

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT

Civil Engineering – Land development
786CL – Tung Chung New Town Extension

HEAD 705 – CIVIL ENGINEERING

Civil Engineering – Land development
782CL – Engineering Study on Road P1 (Tai Ho – Sunny Bay Section)

Civil Engineering – Multi-purpose
49CG – The District Cooling System for Tung Chung New Town Extension (East)

Members are invited to recommend to the Finance Committee –

- (a) the upgrading of part of **786CL** as **859CL**, entitled “Tung Chung New Town Extension – site formation and infrastructure works”, to Category A at an estimated cost of \$19,332.9 million in money-of-the-day prices;
- (b) the upgrading of **782CL**, entitled “Engineering Study on Road P1 (Tai Ho – Sunny Bay Section)”, to Category A at an estimated cost of \$130.2 million in money-of-the-day prices;

/(c)

- (c) the upgrading of **49CG**, entitled “The District Cooling System for Tung Chung New Town Extension (East)”, to Category A at an estimated cost of \$3,918.2 million in money-of-the-day prices; and
- (d) the retention of the remainder of **786CL** in Category B.

PROBLEM

We need to carry out the following works –

- (a) part of **786CL** for site formation and infrastructure works to support the development of the Tung Chung New Town Extension (TCNTE);
- (b) **782CL** for conducting an engineering study on Road P1 (Tai Ho – Sunny Bay Section) and the associated site investigation works to relieve the traffic pressure on the North Lantau Highway (NLH), cope with the housing and economic developments at North Lantau, and enhance the resilience of the North Lantau transport network; and
- (c) **49CG** for implementing a District Cooling System (DCS) in the Tung Chung New Town Extension (East) (TCE) to provide air-conditioning for non-domestic buildings and facilities in TCE and promote energy efficiency in this area.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade the following projects to Category A –

- (a) part of **786CL** at an estimated cost of \$19,332.9 million in money-of-the-day (MOD) prices for the site formation and infrastructure works for the TCNTE; and

/ (b)

- (b) **782CL** at an estimated cost of \$130.2 million in MOD prices to engage consultants to conduct the engineering study on Road P1 (Tai Ho – Sunny Bay Section) and the associated site investigation works.

3. Road P1 is of about 12 kilometres (km) long. The part of **786CL** in (a) above covers amongst other things construction of the section from Tung Chung to Tai Ho of about 2.5 km in length, while **782CL** in (b) above proposes to conduct an engineering study for the remaining 9.5 km from Tai Ho to Sunny Bay. In the 2019-20 legislative session, we invited Members to recommend to the Finance Committee (FC) the upgrading of **782CL** to Category A vide PWSC(2019-20)26, but the paper was eventually not discussed within the legislative session. This paper supersedes the part of PWSC(2019-20)26 regarding **782CL**.

4. The Director of Electrical and Mechanical Services, with the support of the Secretary for the Environment, proposes to upgrade **49CG** to Category A at an estimated cost of \$3,918.2 million in MOD prices for implementing the DCS for the TCE.

PROJECT SCOPE AND NATURE

5. Details of the above three projects are provided at **Enclosures 1, 2 and 3** respectively.

Development Bureau
Environment Bureau
December 2020

786CL – Tung Chung New Town Extension

PROJECT SCOPE AND NATURE

The part of **786CL** (the First Phase development) which we propose to upgrade to Category A comprises –

- (a) site formation of about 6 hectares (ha) of land for public housing development in Tung Chung West (TCW);
- (b) construction of dual two-lane Road P1 (Tung Chung – Tai Ho Section) of about 2.5 kilometres (km) long, Tai Ho Interchange (including slip roads), roads of about 10 km long, footpaths of about 22 km long, and cycle tracks of about 11 km long in the Tung Chung New Town Extension (TCNTE), and associated junction / road improvement works;
- (c) engineering infrastructure works covering drainage, sewerage (including upgrading of the existing Chung Mun Road Sewage Pumping Station and construction of three new sewage pumping stations), waterworks (including a fresh water service reservoir, a salt water service reservoir and a salt water pumping station), common utility tunnels (CUT) ¹ and landscaping works;
- (d) construction of the first phase of River Park including a visitor centre at TCW;
- (e) construction of proposed open space in Area 29A in TCW;
- (f) construction of sustainable urban drainage system (SUDS)² in TCW; and

/(g)

¹ A CUT is an underground tunnel housing various utility cables and pipelines so that maintenance and repair can be carried out without digging up roads, which will in turn minimise disturbance to road users.

² SUDS is a drainage system including stormwater attenuation and treatment ponds, bioswales and permeable pavements to control the amount and water quality of surface runoff to be discharged into Tung Chung Stream.

- (g) implementation of environmental mitigation measures and environmental monitoring and audit (EM&A) programme for the works mentioned in paragraphs (a) to (f) above.

2. Layout plans showing the scope of the First Phase development are at **Annex 1 to Enclosure 1**. Details of the proposed Road P1 (Tung Chung – Tai Ho Section) and Tai Ho Interchange, CUT, River Park and visitor centre are at **Annexes 2, 3 and 4 to Enclosure 1** respectively.

3. We plan to commence the First Phase development upon obtaining funding approval from the Finance Committee (FC) for target completion in about seven years, with phased completion expected from 2024 onwards. To meet the works programme, the Civil Engineering and Development Department (CEDD) plans to invite tenders for the First Phase development from end 2020 progressively, but the works contracts will only be awarded upon obtaining funding approval from the FC.

4. We will retain the remainder of **786CL** (Remaining Phase development) in Category B, for which funding would be sought later. As the majority of site formation and infrastructure works for TCNTE has been included in the part of **786CL** proposed to be upgraded to Category A in this paper, the remainder of **786CL** mainly covers the remaining site formation and infrastructure works, open spaces at Tung Chung East (TCE), and the associated construction supervision cost.

JUSTIFICATION

5. The TCNTE is one of the major development projects being taken forward by Government to increase land supply over the next 10 years. It covers areas on the eastern and western flanks of the existing Tung Chung New Town – the extension in TCE involves new land creation of 130 ha from reclamation, while that in TCW involves resumption of private lots of about 16 ha in total for public development. In October 2017, we first secured funding of \$20,210.0 million from the Legislative Council (LegCo) mainly for the TCE reclamation works. Reclamation has since been progressing well and is on schedule for completion within 2023. So far, about half of the reclamation works has been completed, with land parcels so reclaimed to be made available for development in batches. The first batch comprising two public housing sites (about 7 ha) and a commercial site (about 1.2 ha) was handed over in March and June 2020 for development and land disposal respectively, with a lead time of slightly over two years since reclamation commenced in December 2017. The second batch comprising two public housing

/sites

— sites (about 3 ha) was made available for development in October 2020. A photo showing the TCE reclamation as at end October 2020 is at **Annex 5 to Enclosure 1**.

6. The TCNTE was originally planned with 49 400 housing units with public / private housing split of 63:37. To meet keen housing demand and optimise infrastructural investments, we have recently reviewed the technical feasibility of intensifying the development density of TCNTE housing sites. With the spare infrastructural capacity so identified and revision of the public housing flat design, we are able to increase the overall housing yield from 49 400 units to 62 100 units for estimated total population of 184 000 subject to subsequent planning approvals to be obtained. The increase of 12 700 units will all be public housing with the resultant public/private housing split adjusted to 72:28. In terms of commercial facilities, the TCNTE will provide about 877 000 square metres (m²) floorspace generating some 40 000 jobs.

Phased Development

— 7. To move forward with the TCNTE and to support population intake commencing from 2024, we need to seek LegCo's funding support for the majority of TCNTE site formation and infrastructure works to be implemented under the First Phase development³. The remaining site formation and infrastructure works will be carried under the Remaining Phase. The phasing plan of the TCNTE development is at **Annex 6 to Enclosure 1**. Key figures of the TCNTE development are tabulated below –

/Housing

³ Infrastructure works cover both TCE and TCW. Site formation is only applicable to TCW as the 130 ha of new land at TCE will be reclaimed up to a level that is fit and ready for development.

	First Phase	Remaining Phase	Entire Development
Housing yield (public housing)	59 700 units (43 200 units)	2 400 units (1 500 units)	62 100 units (44 700 units)
Planned population	177 000	7 000	184 000
Floor areas for economic activities	858 000 m ²	19 000 m ²	877 000 m ²
Private lots to be resumed ^[Note]	8 ha	8 ha	16 ha
Government land to be cleared	51 ha	6 ha	57 ha
Households affected ^[Note]	2	3	5
Business undertakings affected ^[Note]	15	7	22

Note:

The 130 ha reclaimed land at TCE does not involve land resumption or clearance. The figures reflect the land, households and business undertakings affected by works implemented by the Government in TCW.

Works for the First Phase

8. Under the First Phase development, we will carry out site formation for three public housing sites in TCW. We will also construct the Road P1 (Tung Chung – Tai Ho Section) and Tai Ho Interchange so as to provide a direct connection between the TCE and the North Lantau Highway⁴. Other road works include the construction of roads, footpaths and cycle tracks in the TCNTE, as well as improvement works to enhance the performance of junctions at existing road network. There will also be infrastructure works for the drainage, sewerage and fresh and salt water supply systems to serve the proposed TCNTE development.

/9.

⁴ Subject to the funding approval from the FC in early 2021, we plan to complete the Road P1 (Tung Chung – Tai Ho Section) in 2026. The proposed engineering study for the Road P1 (Tai Ho to Sunny Bay Section) will be considered in Enclosure 2 to PWSC(2020-21)24.

9. Following the visions in the 2018 Policy Address and the Sustainable Lantau Blueprint, the TCNTE will adopt smart, green and resilient city concepts, and aspire to be developed into a smart and low-carbon community. In this regard, we will build electric vehicle charging facilities, water intelligent network and automatic meter reading for water supply system, comprehensive cycle track network, green and pedestrian-friendly environment, and the CUT (detailed in paragraph 10 below), as well as the River Park and SUDS in TCW (detailed in paragraphs 11 and 12 below).

10. To minimise road opening and support the growing need for underground utility service, the Government has been exploring the use of CUT to house underground utility cables / pipelines in new development areas (NDAs). CUT is also recommended for NDAs according to the Smart City Blueprint for Hong Kong. We will implement CUT in major roads of TCNTE in support of this policy direction.

11. The Tung Chung Stream in Tung Chung Valley has high ecological value. While a section of the existing Tung Chung Stream at its downstream in the northeast of Shek Lau Po is channelised, we will restore the ecological connection between upstream and downstream of the Tung Chung Stream by revitalising this channelised section (about 600 metres (m) long) to its natural setting and developing a section (about 415 m long) into a River Park⁵ to promote water-friendly culture and activities. To promote conservation and enrich visitors' experience, we will set up a visitor centre within the River Park.

12. To improve the water quality of Tung Chung Stream, we will install a series of SUDS in TCW, including stormwater attenuation and treatment ponds, as well as bioswales and permeable pavements, to control the amount and improve the quality of surface runoff to be discharged into the Tung Chung Stream. In addition, the stormwater attenuation and treatment ponds in TCW will serve as buffers for flood prevention purpose for the Tung Chung Stream.

13. In response to public calls for early implementation of the proposed open space in Area 29A in TCW (near Ma Wan Chung) to serve existing population of Tung Chung New Town, we will implement the proposed open space project under the First Phase development by preserving the natural setting of the environment while providing a range of facilities for better public enjoyment. Such facilities include upgrading the walking trails, provision of multi-purpose activity area, exercise corner, pet garden and look-out points, as well as construction of a boardwalk along the coastal area.

/FINANCIAL

⁵ The remaining part of the River Park will be implemented in the Remaining Phase.

FINANCIAL IMPLICATIONS

14. We estimate the capital cost of the First Phase development to be \$19,332.9 million in money-of-the-day (MOD) prices, broken down as follows –

	\$ million (in MOD prices)
(a) Site formation and associated works	586.1
(b) Construction of roads and associated junction / road improvements	5,730.0
(i) Road P1 (Tung Chung – Tai Ho Section) and Tai Ho Interchange	1,331.6
(ii) distributor and local roads	3,763.5
(iii) footpaths and cycle tracks	489.5
(iv) junction improvements	145.4
(c) Engineering infrastructure works	8,008.4
(i) drainage	1,818.4
(ii) sewerage	1,418.6
(iii) waterworks	3,060.9
(iv) CUT	1,562.3
(v) landscaping works	148.2
(d) First phase of River Park	415.4
(e) Open space in Area 29A in TCW	371.8
(f) Environmental mitigation measures and EM&A programme for the works in (a) to (e) above	481.9
(g) Consultants' fees	266.5
(i) contract administration	130.6
(ii) management of resident site staff (RSS)	61.3
(iii) EM&A programme	74.6
(h) Remuneration of RSS	1,715.3
(i) Contingencies	1,757.5
Total	<u>19,332.9</u>

15. We propose to engage consultants to undertake contract administration and site supervision for the First Phase development. A detailed breakdown of the estimates for consultants' fees and RSS costs by man-months is at **Annex 7 to Enclosure 1**.

16. Subject to funding approval, we plan to phase the expenditure as follows –

Year	\$ million (MOD)
2021-2022	524.5
2022-2023	2,586.7
2023-2024	4,147.4
2024-2025	3,812.6
2025-2026	3,461.7
2026-2027	2,360.6
2027-2028	1,799.5
2028-2029	634.5
2029-2030	5.4
	<hr/> 19,332.9 <hr/>

17. We have derived the MOD estimates on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period from 2021 to 2030. Subject to funding approval, we will deliver the First Phase development under contracts using the New Engineering Contract (NEC) form⁶ with provision for price adjustments.

18. We estimate the annual recurrent expenditure arising from the First Phase development to be about \$527.7 million.

/PUBLIC

⁶ New Engineering Contract is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It is a contract form that emphasizes cooperation, mutual trust and collaborative risk management between contracting parties.

PUBLIC CONSULTATION

19. From 2012 to 2014, we conducted under the “Planning and Engineering Study on the Remaining Development in Tung Chung – Feasibility Study” (the P&E Study) a three-stage public engagement exercise on the development proposal of the TCNTE. The Panel on Development (Panel) was consulted during the process. The development proposal was generally supported, with calls urging for early implementation of the TCNTE to meet the housing, economic and social needs.

20. The draft Tung Chung Extension Area Outline Zoning Plan, draft Tung Chung Valley Outline Zoning Plan and the draft Tung Chung Town Centre Area Outline Zoning Plan (OZPs) were gazetted in January 2016. During the statutory planning process, a total of 59 representations and 78 comments were received. After giving due consideration to the representations and comments, the Town Planning Board decided not to propose any amendment to the draft OZPs upon its deliberation on 18 November 2016. In February 2017, the Chief Executive in Council (CE in C) approved the three draft OZPs. The approved OZPs were then exhibited for public inspection in February 2017.

21. We gazetted the proposed road schemes for the First Phase development under the Roads (Works, Use and Compensation) Ordinance (Cap. 370), as well as the proposed sewerage schemes for the First Phase development under Cap. 370 as applied by the Water Pollution Control (Sewerage) Regulation (Cap. 358AL) in seven packages in phases from 2017 to 2019. The table in **Annex 8 to Enclosure 1** summarises the dates of gazettal, number of objections received following gazettal, objections withdrawn following objection resolving meetings between Government and objectors and / or provision of relevant information, dates of CE in C authorisations and dates of gazettal of authorisations.

22. Objections were received on the Package 1, Package 3 and Package 7 as summarised in the table in **Annex 8 to Enclosure 1**. The objections were mainly related to the design and extent of the schemes, environmental disturbance, resumption of private lots, the impacts on an existing bee farm, trees, graves and urns and the businesses. The CE in C authorised the works in Package 1 and Package 3 in August 2020, and Package 7 in October 2020. The notices of authorisation were gazetted in October 2020.

23. We consulted the Tung Chung Rural Committee (TCRC) and the Islands District Council (IsDC) in August and October 2020 respectively. The TCRC offered in-principle support for the funding application of the TCNTE project. The IsDC supported the funding application and implementation of the TCNTE project.

24. We consulted the Panel on 24 November 2020. While the Panel supported to the submission of funding application to the Public Works Subcommittee for consideration, Members expressed concern on several areas including whether the commissioning of the TCE and TCW Stations can be advanced to better match the pace of population intake; availability of road-based and other transport measures to cater for the new population and improve connectivity with the Airport City to encourage local employment; jobs available in TCNTE and nearby areas to provide better home-job balance while minimising extra traffic load; and land use planning for public facilities to cope with the needs of the new population.

ENVIRONMENTAL IMPLICATIONS

25. The TCNTE project is a Designated Project (DP) under Schedule 3 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499). The proposed Road P1 (Tung Chung – Tai Ho Section) and the distributor roads, the sewage pumping stations and the de-channelisation works at Tung Chung Stream are also DPs under Schedule 2 of the EIAO and an Environmental Permit (EP) is required for their construction and operation. The environmental implications of these works were covered by the environmental impact assessment (EIA) report approved in April 2016, and also the EP for TCNTE issued in August 2016. The EIA report concluded that with the implementation of the recommended mitigation measures, these works would not cause adverse environmental impacts. For the fresh water service reservoir which is not a DP under the EIAO, we have carried out a Preliminary Environmental Review (PER) which concluded that the works would not cause long-term adverse environmental impacts.

26. We will implement measures and the EM&A programme recommended in the approved EIA report and the PER, and comply with the relevant conditions under the EP. Key mitigation measures to be implemented include noise barrier and low noise road surfacing for roadworks, as well as deodouriser, noise reduction and emergency sewage bypass prevention measures at sewage pumping stations, etc. during operation phase.

27. For controlling short-term environmental impacts caused by the First Phase development during construction, we will incorporate relevant contract conditions and require the contractors to implement environmental mitigation measures. These measures include regular watering of exposed site area to reduce emission of fugitive dust, the use of movable noise barriers and quiet plant to reduce noise generation, and the use of trucks with cover or enclosed containers for waste transportation. We have included the cost of implementing the environmental mitigation measures as well as the EM&A programme in the overall project estimates of First Phase development.

28. At the planning and design stages, we have considered all the First Phase development and construction sequences to reduce generation of construction waste where possible. In addition, we will require the contractors to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible in order to minimise the disposal of inert construction waste at public fill reception facilities (PFRF)⁷. We will encourage the contractors to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

29. At the construction stage, we will require the contractors to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractors to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of construction waste through a trip-ticket system.

30. We estimate that the First Phase development will generate in total about 1 716 000 tonnes of construction waste. Of these, we will reuse about 690 000 tonnes (about 40.2%) of inert construction waste for the reclamation works being in progress, and reuse about 380 000 tonnes (about 22.2%) of inert construction waste on site. We will dispose of the remaining 640 000 tonnes (37.3 %) of inert construction waste at PFRF and 6 000 tonnes (about 0.3%) of non-inert construction waste at landfills. The total cost for disposal of the construction waste at PFRF and landfills are estimated to be about \$46.6 million for the First Phase development (based on a unit charge rate of \$71 per tonne for disposal at PFRF and \$200 per tonne for disposal at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

/TRAFFIC

⁷ PFRF are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste at PFRF requires a licence issued by the Director of Civil Engineering and Development.

TRAFFIC IMPLICATIONS

31. We completed a traffic impact assessment, which included the implementation of the Tung Chung Line Extension and showed that most traffic impact due to the planned population intake of the TCNTE development would be reasonably mitigated with commissioning of the proposed road network and local junction improvement works mentioned in paragraph 8 above and the completion of the Tung Chung Line Extension with two new stations.

32. The traffic impact of the TCNTE development during the construction stage will also be manageable. Temporary traffic arrangements (TTAs) will be implemented to facilitate the construction works. We will establish a Traffic Management Liaison Group (TMLG) comprising representatives of the CEDD, the Transport Department, the Hong Kong Police Force and other stakeholders to discuss, scrutinise and review the TTAs proposed by the contractors with a view to minimising traffic impact arising from the First Phase development. We will maintain close contact with the TMLG members as well as the Islands District Office, IsDC, various public transport operators and utility undertakers. We will also consult IsDC prior to the implementation of major TTAs for the First Phase development. In addition, we will set up a telephone hotline to respond to public enquiries or complaints.

LAND ACQUISITION

33. We have reviewed the design of the First Phase development to minimise the extent of land acquisition. For the First Phase development, we will resume about eight ha of private land in TCW and clear about 51 ha of government land in TCNTE. The land resumption and clearance will affect two households involving three persons. About 15 business undertakings, three graves and 29 urns have to be cleared. Apart from the provision for claim for statutory compensation under the relevant ordinances, we will offer various prevailing administrative ex-gratia allowances, in some cases as an alternative to the statutory claims, to affected eligible landowners and occupiers and, where eligible, rehousing arrangements to residents affected by clearances in accordance with the general ex-gratia compensation and rehousing arrangements.

34. We will charge the cost of land resumption and clearance for **786CL** estimated at about \$1,381.7 million to **Head 701 – Land Acquisition**. A breakdown of the land acquisition cost is at **Annex 9 to Enclosure 1**. The annual cashflow will be sought separately according to established procedures together with other block allocation subheads under the Capital Works Reserve Fund.

35. In order to complete the necessary resumption and clearance procedures such that the site formation works of Area 42 in TCW can commence upon obtaining funding approval from the FC with a view to completing the works in time for population intake of the public housing development in 2027, we advised the Panel on 24 November 2020 regarding our plan to invite the Lands Department to order the resumption of the 124 private lots in Area 42 under the Lands Resumption Ordinance (Cap. 124) in January 2021, before FC's funding approval for the works is obtained.

HERITAGE IMPLICATIONS

36. We have completed a cultural heritage impact assessment under the EIA for TCNTE and a Preliminary Archaeological and Built Heritage Impact Assessment for Coastal Pedestrian Access, Widening of Tung Chung Road North and Site Investigation (PABHIA). They concluded that the First Phase development would not affect all proposed monuments, graded historic sites and buildings and Government historic sites identified by the Antiquities and Monuments Office. As part of the First Phase development will be executed within the Ma Wan Chung Site of Archaeological Interest, Sha Tsui Tau Site of Archaeological Interest and archaeological potential areas identified by the approved EIA report and in the vicinity of Tung Chung Battery (Declared Monument) and Fu Tei Wan Kiln (relocated to Tung Chung) Site of Archaeological Interest, we will implement mitigation measures as recommended by the approved EIA report and the PABHIA accordingly. A marine archaeological investigation has been conducted under the EIA. It concluded that adverse impact on marine archaeology was not anticipated.

BACKGROUND INFORMATION

37. We upgraded **786CL** to Category B in September 2014.

38. On 27 May 2016, the FC approved the upgrading of part of **786CL** to Category A as **799CL** "Tung Chung New Town Extension – Detailed Design and Site Investigation" at an approved project estimate of \$729.5 million in MOD prices for engaging consultants to undertake the detailed design and site investigation works for the TCNTE project. The site investigation was completed and the detailed design is still in progress.

39. On 13 October 2017, the FC approved the upgrading of part of **786CL** to Category A as **814CL** “Tung Chung New Town Extension – Reclamation and Advance Works” at an approved project estimate of \$20,210.0 million in MOD prices for the reclamation works at TCE and advance works for the TCNTE. The reclamation works at TCE and advance works for the TCNTE commenced in 2017 for phased completion from early 2020 to end 2023.

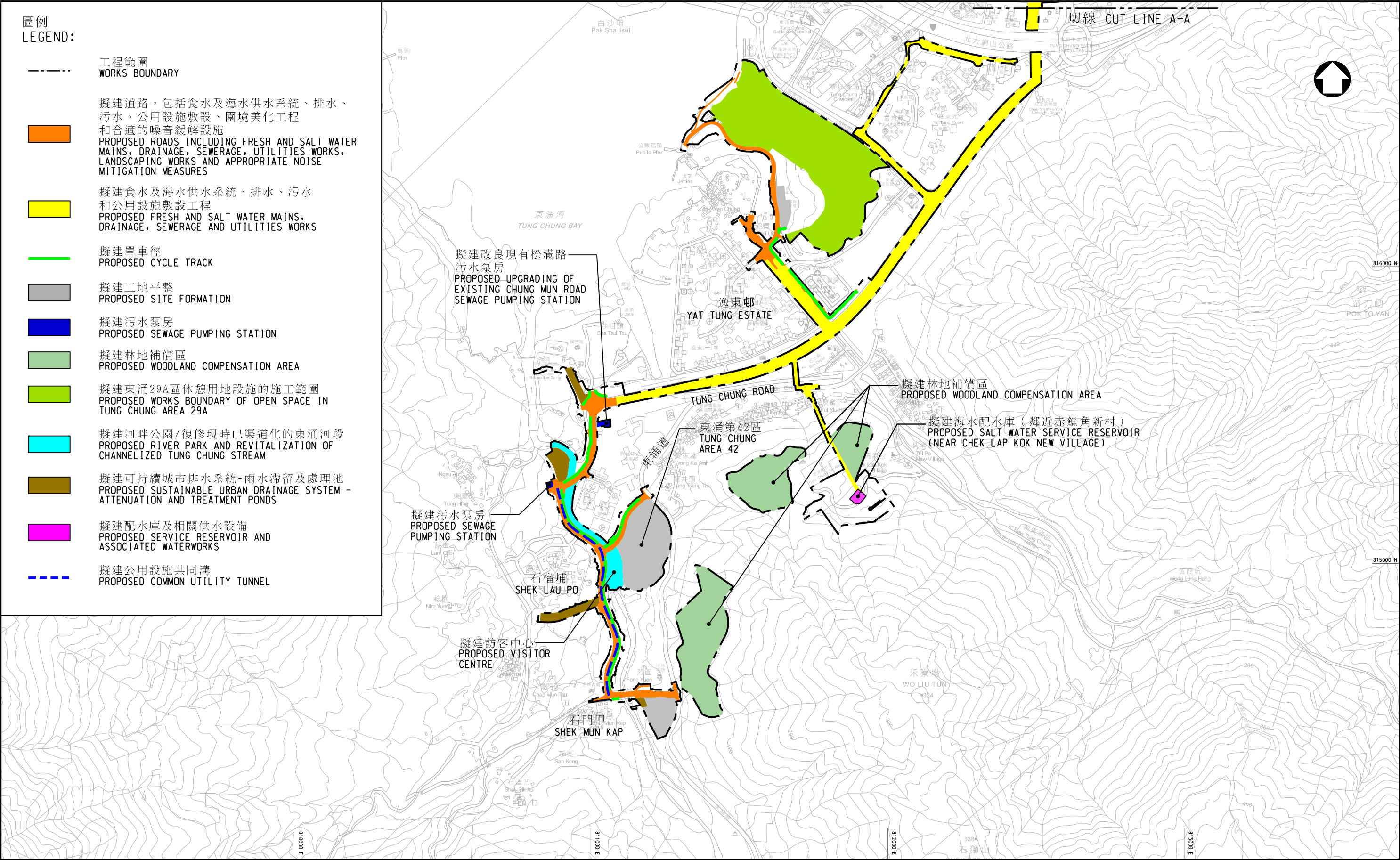
40. Of the 9 950 number of trees within the project boundary, 5 960 number of trees will be preserved. The proposed site formation and infrastructure works will involve removal of 3 990 number of trees, including 3 860 number of trees to be felled and 130 number of trees to be replanted within the project site. Among the above, 22 number of important trees⁸ will be affected during the implementation of the project. A summary of important trees affected is provided at **Annex 10 to Enclosure 1**. We will incorporate planting proposals as part of the project, including estimated quantities of 2 000 number of trees, 36 000 number of whip trees, 626 000 number of shrubs, and 75 800 number of groundcovers / climbers / herbaceous plants⁹.

41. We estimate that the First Phase development will create about 2 810 jobs (2 270 for labourers and 540 for professional or technical staff) providing a total employment of about 174 250 man-months.

⁸ “Important trees” refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal to or exceeding 1.0 m (measured at 1.3 m above ground level), or with height / canopy spread equal to or exceeding 25 m.

⁹ The figures are approximate only and could only be confirmed after land resumption/clearance.



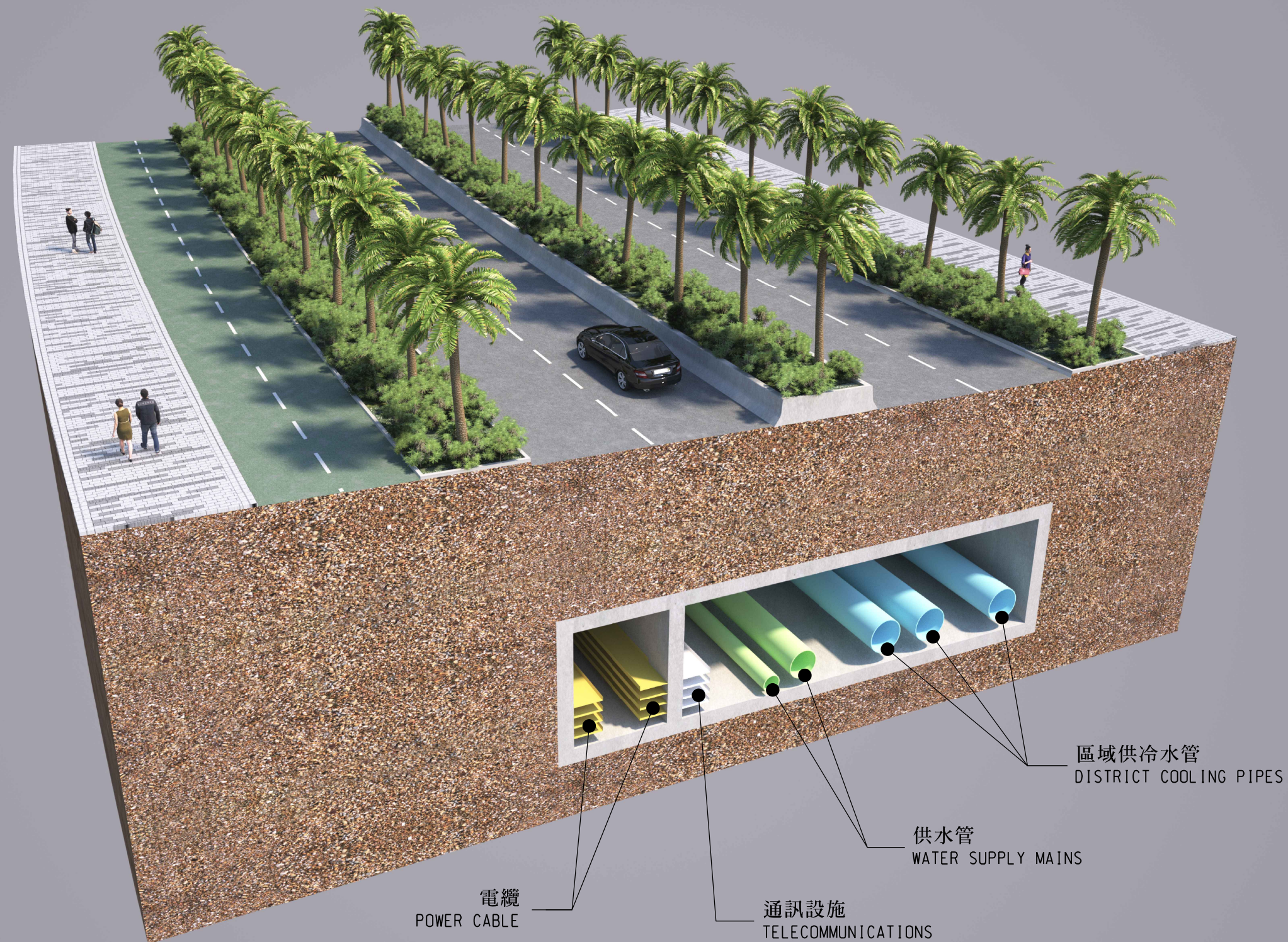
工務計劃項目第786CL號
東涌新市鎮擴展 - 工地平整及基礎設施工程 - 平面圖（東涌西）

PWP ITEM NO. 786CL
TUNG CHUNG NEW TOWN EXTENSION - SITE FORMATION AND INFRASTRUCTURE WORKS - LAYOUT PLAN (TUNG CHUNG WEST)



工務計劃項目第786CL號
東涌新市鎮擴展 - 工地平整及基礎設施工程 - 擬建P1公路及大蠔交匯處的構思圖

PWP ITEM NO. 786CL
TUNG CHUNG NEW TOWN EXTENSION - SITE FORMATION AND INFRASTRUCTURE WORKS - ARTISTIC IMPRESSION OF PROPOSED ROAD P1 AND TAI HO INTERCHANGE



工務計劃項目第786CL號
東涌新市鎮擴展 - 工地平整及基礎設施工程 - 擬議公用設施共同溝的構思圖

PWP ITEM NO. 786CL
TUNG CHUNG NEW TOWN EXTENSION - SITE FORMATION AND INFRASTRUCTURE WORKS - ARTISTIC IMPRESSION OF PROPOSED COMMON UTILITY TUNNEL



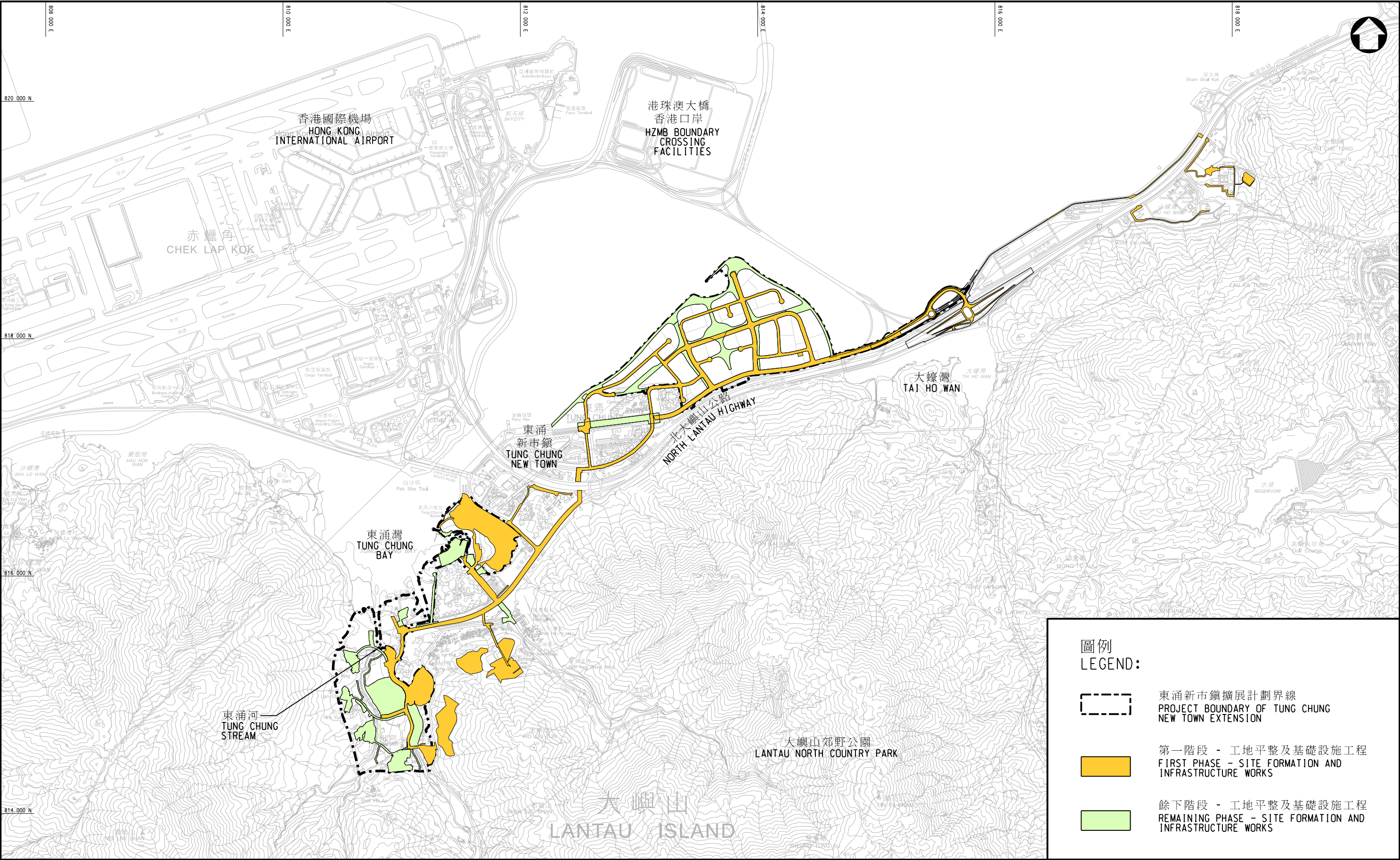
工務計劃項目第786CL號
東涌新市鎮擴展 - 工地平整及基礎設施工程 - 擬議東涌河畔公園及訪客中心的構思圖

PWP ITEM NO. 786CL
TUNG CHUNG NEW TOWN EXTENSION - SITE FORMATION AND INFRASTRUCTURE WORKS - ARTISTIC IMPRESSION OF PROPOSED TUNG CHUNG RIVER PARK AND VISITOR CENTRE



工務計劃項目第786CL號
東涌新市鎮擴展 - 工地平整及基礎設施工程 - 東涌東的填海進度

PWP ITEM NO. 786CL
TUNG CHUNG NEW TOWN EXTENSION - SITE FORMATION AND INFRASTRUCTURE WORKS - RECLAMATION PROGRESS OF TUNG CHUNG EAST



工務計劃項目第786CL號
東涌新市鎮擴展 - 工地平整及基礎設施工程 - 發展階段
PWP ITEM NO. 786CL
TUNG CHUNG NEW TOWN EXTENSION - SITE FORMATION AND INFRASTRUCTURE WORKS - DEVELOPMENT PHASING

Annex 7 to Enclosure 1

786CL (part) – Tung Chung New Town Extension – site formation and infrastructure works

Breakdown of the estimates for consultants' fees (in September 2020 prices)

			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees (\$ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional	-	-	-	64.2
		Technical	-	-	-	37.9
					Sub-total	102.1#
(b)	Consultants' fee for Environmental Monitoring and Audit Programme (Note 3)	Professional	195	38	2.0	33.5
		Technical	410	14	2.0	24.8
					Sub-total	58.3#
(c)	Residential site staff (RSS) costs (Note 4)	Professional	4 566	38	1.6	627.3
		Technical	15 724	14	1.6	760.7
					Sub-total	1,388.0
Comprising –						
(i)	consultants' fee for management of RSS				47.9#	
(ii)	remuneration of RSS				1,340.1#	
					Total	1,548.4

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS salary point to estimate the full staff cost for the staff employed in the consultants' office (including the consultants' overheads and profit). A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS supplied by the consultants (as at now, MPS point 38 = \$85,870 per month and MPS point 14 = \$30,235 per month).
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of part of **786CL**. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade the part of **786CL** to Category A.

3. The actual man-months and actual fees will only be known after the consultants have been selected.
4. The actual man-months and actual costs will only be known after completion of the construction works.

Remarks

The figures in this Annex are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in money-of-the-day prices in paragraph 14 of Enclosure 1.

PWP Item No. 786CL (part) – Tung Chung New Town Extension - site formation and infrastructure works

Summary of Road and Sewerage Schemes Gazettals and Authorisations

Package ^[Notes]		Date of gazettal	Objections received after gazettal (a)	Objection withdrawn (b)	Objections unresolved (a) – (b)	Date of CE in C authorisation	Date of gazette of notice of authorisation
1	Road scheme	September 2017	0	-	-	25 August 2020	October 2020
	Sewerage scheme		0	-	-		
	Amendment road scheme	May and June 2018	1	0	1		
2	Sewerage scheme	April and May 2018	0	-	-	-	August and September 2018
3	Road scheme	May and June 2018	494	4	490	25 August 2020	October 2020
	Sewerage scheme		420	3	417		
	Amendment road scheme	April 2019	338	0	338		
	Amendment sewerage scheme		335	0	335		
4	Road scheme	May and June 2018	0	-	-	-	October 2020
5	Road scheme	May and June 2018	0	-	-	-	September 2018
	Sewerage scheme		0	-	-		
6	Sewerage scheme	November 2019	0	-	-	-	March 2020
7	Road scheme	November 2019	9	5	4	6 October 2020	October 2020
	Sewerage scheme		2	0	2		

Notes:

Package 1 – “Ma Wan Chung Road Works” and “Ma Wan Chung Sewerage Works”

Package 2 – “Sewerage Works at Yu Tung Road”

Package 3 – “Widening of Tung Chung Road North” and “Tung Chung Road North Sewerage Works”

Package 4 – “Coastal Pedestrian Access”

Package 5 – “Tung Chung East and Road P1 (Tung Chung East to Tai Ho Section) Road Works)” and “Tung Chung East and Road P1 (Tung Chung East to Tai Ho Section) Sewerage Works)”

Package 6 – “Sewerage Works at Chung Yan Road”

Package 7 – “Road Works at Yu Tung Road, Chung Mun Road, Road L29, Road L30 and Shek Mun Kap Road” and “Sewerage Works at Yu Tung Road, Chung Mun Road, Road L29, Road L30 and Shek Mun Kap Road and Sewage Pumping Station in Area 66B, Tung Chung”

**786CL (part) - Tung Chung New Town Extension –
site formation and infrastructure works**

Breakdown of land acquisition cost under the Lands Resumption Ordinance (Cap. 124), the Roads (Works, Use and Compensation) Ordinance (Cap. 370), and the Roads (Works, Use and Compensation) Ordinance (Cap. 370) as applied by Water Pollution Control (Sewerage) Regulation (Cap. 358AL)

	\$ million
(I) Estimated cost for land acquisition	1,186.4
(II) Estimated cost for land clearance	15.1
(a) Ex-gratia allowances (EGAs) for domestic occupiers (e.g. EGA for permitted occupiers of licensed structures and surveyed squatters affected by clearance and domestic removal allowance, etc.)	0.7
(b) Other ex-gratia allowances (e.g. crop compensation, disturbance allowance for cultivators, EGA for miscellaneous permanent improvements to farms, EGA for shops, workshops, godowns, slipways, schools, churches and ornamental fish breeding undertakings, EGA for open-air/ outdoor business undertakings, EGA for clearance of graves, urns (Kam Taps) and shrines and EGA for “Tun Fu” ceremonial fees, etc.)	14.4
(III) Interest and Contingency Payment	180.2
	1,381.7
Total	<hr/>

Note

The above estimated land acquisition cost is based on the prevailing rates as at October 2020.

工務計劃項目 786CL 號(部分)－東涌新市鎮擴展－工地平整及基礎設施工程

22 棵受影響珍貴樹木詳情

PWP Item No. 786CL (part) – Tung Chung New Town Extension - site formation and infrastructure works

Details of 22 Important Trees Affected

樹木／ 樹組 編號 ⁽¹⁾ Tree/ Tree Group No. ⁽¹⁾	品種 Species		量度 Measurements			觀賞 價值 ⁽³⁾ Amenity value ⁽³⁾	形態 Form	健康 狀況 Health condition	結構 狀況 Structural condition	移植合適度 ⁽⁴⁾ Suitability for transplanting ⁽⁴⁾		保育狀況 ⁽⁵⁾⁽⁶⁾ Conservation status ⁽⁵⁾⁽⁶⁾	建議處置方法 (保留／移植／ 砍伐) Recommendation (Retain/ Transplant/Fell)
	學名 Scientific name	中文名 Chinese name	高度 (米) Height (m)	胸徑 ⁽²⁾ (毫米) DBH ⁽²⁾ (mm)	樹冠 闊度(米) Crown spread (m)	(良好／一般／差劣) (Good/Fair/Poor)				(高／中／ 低) (High/Med/ Low)	備註 Remarks		
T3537	<i>Aquilaria sinensis</i>	土沉香	6	140	5	一般 Fair	差劣 Poor	一般 Fair	差劣 Poor	中 Med	形態和結構狀況稍欠理想，但仍適合移植 Suboptimal form & structure but otherwise in transplantable condition	RPPHK; Cap.586	移植 Transplant
T6612	<i>Aquilaria sinensis</i>	土沉香	4	110	4	一般 Fair	差劣 Poor	一般 Fair	一般 Fair	中 Med	形態欠理想，但仍適合移植 Suboptimal form but otherwise in transplantable condition	RPPHK; Cap.586	移植 Transplant
T8259	<i>Gmelina chinensis</i>	石梓	8	140	5	一般 Fair	差劣 Poor	一般 Fair	差劣 Poor	低 Low	形態和結構狀況差劣；位於陡峭的斜坡，難以挖掘根球 Poor form & structure; on steep slope, impractical to form a viable root ball	RPPHK	砍伐 Fell
T8260	<i>Aquilaria sinensis</i>	土沉香	10	170	5	一般 Fair	差劣 Poor	一般 Fair	一般 Fair	低 Low	形態差劣；位於陡峭的斜坡，難以挖掘根球 Poor form; on steep slope, impractical to form a viable root ball	RPPHK; Cap.586	砍伐 Fell
T8262	<i>Gmelina chinensis</i>	石梓	8	250	6	一般 Fair	差劣 Poor	一般 Fair	一般 Fair	低 Low	形態差劣；位於陡峭的斜坡，難以挖掘根球 Poor form; on steep slope, impractical to form a viable root ball	RPPHK	砍伐 Fell
T8271	<i>Aquilaria sinensis</i>	土沉香	7	210	5	一般 Fair	差劣 Poor	一般 Fair	一般 Fair	低 Low	形態差劣；位於陡峭的斜坡，難以挖掘根球 Poor form; on steep slope, impractical to form a viable root ball	RPPHK; Cap.586	砍伐 Fell
T8282	<i>Aquilaria sinensis</i>	土沉香	7	260	4	一般 Fair	差劣 Poor	差劣 Poor	一般 Fair	低 Low	形態和健康狀況差劣；位於陡峭的斜坡，難以挖掘根球 Poor form & health; on steep slope, impractical to form a viable root ball	RPPHK; Cap.586	砍伐 Fell

附件 1 附錄 10
Annex 10 to Enclosure 1

樹木／ 樹組 編號 ⁽¹⁾ Tree/ Tree Group No. ⁽¹⁾	品種 Species		量度 Measurements			觀賞 價值 ⁽³⁾ Amenity value ⁽³⁾	形態 Form	健康 狀況 Health condition	結構 狀況 Structural condition	移植合適度 ⁽⁴⁾ Suitability for transplanting ⁽⁴⁾		保育狀況 ⁽⁵⁾⁽⁶⁾ Conservation status ⁽⁵⁾⁽⁶⁾	建議處置方法 (保留／移植／ 砍伐) Recommendation (Retain/ Transplant/Fell)
	學名 Scientific name	中文名 Chinese name	高度 (米) Height (m)	胸徑 ⁽²⁾ (毫米) DBH ⁽²⁾ (mm)	樹冠 闊度(米) Crown spread (m)	(良好／一般／差劣) (Good/Fair/Poor)				(高／中／ 低) (High/Med/ Low)	備註 Remarks		
T8331	<i>Aquilaria sinensis</i>	土沉香	3	250	4	一般 Fair	差劣 Poor	差劣 Poor	差劣 Poor	低 Low	形態、健康和結構狀況差劣 Poor form, health & structure	RPPHK; Cap.586	砍伐 Fell
T8468	<i>Aquilaria sinensis</i>	土沉香	5	290	3	一般 Fair	差劣 Poor	一般 Fair	差劣 Poor	低 Low	形態和結構狀況差劣 Poor form & structure	RPPHK; Cap.586	砍伐 Fell
T8509	<i>Aquilaria sinensis</i>	土沉香	4	230	2	一般 Fair	差劣 Poor	差劣 Poor	差劣 Poor	低 Low	形態、健康和結構狀況差劣 Poor form, health & structure	RPPHK; Cap.586	砍伐 Fell
T8557	<i>Gmelina chinensis</i>	石梓	4	120	3	一般 Fair	差劣 Poor	差劣 Poor	差劣 Poor	低 Low	形態、健康和結構狀況差劣 Poor form, health & structure	RPPHK	砍伐 Fell
T8685	<i>Aquilaria sinensis</i>	土沉香	4	120	3	良好 Good	一般 Fair	一般 Fair	一般 Fair	中 Med	-	RPPHK; Cap.586	移植 Transplant
T8690	<i>Aquilaria sinensis</i>	土沉香	5	240	4	一般 Fair	差劣 Poor	一般 Fair	差劣 Poor	低 Low	形態和結構狀況差劣；與相鄰樹木根部糾纏， 難以挖掘根球 Poor form & structure; tree roots tangle with adjacent tree, impractical to form a viable root ball	RPPHK; Cap.586	砍伐 Fell
T8835	<i>Aquilaria sinensis</i>	土沉香	4	120	2	一般 Fair	差劣 Poor	差劣 Poor	差劣 Poor	低 Low	形態、健康和結構狀況差劣 Poor form, health & structure; growing on rock, impractical to form a viable root ball	RPPHK; Cap.586	砍伐 Fell
T8936	<i>Gmelina chinensis</i>	石梓	5	110	1	一般 Fair	差劣 Poor	差劣 Poor	差劣 Poor	低 Low	形態、健康和結構狀況差劣 Poor form, health & structure	RPPHK	砍伐 Fell
T8996	<i>Aquilaria sinensis</i>	土沉香	5	110	4	一般 Fair	差劣 Poor	一般 Fair	差劣 Poor	中 Med	形態和結構狀況稍欠理想，但仍適合移植 Suboptimal form & structure but otherwise in transplantable condition	RPPHK; Cap.586	移植 Transplant
T8998	<i>Aquilaria sinensis</i>	土沉香	3	100	3	一般 Fair	差劣 Poor	差劣 Poor	差劣 Poor	低 Low	形態、健康和結構狀況差劣 Poor form, health & structure	RPPHK; Cap.586	砍伐 Fell
T9006	<i>Aquilaria sinensis</i>	土沉香	5	170	3	一般 Fair	差劣 Poor	差劣 Poor	差劣 Poor	低 Low	形態、健康和結構狀況差劣 Poor form, health & structure	RPPHK; Cap.586	砍伐 Fell

附件 1 附錄 10
Annex 10 to Enclosure 1

樹木／ 樹組 編號 ⁽¹⁾ Tree/ Tree Group No. ⁽¹⁾	品種 Species		量度 Measurements			觀賞 價值 ⁽³⁾ Amenity value ⁽³⁾	形態 Form	健康 狀況 Health condition	結構 狀況 Structural condition	移植合適度 ⁽⁴⁾ Suitability for transplanting ⁽⁴⁾		保育狀況 ⁽⁵⁾⁽⁶⁾ Conservation status ⁽⁵⁾⁽⁶⁾	建議處置方法 (保留／移植／ 砍伐) Recommendation (Retain/ Transplant/Fell)
	學名 Scientific name	中文名 Chinese name	高度 (米) Height (m)	胸徑 ⁽²⁾ (毫米) DBH ⁽²⁾ (mm)	樹冠 闊度(米) Crown spread (m)	(良好／一般／差劣) (Good/Fair/Poor)				(高／中／ 低) (High/Med/ Low)	備註 Remarks		
RT-03／ 樹組編號 Tree Group G82 ⁽⁷⁾	<i>Gmelina chinensis</i>	石梓	8	280	4	良好 Good	一般 Fair	一般 Fair	一般 Fair	低 Low	生長在斜坡上，但整體健康及結構狀況仍適合 移植 Growing on slope but otherwise in transplantable condition	RPPHK	移植 Transplant
RT-06／ 樹組編號 Tree Group G62 ⁽⁷⁾	<i>Gmelina chinensis</i>	石梓	6-8	120-160	4-5	良好 Good	一般 Fair	一般 Fair	一般 Fair	低 Low	生長在斜坡上，但整體健康及結構狀況仍適合 移植 Growing on slope but otherwise in transplantable condition	RPPHK	移植 Transplant
RT-07／ 樹組編號 Tree Group G62 ⁽⁷⁾	<i>Gmelina chinensis</i>	石梓	6-8	120-160	4-5	良好 Good	一般 Fair	一般 Fair	一般 Fair	低 Low	生長在斜坡上，但整體健康及結構狀況仍適合 移植 Growing on slope but otherwise in transplantable condition	RPPHK	移植 Transplant
RT-08／ 樹組編號 Tree Group G62 ⁽⁷⁾	<i>Gmelina chinensis</i>	石梓	6-8	120-160	4-5	良好 Good	一般 Fair	一般 Fair	一般 Fair	低 Low	生長在斜坡上，但整體健康及結構狀況仍適合 移植 Growing on slope but otherwise in transplantable condition	RPPHK	移植 Transplant

註：

- 這 22 棵樹並非《古樹名木冊》載列的樹木。
- 樹木胸徑是指測量人員從其胸部高度位置量度的樹木直徑(量度的高度是離地 1.3 米)。
- 評估樹木的觀賞價值是基於它的遮蔭、避風雨、屏障、減低污染及消滅噪音功能方面的效用，以及「風水」方面的重要性；分級如下－
良好：屬重要樹木，應予保留，並相應調整設計佈局。
一般：屬適宜保留的樹木，以締造優美環境，包括稍遜於「良好」級的健康樹木。
差劣：屬枯死、垂死或有潛在危險的樹木，應予移除。
- 有關評估已顧及個別樹木在調查進行期間的狀況(包括健康、結構、樹齡和根部的狀況)、樹木生長環境(包括地形和易達程度)，以及樹木品種的內在特性(移植後的存活率)。
- 樹木編號 T3537、T6612、T8260、T8271、T8282、T8331、T8468、T8509、T8685、T8690、T8835、T8996、T8998 及 T9006(共 14 棵)均為土沉香(牙香樹)，該品種載於漁農自然護理署出版的《香港稀有及珍貴植物》內，屬貴重或稀有品種的樹木，並受《保護瀕危動植物物種條例》(第 586 章)保護。
- 樹木編號 T8259、T8262、T8557、T8936、位於樹組編號 G82 的 RT-03，以及位於樹組編號 G62 的 RT-06、RT-07 及 RT-08(共 8 棵)均為石梓(華石梓)，該品種載於漁農自然護理署出版的《香港稀有及珍貴植物》內，屬貴重或稀有品種的樹木。
- 該些位於樹組的樹木之準確資料須待收回／清理土地後方能作實。

Notes:

1. The 22 trees are not listed on the Register of Old and Valuable Trees.
2. DBH of a tree refers to its Diameter at Breast Height (i.e. measurement at 1.3 m above ground level).
3. Amenity value of the tree is assessed by its functional values for shade, shelter, screening, reduction of pollution and noise and also its “fung shui” significance, and classified into the following categories.
 - Good: important trees which should be retained by adjusting the design layout accordingly.
 - Fair: trees that are desirable to be retained in order to create a pleasant environment, which includes healthy specimens of lesser importance than “Good” trees.
 - Poor: trees that are dead, dying or potentially hazardous and should be removed.
4. Assessment has taken into account conditions of individual trees at the time of survey (including health, structure, age and root conditions), site conditions (including topography and accessibility), and intrinsic characters of tree species (survival rate after transplanting).
5. Tree No. T3537, T6612, T8260, T8271, T8282, T8331, T8468, T8509, T8685, T8690, T8835, T8996, T8998, T9006 (14 trees in total) are *Aquilaria sinensis*, which are precious or rare tree species. They are listed in Agriculture, Fisheries and Conservation Department’s publication “Rare and Precious Plants of Hong Kong”, and are protected under the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586).
6. Tree No. T8259, T8262, T8557, T8936, Tree No. RT-03 in Tree Group No. G82, Tree Nos. RT-06, RT-07 and RT-08 in Tree Group No. G62 (8 trees in total) are *Gmelina chinensis*, which are precious or rare tree species. They are listed in Agriculture, Fisheries and Conservation Department’s publication “Rare and Precious Plants of Hong Kong”.
7. The accurate information of the trees in tree groups shall be confirmed after land resumption/clearance.

782CL - Engineering Study on Road P1 (Tai Ho - Sunny Bay Section)

PROJECT SCOPE AND NATURE

The scope of works of **782CL** comprises –

- (a) an investigation study¹ and the preliminary design for the works relating to the Road P1 (Tai Ho – Sunny Bay Section) that mainly consists of the following works components –
 - (i) a carriageway of approximately 9.5 km long that extends from the Tai Ho Interchange to Sunny Bay and connects to the North Lantau Highway (NLH) and the proposed Route 11, which involves viaduct(s), tunnel(s) and reclamation works; and
 - (ii) the associated building, civil, structural, marine, electrical and mechanical, landscaping², and environmental protection and mitigation works; and
- (b) the associated site investigation works and works supervision.

2. A plan showing the indicative alignment of the Road P1 (Tai Ho – Sunny Bay Section) is at **Figure 1** of **Enclosure 2**.

3. We plan to commence the Engineering Study on Road P1 (Tai Ho – Sunny Bay Section) (the Study) upon obtaining funding approval from the Finance Committee (FC) for target completion in about 30 months.

/JUSTIFICATION.....

¹ The investigation study includes a review of the findings of previous studies, and impact assessments on environment, traffic, geotechnical, marine, heritage and other related aspects.

² The investigation study covers the consideration of building cycle tracks and promenades along appropriate road section(s).

JUSTIFICATION

4. The NLH is a major route connecting Lantau, including Tung Chung and the Hong Kong International Airport, with the urban areas. At present, whenever there is a traffic incident on the NLH, the road traffic connecting Lantau and urban areas would be seriously affected. With the progressive implementation of the planned developments in North Lantau (e.g. Tung Chung New Town Extension and the SKYCITY development project at the airport) and the full commissioning of Tuen Mun – Chek Lap Kok Link, it is forecasted that the traffic congestion of the NLH would get serious during peak hours starting from 2031. In order to relieve the traffic pressure on the NLH, cope with the housing and economic developments at North Lantau, and enhance the resilience of the North Lantau transport network, we have to commence the Study as soon as possible.

5. Road P1 is about 12 km long in total, with two sections which are about 2.5 km of Tung Chung to Tai Ho Section and about 9.5 km of Tai Ho to Sunny Bay Section. Road P1 (Tung Chung – Tai Ho Section) is within the scope of **799CL** entitled “Tung Chung New Town Extension - Detailed Design and Site Investigation”. The detailed design was completed. We are recommending to the FC the upgrading of the project for constructing that road section to Category A in Enclosure 1. Subject to the funding approval, we target to complete the construction of Road P1 (Tung Chung - Tai Ho Section) by 2026.

6. The Study is to determine the alignment, overall layout, preliminary design proposal and land requirement of Road P1 (Tai Ho – Sunny Bay Section). Under the Study, we will conduct relevant impact assessments, including an environmental impact assessment (EIA), with a view to identifying the impacts and the mitigation measures required. We will also carry out site investigation works to provide geotechnical and geological information for relevant design works. Upon completion of the Study, the next phase will start immediately. We will strive to timely complete the construction of Road P1 (Tai Ho – Sunny Bay Section) by 2030.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the Study and the associated site investigation works to be \$130.2 million in MOD prices, broken down as follows -

/(a)

		\$ million (in MOD prices)
(a)	Consultants' fees for	62.3
(i)	investigation study and preliminary design	44.4
(ii)	environment impact assessment	12.4
(iii)	supervision of site investigation works	5.5
(b)	Community engagement and consultation exercises	2.1
(c)	Site investigation works	54.1
(d)	Contingencies	11.7
Total		130.2

8. In view of the complex and multi-disciplinary nature of the Study, we plan to engage consultants to undertake the Study and supervise the associated site investigation works. A breakdown of the estimates for the consultants' fees by man-months is at **Annex 1 to Enclosure 2**.

9. Subject to funding approval, we plan to phase the expenditure as follows –

Year	\$ million (MOD)
2021 – 2022	5.5
2022 – 2023	48.9
2023 – 2024	37.0
2024 – 2025	26.5
2025 – 2026	12.3
Total	130.2

10. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period from 2021 to 2026. We will engage consultants to undertake the Study on a lump sum basis. We will tender the proposed site investigation works under a standard re-measurement contract because the quantity of works involved may vary depending on actual ground conditions.

11. The Study and the associated site investigation works will not give rise to any recurrent consequences.

PUBLIC CONSULTATION

12. Members of the Islands District Council (DC) and Tsuen Wan DC were consulted on the Study at the meetings of 25 February 2019 and 5 March 2019 respectively. We did not receive objection to the Study in DC meetings.

13. We briefed the Legislative Council Panel on Development about the Study on 20 January 2020. Members' comments were mainly about the connection of Road P1 with the proposed Route 11 and other roads as well as the implementation programme.

ENVIRONMENTAL IMPLICATIONS

14. The proposed Road P1 (Tai Ho – Sunny Bay Section) is a designated project under Schedule 2 of the EIA Ordinance (Chapter 499). The Administration is required to apply for an environmental permit for the construction and operation of the project. We will conduct an EIA study to comply with the requirements of the EIA Ordinance. The EIA study will assess the environmental impacts arising from the proposed works and it will cover the aspects of air quality, water quality, ecology, fisheries, cultural heritage, noise, landscape and visual impact, etc. However, the Study itself is not a designated project and will not cause long-term adverse environmental impacts. We have included in the project estimates the cost of implementing suitable pollution control measures to mitigate short-term environmental impacts arising from the site investigation works under the Study.

15. The Study and the associated site investigation works will only generate minimal construction waste. We will require the consultants to fully consider measures to minimise the generation of construction waste and to reuse or recycle construction waste as much as possible in the future implementation of the construction works.

HERITAGE IMPLICATIONS

16. The Study and the associated site investigation works will not affect any heritage sites, i.e. all declared monuments, proposed monuments, graded historic sites and buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office. The Study will investigate if the proposed Road P1 (Tai Ho – Sunny Bay Section) project will affect any sites of archaeological values.

LAND ACQUISITION

17. The Study and the associated site investigation works will not require any land acquisition. The Study will examine the need and extent of land acquisition and/or clearance required for the proposed Road P1 (Tai Ho – Sunny Bay Section).

BACKGROUND INFORMATION

18. The concept of Road P1 has already been mentioned in the Northshore Lantau Development Feasibility Study completed in 2001, which suggested Road P1 to connect the airport with Sunny Bay. Road P1 was proposed as a dual two-lane carriageway parallel to the NLH.

19. The Revised Concept Plan for Lantau drawn up by the Lantau Development Task Force in 2007 affirmed the need of Road P1 to accommodate the long-term traffic demand.

20. We upgraded **782CL** to Category B in September 2014.

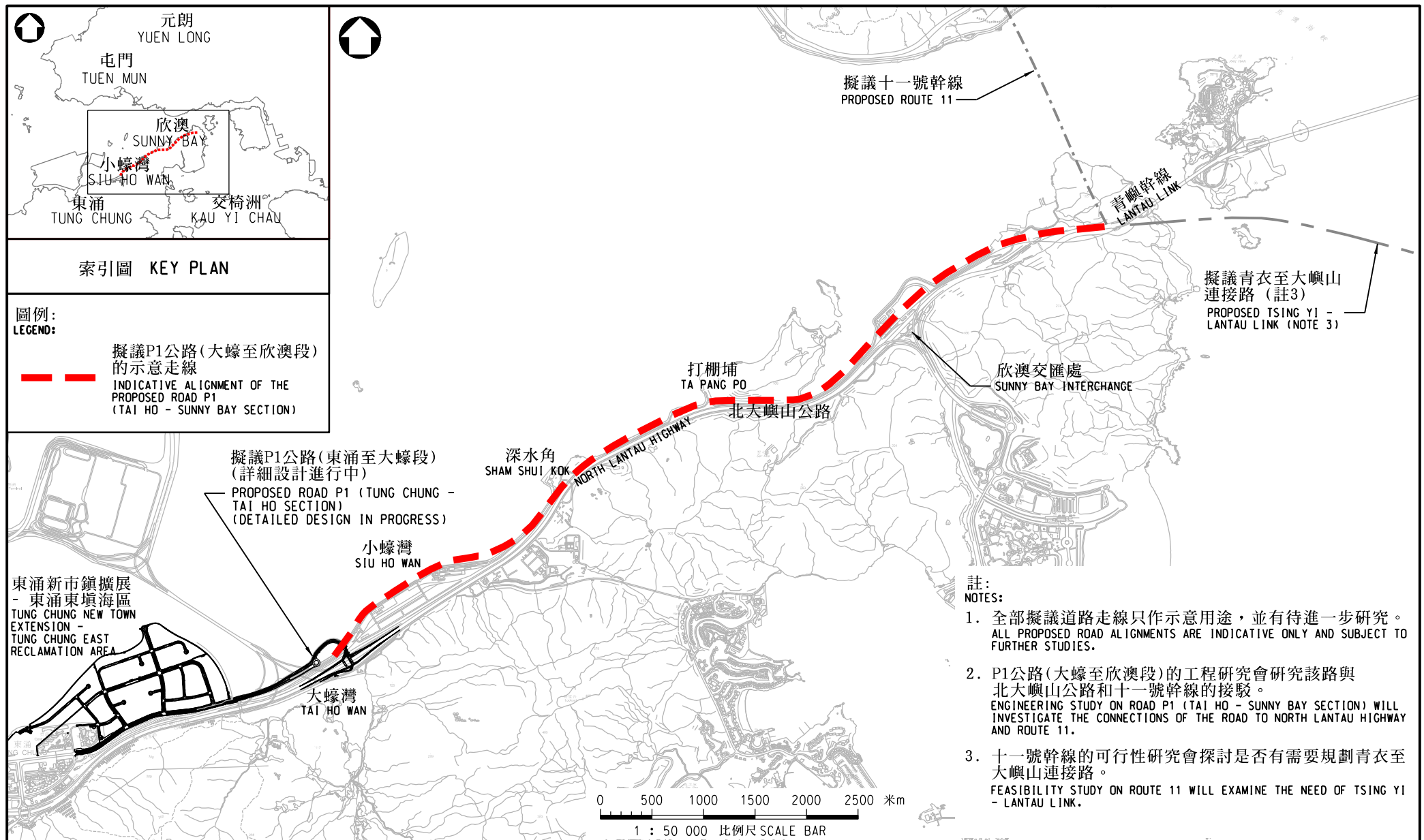
21. The Sustainable Lantau Blueprint promulgated by the Administration in June 2017 reaffirmed the need of Road P1 to strengthen the connectivity of the major developments along the northshore of Lantau.

/22.

22. The Civil Engineering and Development Department (CEDD) completed the “Technical Study on Developments at Siu Ho Wan and the Associated Transport Infrastructures” in 2018. The traffic and transport impact assessment conducted under which indicated that Road P1 would be required to alleviate the traffic congestion in North Lantau in the long term. CEDD is carrying out the “Study on Traffic, Transport and Capacity to Receive Visitors for Lantau – Feasibility Study”, which has also established the traffic needs and the preliminary technical feasibility of Road P1 (Tai Ho – Sunny Bay Section).

23. The Study and the associated site investigation works will not directly involve any tree removal or planting proposals. We will require the consultants to take into consideration the need for tree preservation in carrying out the Study.

24. We estimate that the Study and the associated site investigation works will create about 45 jobs (17 for labourers and 28 for professional or technical staff), providing a total employment of 940 man-months.



圖則名稱 drawing title

P1公路(大蠔至欣澳段)的工程研究

- 示意走線位置圖

ENGINEERING STUDY ON ROAD P1 (TAI HO - SUNNY BAY SECTION)

- LOCATION PLAN OF INDICATIVE ALIGNMENT

Annex 1 to Enclosure 2

782CL – Engineering Study on Road P1 (Tai Ho – Sunny Bay Section)

Breakdown of the estimates for consultants' fees (in September 2020 prices)

Consultants' staff costs (Note 1)			Estimated man- months	Average MPS* salary point	Multiplier (Note2)	Estimated fees (\$ million)
(i)	Investigation study and preliminary design	Professional	138	38	2.0	23.7
		Technical	235	14	2.0	14.2
		Sub-total				37.9#
(ii)	Environmental impact assessment	Professional	38	38	2.0	6.5
		Technical	66	14	2.0	4.0
		Sub-total				10.5#
(iii)	Supervision of site investigation works	Professional	14	38	2.0	2.4
		Technical	38	14	2.0	2.3
		Sub-total				4.7#
Total						53.1#

* MPS = Master Pay Scale

Notes

- The actual man-months and fees required will only be known after the consultants have been selected.
- A multiplier of 2.0 is applied to the average MPS point to estimate the full staff costs including the consultants' overheads and profit as the staff will be employed in the consultants' offices (as at now, MPS point 38 = \$85,870 per month and MPS point 14 = \$30,235 per month).

Remarks

The cost figures in this Annex are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in money-of-the-day prices in paragraph 7 of Enclosure 2.

**49CG – The District Cooling System for
Tung Chung New Town Extension (East)**

PROJECT SCOPE AND NATURE

The scope of works under **49CG** which we propose to upgrade to Category A comprises –

- (a) a chiller plant cum seawater pump house;
- (b) seawater pipes;
- (c) chilled water distribution pipes; and
- (d) connection facilities at user buildings.

2. The estimated cooling capacity of the proposed District Cooling System (DCS) is about 123 megawatt and the estimated total air-conditioned floor area is about 700 000 square metres.

3. To tie in with the infrastructure works, we plan to commence construction of the proposed works by phases upon obtaining funding approval from the Finance Committee, for substantial completion of the main works of the DCS in about nine years. A layout of the DCS with pipe networks and an outline of the scope of works are at **Annexes 1 and 2 to Enclosure 3** respectively.

JUSTIFICATION

4. DCS is a large-scale centralised air-conditioning system which produces chilled water at central chiller plant for distribution to user buildings for air-conditioning purpose. It is a major infrastructure in support of low-carbon development. The 2018 Policy Address stated that the feasibility of providing DCS in the Tung Chung New Town Extension (East) (TCE) would be studied. Since the estimated cooling demand of non-domestic buildings and facilities in TCE would be sufficient to support the development of DCS, we propose to construct DCS in TCE to promote energy efficiency and conservation.

5. The energy efficiency of DCS is generally better than that of traditional central air-conditioning systems in individual buildings. The maximum annual saving in electricity consumption upon full utilisation of the DCS plant is estimated to be 31 million kilowatt-hour, with a corresponding reduction of about 21 500 tonnes of carbon dioxide emission per annum.

6. Apart from energy saving, the DCS will bring about the following environmental benefits –

- (a) reduction in users' upfront capital cost, as chiller plants are not required at user buildings. The reduction is about 5% to 10% of the total building cost;
- (b) more flexible building designs for user buildings;
- (c) reduced heat island effects at TCE, and no noise and vibration arising from the operation of heat rejection equipment and chillers of air-conditioning plants in user buildings; and
- (d) a more adaptable air-conditioning system as compared to individual air-conditioning systems. Individual buildings can adjust their cooling capacity to meet air-conditioning demands without having to carry out extensive modification or retrofitting works.

Ensuring timely implementation

7. We need to proceed with the proposed works in order to provide timely cooling service to facilitate the development schedule in TCE. Having regard to the experience of the existing DCS at the Kai Tak Development (KTD), we will tender the core works for the DCS under a "Design, Build and Operate" contract. Tasking a contractor with both detailed design and construction works will help expedite the project to tie in with the commissioning of the developments. Incorporating the operating requirements into the design of the DCS will also facilitate smooth commissioning and operation as well as subsequent management and maintenance of the facilities.

/8.

8. To tie in with the programme of upcoming road construction in TCE and to avoid re-opening newly completed roads for pipe laying works of the DCS, the Electrical and Mechanical Services Department is planning to entrust the DCS pipe laying works, including the seawater intake culvert and discharge pipes and chilled water distribution pipes, to the Civil Engineering and Development Department for implementation together with the Site Formation and Infrastructure Works for the Tung Chung New Town Extension under Public Works Programme Item No. **786CL**, as set out in **Enclosure 1**.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the proposed works to be \$3,918.2 million in money-of-the-day (MOD) prices, broken down as follows –

	\$ million (in MOD prices)
(a) DCS plant building ¹	660.1
(b) Civil and pipe laying works ²	999.6
(c) Electrical and mechanical installation and associated plant equipment ³	1,547.4
(d) Environmental mitigation measures	39.2
(e) Additional energy conservation measures	5.9
(f) Consultants' fees	17.7
Made up of fees for –	
(i) contract administration	8.0
(ii) management of resident site staff (RSS)	9.7
(g) Remuneration of RSS	307.3
	/(h)

¹ Design and construct DCS plant building to house the electrical and mechanical installations and associated plant equipment of DCS.

² Design and construct the seawater pipes, chilled water pipes and associated accessories.

³ Design and construct electrical and mechanical installations including chilled plants, seawater pumps, chilled water pumps, electrical system and associated plant equipment, and connection facilities at user buildings.

	\$ million (in MOD prices)
(h) Contingencies	341.0
Total	<hr/> 3,918.2 <hr/>

———— A detailed breakdown of the estimates for the consultants' fees and RSS costs by man-months is at **Annex 3 to Enclosure 3**.

10. Subject to funding approval, we plan to phase the expenditure of the works as follows –

Year	\$ million (in MOD prices)
2021-2022	75.9
2022-2023	157.3
2023-2024	316.7
2024-2025	366.9
2025-2026	397.4
2026-2027	326.8
2027-2028	384.5
2028-2029	356.5
2029-2030	414.1
2030-2031	428.2
2031-2032	352.9
2032-2033	142.6
2033-2034	198.4
	<hr/> 3,918.2 <hr/>

11. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period from 2021 to 2034. The contracts will provide adjustments for price fluctuation as appropriate.

12. The estimates of the recurrent cost arising from this project are at **Annex 4 to Enclosure 3**. The District Cooling Services Ordinance (Cap. 624) provides that the recurrent costs arising from this project, including the operation and maintenance fees for engaging a contractor and utility charges for operating the DCS plant, be offset by the district cooling services charges collected. The Ordinance also sets out the tariff calculation and adjustment mechanism.

13. Following the practice of the existing DCS at KTD, private non-domestic developments will be required by their land lease to connect to the DCS. The tariff for using DCS at TCE will be set at a competitive level, comparable to the cost of using individual water-cooled air-conditioning systems using cooling towers (WACS), which is one of the most cost-effective air-conditioning systems available in the market. Our preliminary assessment shows that the proposed DCS is financially viable, as the capital and operating costs for the DCS can be recovered through charges collected from DCS consumers over the project life of 30 years. The estimated unit cost of air-conditioning provided by DCS for all types of buildings is lower than that of WACS. The Electrical and Mechanical Services Department plans to propose amendments to the District Cooling Services Ordinance (Cap. 624) in due course to promulgate the tariff level.

PUBLIC CONSULTATION

14. The Islands District Council supported the provision of the DCS at TCE at its meeting on 19 October 2020.

15. We consulted the Legislative Council Panel on Development on 24 November 2020. The Panel supported the submission of the proposal to the Public Works Subcommittee for consideration.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

16. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We completed a Preliminary Environmental Review (PER) for the project. The PER concluded, and the Director of Environmental Protection has agreed, that the project would not cause long-term adverse environmental impacts with the implementation of the recommended environmental mitigation measures, which include acoustic louvres and silencers to mitigate operational fixed plant noise.

17. For mitigating short-term construction impacts, we will implement measures recommended in the PER to control noise, dust and site run-off nuisances, in order to comply with established standards and guidelines. These measures include the use of quality powered mechanical equipment, movable noise barriers, noise enclosure and acoustic mats for noisy construction activities, frequent cleansing and watering of the site, and provision of wheel-washing facilities. We will also carry out site inspections to ensure that these mitigation measures and good site practices are properly followed and implemented. We have included in the project estimates the costs of implementing these mitigation measures.

18. At the planning and design stages, we have considered the piping alignment, design and construction method of the proposed works to avoid generating construction waste where possible. We will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities⁴. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to avoid generating construction waste.

19. At the construction stage, we will require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the operations on site comply with the approved plan. We will require the contractor to separate the inert and non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

/20.

⁴ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste at public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

20. We estimate that the proposed works will generate about 136 620 tonnes of construction waste. Of this, we will reuse about 46 080 tonnes (33.7%) of inert construction waste on site and deliver about 89 856 tonnes (65.8%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 684 tonnes (0.5%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at public fill reception facilities and landfill sites is estimated to be about \$6.52 million for the proposed works (based on a unit charge rate of \$71 per tonne for disposal at public fill reception facilities and \$200 per tonne at landfills, as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

21. The Government will continue to take the lead in promoting green buildings. We aim to achieve the second highest rating under the BEAM Plus for the DCS plant building which will incorporate green features and renewable energy systems such as photovoltaic panels. The proposed plant building roof greening ratio will be over 20% of the roof area, and the overall greening ratio will be over 30% of the overall site area.

ENERGY CONSERVATION MEASURES

22. Apart from being an energy-efficient air-conditioning system itself, the DCS is designed to include various forms of energy efficient features and renewable energy technologies, including –

- (a) light-emitting diode (LED) general lighting and occupancy sensors for lighting control;
- (b) LED type exit signs; and
- (c) photovoltaic system.

23. Regarding greening features, there will be landscaping, roof greening and vertical greening in appropriate areas for environmental and amenity benefits.

24. The estimated additional cost for adopting the above features is around \$5.9 million, including \$0.7 million for energy efficient features. This has been included in the cost estimates of the project. The energy efficient features will achieve 5% energy saving in the annual energy consumption of building services in the plant rooms, with a payback period of about seven years.

/HERITAGE

HERITAGE IMPLICATIONS

25. The project will not affect any heritage site, i.e. declared monuments, proposed monuments, graded historic buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

26. The proposed works do not require any resumption of private land.

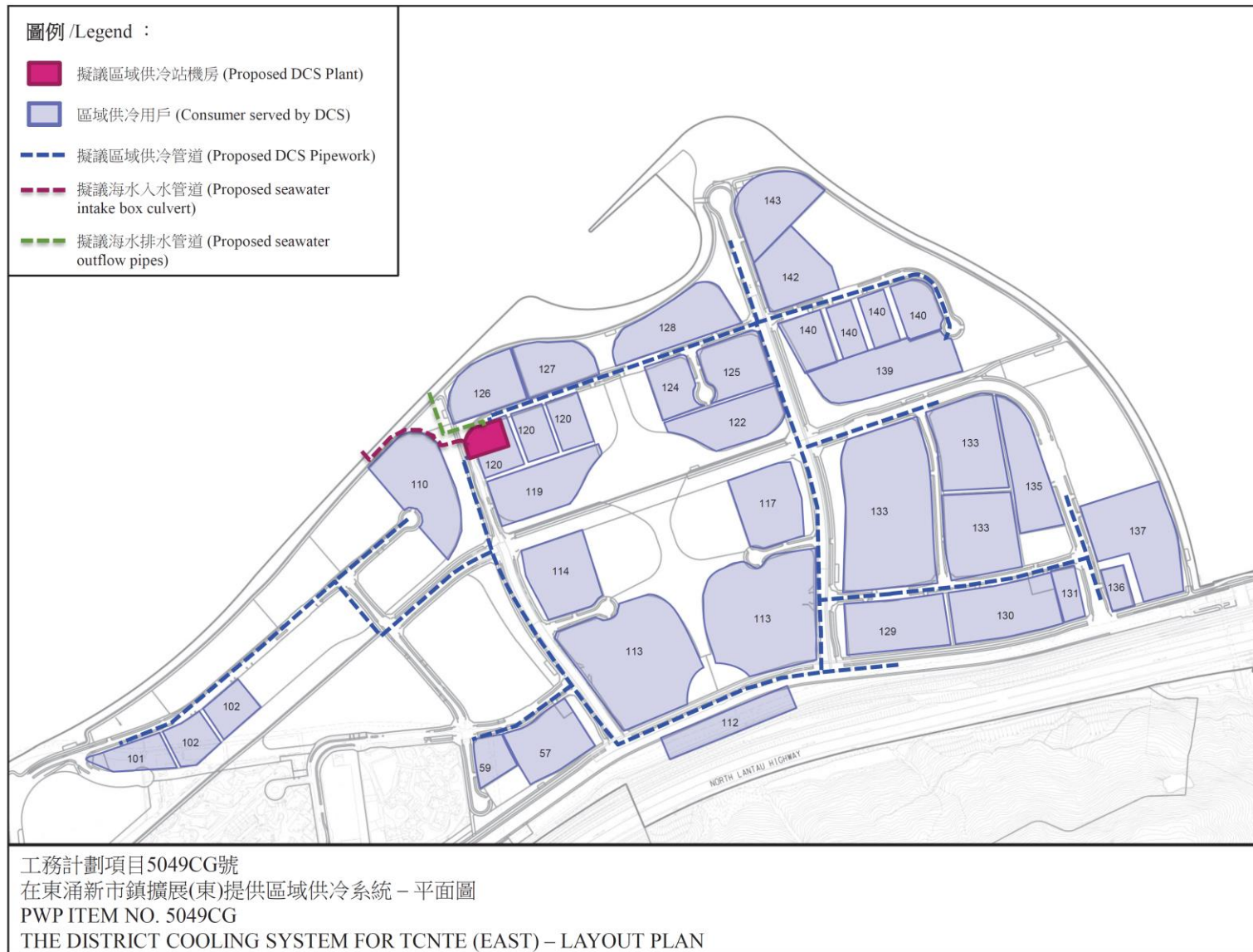
BACKGROUND INFORMATION

27. We upgraded **49CG** to Category B in September 2017.

28. The proposed works will not involve tree preservation and removal proposals.

29. We estimate that the proposed project as a whole will create about 250 jobs (210 for labourers and another 40 for professional or technical staff) providing a total employment of 17 000 man-months.

Environment Bureau
December 2020



**49CG – The District Cooling System
for Tung Chung New Town Extension (East)**

Scope of Works

Works Arrangement	Scope of Works
Entrustment works of DCS by Civil Engineering and Development Department	<ul style="list-style-type: none"> - Laying of seawater pipes; and - Laying of chilled water distribution pipes
DCS core services under “Design, Build and Operate” arrangement	<ul style="list-style-type: none"> - Design for the whole DCS; - Building and engineering works, the DCS chiller plant cum seawater pump house to support the operation of the entire DCS; - Supply and installation of electrical and mechanical equipment for meeting the cooling demand of user buildings; and - Provision of connection facilities (including heat exchangers) <p>[Note: The operation period of DCS is about 10 to 15 years tentatively]</p>
Electrical and mechanical installation for remaining user buildings	<ul style="list-style-type: none"> - Supply and installation of electrical and mechanical equipment for meeting the cooling demand of remaining user buildings; and - Provision of connection facilities (including heat exchangers) at remaining user buildings

**49CG – The District Cooling System
for Tung Chung New Town Extension (East)**

**Breakdown of the estimates for consultants' fees and resident site staff costs
(in September 2020 prices)**

		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for contract administration (Note 2)				3.4 2.4
				Sub-total:	5.8#
(ii)	RSS costs (Note 3)				
	Professional	742	38	1.6	102.0
	Technical	2 632	14	1.6	127.3
				Sub-total:	229.3
Comprising –					
(a)	Consultants' fees for management of RSS				7.0#
(ii)	Remuneration of RSS				222.3#
				Total:	235.1

* MPS = Master Pay Scale

Note:

1. A multiplier of 2.0 is applied to the average MPS point to estimate the cost of staff to be employed in the consultants' offices. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of RSS supplied by the consultants. (As at now, MPS pt.38 = \$85,870 per month, and MPS pt.14 = \$30,235 per month.)
2. The consultants' staff cost for contract administration is calculated in accordance with an existing consultancy agreement for the provision of contract administration of **49CG**. The construction phase of the assignment will only be executed upon Finance Committee's approval to upgrade **49CG** to Category A.
3. The actual man-months and actual costs will only be known after the completion of the construction works.

Remarks

The cost figures in this Annex are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in MOD prices in paragraph 9 of **Enclosure 3**.

**49CG – The District Cooling System
for Tung Chung New Town Extension (East)**

Estimated recurrent costs (in MOD prices)¹

Year	Estimated recurrent costs² (\$ million)
2025-2026	18.57
2026-2027	39.98
2027-2028	36.05
2028-2029	18.28

¹ The estimated recurrent costs are tentative, subject to further evaluation.

² The Electrical and Mechanical Services Department plans to propose amendments to the District Cooling Services Ordinance (Cap. 624) in due course to promulgate the tariff level. The charges and fees received for the provision of district cooling services can be used to settle the operation and maintenance fees for a DCS operator as well as utility costs for operating the DCS plant. Therefore, the estimated recurrent cost shown in the table above is the shortfall in income to meet the operating expenses incurred, taking into account the charges and fees received in that particular year. It is estimated that starting from 2029-2030, the charges and fees received would be sufficient to settle all the operation and maintenance fees for the DCS operator as well as utility costs for operating the DCS plant.