

**For discussion  
on 26 February 2019**

**Legislative Council  
Panel on Development**

**Drainage Improvement Works at  
Tsung Yuen (Kwu Tung North), Pok Fu Lam, Ngong Ping and Yuen Long,  
and Measures to Handle Flooding Issues in Rural Areas**

**PURPOSE**

This paper briefs Members on the proposals to upgrade the following items to Category A for taking forward the drainage improvement works at Tsung Yuen (Kwu Tung North), Pok Fu Lam, Ngong Ping and Yuen Long -

- (a) **118CD – “Drainage Improvement in Northern New Territories - Package B” (remaining works)** at an estimated cost of \$65.5 million in money-of-the-day prices;
  - (b) **144CD (part) – “Drainage Improvement in Southern Hong Kong Island - Package 2A”** at an estimated cost of \$134.7 million in money-of-the-day prices;
  - (c) **163CD – “Drainage Improvement Works at Ngong Ping”** at an estimated cost of \$216.0 million in money-of-the-day prices; and
  - (d) **166CD (part) – “Drainage Improvement Works at Yuen Long - Stage 1”** at an estimated cost of \$256.2 million in money-of-the-day prices.
2. Details of the above proposals are at **Enclosures 1 to 4**.
  3. This paper also briefs Members on the measures to handle flooding issues in rural areas.

**MEASURES TO HANDLE FLOODING ISSUES IN RURAL AREAS**

4. The stormwater drainage system in village environ commonly

comprises a mixture of natural streams, man-made channels, culverts and pipes serving the village solely, and is often built and maintained by various parties including the lot owners of village houses in accordance with the conditions under the small house grant.

5. In general, the local flooding issues in village environ is addressed by the joint effort of the Drainage Services Department (DSD) and other relevant departments together with private owners concerned according to the respective responsibility. The Home Affairs Department (HAD) will construct minor drainage facilities within village environ under their minor works programme to improve the living environment in the rural areas upon local request. The DSD would examine areas with past flooding records and formulate appropriate drainage improvement measures via drainage studies. Strategically, upstream interception and/or downstream upgrading works are effective measures to alleviate the flooding risk in the village environ. Nevertheless, in the event of emergence of flooding reports, the DSD will provide emergency services to villages to handle the situations.

6. To systematically examine the performance and adequacy of the stormwater drainage facilities in rural areas, the DSD conducted the Drainage Master Plan (DMP) studies for Yuen Long<sup>1</sup> and Northern New Territories in 1996 and 1997 respectively. These two studies were completed in 1998 and 1999. Most of the recommended drainage improvement measures arising from the two studies have been progressively implemented and completed. For example, we have completed the major river training works for Shenzhen River, Ng Tung River, Sheung Yue River, Shan Pui River, Kam Tin River, etc., and 27 village flood protection schemes for low-lying villages in the rural areas. These important drainage facilities have substantially improved the global drainage conditions in Yuen Long<sup>1</sup> and Northern New Territories.

7. In 2008, the DSD has launched the DMP Review studies for Yuen Long and North District in view of new developments, updated land use planning and climate change effect since the completion of the DMP studies. Drainage conditions for the local villages identified with past flooding records have also been included and assessed under these DMP Review studies. Further drainage improvement schemes have been formulated in order to meet the required flood protection standards and future development, and the implementation of which would be suitably packaged for timely implementation after taking account of the nature, location, consequence and severity of flooding, and land requirements, etc.

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<sup>1</sup> Including Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai

## **WAY FORWARD**

8. Regarding the proposed works under **118CD**, **144CD (part)**, **163CD** and **166CD (part)** as stated above, we plan to seek funding approval from the Finance Committee in mid-2019 after consulting the Public Works Subcommittee. Members are invited to comment on the proposed funding applications and the measures to handle flooding issues in rural areas.

**Development Bureau**  
**Drainage Services Department**  
**February 2019**

**118CD Drainage Improvement in Northern New Territories –  
Package B (Remaining Works)**

**PROJECT SCOPE**

The proposed scope of works under the remaining works of **118CD** comprises the construction of –

- (a) about 900 m of stormwater drains of diameters ranging from 300 mm to 1 800 mm at Ho Sheung Heung Road; and
- (b) ancillary works<sup>1</sup>.

2. A plan showing the location of the proposed works is at **Annex to Enclosure 1**.

3. Subject to the funding approval of the Finance Committee, we plan to commence the proposed works in the fourth quarter of 2019 for completion in the first quarter of 2022.

**JUSTIFICATION**

4. The Drainage Services Department completed a Drainage Master Plan study for Northern New Territories in 1999 to assess the existing conditions and the adequacy of the drainage capacity of the local drainage systems, especially San Tin, Ng Tung River and Ping Yuen River in the Northern New Territories. The study recommended a programme of drainage improvement works in the Northern New Territories to be implemented in phases under **118CD**, in order to tackle the flooding problems in the areas.

5. The remaining works under **118CD** comprise the construction of the proposed drainage improvement works in Tsung Yuen, which is

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<sup>1</sup> Ancillary works include the associated inlet and outlet structures, connection works between the proposed and existing drainage system, etc.

susceptible to flooding during heavy rainstorms mainly due to the inadequate capacity of the existing drainage system.

6. Upon completion of the drainage improvement works, the drainage system concerned will be upgraded to the current standard<sup>2</sup> and the flooding risk in Tsung Yuen will be alleviated.

## **FINANCIAL IMPLICATIONS**

7. We estimate the total capital cost of the proposed works as detailed in paragraph 1 above to be \$65.5 million in money-of-the-day (MOD) prices.

## **PUBLIC CONSULTATION**

8. We consulted the Sheung Shui District Rural Committee on 6 March 2014 and 2 September 2015, and subsequently consulted the North District Council on 18 July 2016. Members of the Committee and the District Council supported the proposed works.

## **ENVIRONMENTAL IMPLICATIONS**

9. The project is not a designated project under the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). An Environmental Review (ER) for the project was completed in April 2016. The ER concluded and the Director of Environmental Protection agreed that the proposed works would not cause long-term environmental impacts. We have included in the project estimates the cost to implement suitable mitigation measures.

10. For short-term environmental impacts during construction, we will minimise environmental nuisances to within established standards and guidelines through the implementation of appropriate mitigation measures in the contract. These measures include the use of temporary noise barriers and silenced construction equipment, water-spraying to the construction site

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<sup>2</sup> The design standard complies with the latest Stormwater Drainage Manual published in 2018 with the effect of climate changes duly considered.

and on-site treatment of site run-off. We will also carry out regular site inspections to ensure that these measures and good site practices will be properly implemented on site.

11. At the planning and design stages, we have considered measures to reduce generation of construction waste wherever possible including the use of trenchless construction method to avoid excavation works as far as practicable. 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 minimise the disposal of inert construction waste to the public fill reception facilities (PFRF<sup>3</sup>). We will encourage the contractor 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.

12. At the construction stage, we will require the contractor to submit for approval a plan setting out 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 and non-inert construction waste at PFRF and landfills respectively through a trip-ticket system.

13. We estimate that the proposed works will generate a total of about 3 900 tonnes of construction waste. Of these, we will reuse about 1 100 tonnes (28%) of inert construction waste on site and deliver about 2 700 tonnes (69%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining 100 tonnes (3%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at PFRF and landfill sites is estimated to be \$212,000 (based on a unit charge rate of \$71 per tonne for disposal at PFRF and \$200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

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<sup>3</sup> PFRF are specified in Schedule 4 of Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste in PFRF requires a licence issued by the Director of Civil Engineering and Development.

## **HERITAGE IMPLICATIONS**

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

## **LAND ACQUISITION**

15. The proposed works will only involve government land. No land resumption is required.

## **TRAFFIC IMPLICATIONS**

16. We have conducted a traffic impact assessment (TIA) for the proposed works. The TIA indicates that the proposed works will not cause significant traffic impact to the surrounding road network during construction stage. Temporary traffic arrangements (TTAs) will be implemented to facilitate the construction works. We will establish a traffic management liaison group to discuss, scrutinize and review the TTAs proposed by the contractors with a view to minimizing traffic impact arising from the proposed works. In addition, we will set up a telephone hotline to respond to public enquiries or complaints.

## **BACKGROUND**

17. In November 2001, we upgraded **118CD** to Category B.

18. In June 2002, we upgraded part of **118CD** to Category A as **129CD** "Drainage improvement in Northern New Territories – package B – consultants' fee and investigations" at an approved project estimate (APE) of \$15.1 million in MOD prices for engaging consultants to carry out site investigations, impact assessment and detailed design for the proposed works under **118CD**.

19. The proposed works under **118CD** are implemented in four phases. The phase 1 works involving drainage improvement of a

watercourse located to the north of the junction between Fu Tei Au Road and Man Kam To Road in Sheung Shui were completed in January 2007. The works were funded under the block allocation **Subhead 4100DX** “Drainage works, studies and investigation for items in Category D of the Public Works Programme”.

20. We subsequently upgraded part of **118CD** to Category A as **147CD** “Drainage Improvement Works in Kwu Tung South and Fu Tei Au, Sheung Shui” in June 2006 at an APE of \$58.3 million in MOD prices and **156CD** “Drainage improvement in Li Lun Tsuen, Ma Tso Lung, Ying Pun, Shek Tsai Leng and Sha Ling in New Territories” in May 2008 at an APE of \$221.7 million in MOD prices for carrying out the phase 2 and phase 3 drainage improvement works respectively. The works commenced in July 2006 and were all completed in 2012. The remaining works under **118CD** comprise the construction of about 900 m of stormwater drains and associated works in Tsung Yuen, Kwu Tung North.

21. We have substantially completed the detailed design of the proposed works mentioned in paragraph 1 above.

22. Of the 264 trees within the boundary of the proposed works, there is no registered Old and Valuable Tree. The proposed works will preserve 208 trees and remove 56 trees. Among these trees, no important trees<sup>4</sup> will be affected during the implementation of the project. We will incorporate planting proposal as part of the proposed works, including an estimated replacement planting of 56 trees.

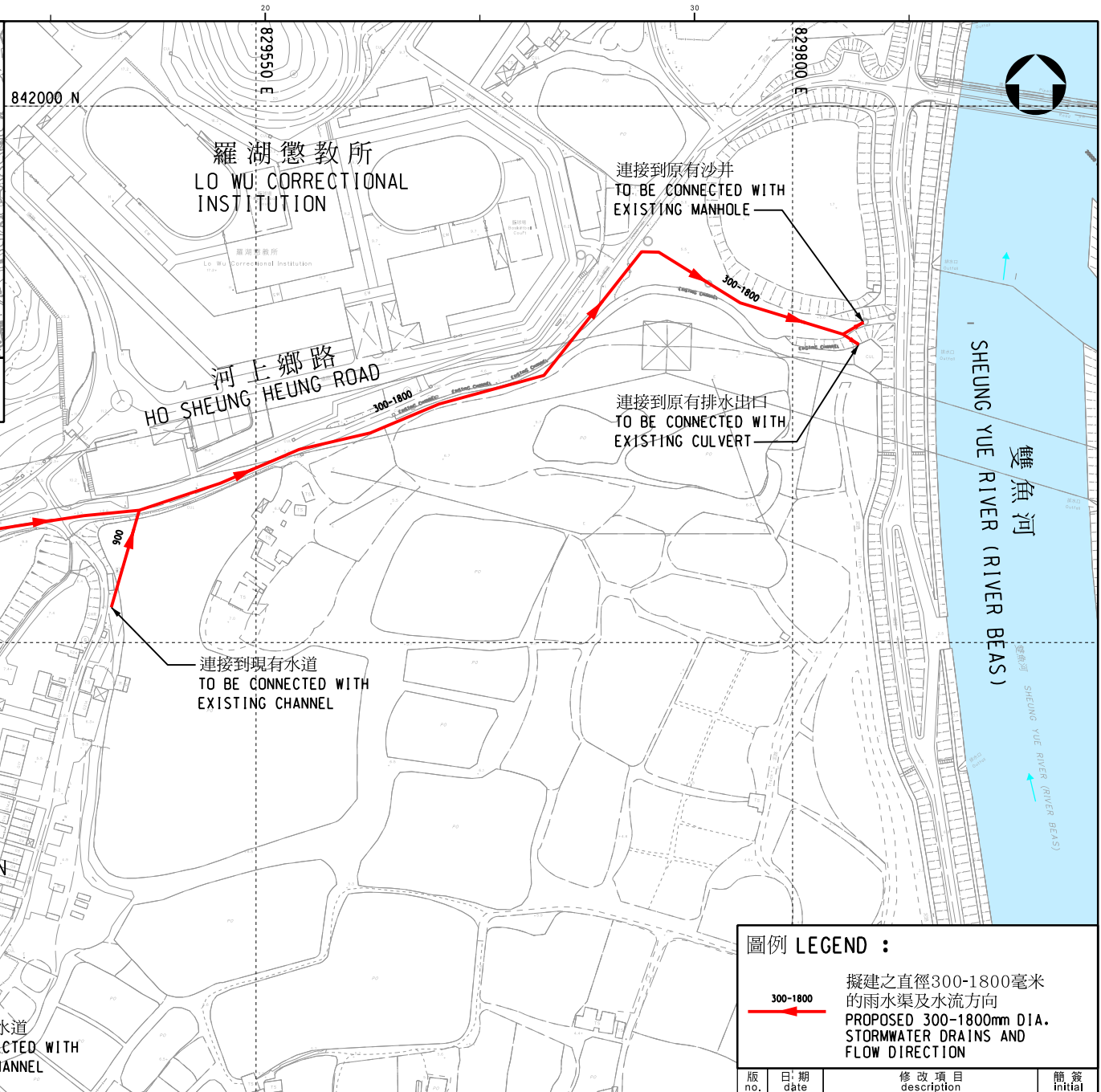
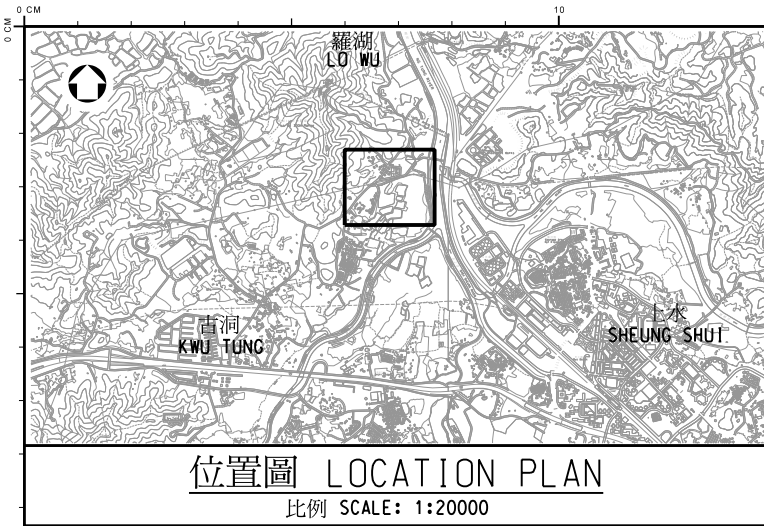
**Development Bureau**  
**Drainage Services Department**  
**February 2019**

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<sup>4</sup> “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 important persons or events;
- (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 or exceeding 1.0 m (measured at 1.3 m above ground level), or with height or canopy spread equal or exceeding 25 m.





**圖例 LEGEND :**

300-1800 擬建之直徑300-1800毫米的雨水渠及水流方向  
PROPOSED 300-1800mm DIA. STORMWATER DRAINS AND FLOW DIRECTION

圖則名稱 drawing title  
118CD號工程計劃  
「新界北部雨水排放系統改善計劃—B部分」(餘下工程)  
118CD  
DRAINAGE IMPROVEMENT IN NORTHERN NEW TERRITORIES - PACKAGE B (REMAINING WORKS)

繪畫 drawn SIGNED W. L. LEUNG	日期 date 18 JAN 2019	修改項目 description	簡簽 initial
核對 checked SIGNED Ir Sunny E. TAN	日期 date 18 JAN 2019	圖則編號 drawing no. DDP/118CD1/13014	比例 scale 1 : 2 000 OR AS SHOWN
批核 approved SIGNED Ir. W. C. CHIU	日期 date 18 JAN 2019	保留版權 COPYRIGHT RESERVED	
部門 office 排水工程處 DRAINAGE SERVICES DIVISION		香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	

附件一的附錄 Annex to Enclosure 1

**144CD (part) Drainage Improvement in Southern Hong Kong Island – Package 2A**

**PROJECT SCOPE**

The proposed scope of works under **144CD (part)** comprises the construction of –

- (a) about 800 m of stormwater drains with diameters ranging from 400 mm to 1 000 mm along the horse trail and walking trail located uphill of Pok Fu Lam Village;
- (b) about 260 m of stormwater drains with diameter ranging from 800 mm to 1 350 mm along Chi Fu Road; and
- (c) ancillary works<sup>1</sup>.

2. A plan showing the location of the proposed works is at **Annex to Enclosure 2**.

3. Subject to the funding approval of the Finance Committee, we plan to commence the proposed works in the fourth quarter of 2019 for completion in the fourth quarter of 2023. We will retain the remaining works of **144CD** in Category B, which comprise the construction of about 3.2 kilometres of stormwater drains at various locations on Southern Hong Kong Island. We will seek funding for the remaining works of **144CD** at a later stage after completion of the detailed design.

**JUSTIFICATION**

4. The Drainage Services Department completed a Drainage Master Plan study for the Southern Hong Kong Island in 2005 to assess the

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<sup>1</sup> Ancillary works include the associated inlet and outlet structures, diversion weirs, connection works between the proposed and existing drainage system, stabilization of affected geotechnical features, etc.

existing conditions and the adequacy of the drainage capacity of the local drainage systems in Pok Fu Lam, Wah Fu, Tin Wan, Aberdeen, Wong Chuk Hang, Ap Lei Chau, Shouson Hill, Shek O and Stanley. The recommended drainage improvement works in connection with the Pok Fu Lam Village were grouped into package 1 of the study for early implementation.

5. Upon completion of the drainage improvement works in June 2009, the flooding problem of low-lying areas within Pok Fu Lam Village susceptible to flooding has been improved. However, Pok Fu Lam Village remains a flooding blackspot with major flooding incidents reported on 21 September 2010 and 22 July 2015. In the detailed design of the proposed package 2A drainage improvement works, the effect of climate changes has been duly considered.

6. The proposed works comprise the construction of the drainage improvement works at the peripheral areas of Pok Fu Lam Village to intercept the stormwater upstream and divert it to the existing drainage system. Upon completion of the drainage improvement works, the drainage system concerned will be upgraded to the current standard<sup>2</sup> and flooding risk of Pok Fu Lam Village will be further alleviated.

## **FINANCIAL IMPLICATIONS**

7. We estimate the total capital cost of the proposed works as detailed in paragraph 1 above to be \$134.7 million in money-of-the-day (MOD) prices.

## **PUBLIC CONSULTATION**

8. We consulted the Pok Fu Lam Village representatives and associated stakeholders on 30 November 2018 and they supported the proposed works. Subsequently, we consulted the District Development and Housing Committee (DDHC) of Southern District Council on 28 January 2019. Members of the DDHC supported the proposed works.

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<sup>2</sup> The design standard complies with the latest Stormwater Drainage Manual published in 2018 with the effect of climate changes duly considered.

## ENVIRONMENTAL IMPLICATIONS

9. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). A Preliminary Environmental Review (PER) for the project was conducted in December 2018. The PER concluded and the Director of Environmental Protection agreed that the proposed works would not have any long-term adverse environmental impacts. We have included in the project estimate cost to implement suitable mitigation measures.

10. For short-term environmental impacts during construction, we will minimise environmental nuisance to within established standards and guidelines through the implementation of appropriate mitigation measures in the contract. These measures include the use of temporary noise barriers and silenced construction equipment, water-spraying to the construction site and on-site treatment of site run-off. We will also carry out regular site inspections to ensure that these measures and good site practices will be properly implemented on site.

11. At the planning and design stages, we have considered measures to reduce generation of construction waste wherever possible including the use of trenchless construction method to avoid excavation works as far as practicable. 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 minimise the disposal of inert construction waste to the public fill reception facilities (PFRF<sup>3</sup>). We will encourage the contractor 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.

12. At the construction stage, we will require the contractor to submit for approval a plan setting out 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

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<sup>3</sup> PFRF are specified in Schedule 4 of Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste in PFRF requires a licence issued by the Director of Civil Engineering and Development.

appropriate facilities. We will control the disposal of inert and non-inert construction waste at PFRF and landfills respectively through a trip-ticket system.

13. We estimate that the proposed works will generate a total of about 7 800 tonnes of construction waste. Of these, we will reuse about 1 550 tonnes (20%) of inert construction waste on site and deliver about 5 950 tonnes (76%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining 300 tonnes (4%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at PFRF and landfill sites is estimated to be \$482,000 (based on a unit charge rate of \$71 per tonne for disposal at PFRF and \$200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

## **HERITAGE IMPLICATIONS**

14. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office (AMO).

## **LAND ACQUISITION**

15. The proposed works will only involve government land. No land resumption is required.

## **TRAFFIC IMPLICATIONS**

16. We have conducted a traffic impact assessment (TIA) for the proposed works and the TIA indicates that the proposed works will not cause significant traffic impact to the surrounding road network during construction. Temporary traffic arrangements (TTAs) will be implemented to facilitate the construction works. We will establish a traffic management liaison group to discuss, scrutinize and review the TTAs proposed by the contractors with a view to minimizing traffic impact arising from the proposed works. In

addition, we will set up a telephone hotline to respond to public enquiries or complaints.

## **BACKGROUND**

17. In September 2006, we included **144CD** “Drainage improvement in Southern Hong Kong Island” in Category B for improvement of the existing drainage systems on the southern part of Hong Kong Island.

18. In July 2008, we upgraded part of **144CD** to Category A as **158CD** “Drainage improvement in Southern Hong Kong Island – package 1” at an approved project estimate of \$28 million in MOD prices for the construction of drainage improvement works in different locations of Southern Hong Kong Island. The package 1 works commenced in November 2008 and were completed in 2011.

19. We have substantially completed the detailed design of the proposed works mentioned in paragraph 1 above.

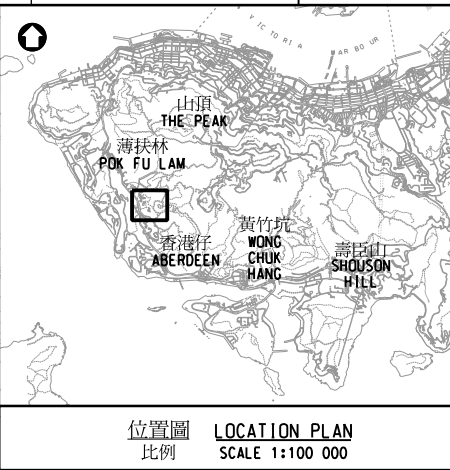
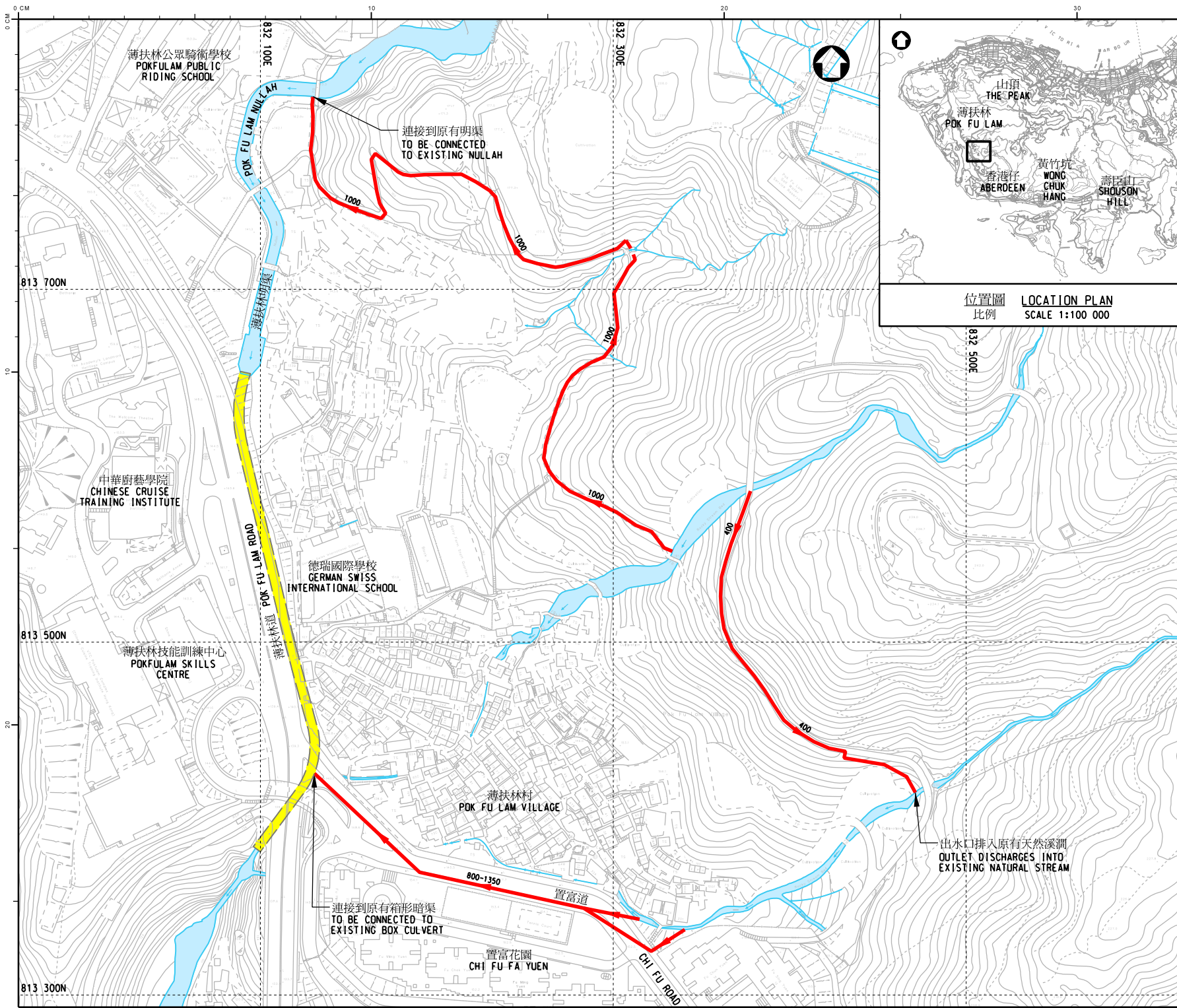
20. Of the 267 trees within the boundary of the proposed works, there is no registered Old and Valuable Tree. The proposed works will preserve 193 trees and remove 74 trees. Among these trees, no important trees<sup>4</sup> will be affected during the implementation of the project. We will incorporate a planting proposal as part of the proposed works, including an estimated replacement planting of 74 trees.

**Development Bureau**  
**Drainage Services Department**  
**February 2019**

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<sup>4</sup> “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 important persons or events;
- (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 or exceeding 1.0 m (measured at 1.3 m above ground level), or with height or canopy spread equal or exceeding 25 m.



**圖例 LEGEND :**

- 擬建之直徑400毫米的雨水渠及水流方向  
PROPOSED 400mm DIA. STORMWATER DRAINS AND FLOW DIRECTION
- 原有箱形暗渠  
EXISTING BOX CULVERT

B	14 FEB 2019	GENERAL REVISION	SIGNED L. M. NG E/025
A	7 JAN 2019	GENERAL REVISION	SIGNED L. M. NG E/025
版 no.	日期 date	修改項目 description	簡簽 initial

**修訂 REVISION**

	姓名 name	日期 date
繪畫 drawn	SIGNED M. F. CHAN	28 DEC 2018
核對 checked	SIGNED Ir L. M. NG	31 DEC 2018
批核 approved	SIGNED Ir W. K. MOK	31 DEC 2018

圖則名稱 drawing title

144CD號工程計劃(部分)  
「港島南部雨水排放系統改善計劃 - 2A部分」  
144CD (PART)  
DRAINAGE IMPROVEMENT IN SOUTHERN HONG KONG ISLAND - PACKAGE 2A

圖則編號 drawing no.	比例 scale
DDP/144CD2/36021B	1 : 2000 OR AS SHOWN

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部門 office

**排水工程 部**  
**DRAINAGE PROJECTS DIVISION**



附件二的附錄 Annex to Enclosure 2

## **163CD Drainage Improvement Works at Ngong Ping**

### **PROJECT SCOPE**

The proposed scope of works under **163CD** comprises the construction of –

- (a) about 900 m of stormwater drains of diameters ranging from 1 500 mm to 1 950 mm, and box culverts with internal width ranging from 2.5 m to 4 m and internal height of 2.5 m at Ngong Ping; and
  - (b) ancillary works<sup>1</sup>.
2. A plan showing the location of the proposed works is at **Annex to Enclosure 3**.
  3. Subject to the funding approval of the Finance Committee, we plan to commence the proposed works in the fourth quarter of 2019 for completion in the first quarter of 2022.

### **JUSTIFICATION**

4. Serious flooding occurred at Po Lin Monastery, Ngong Ping Bus Terminus, Ngong Ping Village and areas in the vicinity of Ngong Ping 360 during a heavy rainstorm on 7 June 2008. Subsequent to the rainstorm, the Drainage Services Department completed a drainage study for Ngong Ping in 2013. It was found that the existing watercourses at the north of Po Lin Monastery as well as the upstream and downstream of Ngong Ping 360 had inadequate capacity and would be susceptible to flooding during heavy rainstorms. With the consideration of the climate change effect, the flooding

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<sup>1</sup> Ancillary works include the associated inlet and outlet structures, diversion weirs, connection works between the proposed and existing drainage system, stabilization of affected geotechnical features, etc.



risk in these areas will further increase. As such, the study recommended improvement measures including construction of stormwater drains to enhance the capacity of the existing drainage system.

5. Upon completion of the proposed drainage improvement works, the capacity of the trunk stormwater drainage system will be enhanced and the drainage system concerned will be upgraded to the current standard<sup>2</sup> and flooding risk in Ngong Ping will be alleviated.

## **FINANCIAL IMPLICATIONS**

6. We estimate the total capital cost of the proposed works as detailed in paragraph 1 above to be \$216.0 million in money-of-the-day (MOD) prices.

## **PUBLIC CONSULTATION**

7. We consulted and updated the progress of the proposed works with the management of the Po Lin Monastery on 23 January 2019 and their support was obtained.

8. We consulted the Tourism, Agriculture, Fisheries and Environmental Hygiene Committee of the Island District Council on 28 January 2019. Members of the Committee supported the proposed works.

## **ENVIRONMENTAL IMPLICATIONS**

9. The project is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499). The Environmental Protection Department approved the Environmental Impact Assessment (EIA) Report for the project under EIAO in April 2013, and issued an environmental permit (EP) for the construction and operation of the project in August 2013. The EIA Report concludes that the

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<sup>2</sup> The design standard complies with the latest Stormwater Drainage Manual published in 2018 with the effect of climate changes duly considered.

environmental impact of the project can be controlled to within the criteria under EIAO and the Technical Memorandum on EIA Process. We will implement the environmental mitigation measures and environmental monitoring and audit (EM&A) programme recommended in the approved EIA Report, and comply with relevant conditions under the EP and other statutory requirements for environmental protection. All necessary environmental mitigation measures and the implementation of the EM&A programme have been taken into account in preparing the cost estimation for the proposed works.

10. For short-term environmental impacts during construction, we will minimise environmental nuisance to within established standards and guidelines through the implementation of appropriate mitigation measures in the contract. These measures include the use of temporary noise barriers and silenced construction equipment, water-spraying to the construction site and on-site treatment of site run-off. We will also carry out regular site inspections to ensure that these measures and good site practices will be properly implemented on site.

11. At the planning and design stages, we have considered ways to reduce the generation of construction waste including the use of trenchless construction method to avoid excavation works as far as practicable. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil and rock) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities (PFRF)<sup>3</sup>. We will encourage the contractor 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.

12. 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 day-to-day operations on site comply with the approved plan. We will require the contractor to

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<sup>3</sup> PFRF are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap 354N). Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert and non-inert construction waste at PFRF and landfills respectively through a trip-ticket system.

13. We estimate that the proposed works will generate a total of about 27 300 tonnes of construction waste. Of these, we will reuse 13 900 tonnes (50.9%) on site, and deliver 13 300 tonnes (48.7%) of inert construction waste to PFRF for subsequent reuse and 100 tonnes (0.4%) of non-inert construction waste to landfills for disposal. The total cost for disposal of the aforementioned construction waste at PFRF and landfill sites is estimated to be about \$964,000 (based on a unit charge rate of \$71 per tonne for disposal at PFRF and \$200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

## **HERITAGE IMPLICATIONS**

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

## **LAND ACQUISITION**

15. The proposed works will only involve government land. No land resumption is required.

## **TRAFFIC IMPLICATIONS**

16. We have conducted a traffic study for the proposed works. The study indicates that the proposed works will not cause significant traffic impact to the surrounding road network during construction. Temporary traffic arrangements (TTAs) will be implemented to facilitate the construction works. We will establish a traffic management liaison group to discuss, scrutinize and review the TTAs proposed by the contractors with a view to

minimizing traffic impact arising from the proposed works. In addition, we will set up a telephone hotline to respond to public enquiries or complaints.

## **BACKGROUND**

17. In September 2010, we upgraded **163CD** to Category B.

18. We have substantially completed the detailed design of the proposed works mentioned in paragraph 1 above.

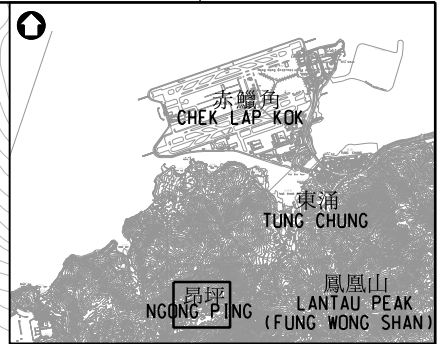
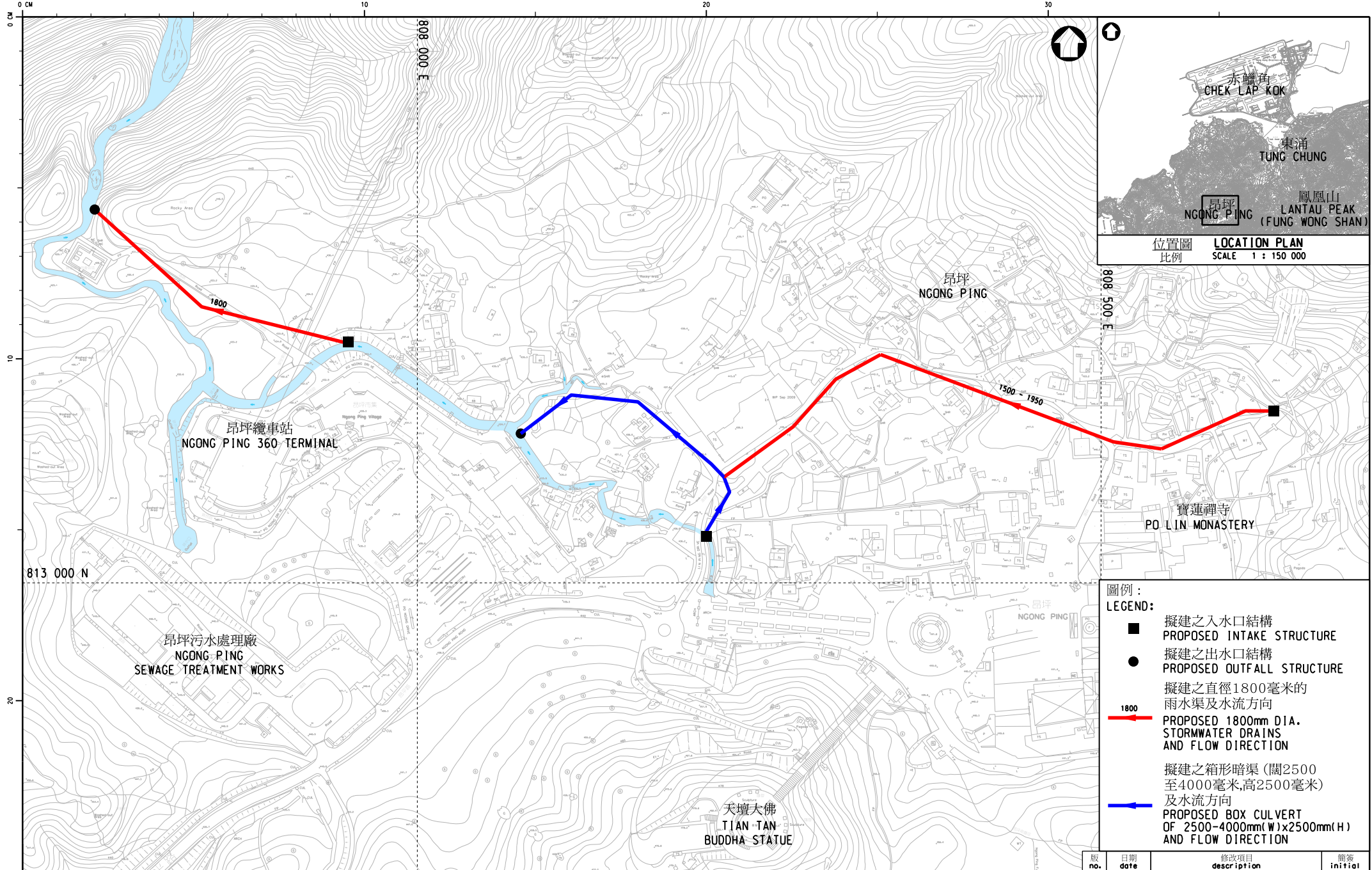
19. Of the 300 trees within the project boundary, there is no registered Old and Valuable Tree. The proposed works will preserve 227 trees and remove 73 trees. Among these trees, no important trees<sup>4</sup> will be affected during the implementation of the project. We will incorporate a planting proposal as part of the proposed works, including an estimated replacement planting of 73 trees.

**Development Bureau  
Drainage Services Department  
February 2019**

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<sup>4</sup> “Important trees” refer 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 important persons 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 or exceeding 1.0 m (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.



位置圖 LOCATION PLAN  
比例 SCALE 1 : 150 000

圖例 :  
LEGEND:

- 擬建之入水口結構  
PROPOSED INTAKE STRUCTURE
- 擬建之出水口結構  
PROPOSED OUTFALL STRUCTURE
- 1800  
— 擬建之直徑1800毫米的  
雨水渠及水流方向  
PROPOSED 1800mm DIA.  
STORMWATER DRAINS  
AND FLOW DIRECTION
- 擬建之箱形暗渠 (闊2500  
至4000毫米,高2500毫米)  
及水流方向  
PROPOSED BOX CULVERT  
OF 2500-4000mm(W)x2500mm(H)  
AND FLOW DIRECTION

圖別名稱 drawing title  
163CD號工程計劃  
「昂坪雨水排放系統改善工程」  
163CD  
DRAINAGE IMPROVEMENT WORKS AT NGONG PING

版 no.	日期 date	修改項目 description	簽名 initial
1	18 JAN 2019		
核對 checked	日期 date	圖則編號 drawing no.	比例 scale
SIGNED Ir K. Y. WONG	18 JAN 2019	DDP/163CD1/03018	1 : 2500 OR AS SHOWN
設計 designed	日期 date	保留版權 COPYRIGHT RESERVED	
SIGNED Ir Y. P. AU	18 JAN 2019		
部門 office	香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION		
	排水工程處 DRAINAGE PROJECTS DIVISION		

**166CD (part) Drainage Improvement Works at Yuen Long – Stage 1**

**PROJECT SCOPE**

The proposed scope of works under **166CD (part)** comprises the construction of –

- (a) about 250 m of stormwater drain with diameters ranging from 900 mm to 1 650 mm in Tai Tseng Wai;
- (b) about 50 m of stormwater drain with diameter of 1 200 mm and about 150 m of drainage channel with 1.5 m in width in Shui Tsiu San Tsuen;
- (c) about 400 m of drainage channel with widths ranging from 4 m to 6 m and about 20 m of stormwater drain with diameter of 1 500 mm in Ho Lik Pui;
- (d) about 550 m of drainage channel with widths ranging from 750 mm to 900 mm and about 170 m of stormwater drain with diameters ranging from 675 mm to 1 800 mm in Shan Ha Tsuen; and
- (e) ancillary works<sup>1</sup>.

2. A plan showing the location of the proposed works is at **Annex to Enclosure 4**.

3. Subject to the funding approval of the Finance Committee, we plan to commence the proposed stage 1 works in the first quarter of 2020 for completion in the third quarter of 2022. We will retain the remainder of **166CD** in Category B. We will seek funding for the remainder of **166CD** at a later stage after completion of the respective detailed design.

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<sup>1</sup> Ancillary works include associated roadworks and surface channels, landscaping works, reinstatement of footbridges, connection works between the proposed and existing drainage system, etc.

## **JUSTIFICATION**

4. The Drainage Services Department completed the “Review of Drainage Master Plans in Yuen Long and North District – Feasibility Study” (the Review Study) in 2011 to holistically assess the completed works recommended under the Drainage Master Plan studies for the Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Basin taking into account the new development proposals and town planning studies.

5. The Review Study identified that some areas in Yuen Long District could not meet the flood protection level according to the latest land uses and planned developments. With consideration of the climate change effect, the flooding risk in these areas will further increase. As such, the Review Study recommended the implementation of drainage improvement works at these areas.

6. Among the proposed works of **166CD**, the drainage improvement works at Tai Tseng Wai, Shui Tsiu San Tsuen, Ho Lik Pui and a part of Shan Ha Tsuen can be implemented in advance because they are not designated project under the Environmental Impact Assessment (EIA) Ordinance and do not involve land resumption. Upon completion of the drainage improvement works, the drainage system concerned will be upgraded to the current standard<sup>2</sup> and flooding risk for these areas will be alleviated.

## **FINANCIAL IMPLICATIONS**

7. We estimate the total capital cost of the proposed works as detailed in paragraph 1 above to be \$256.2 million in money-of-the-day (MOD) prices.

## **PUBLIC CONSULTATION**

8. We consulted the Pat Heung Rural Committee, the Ping Shan Rural Committee and the Shap Pat Heung Rural Committee on 22 May 2015, and the Environmental Improvement Committee of the Yuen Long District Council (EICYLDC) on 13 July 2015. Members of the Committees supported the proposed works.

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<sup>2</sup> The design standard complies with the latest Stormwater Drainage Manual published in 2018 with the effect of climate changes duly considered.

9. We consulted the above three Rural Committees and the EICYLDC again on 28 November 2018 and 6 December 2018 respectively. Members of the Committees remain supportive of the proposed works.

## **ENVIRONMENTAL IMPLICATIONS**

10. The project is not a designated project under the EIA Ordinance (Cap. 499). We conducted a Preliminary Environmental Review (PER) for the proposed works in November 2018. The PER concluded and the Director of Environmental Protection agreed that the proposed works would not have any long-term adverse environmental impacts. We have included in the project estimate of the proposed works the cost for implementation of the environmental mitigation measures.

11. For short-term environmental impacts during construction, we will minimise environmental nuisance to within established standards and guidelines through the implementation of appropriate mitigation measures in the contract. These measures include the use of temporary noise barriers and silenced construction equipment, water-spraying to the construction site and on-site treatment of site run-off. We will carry out regular site inspections to ensure these measures and good site practices will be properly implemented on site.

12. At the planning and design stages, we have considered measures to reduce 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 minimise the disposal of inert construction waste to the public fill reception facilities (PFRF)<sup>3</sup>. We will encourage the contractor 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.

13. At the construction stage, we will require the contractor to submit for approval a plan setting out 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

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<sup>3</sup> PFRF are specified in Schedule 4 of Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste in PFRF requires a licence issued by the Director of Civil Engineering and Development.



separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert and non-inert construction waste at PFRF and landfills respectively through a trip-ticket system.

14. We estimate that the proposed works will generate a total of about 20 800 tonnes of construction waste. Of these, we will reuse about 4 800 tonnes (23%) of inert construction waste on site, deliver about 15 800 tonnes (76%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining about 200 tonnes (1%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at PFRF and landfill sites is estimated to be about \$1.2 million for the proposed stage 1 works (based on a unit charge rate of \$71 per tonne for disposal at PFRF and \$200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

## **HERITAGE IMPLICATIONS**

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

## **LAND ACQUISITION**

16. The proposed works will only involve government land. No land resumption is required.

## **TRAFFIC IMPLICATIONS**

17. We have conducted a traffic impact assessment (TIA) for the proposed works. The TIA indicated that the proposed works will not cause significant traffic impact to the surrounding road network during construction. Temporary traffic arrangements (TTAs) will be implemented to facilitate the construction works. We will establish a traffic management liaison group to discuss, scrutinize and review the TTAs proposed by the contractors with a view to minimizing traffic impact arising from the proposed works. In

addition, we will set up a telephone hotline to respond to public enquiries or complaints.

## **BACKGROUND**

18. In September 2012, we upgraded **166CD** to Category B.

19. We have substantially completed the detailed design of the proposed works mentioned in paragraph 1 above.

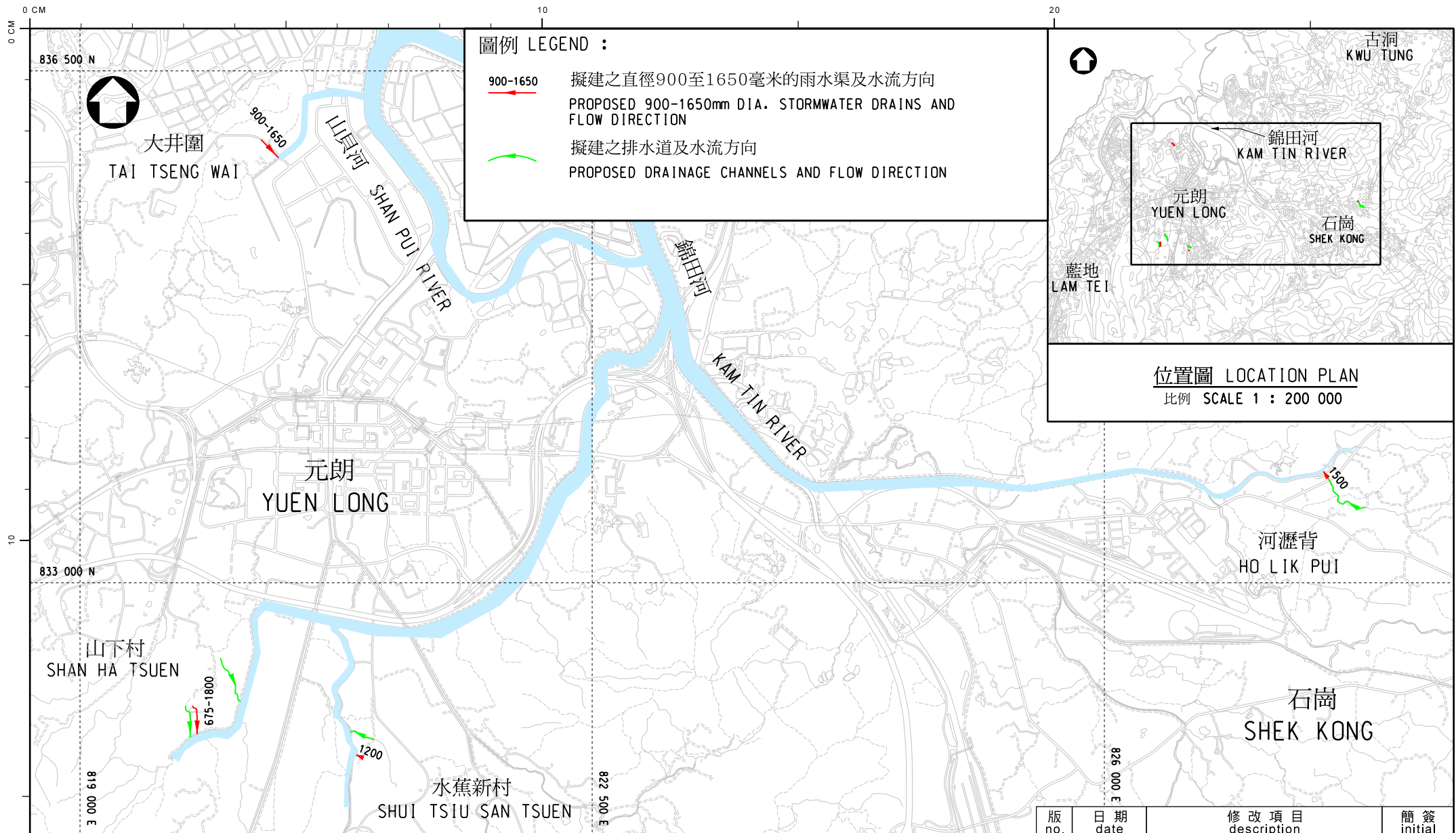
20. Of the 146 trees within the boundary of the proposed works, there is no registered Old and Valuable Tree. The proposed works will preserve 77 trees and involve remove 69 trees. Among these trees, no important trees<sup>4</sup> will be affected during the implementation of the project. We will incorporate planting proposal as part of the proposed works, including an estimated replacement planting of 176 trees.

**Development Bureau  
Drainage Services Department  
February 2019**

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4 “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-

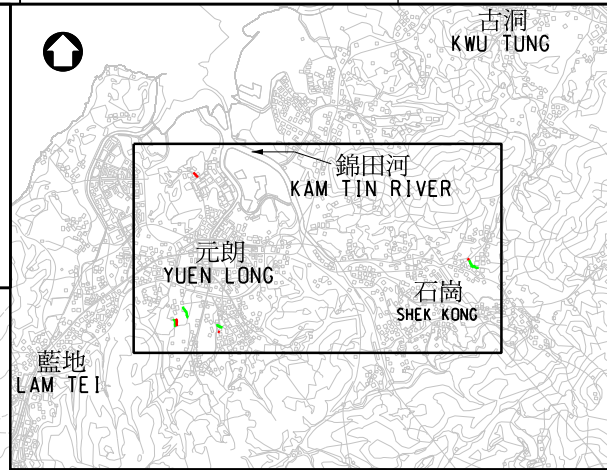
- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of important persons or events;
- (c) trees of precious or rare species;
- (d) trees of outstanding form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



**圖例 LEGEND :**

900-1650 擬建之直徑900至1650毫米的雨水渠及水流方向  
 PROPOSED 900-1650mm DIA. STORMWATER DRAINS AND FLOW DIRECTION

擬建之排水道及水流方向  
 PROPOSED DRAINAGE CHANNELS AND FLOW DIRECTION



**位置圖 LOCATION PLAN**  
 比例 SCALE 1 : 200 000

圖則名稱 drawing title	繪畫 drawn	日期 date	修改項目 description	簡簽 initial
166CD號工程計劃 (部份) 「元朗區雨水排放系統改善工程 - 第1階段」 166CD (PART) DRAINAGE IMPROVEMENT WORKS AT YUEN LONG - STAGE 1	SIGNED H.Y. LEE	15 NOV 2018	圖則編號 drawing no.	比例 scale
	核對 checked	日期 date	DPM/166CD/1014	1 : 35 000 OR AS SHOWN
	SIGNED K.L. LIANG	15 NOV 2018	保留版權 COPYRIGHT RESERVED	
	批核 approved	日期 date	香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	
	SIGNED K.W. FUNG	15 NOV 2018		
	部門 office			
	工程管理部 PROJECT MANAGEMENT DIVISION			

版 no.	日期 date	修改項目 description	簡簽 initial

附件四的附錄 Annex to Enclosure 4