

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT Recreation, Culture and Amenities – Open spaces 417RO – Improvement works at Tai O

Members are invited to recommend to Finance
Committee –

- (a) the upgrading of part of **417RO**, entitled
“Improvement works at Tai O, phase 1”, to
Category A at an estimated cost of
\$151.0 million in money-of-the-day prices; and
- (b) the retention of the remainder of **417RO** in
Category B.

PROBLEM

We need to implement the riverwall and ancillary improvement works at Tai O as the first package of the improvement proposals made under the Tai O Revitalisation Concept Plan (Concept Plan) to enhance the local infrastructure to address the most pressing needs of Tai O residents.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade part of **417RO** to

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Category A at an estimated cost of \$151.0 million in money-of-the-day (MOD) prices to implement the riverwall and ancillary improvement works at Tai O.

PROJECT SCOPE AND NATURE

3. The part of **417RO** which we propose to upgrade to Category A comprises –

- (a) construction of a riverwall at Yat Chung and the associated drainage and sewerage improvement works;
- (b) upgrading of the temple garden in front of Kwan Tai Temple; and
- (c) improvement to the signage within the inner-core area of Tai O.

The site plans showing the above works of **417RO** proposed to be part-upgraded are at Enclosures 1 and 2.

4. We will retain the remainder of **417RO** in Category B, which covers infrastructure to improve local connectivity, facilities to help preserve the cultural heritage and enhance visitor appeal of the natural attributes of Tai O, as well as other supporting infrastructure. Funding for the remainder of **417RO** will be sought in phases to dovetail with the implementation programme of the project.

5. Subject to the approval of the Finance Committee, we plan to commence the proposed works in July 2010 for completion in September 2012.

JUSTIFICATION

6. The proposed improvement works set out in paragraph 3 above constitute the first package of the improvement proposals under the Concept Plan. They aim at enhancing the local infrastructure to address the most pressing needs of Tai O residents.

7. Tai O is a low lying fishing village, with the ground level in some areas along Wing On Street and Tai Ping Street lower than the water level of Tai O Creek during high tides. This topographical condition coupled with meteorological effects have rendered the areas prone to flooding, particularly

/during

during spring tides. We propose to construct a riverwall with a coping level of +3.30mPD, length of about 220 metres and wall thickness of about 0.6 metre at Yat Chung and to implement ancillary improvement measures at strategic locations along the two streets. Upon completion of these works, the flooding risk at Wing On Street and the area to the south of Tai Ping Street due to high tides under average meteorological conditions will be alleviated. We will provide a stormwater pumping station and drainage system to handle the rain water collected behind the riverwall. We will also landscape the area formed behind the riverwall and upgrade the existing sewerage system at this locality in order to intercept the sewage currently discharging directly into the Creek. The new facilities will help improve the hygienic conditions at Yat Chung.

8. Kwan Tai Temple, being one of the landmarks in Tai O, is situated at Kat Hing Back Street. The temple was built in the Ming Dynasty and is one of the oldest temples in Tai O. Apart from regular worshippers, there is also a high level of tourist patronage. While the existing open space in front of the temple has served as the temple forecourt for worshippers, it is also frequently used by local residents as a rest garden. We plan to renovate this area by providing a spacious and enhanced environment for a formal setting for religious and cultural events in order to reinforce the temple's cultural presence as a historical temple in Tai O.

9. We also plan to set up a systematic and unified signage system in Tai O. The signage will be designed to provide essential information on the historic background and direction to tourists of specific places of interest, and more importantly promote the rich cultural heritage and natural attributes of Tai O and enhance its visitor appeal. The new signage in Tai O will be implemented in phases. The proposed part-upgrading of **417RO** this time will cover the signage within the inner-core area of Tai O.

FINANCIAL IMPLICATIONS

10. We estimate the cost of the proposed works under the project to be \$151.0 million in MOD prices (please see paragraph 12 below), broken down as follows -

| | \$ million |
|---|-------------------|
| (a) Riverwall | 81.3 |
| (b) Stormwater pumping station, drainage and sewerage improvement works | 27.6 |

/(c)

| | | \$ million | |
|-----|--|-------------------|----------------------------|
| (c) | Upgrading of temple garden in front of Kwan Tai Temple | 2.0 | |
| (d) | Signage | 0.9 | |
| (e) | Environmental mitigation measures | 1.7 | |
| (f) | Consultants' fees | 1.1 | |
| | (i) contract administration | 0.5 | |
| | (ii) management of resident site staff | 0.6 | |
| (g) | Remuneration of resident site staff | 12.6 | |
| (h) | Contingencies | <u>12.8</u> | |
| | Sub-total | 140.0 | (in September 2009 prices) |
| (i) | Provision for price adjustment | <u>11.0</u> | |
| | Total | <u>151.0</u> | (in MOD prices) |

11. We have engaged consultants to carry out detailed design of the proposed works. Due to insufficient in-house resources, we propose to engage consultants to undertake contract administration and site supervision of the proposed works. A breakdown of the estimate for consultants' fees and resident site staff costs by man-months is at Enclosure 3.

12. Subject to approval, we will phase the expenditure as follows –

| Year | \$ million (Sept 2009) | Price adjustment factor | \$ million (MOD) |
|-------------|-----------------------------------|--|-----------------------------|
| 2010 – 2011 | 39.2 | 1.02700 | 40.3 |
| 2011 – 2012 | 45.0 | 1.06551 | 47.9 |
| 2012 – 2013 | 32.7 | 1.10813 | 36.2 |
| 2013 – 2014 | 23.1 | 1.15246 | 26.6 |
| | <u>140.0</u> | | <u>151.0</u> |

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13. We have derived the MOD estimate 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 2010 to 2014. Subject to funding approval, we will deliver the works under standard re-measurement contract because the quantities of works involved will vary depending on actual ground conditions. The contract will provide for price adjustments.

14. We estimate the annual recurrent expenditure arising from the proposed works to be about \$1.3 million. Based on the current level of expenditure on operation and day-to-day maintenance of sewerage facilities, the proposed sewerage works will lead to an immaterial increase in the recurrent cost of providing sewage services. Nevertheless, it will be taken into consideration when determining the sewage charges in future.

PUBLIC CONSULTATION

15. We gazetted the proposed riverwall scheme under the Foreshore and Sea-bed (Reclamations) Ordinance (Cap 127) on 31 July 2009. One objection¹ was received and subsequently withdrawn unconditionally upon clarification by Government of the details of the scheme. The proposed riverwall scheme was authorised under section 7 of the Ordinance on 14 December 2009.

16. We consulted the Tai O Rural Committee (TORC) on 3 February 2010 on the project. The TORC supported in general the proposed improvement works and urged the Government to implement them as soon as practicable.

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¹ The objector expressed reservation on the effectiveness of the proposed riverwall in alleviating flooding and considered that the riverwall project would have adverse impacts on the environment and the foundation of the stilted houses in the vicinity of Yat Chung. We met with the objector at Tai O on 20 October 2009 to understand the objector's concern and explain the design principles of the riverwall and the environmental issues making reference to the Preliminary Environmental Review completed under the "Improvement works for Tai O Facelift – Feasibility Study". We formally replied on 30 October 2009 and invited the objector to withdraw the objection. After further exchange of correspondence, the objector unconditionally withdrew the objection on 13 November 2009.

17. We consulted the green groups² on the proposed improvement works by convening a focus group meeting on 3 March 2010. The green groups were generally supportive³ of the proposed improvement works.

18. We convened a residents' forum on 6 March 2010 to consult the local residents on the proposed improvement works. There was a general consensus that the implementation of the proposed improvement works should be supported. Constructive ideas and suggestions on the design options were also raised by some residents.

19. We consulted the Tourism, Agriculture, Fisheries and Environmental Hygienic Committee of the Islands District Council on 15 March 2010 and obtained the Committee's support to take forward the project.

20. We consulted the Legislative Council Panel on Development on the proposed works at its meeting on 27 April 2010. Members raised no objection to the proposed works.

ENVIRONMENTAL IMPLICATIONS

21. The project is not a Designated Project (DP) under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap 499). We have completed the Preliminary Environmental Review (PER) for the project under the "Improvement works for Tai O Facelift – Feasibility Study" (Feasibility Study). The PER has concluded and the Director of Environmental Protection agreed that the project would not have any long-term environmental impacts.

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² The green groups invited to attend the focus group meeting on 3 March 2010 included the Association for Tai O Environment and Development, Green Lantau Association, the Conservancy Association, Kadoorie Farm & Botanic Garden, Green Power (GP), Hong Kong Bird Watching Society (HKBWS) and WWF-Hong Kong. Although GP, HKBWS and WWF were unable to attend the meeting, they indicated in subsequent communication that they had no specific comment or no objection to the proposed improvement works under the project.

³ There was reservation expressed by one of the green groups on the cost-effectiveness of the riverwall proposal. We explained at the meeting that the estimated construction cost of the riverwall had already taken into account the remoteness of the site, the difficult ground conditions due to a thick layer of soft marine mud as well as the site constraints imposed by the existing stilted houses and the village houses.

22. We will incorporate into the works contract the mitigation measures recommended in the PER to control the environmental impacts arising from the construction works to within established standards and guidelines. These measures include frequent watering of the site, covering of materials on trucks and barges and use of silenced construction plant. We have included \$1.7 million (in September 2009 prices) in the project estimate for the implementation of the environmental mitigation measures.

23. We have considered the design and construction sequence of the proposed improvement works in the planning and design stages to reduce the generation of construction waste where possible. In addition, 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 minimize the disposal of inert construction waste at public fill reception facilities. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

24. We will also 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 day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from 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.

25. We estimate that the project will generate in total about 280 tonnes of construction waste. Of these, we will reuse about 56 tonnes (20%) of the inert construction waste on site. In addition, we will dispose of the remaining 224 tonnes (80%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at landfill sites is estimated to be \$28,000 for the proposed works (based on a unit cost of \$125 per tonne⁴ at landfills).

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⁴ This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90 per m³), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

26. We estimate that the proposed works will generate about 6 100 cubic metres of marine sediment. The marine sediment will be disposed of at a designated site to be allocated by the Marine Fill Committee (MFC) or other disposal sites to be agreed by the MFC and the Environmental Protection Department.

HERITAGE IMPLICATIONS

27. The proposed works may affect the Tai O Archaeological Site and Kwan Tai Temple (a Proposed Grade 2 historic building). A Cultural Heritage Impact Assessment (CHIA) has been conducted during the Feasibility Study. We will implement the mitigation measures recommended in the CHIA Report as well as other mitigation measures as agreed with the Antiquities and Monuments Office to ensure no adverse impact would be posed on these heritage sites during the construction phase.

LAND ACQUISITION

28. The project does not require any land acquisition but clearance works are required. Ex-gratia Allowance (EGA) will be paid to the eligible claimants and the affected cultivators under current EGA policy. And also, EGA for Tun Fu may be payable to pre-1898 indigenous villages affected by the project. The estimated cost of land clearance is about \$187,000, which will be charged to **Head 701 - Land Acquisition**. A breakdown of the land clearance costs is at Enclosure 4.

BACKGROUND

29. With the inclusion of **417RO** in Category B in October 2006, we engaged consultants in June 2007 to carry out the Feasibility Study at a cost of about \$9.9 million charged under block allocation of **Subhead 7100CX** "New towns and urban area works, studies and investigation for items in Category D of the Public Works Programme". In 2008, we launched the "Design Competition for the Revitalisation of Tai O" (Design Competition) to encourage the public to provide active input to the development proposals of the project. Based on the design concepts collected through the Design Competition, we prepared the Concept Plan. We then completed the Feasibility Study based on the Concept Plan in December 2009.

30. To identify the best way forward for planning a better local environment for Tai O while aiming at preserving its local and natural characteristics, we have conducted a series of public consultations to seek the views of the relevant stakeholders, including the residents of Tai O, the Tai O Rural Committee, the Islands District Council, professional institutes, green groups and other concern groups, on the Concept Plan. There is general support for Government to proceed as soon as practicable with those improvement proposals that would improve the livelihood of the locals of Tai O, and to undertake other improvements in a gradual and incremental manner. The most pressing concern expressed is for Government to address the flooding problem at Wing On Street and Tai Ping Street particularly during spring tides.

31. We will implement the Concept Plan by a bottom-up approach and in a phased manner, and will collaborate with the local residents and other stakeholders with the objective of achieving a better local environment for Tai O along the way.

32. We engaged consultants in December 2009 to undertake detailed design of the proposed improvement works under the Concept Plan for phased implementation. We charged the cost of the detailed design of the proposed works of about \$9.62 million under block allocation of **Subhead 7100CX** “New towns and urban area works, studies and investigation for items in Category D of the Public Works Programme”. We have completed the detailed design of the proposed works as set out in paragraph 3 above.

33. Of the seven trees within the boundary of the proposed improvement works, two trees will be preserved and five will be removed. All the trees to be removed are not important trees⁵. We will incorporate planting proposals as part of the proposed improvement works, including seven trees and 730 shrubs to be planted within the Tai O area.

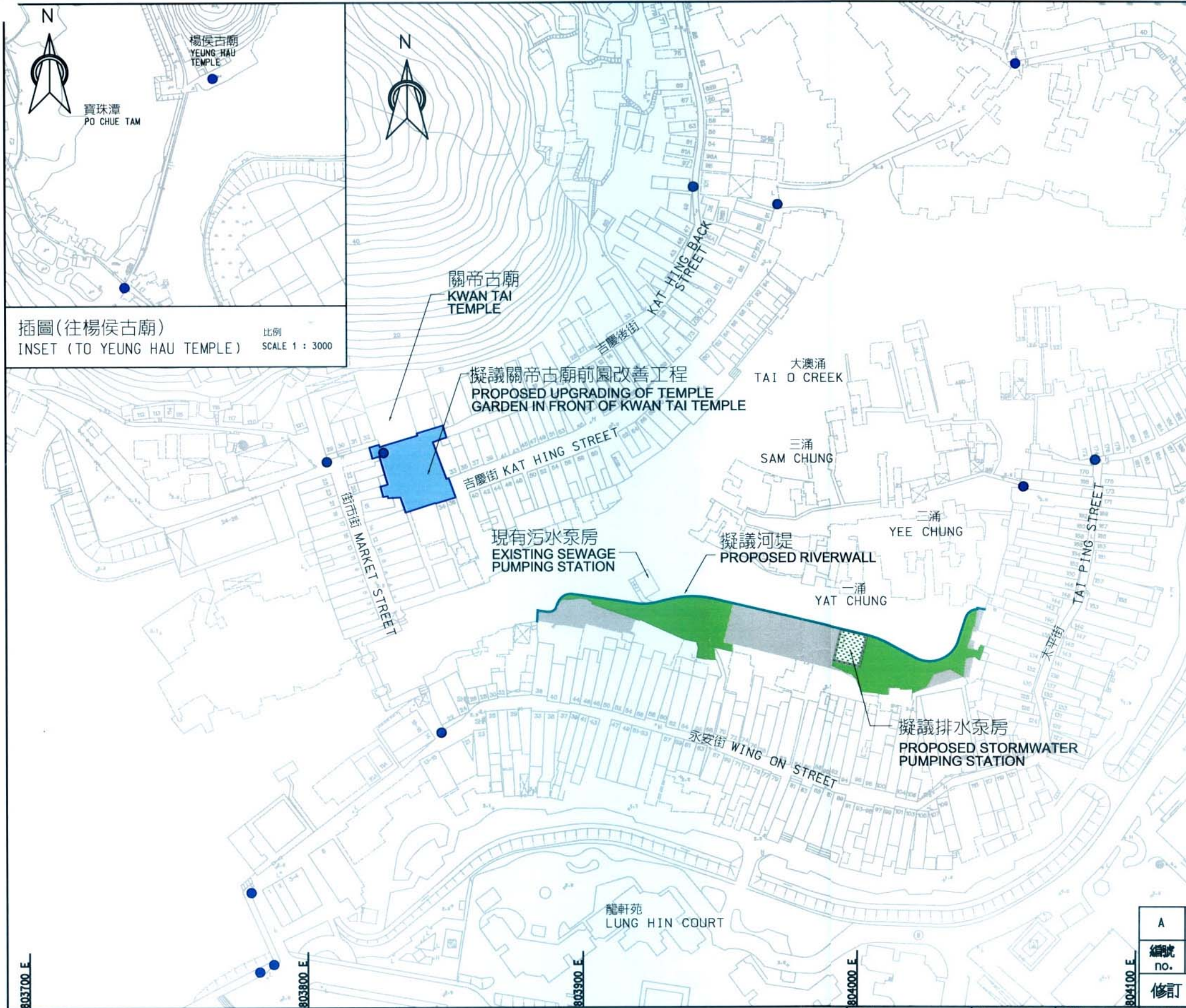
/34.

⁵ “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 –

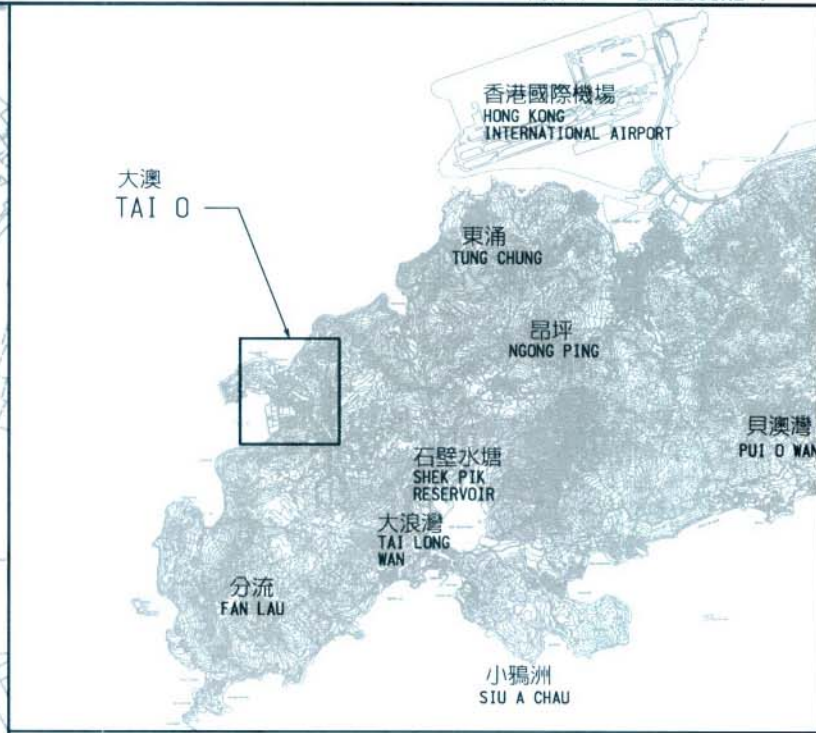
- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance, e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of the 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 a trunk diameter equal to or exceeding 1.0 metre (m) (measured at 1.3 m above ground level), or with a height/canopy spread equal to or exceeding 25 m.

34. We estimate that the proposed works will create about 150 jobs (125 for labourers and another 25 for professional/technical staff), providing a total employment of 1 850 man-months.

Development Bureau
May 2010



插圖(往楊侯古廟)
INSET (TO YEUNG HAU TEMPLE) 比例 SCALE 1 : 3000



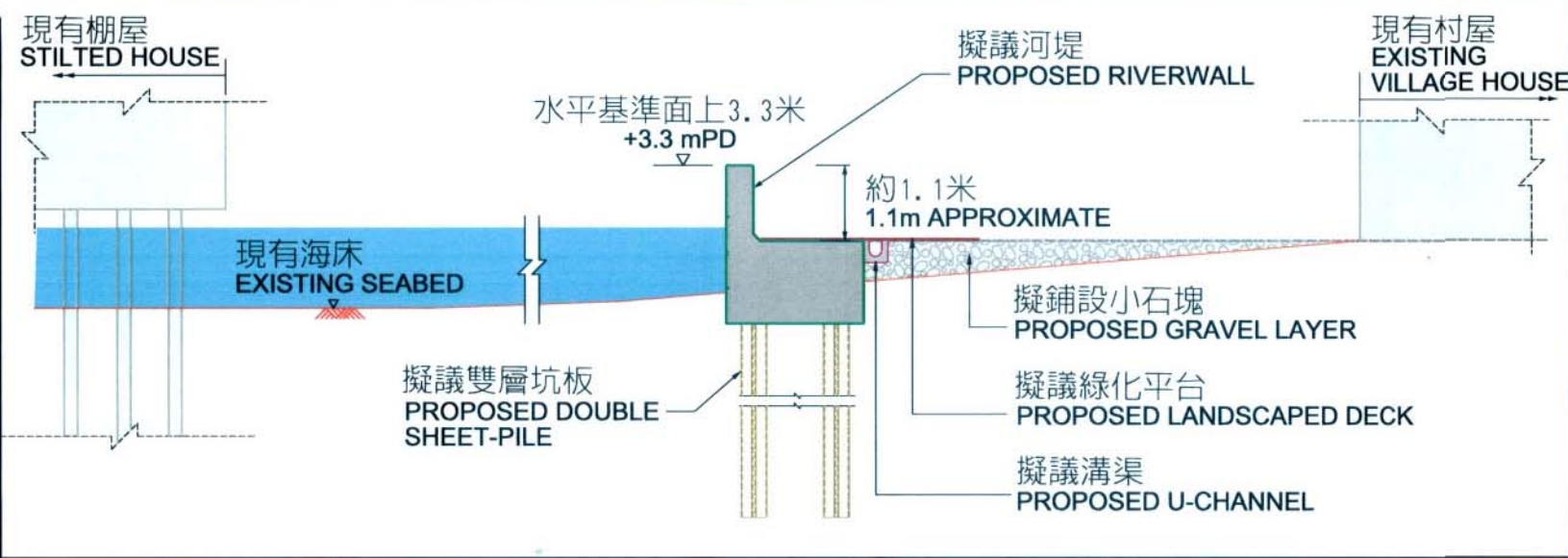
位置圖 LOCATION PLAN 比例 SCALE 1 : 150000

註釋 NOTES :
 1. 為清晰起見，此圖沒有顯示與河堤相關的渠務改善工程之詳細內容。詳情可見圖 HKI-Z1624A (附件2)。
 DETAILS OF LOCAL SEWERAGE IMPROVEMENT WORKS ASSOCIATED WITH RIVERWALL ARE NOT SHOWN FOR CLARITY. THEY ARE SHOWN IN DRAWING NO. HKI-Z1624A (ENCLOSURE 2).

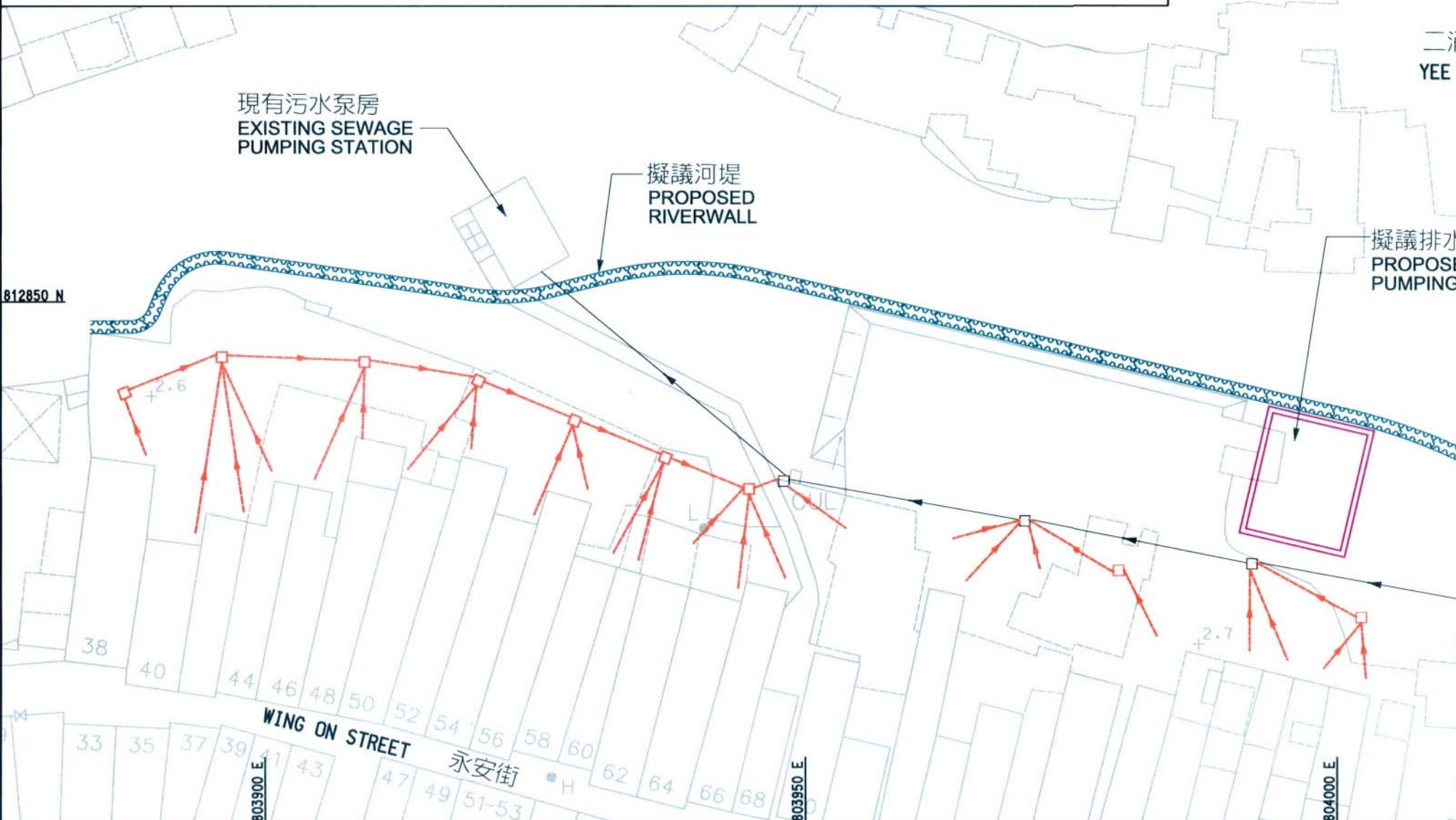
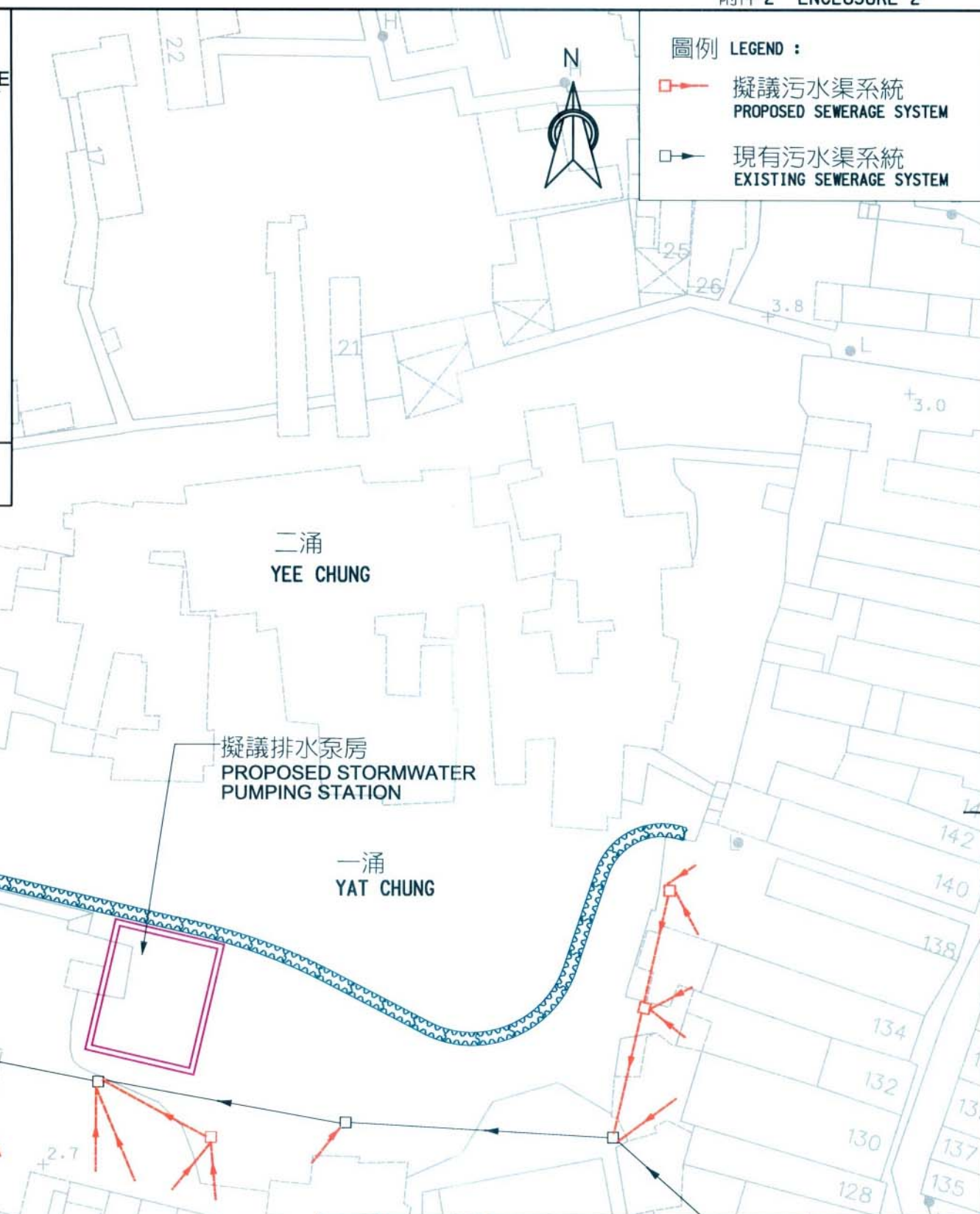
圖例 LEGEND :
 ● 擬議主要資訊牌、景點資訊牌及方向指示牌
 PROPOSED MAIN INFORMATION BOARD, ATTRACTION INFORMATION BOARD AND DIRECTIONAL SIGNAGE
 ■ 擬議綠化現有地面
 EXISTING AREA PROPOSED TO BE LANDSCAPED
 ■ 擬議平整地面並進行綠化
 PROPOSED AREA TO BE FILLED UP AND LANDSCAPED

| | | | | |
|-------------|------------|------------------------|------------|-------------|
| A | 29/04/2010 | GENERAL AMENDMENT 一般修訂 | J TANG | W P LEUNG |
| 編號 no. | 日期 date | 內容摘要 description | 核對 checked | 核准 approved |
| 修訂 REVISION | | | | |

| | | | | | | |
|--|--|-------------|------------|-----------|------------------|---|
| 圖則名稱 drawing title | | 繪圖 drawn | 簽署 initial | 日期 date | 項目編號 item no. | 辦事處 office |
| 417RO (部份) - 大澳改善工程 417RO (PART) - IMPROVEMENT WORKS AT TAI O | | P LAM | PL | 25/3/2010 | 417RO | 港島及離島拓展處 HONG KONG ISLAND AND ISLANDS DEVELOPMENT OFFICE |
| | | 核對 checked | 簽署 initial | 日期 date | 比例 scale | 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT |
| | | J TANG | JT | 25/3/2010 | 1:1500 (IN A3) | |
| | | 核准 approved | 簽署 initial | 日期 date | 圖則編號 drawing no. | |
| | | W P LEUNG | WPL | 25/3/2010 | HKI-Z1623A | |



典型河堤切面 TYPICAL SECTION FOR RIVERWALL



| | | | | |
|--------|------------|------------------------|------------|-------------|
| A | 29/04/2010 | GENERAL AMENDMENT 一般修訂 | J TANG | W P LEUNG |
| 編號 no. | 日期 date | 內容摘要 description | 核對 checked | 核准 approved |

修訂 REVISION

| | | | | | |
|--|--------------------------|-------------------|----------------------|--------------------------------|---|
| 圖則名稱 drawing title 417RO (部份) - 大澳改善工程(河堤典型細節) 417RO (PART) - IMPROVEMENT WORKS AT TAI O (RIVERWALL - TYPICAL DETAILS) | 繪圖 drawn P LAM | 簽署 initial PL | 日期 date 25/3/2010 | 項目編號 item no. 417RO | 辦事處 office 港島及離島拓展處 HONG KONG ISLAND AND ISLANDS DEVELOPMENT OFFICE 土木工程拓展署 CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT |
| | 核對 checked J TANG | 簽署 initial JT | 日期 date 25/3/2010 | 比例 scale 1 : 500 (IN A3) | |
| | 核准 approved W P LEUNG | 簽署 initial WPL | 日期 date 25/3/2010 | 圖則編號 drawing no. HKI-Z1624A | |

417RO (Part) – Improvement works at Tai O, phase 1

**Breakdown of the estimates for consultants' fees and resident site staff costs
(in September 2009 prices)**

| | | Estimated man- months | Average MPS* salary point | Multiplier (Note 1) | Estimated fee (\$million) |
|---|--------------|-----------------------------|------------------------------------|------------------------|---------------------------------|
| (a) Consultants' fees for contract administration (Note 2) | Professional | – | – | – | 0.3 |
| | Technical | – | – | – | 0.2 |
| | | | | Sub-total | <u>0.5</u> |
| (b) Resident site staff costs (Note 3) | Professional | 88 | 38 | 1.6 | 8.1 |
| | Technical | 160 | 14 | 1.6 | <u>5.1</u> |
| | | | | Sub-total | <u>13.2</u> |
| Comprising – | | | | | |
| (i) Consultants' fees for management of resident site staff | | | | 0.6 | |
| (ii) Remuneration of resident site staff | | | | 12.6 | |
| | | | | Total | <u><u>13.7</u></u> |

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (As at now, MPS point 38 = \$57,280 per month and MPS point 14 = \$19,835 per month).
2. The consultants' staff cost for the contract administration is calculated in accordance with the existing consultancy agreement. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade part of 417RO to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.

417RO (Part) – Improvement works at Tai O, phase 1

Breakdown of the estimated land clearance costs

| | (\$) | (\$) |
|--|---------|----------------|
| Land clearance cost | | 170,000 |
| (a) Ex-gratia allowance for domestic removal allowance | 20,000 | |
| (b) Ex-gratia allowance for shops, workshops, godowns, slipways, schools and churches, and ornamental fish breeding undertakings | 30,000 | |
| (c) Ex-gratia allowance for crops | 100,000 | |
| (d) Ex-gratia allowance for Tun Fu | 20,000 | |
| | | |
| Contingency (10% of land clearance costs) | | 17,000 |
| | | |
| Total land clearance cost | | 187,000 |