channel” and those areas already occupied by existing/committed developments which have to be maintained in future.*
2. *Although the area designated as “OU(NP)” is classified as non-developable area, land resumption for ecological compensation works in this area is required.*
3. *The figures are rounded to the nearest integers.*

5.4 Transport and Traffic Impact Assessment

Traffic Forecasts and Traffic Impact Assessment

5.4.1 Strategic and local transport models were developed for this Study to produce robust traffic forecasts. The models were validated to replicate the 2006 and 2009 traffic conditions. The operational performances of all key road links and

junctions within the NDAs and the vicinity were assessed for future design years up to 2031.

5.4.2 Having regard to all engineering, planning and environmental considerations as well as the result of the transport models, the following new road and improvement works are proposed:-

Proposed new roads

- Lung Yeuk Tau Interchange;
- Fanling Bypass;
- Kwu Tung Interchange;
- connection to the Lok Ma Chau Loop (LMC Loop) (to be considered under the Study on the LMC Loop);

Proposed road improvement

- Pak Shek Au Interchange Improvement;
- Po Shek Wu Interchange Improvement; and
- Fanling Highway Widening and Castle Peak Road Diversion.

5.4.3 With the associated road improvement works, Fanling Highway will still be operating within practical capacity (i.e. at a volume/capacity ratio less than 1.2) by 2031. Other major road links, including the proposed Fanling Bypass, as well as future internal roads within the NDAs are expected to operate satisfactorily by 2031 at volume/capacity ratios below 1.0. The results of road capacity assessment are summarised in **Table 5.4.1**.

Table 5.4.1 Results of Major Road Link Capacity Assessment, 2021 – 2031

Road	Peak Hour V/C Ratio ¹		
	Design Year		
	2021	2026	2031
Fanling Highway (south of Wo Hop Shek Interchange)	0.86 (am) 0.79 (pm)	0.95 (am) 0.87 (pm)	1.16 (am) 1.05 (pm)
Jockey Club Road (between Lok Yip Road and Pak Wo Road)	0.59 (am) 0.46 (pm)	0.47 (am) 0.37 (pm)	0.55 (am) 0.38 (pm)
Po Shek Wu Road (between Choi Yuen Road and San Wan Road)	0.47 (am) 0.49 (pm)	0.50 (am) 0.55 (pm)	0.59 (am) 0.58 (pm)
Man Kam To Road (between Jockey Club Road and Fu Tei Au Road)	0.48 (am) 0.54 (pm)	0.61 (am) 0.74 (pm)	0.60 (am) 0.72 (pm)
Sha Tau Kok Road (between Luen On Street and Ma Sik Road)	0.46 (am) 0.39 (pm)	0.33 (am) 0.29 (pm)	0.39 (am) 0.38 (pm)
Proposed Fanling Bypass (Eastern Section)	-	0.26 (am) 0.27 (pm)	0.47 (am) 0.44 (pm)
Proposed Fanling Bypass (Western Section)	-	-	0.38 (am) 0.38 (pm)
Kwu Tung North NDA – Proposed KTN Primary Distributor 1	0.01 (am) 0.02 (pm)	0.13 (am) 0.11 (pm)	0.31 (am) 0.26 (pm)
Kwu Tung North NDA – Proposed KTN Primary Distributor 2	-	-	0.69 (am) 0.60 (pm)

Remarks:

- Volume/capacity (v/c) ratio is an indication of the traffic conditions of roads during peak hours. A v/c ratio equal to or less than 1.0 is considered acceptable. A v/c ratio between 1.0 and 1.2 indicates a manageable degree of congestion. A v/c ratio above 1.2 indicates more serious congestion.*

5.4.4 Improvement schemes are proposed at three existing local junctions with anticipated capacity problems, namely, Sha Tau Kok Road/ Fan Leng Lau Road, Po Shek Wu Road/ Choi Yuen Road and Po Shek Wu Road/ Po Wan Road. With these

improvements in place, all junctions in the local road networks within and adjacent to the NDAs are envisaged to perform satisfactorily.

5.4.5 Appropriate temporary traffic management (TTM) measures are recommended for different stages of construction works to ensure smooth and safe operation of traffic, in compliance with the Highways Department's guidelines.

Road Network

5.4.6 A hierarchy of primary distributors, district distributors and local distributors are proposed within the NDAs to serve the respective traffic functions.

5.4.7 In the KTN NDA, two primary distributors will connect to Fanling Highway at the east and west of the NDA. Five district distributors will connect the primary distributors with the local distributors through which traffic can access the proposed new developments and existing developments.

5.4.8 In the FLN NDA, the proposed Fanling Bypass (Eastern Section) will serve as a primary distributor to link the NDA to Fanling Highway. Fanling Bypass (Western Section) will then link Man Kam To Road with Fanling Bypass (Eastern Section) as a district distributor. Local distributors will provide access to the proposed new developments in the FLN NDA and existing developments.

Public Transport

5.4.9 Public transport demand forecasts for the NDAs projected that the rail market share will be about 55%. This is significantly higher than the territory-wide average (40%) according to the Travel Characteristics Survey 2002.

5.4.10 About 80% of population in the KTN NDA will reside within 500 m catchment of the proposed Kwu Tung railway station. This will encourage residents to use mass transit and reduce their reliance on road-based traffic.

5.4.11 In the FLN NDA, high-frequency feeder services from the NDA to the existing Sheung Shui and Fanling railway stations are proposed for encouraging the use of mass transit.

5.4.12 A PTI for buses, green minibuses (GMBs) and taxi services is proposed to the immediate south of the proposed Kwu Tung railway station. Two PTIs serving buses, GMBs and taxi services are proposed in the eastern and western parts of the FLN NDA.

Environmentally-Friendly Transportation Mode (EFTM)

5.4.13 Road-based EFTM, e.g. electric bus, is recommended under this Study to provide feeder services from the two NDAs to the railway stations. Flexibility has been provided for road-based EFTM and a site in FLN NDA has been reserved for the possible parking and servicing facilities for the EFTM. The feasibility of EFTM is to be further examined in the detailed design stage for the NDAs.

Pedestrian and Cycling Networks

5.4.14 Comprehensive pedestrian and cycling networks are planned for the NDAs to link up major activity nodes in the NDAs. The proposed cycle tracks will link to the existing cycle track network in the Fanling/ Sheung Shui New Town as well as the cycle track network in Northwest New Territories & Northeast New Territories under construction. Major functional cycling parking areas in the proximity of railway station, PTIs and residential areas are reserved in the NDAs.

5.5 Drainage and Sewerage Impact Assessment

Drainage

5.5.1 The development sites in the NDAs, particularly KTN NDA, are located in the low-lying flood plain areas which are currently subject to potential flood risk. This could be minimised by raising site formation level. Furthermore, a newly constructed comprehensive drainage system meeting the design flood protection standard is proposed to replace the existing scattered local drainage systems of inadequate flow capacities to alleviate the existing flooding within the NDAs.

5.5.2 The proposed Fanling Bypass (Eastern Section) to the FLN NDA will involve realignment of a section of the existing Ma Wat River.

Sewerage

5.5.3 The two NDAs, except Yin Kong, are currently not served by any public sewerage system.

5.5.4 The estimated total daily sewage flow from the KTN and FLN NDAs is approximately 33,700 m³/d and 17,800 m³/d respectively. New sewerage systems and additional sewage treatment facilities will be required to support the KTN and FLN NDAs.

5.5.5 Sewage flows from the KTN NDA will be collected through gravity sewer to the proposed sewage pumping stations and then pumped to SWH STW through a rising main. Sewage flow from the FLN NDA will be conveyed through a trunk

sewer along the proposed roads within the NDA to the proposed sewage pumping stations and then pumped to SWH STW.

5.5.6 The capacity of existing SWH STW is proposed to be expanded from 93,000 m³/d to 190,000 m³/d by phases and its treatment level to be upgraded from secondary to tertiary in order to accommodate the additional sewage flow generated from the population growth of the Fanling/ Sheung Shui area, two NDAs and other surrounding developments included in FCAs. A piece of land at the west of FLN NDA is reserved for the proposed expansion of SWH STW.

5.5.7 The reuse of treated sewage effluent (TSE) from the upgraded SWH STW, for non-potable uses is recommended under this Study. Land is reserved in the FLN NDA for the development of the TSE treatment facilities which is subject to detailed design.

5.6 Water Supply and Utilities Assessment

Water Supply

5.6.1 It is estimated that the total water consumption for the two NDAs is approximately 69.7 Million Litres/Day (MLD) including fresh water, flushing water and other water demands.

5.6.2 The assessment indicated that the capacity of the existing fresh water supply system in the North District cannot meet the total water demand arising from the NDAs upon full development and future development of the North District. Existing service reservoirs, pumping stations, trunk mains and water treatment facilities will need to be upgraded and a new separate flushing water supply is required. A new fresh water service reservoir (FWSR) and flushing water service reservoir in each NDA and associated waterworks are proposed to cope with the demand from the NDAs. In the long term, the supply zone of the existing Kwu Tung FWSR and the proposed KTN FWSR shall be shifted from SS WTW to Ngau Tam Mei WTW.

5.6.3 A number of watermains such as Dongjiang watermains currently running within the NDAs will be protected by waterworks reserves. While the new watermains will mostly be laid under the roads, waterworks reserves are proposed for those not under the roads.

Utilities

5.6.4 The new developments in the KTN and FLN NDAs will generate a considerable demand for utilities services including electricity, gas, telephone and other telecommunications. With reference to the development plans, and taking into

account the advice and preliminary requirements from the utilities undertakers, schematic routes of each utility service are proposed. Major utility impacts and utility reserves required are also identified.

5.6.5 To cater for the new developments, a 132 kV power substation is proposed in each NDA. The 400 kV overhead cable traversing the northern part of the KTN NDA and northwestern tip of the FLN NDA will be retained and a 50 m wide utility reserve will be provided.

5.6.6 Telecommunication cables serving the NDAs will be laid along the footpath of the proposed roads and distributed to the development sites. Cables can be branched off from the nearby existing network.

5.6.7 The existing gas supply for Kwu Tung, Fanling and Sheung Shui is provided from the two existing offtake stations, namely Fanling West Offtake Station and Fanling East Offtake Station. No additional offtake stations are required for the new developments. Supply of gas will be provided by connecting new medium pressure (MP) pipes from the existing MP pipes network or offtake stations. For supplying gas to the major housing sites, governor kiosk is provided.

5.6.8 Land space within the developments and along public road for installation of base stations of mobile services is needed in the areas that are outside the existing coverage. Further consultation with the mobile network operators shall be carried out to confirm the site coverage and requirements of possible new base stations in the detailed design stage.

5.6.9 According to the cooling load estimation, it is feasible to sustain a District Cooling System (DCS) for non-domestic developments in the KTN NDA. The implementation of DCS is subject to further study on the cost, benefit and viability of the system. A site in the south-western edge of the KTN NDA is reserved for a plant for DCS.

5.7 Site Formation Assessment

5.7.1 Whilst the site formation works are planned to minimise the amount of excavated materials and maximise their on-site reuse, the formation of fill platforms, cut and fill slopes and retaining structures are still required in some areas. The works also aim to achieve cut/fill balance in each development package.

5.7.2 Arsenic, which was found to be naturally occurring, was identified within the KTN NDA. Health risk assessment was conducted and a combination of treatment and planning/lease control is proposed for risk mitigation. Further GI in the

KTN NDA will be required in the detailed design stage to ascertain the profile of arsenic hotspots.

5.7.3 On-site sorting can be carried out to maximise the reuse of excavated materials in order to reduce importing fill materials. However, non-inert construction and demolition (C&D) materials and top soil which cannot be reused are anticipated to be disposed of to the landfill. It is estimated that about 1,445,000 m³ of general fill will need to be imported to the NDAs.

5.8 Air Ventilation Assessment

5.8.1 The purpose of the air ventilation assessment (AVA) is to evaluate the ventilation performance of the PODPs, RODPs and Revised RODPs of the NDAs under the Technical Circular No. 1/06 jointly issued by the former Housing, Planning and Lands Bureau and Environment, Transport and Works Bureau and its Annex A – Technical Guide for Air Ventilation Assessment for Developments in Hong Kong.

5.8.2 This AVA of the KTN and FLN NDAs comprised the following studies:

- **Site Wind Availability Study** aims to obtain the characteristics of the natural wind availability of each NDA by using wind tunnel. The findings are summarised in the table below.

Table 5.8.1 Annual and Summer Prevailing Wind Direction of KTN and FLN NDAs

	Annual prevailing wind	Summer prevailing wind
KTN NDA	Easterly	Southwesterly
FLN NDA	Easterly	Southwesterly

- **Expert Evaluation** aims to assess the likely impact of the proposed developments under PODPs on the pedestrian wind environment as compared to the existing condition. Various major wind corridors incorporating green spines, open space and non-building areas are provided in the PODPs to improve the wind performance of each NDA.
- **Computational Fluid Dynamics (CFD) Study** was carried out to provide quantitative analysis on the wind performance of the RODPs in 16 wind directions. The analysis of the ventilation performance of the RODPs identified appropriate ventilation improvement measures and no major wind stagnancy problem is expected.

- **Expert Evaluation** assessed the ventilation performance under the Revised RODPs for the KTN and FLN NDAs. With adoption of ventilation improvement measures including air paths/wind corridors, road networks aligning with prevailing wind directions, non-building areas (NBA)/building separations/setbacks, staggered building alignment, podium garden, empty bays at G/F of buildings, aerodynamic building profile and terraced podium design, no significant impact on the overall ventilation performance will be expected.

5.9 Sustainability Assessment

5.9.1 The sustainability assessment made use of indicator-based Computer Aided Sustainability Evaluation Tool. The NDAs developments will provide additional supply of land to meet the medium to long-term housing, economic and social needs; bring positive impacts to the economy; improve supporting infrastructures, transport networks and G/IC facilities; whilst the planning of the NDAs respects the local heritage and cultural characteristics, minimises the affected population, and protects natural assets.

5.9.2 Generally speaking, the proposed developments in the NDAs are considered sustainable.

5.10 Socio-economic Impact Assessment

5.10.1 A preliminary socio-economic impact assessment was undertaken to identify the potential socio-economic impacts so as to identify mitigation measures required.

5.10.2 To minimise impacts on the existing residents, the boundary and land use proposals of the NDAs were adjusted in the course of the Study to avoid encroaching upon domestic structures located in the outer areas as far as practicable. The Consultants estimated that in the KTN NDA, about 600 households and around 960 elderly residents (as at August 2013) living in the privately operated residential care homes for elderly in Dills Corner Garden will be affected, and about 400 households in the FLN NDA will be affected.

5.10.3 Under the prevailing arrangement upon clearance of land for development purpose, eligible clearerees will be rehoused to public rental housing (PRH)/interim housing units as appropriate. A special ex-gratia compensation package was devised for affected qualified households to assist their removal. In order to minimise disruption and re-generate the social fabric, one local rehousing site reserved in each

of the KTN and FLN NDAs respectively allow development of PRH/HOS/other subsidised housing to cater for the affected clearerees. Other public housing units in Fanling/ Sheung Shui area or elsewhere can also be provided to serve the rehousing purpose more flexibly to meet the needs of clearerees.

5.10.4 The local businesses within the NDAs will be displaced for the NDAs developments. Related local employment will thereby be affected. These businesses may have to move elsewhere should they wish to continue their businesses.

5.10.5 Although about 94 ha of land will be retained as agricultural use (including about 37 ha of land designated for LVNP), about 28 ha of active agricultural land, a fish fry farm and a pig farm will be unavoidably affected by the NDAs developments. Under the prevailing policy, genuine farmers affected by Government clearance can apply for agriculture resite. The Government will assist the affected farmers to re-establish their farming practices.

6 Environmental Impact Assessment

6.1 Introduction

6.1.1 A comprehensive Environmental Impact Assessment (EIA) was carried out for developments of the KTN and FLN NDAs to assess the potential environmental impacts during both construction and operational phases. The EIA report was conditionally approved by the Director of Environmental Protection (DEP) on 18 October 2013. Overall, the EIA report revealed that the developments of the KTN and FLN NDAs would be environmentally acceptable with the implementation of the proposed mitigation measures for construction and operational phases. An environmental monitoring and audit manual (EM&A Manual) was prepared to ensure the effectiveness of the recommended mitigation measures.

6.1.2 The study of the development of the KTN and FLN NDAs is a designated project (DP) under Item 1 Schedule 3 of Environmental Impact Assessment Ordinance (EIAO) - Engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100,000. In addition, **Tables 6.1.1** and **6.1.2** show the work components in KTN and FLN which fall under various Schedule 2 DP categories. Environmental Permits were issued by DEP for the Schedule 2 DPs in November 2013.

Table 6.1.1 Schedule 2 Designated Projects in KTN NDA

Item	Work Component	Schedule 2 DP Category		Reason
1	San Tin Highway and Fanling Highway Kwu Tung Section Widening (between San Tin Interchange and Po Shek Wu Interchange) (Major Improvement)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road.	To widen the concerned portion of San Tin Highway and Fanling Highway Kwu Tung Section from dual 3-lane to dual 4-lane configuration.
2	Castle Peak Road Diversion (CPR) (Major Improvement)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	To realign the CPR and join with the Pak Shek Au Interchange at the western end and the original CPR near Yin Kong at the eastern end

Item	Work Component	Schedule 2 DP Category		Reason
3	KTN NDA Road P1 and P2 (New Road) and associated new Kwu Tung Interchange (New Road) and Pak Shek Au Interchange Improvement (Major Improvement)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	Construction of new primary distributor roads inside KTN NDA
4	KTN NDA Road D1 to D5 (New Road)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	Construction of new district distributor roads inside KTN NDA
5	New Sewage Pumping Stations (SPSs) in KTN NDA	F3	A SPS---(b) with an installed capacity of more than 2,000 m ³ /d and a boundary of which less than 150 m from an existing or planned residential area or educational institution	Construction of 2 new SPSs in KTN with installed capacity of more than 2,000 m ³ /d and less than 150 m from existing and planned residential buildings
6	Proposed railway station and associated facilities in KTN NDA (to be conducted under separate study).	A2	A railway and its associated facilities	Construction of new Kwu Tung railway station
7*	Utilization of TSE from SWH STW	F4	An activity for the reuse of treated sewage effluent from a treatment plant	Construction of service reservoir and watermain for the reuse of treated sewage effluent for reuse in KTN NDA

Remark:

* Work component serves both KTN and FLN NDAs.

Table 6.1.2 Schedule 2 Designated Projects in FLN NDA

Item	Work Component	Schedule 2 DP Category		Reason
7*	Utilization of TSE from SWH STW	F4	An activity for the reuse of TSE from a treatment plant	The on-site sewage treatment works to include TSE for reuse in both KTN and FLN NDAs; Construction of service reservoir and watermain for the reuse of treated sewage effluent in FLN NDA.
8	Po Shek Wu Interchange Improvement (Major Improvement)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	Po Shek Wu Road is primary distributor. Major improvement works on primary distributor is a DP
9	Fanling Bypass Western Section (New Road)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	Construction of new district distributor inside FLN NDA
10	Fanling Bypass Eastern Section (New Road)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	Construction of new primary distributor inside FLN NDA
11	SWH STW - Further Expansion at FLN NDA	F1	Sewage treatment works with an installed capacity of more than 15,000 m ³ /d	The design capacity of the proposed expansion and upgrading SWH STW at 190,000 m ³ /d
12	Reprovision of temporary wholesale market in FLN NDA	N3	A wholesale market.	A wholesale market as a DP

Item	Work Component	Schedule 2 DP Category	Reason
13	New SPSs in FLN NDA	F3	A SPS---(b) with an installed capacity of more than 2,000 m ³ /d and a boundary of which less than 150 m from an existing or planned residential area or educational institution.

Remark:

* Work component serves both KTN and FLN NDAs.

** The no. of SPSs in the FLN NDA with capacity larger than 2,000 m³ per day is reduced to 3 after accepting the Advisory Council on the Environment's comments on deleting a residential site (i.e. "R2" site) to retain the mitigation meander to the north of Ng Tung River.

6.2 Air Quality

6.2.1 Dust emission will be the key impact during the construction phase of the NDAs developments. Quantitative fugitive dust assessments were conducted, the results of which suggested that watering would be required to control the fugitive dust impact to acceptable levels. With mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation and the EM&A Manual, no adverse residual air quality impacts during construction phase is anticipated.

6.2.2 Vehicular emissions from open roads are anticipated during the operational phase of the NDAs developments. Fixed polluting sources, such as existing industrial emissions, odour emission from sewage treatment facilities, slaughter house, will also create air quality impacts on Air Sensitive Receivers. Based on the assessment, no adverse cumulative chimney and vehicular emission impacts are anticipated. Hence, no mitigation measures will be required. The SWH STW and its proposed expansion are the major odour sources. With the implementation of odour control measures, such as covering the major odour sources and provision of deodourising treatment, it is anticipated that the odour impact may not be significant.

6.3 Noise

6.3.1 Construction noise assessment associated with the use of Powered Mechanical Equipment (PME) was conducted. With the implementation of practical mitigation measures, including good site management practices, use of site hoarding, use of movable noise barrier & full enclosure, use of "quiet" plant and working method, construction noise impacts to all neighbouring noise sensitive uses will be controlled to acceptable levels. To further minimise the impacts on residential

premises and educational institutions, future contractors should investigate the necessity in using noisy PME such as rock drill, breaker and concrete lorry mixer, and construction works during examination period.

6.3.2 Operational noise impacts associated with helicopter noise, industrial noise, fixed noise sources and road traffic noise were also investigated. Provision of acoustic insulation with air conditioning is recommended for the land use which is affected by helicopter noise and shooting noise near Lo Wu Classification Range. Provision of noise barriers, low noise surfacing and semi-enclosures/ full enclosures is recommended to the land uses which are affected by road traffic noise.

6.4 Water Quality

6.4.1 During the construction phase, potential water pollution will include construction site runoff, alteration of natural streams, possible groundwater from contaminated areas, and sewage from workforce. Mitigation measures, including the implementation of cofferdams or diaphragm walls during stream diversion and good site practices in accordance with ProPECC PN 1/94, are recommended to mitigate any potential water quality impact.

6.4.2 During the operational phase, potential water pollution sources will come from sewage and sewerage system, discharge of district cooling system, runoff from roads/open areas, drainage system and reuse of TSE. Mitigation measures, including collection of all sewage into the upgraded/ expanded SWH STW and implementation of proper drainage system with silt traps and oil interceptors, are recommended to mitigate any potential water quality impact.

6.5 Sewerage Management

6.5.1 As discussed in **Section 5.5** above, the NDAs will generate additional sewage flows which cannot be handled by the existing sewerage system and SWH STW and therefore will require additional sewerage infrastructure. In order to meet the prevailing water quality policy with no net increase in pollution load to Deep Bay, SWH STW is required to be upgraded to cater for the additional loading. The sewerage impact assessment showed that there would be no adverse sewerage implication to the areas.

6.6 Waste Management

6.6.1 During the construction phase, typical wastes include site clearance waste, excavated materials, C&D materials, asbestos containing materials, chemical wastes,

general refuse and sewage. Measures, including on-site sorting and reusing excavated fill materials, are proposed to minimise the surplus materials to be disposed of.

6.6.2 The operational phase of the NDAs developments will generate municipal solid waste, chemical waste and sewage sludge. Recommendations were made to ensure proper treatment and disposal of these wastes.

6.7 Land Contamination

6.7.1 Although many of the sites within the NDAs were not identified as potentially contaminated or could not be accessed for visual inspection during the site survey in this Study, re-appraisal of these sites is required if they become part of the land requirement for the NDAs developments.

6.7.2 Site investigation works involving sampling and testing of soil and groundwater were conducted. No soil and groundwater contamination was detected, except that anomalous high level of arsenic was detected in some areas of the KTN NDA. The investigation results indicate that the high level of arsenic in the KTN NDA is likely to be naturally occurring. A Health Risk Assessment was conducted which established the threshold for soil treatment and recommended the treatment method “Cement Stabilization/ Solidification” for the arsenic-containing soil. The affected areas will be further assessed and treated upon completion of land resumption procedures prior to the construction.

6.8 Hazard to Life

6.8.1 Parts of the proposed NDAs are located within the 1 km Consultation Zone of a potentially hazardous installation – SS WTW. A quantitative risk assessment was conducted. The results concluded that the risks are acceptable as per the individual and societal risk criteria set out in Annex 4 of the EIAO-Technical Memorandum.

6.9 Landfill Gas Hazard

6.9.1 Some developments of the KTN NDA will encroach upon part of the closed Ma Tso Lung Landfill (MTLL) 250 m Consultation Zone. A qualitative assessment on potential hazards associated with landfill gas (LFG) migration from MTLL to the proposed developments in the KTN NDA was conducted. It concluded that the potential risk during the construction phase is “medium” and during the

operational phase is 'low' to 'high' depending upon the location and nature of the developments being considered.

6.9.2 General protection and precautionary measures are proposed. It is expected that with the proposed precautionary measures in place, the potential risk of LFG migration from MTLL to the KTN developments will be minimal. A detailed qualitative LFG hazard assessment shall be carried out in the detailed design stage.

6.10 Cultural Heritage

Archaeology

6.10.1 Direct impact is anticipated on part of the Sheung Shui Wa Shan Site of Archaeological Interest. In addition, archaeological surveys conducted in 2000-2001 and 2010 identified 12 locations in the KTN NDA Cultural Heritage Assessment Area (CHAA) and five locations in the FLN NDA CHAA to be potentially impacted by the NDAs developments. All potential impacts are considered acceptable with appropriate mitigation measures.

6.10.2 The EIA report recommends that further archaeological survey should be conducted in the not-yet-surveyed areas with medium archaeological potential located in the areas with proposed developments after land resumption and before construction works. Appropriate mitigation measures, including survey-cum-excavations, should be implemented in those sites which are identified with archaeological potential and will be affected by developments.

Built Heritage

6.10.3 Literature review supplemented by built heritage survey was conducted.

6.10.4 Within the KTN and FLN NDAs, no direct impact is expected on any declared monuments and graded/proposed historic buildings. Potential vibration impacts on two Grade 2 (Earth God Shrine of Kam Tsin and Enchi Lodge (Main Building & Ancillary Block)) and two Grade 3 (Yeung Yuen and Yan Wah Lo) historic buildings in the KTN NDA are anticipated.

6.10.5 Appropriate mitigation measures comprising a baseline condition survey and baseline vibration impact assessment will be conducted during the pre-construction stage to ensure that the construction performance meets with the vibration standard stated in the EIA report.

6.10.6 Since the construction works and development activities may induce changes in the water table, it is recommended that future contractors should ensure

that the changes of water table induced by the construction works and development activities will not result in settlement of built heritage.

6.10.7 For the retained built heritage items in the developable area, drainage systems and access routes will be designed to prevent persevered flooding and maintain the accessibility to the built heritage.

6.11 Landscape and Visual

6.11.1 Given the generally rural nature of the NDAs, development of the two NDAs will lead to land use changes which will fundamentally change the landscape and visual characters of the area. Mitigation measures were incorporated into the Revised RODPs to alleviate landscape and visual impacts. The assessment found that the landscape and visual impacts upon full development of the NDAs are considered acceptable.

6.11.2 Each NDA is designed to achieve the distinct landscape characteristics of a new town. To mitigate the adverse landscape impacts, a number of mitigation measures, such as tree protection and preservation, tree transplantation, compensatory planting, woodland compensatory planting and road greening were proposed.

6.11.3 From a visual perspective, the scale and the extent of high-rise developments significantly alter the visual context of the area, in particular resulting in partial or full loss of open view or riverside view. With all the planning mitigation measures incorporated into the Revised RODPs (e.g. view corridors, green network, stepped building heights, building setbacks, buffer zones, etc.), as well as construction and operation mitigation measures, such as light control and general soft landscaping including slope landscaping, green roofs, road greening, screen planting, vertical greening as well as tree protection, transplantation and compensation, it is considered that the overall residual visual impacts are acceptable with mitigation measures.

6.11.4 A broad brush tree survey was carried out within the Study Area, which estimated that approximately 17,000 trees might be affected by the proposed developments. The five Old and Valuable Trees (OVTs) in the KTN NDA will be retained and there are no rare or endangered species but only common species within the NDAs. All the trees with high amenity value that are unavoidably affected by the works will be transplanted where possible. Detailed tree preservation, transplanting and felling including compensatory planting proposals will be submitted to relevant Government departments for approval in accordance with Development Bureau Technical Circular (Works) (TCW) No. 10/2013, Environment, Transport and Works Bureau (ETWB) No. 3/2006 and ETWB TCW No. 29/2004.

6.12 Ecology

6.12.1 Ecological surveys in the NDAs confirmed the ecological importance of Long Valley, being the largest area of freshwater wetland habitats in Hong Kong, especially for waterbirds. Other sites of ecological importance present in the Study Area include Ho Sheung Heung, Ng Tung River and some of the mitigation meanders, Sheung Yue River, Shek Sheung River, Ma Tso Lung Stream, Ma Tso Lung San Tsuen Stream, Siu Hang San Tsuen Stream, Ho Sheung Heung Egretty and Man Kam To Road Egretty together with their associated flight paths, fung shui woods and secondary woodlands.

6.12.2 The presence of these and other areas of ecological importance and of fauna and flora species of conservation significance was a prime consideration in formulating the development proposals.

6.12.3 The ecological impact assessment revealed that the LVNP, proposed as a key element of the NDA project, will safeguard the ecological value of this freshwater wetland area, which is unique in the Hong Kong context. Active conservation management of the LVNP will also provide the opportunity to enhance its ecological value, both to mitigate for loss of wetland habitats and other impacts on wetland fauna, and to enhance its value for wildlife.

6.12.4 In order to protect the habitat for species of conservation significance, Ma Tso Lung stream and its surrounding riparian vegetation is zoned as “GB” on the KTN OZP and ODP.

6.12.5 Since Man Kam To Road Egretty will be inevitably affected by the FLN NDA developments, two mitigation meanders in the north of Ng Tung River are zoned as “CA” on the FLN ODP as alternative egretty sites which should be established prior to the construction works of Man Kam To Road roundabout. Practicable steps will also be taken to enhance the existing egretty site at Ho Sheung Heung and/or its vicinity to compensate for the loss of the egretty site.

6.12.6 With respect to other areas and species of conservation significance, after implementing mitigation measures, no significant adverse residual ecological impacts on them are predicted.

6.13 Fisheries

6.13.1 The NDA developments will result in the loss of a fish fry farm at Fung Kong in the KTN NDA. Having a moderate impact on fisheries production in Hong Kong, it is proposed that appropriate notice should be given to the operator to permit

the reinstatement of activities at an alternative location prior to the closure of the existing farm.

6.13.2 Other than the fish fry farm, fisheries in the NDAs are of low importance in the overall productivity of Hong Kong fisheries.

6.13.3 However, potential downstream impacts to fisheries in the Deep Bay ecosystem, and in the Ma Tso Lung area in particular, will require to be mitigated at source by preventing sediment or pollutants arising from the construction and operation of the NDAs, from entering watercourses.

7 Implementation Mechanism and Implementation Programme

7.1 Implementation Mechanism

7.1.1 It is paramount that the Government adopts an implementation approach for the NDAs developments that can ensure timely and well-coordinated development of the NDAs to supply new housing within the shortest time. Having regard to the public views expressed in the three stages of PE and the pros and cons of the CNT approach and Private Sector Participation (PSP) approach, the Government considers that the CNT approach should be adopted as the primary mode for implementation of the KTN and FLN NDAs. The Government will resume and clear the private land planned for public works projects, public housing and private developments, carry out site formation works, and provide infrastructure before allocating land for various purposes, including disposal of land planned for private developments in the market.

7.1.2 However, taking into account the public views received and having examined again the main considerations for adopting the CNT approach, some flexibility in the implementation mechanism is provided for modification of lease, including in-situ land exchange applications meeting a set of criteria by specified deadlines having regard to the phased development of the NDAs. The enhanced CNT approach can achieve the purpose of advancing housing supply and with the benefit inherent in the PSP approach. The set of general criteria for consideration of lease modification applications in the KTN and FLN NDAs are stipulated at Lands Administration Office Practice Note No. 1/2014.

7.2 Implementation Programme

7.2.1 Preliminarily, the NDAs developments will be divided into various works contracts and works packages, in accordance with their timing and location for development.

7.2.2 The major site formation and infrastructure works of the Advance Works will commence in 2018 for the first population intake in 2023. The modification of lease (including in-situ land exchange) may help advance the first population intake to 2022. Other major works will start after the commencement of the Advance Works. The KTN and FLN NDAs are expected to be completed by 2031.

7.3 Statutory Requirements and Procedures

7.3.1 The following statutory procedures are required for the NDAs developments:

Environmental Impact Assessment Ordinance (EIAO)

7.3.2 The study of the development of the KTN and FLN NDAs is a DP under Item 1 of Schedule 3 of the EIAO and it includes some DPs under Schedule 2 of the EIAO. The EIA Report was conditionally approved and the Environmental Permits for the Schedule 2 DPs were issued.

Town Planning Ordinance (TPO)

7.3.3 Two new OZPs to facilitate the development of the KTN and FLN NDAs shall be exhibited under Section 5 of the TPO for public inspection. Subsequently, the OZPs would be submitted for the approval by the Chief Executive in Council under Section 9 of the TPO. The PlanD carried out the preparation and submission of the draft OZPs of KTN and FLN NDAs to the Town Planning Board for consideration and the draft OZPs were gazetted in December 2013.

Roads (Works, Use and Compensation) Ordinance

7.3.4 In the detailed design stage, the proposed road scheme will be gazetted under the Roads (Works, Use and Compensation) Ordinance to inform the public of the proposal to build the roads.

Water Pollution Control Ordinance

7.3.5 In the detailed design stage, the proposed sewerage system will be gazetted under the Water Pollution Control Ordinance to inform the public of the proposal to build the sewerage system.

8 Preliminary Engineering Design

8.1 Preliminary Engineering Design

8.1.1 Preliminary engineering design was carried out for the following engineering works and environmental mitigation measures proposed under the Study:

- Site formation of an area of about 350 ha with associated foundation works, slopes and retaining walls;
- About 20 km long new roads, improvement of existing roads and junctions, and associated roadworks, including noise barriers, footpath, cycle tracks, and
- Drainage, sewerage, waterworks and utilities systems, including two freshwater service reservoirs, two flushing water service reservoirs and six sewage pumping stations.

8.2 Design Memorandum

8.2.1 A Design Memorandum (DM) was prepared to supplement the preliminary engineering design. Sufficient details of the design standards, philosophy, criteria, parameters, assumptions, analysis methods and operation intents were set out. The DM will serve as a reference guide to the use and interpretation of the relevant design manual and technical circulars to be referred to in the detailed design stage.

9 Cost Estimation

9.1.1 Cost estimation of the NDAs developments was carried out in this Study based on the CNT approach. The September 2013 price level is adopted. The estimated detailed design and construction cost for the Advance Works and First Stage Works is about \$10 billion.

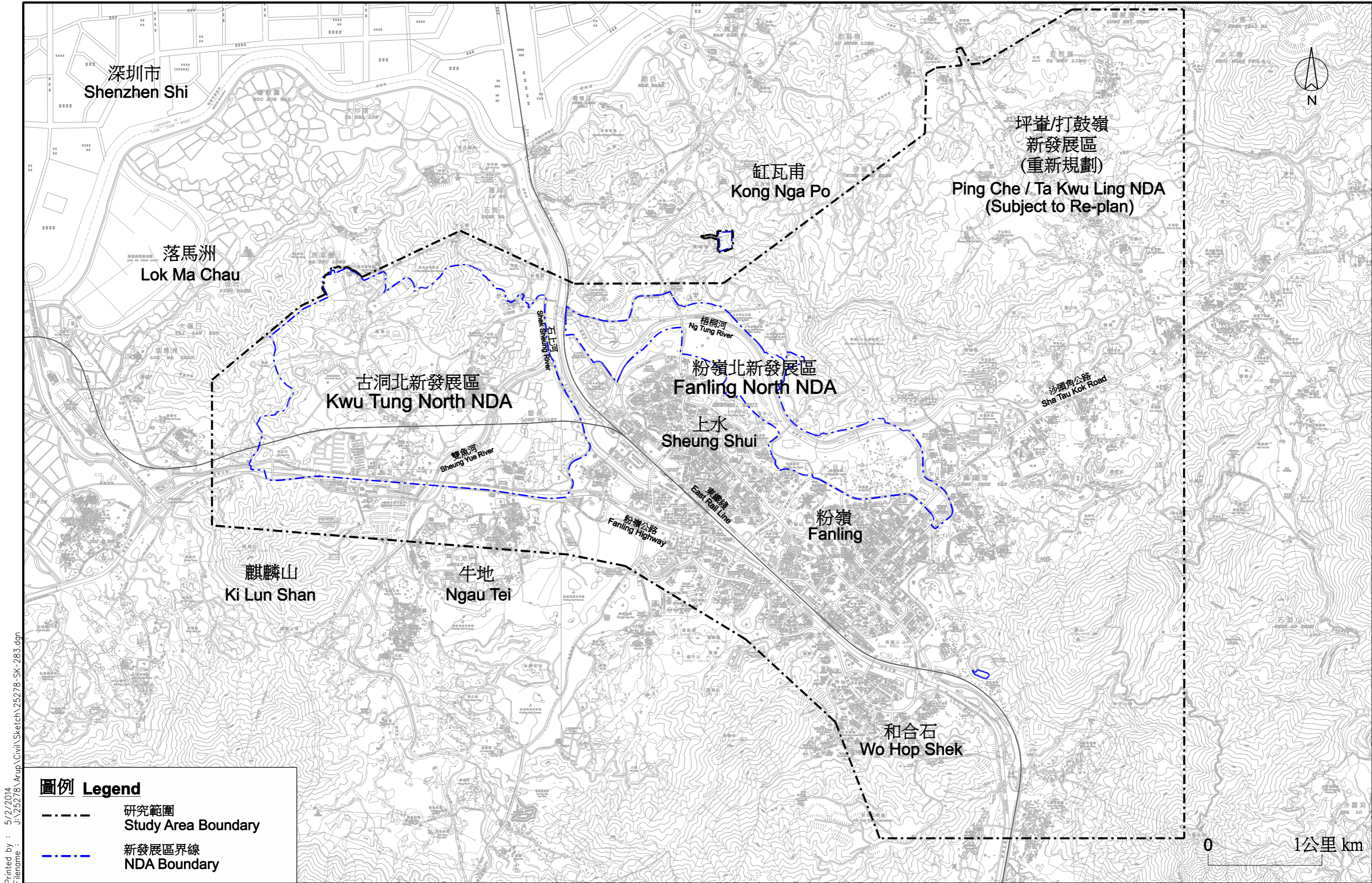
10 Conclusion

10.1.1 The KTN and FLN NDAs will be developed as extensions to the Fanling /Sheung Shui New Town to form the FL/SS/KT New Town, which will have a total population of about 460,000 upon full development. The NDAs will make good use of their close proximity to existing communities. They will buttress the pursuit of a green living environment. Robust economic activity clusters will be established to provide a variety of jobs and help to achieve a more balanced distribution of jobs across the territory. At the same time, the ecologically sensitive areas within the NDAs will be preserved and the need of the farming community will be taken care of. A good quality environment with comprehensive land uses, convenient transport networks, ample recreation spaces and attractive urban design will facilitate the building of a harmonious community where people can live, work, play and, most importantly, enjoy life.

10.1.2 The technical and environmental assessments conclude that the development of the NDAs is technically feasible and environmentally acceptable.

10.1.3 The enhanced CNT approach is adopted as the implementation mechanism of the NDAs. The major site formation and infrastructure works of the Advance Works are targeted to commence in 2018 to meet the first population intake in 2023. It is anticipated that the NDAs will be fully developed by 2031.

Figures



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圖例 Legend

- - - - 研究範圍
 Study Area Boundary

. . . . 新發展區界線
 NDA Boundary



工程名稱 Job Title
 協議編號 CB61/2007(CE)
 新界東北新發展區規劃及工程研究 - 勘查研究
 Agreement No. CE 61/2007 (CE)
 North East New Territories New Development Areas
 Planning and Engineering Study - Investigation

圖則名稱 Title
研究範圍
Study Area

修訂 Rev	內容 Description	日期 Date

繪製 Drawn LM
 校對 Checked KL
 日期 Date 05/14
 核准 Approved ST
 比例 Scale 1:30000 ON A3

圖則編號 Figure No.
圖 1 Figure 1
 修訂 Rev. -



例 NOTATION

郵局 POST OFFICE	公園 PARK	室內康樂中心 INDOOR RECREATION CENTRE	單車徑 CYCLE PATH
社區中心 COMMUNITY HALL	室內康樂中心 INDOOR RECREATION CENTRE	室內康樂中心 INDOOR RECREATION CENTRE	單車徑 CYCLE PATH
社會福利設施 SOCIAL WELFARE FACILITY	室內康樂中心 INDOOR RECREATION CENTRE	室內康樂中心 INDOOR RECREATION CENTRE	單車徑 CYCLE PATH
中學 SECONDARY SCHOOL	室內康樂中心 INDOOR RECREATION CENTRE	室內康樂中心 INDOOR RECREATION CENTRE	單車徑 CYCLE PATH
小學 PRIMARY SCHOOL	室內康樂中心 INDOOR RECREATION CENTRE	室內康樂中心 INDOOR RECREATION CENTRE	單車徑 CYCLE PATH
幼稚園 NURSERY	室內康樂中心 INDOOR RECREATION CENTRE	室內康樂中心 INDOOR RECREATION CENTRE	單車徑 CYCLE PATH
診所 GENERAL CLINIC	室內康樂中心 INDOOR RECREATION CENTRE	室內康樂中心 INDOOR RECREATION CENTRE	單車徑 CYCLE PATH
NRA 非綠化地帶 NON-GRASSLAND AREA	行人徑 FOOTPATH	行人徑 FOOTPATH	行人徑 FOOTPATH
收容所 REFUGEE COLLECTION POINT	行人徑 FOOTPATH	行人徑 FOOTPATH	行人徑 FOOTPATH
電力站 ELECTRICITY SUBSTATION	行人徑 FOOTPATH	行人徑 FOOTPATH	行人徑 FOOTPATH
水庫 RESERVOIR	行人徑 FOOTPATH	行人徑 FOOTPATH	行人徑 FOOTPATH
水浸區 FLOODING AREA	行人徑 FOOTPATH	行人徑 FOOTPATH	行人徑 FOOTPATH
水浸區 FLOODING AREA	行人徑 FOOTPATH	行人徑 FOOTPATH	行人徑 FOOTPATH
水浸區 FLOODING AREA	行人徑 FOOTPATH	行人徑 FOOTPATH	行人徑 FOOTPATH
水浸區 FLOODING AREA	行人徑 FOOTPATH	行人徑 FOOTPATH	行人徑 FOOTPATH

土地用途及面積一覽表

SCHEDULE OF USES AND AREAS

地帶 ZONES	總面積 TOTAL AREA	佔地總面積 TOTAL PLANNING SCHEME AREA
公共屋宇 / 居者其屋計劃 SPECIAL RESIDENTIAL / HOME OWNERSHIP SCHEME	10.97	11.31
住宅發展區 1 RESIDENTIAL - ZONE 1 (HOME OWNERSHIP SCHEME)	7.00	6.21
住宅發展區 2 RESIDENTIAL - ZONE 2 (HOME OWNERSHIP SCHEME)	1.10	0.85
住宅發展區 3 RESIDENTIAL - ZONE 3 (HOME OWNERSHIP SCHEME)	6.61	4.13
住宅發展區 4 RESIDENTIAL - ZONE 4 (HOME OWNERSHIP SCHEME)	1.70	1.22
住宅發展區 5 RESIDENTIAL - ZONE 5 (HOME OWNERSHIP SCHEME)	1.64	0.77
住宅發展區 6 RESIDENTIAL - ZONE 6 (HOME OWNERSHIP SCHEME)	0.20	0.16
政府 GOVERNMENT	10.82	10.34
教育 EDUCATION	0.22	0.16
教育 EDUCATION	6.69	4.48
區域開放空間 REGIONAL OPEN SPACE	6.69	7.12
區級開放空間 DISTRICT OPEN SPACE	11.82	8.00
地方開放空間 LOCAL OPEN SPACE	3.79	2.70
綠化地帶 AMENITY	6.28	3.67
其他指定用途 OTHER SPECIFIED USES	7.12	6.24
農業 AGRICULTURE	12.80	9.20
綠化地帶 AMENITY	2.44	1.80
綠化地帶 AMENITY	3.25	1.63
道路, 等 ROAD, ETC	28.85	21.07
總發展區 TOTAL DEVELOPMENT AREA	131.88	100.00
河道 RIVER CHANNEL	29.24	-
總發展區 TOTAL PLANNING SCHEME AREA	161.12	-

註釋 NOTES

- 本圖上所有界線均為建議性質，不具法律約束力。如欲知有關詳情，請向地政總署查詢。本圖上所有界線均為建議性質，不具法律約束力。如欲知有關詳情，請向地政總署查詢。
- The notes shown on the map are for reference only. It is recommended that you consult the Planning Department for more information. The notes shown on the map are for reference only. It is recommended that you consult the Planning Department for more information.
- 本圖上所有界線均為建議性質，不具法律約束力。如欲知有關詳情，請向地政總署查詢。
- Estimated population of the area is about 71,400 persons.
- 本圖上所有界線均為建議性質，不具法律約束力。如欲知有關詳情，請向地政總署查詢。
- All road alignments and junctions, footbridges and subways, and boundaries between zones are subject to detailed design.

近期修訂紀錄表

TABLE OF RECENT AMENDMENT

修訂 AMENDMENT	修訂 SIGNATURE	日期 DATE

經地政總署審批 2013年10月17日
APPROVED BY COMMITTEE ON PLANNING AND LAND DEVELOPMENT ON 17 OCTOBER 2013

簽署
Signed PAUL M.P. CHAN
SECRETARY FOR DEVELOPMENT
日期: 20.12.2013 DATE

粉嶺北發展大綱圖

FANLING NORTH OUTLINE DEVELOPMENT PLAN

SCALE 1:3 500 比例尺

程序 ACTION	簽署 SIGNATURE	日期 DATE	權號 FILE NO.	規劃署 規劃研究組 STUDIES & RESEARCH SECTION PLANNING DEPARTMENT
批准 SUBMISSION AUTHORIZED	Signed AMY Y.M. CHEUNG 署理地政總署長 / 總地政專員 (地政)	15.10.2013	ND4/102	圖則編號 PLAN No. 圖3 Figure 3
批准 CIRCULATION AUTHORIZED	Signed LAWRENCE Y.C. CHAU 署理地政總署長 / 署理地政專員 (地政)	11.09.2013	ND4/102	
準備 PREPARED	Signed JANET K.K. CHEUNG 署理地政總署長 / 署理地政專員 (地政)	11.09.2013	ND4/102	

