

For discussion
(date to be confirmed)

PWSC(2015-16)25

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT

Civil Engineering – Land development

570CL – Ground decontamination works at the site of ex-Kennedy Town Incineration Plant/Abattoir and adjoining area

Members are invited to recommend to the Finance Committee the upgrading of **570CL** to Category A at an estimated cost of \$1,111.9 million in money-of-the-day prices for the ground decontamination works at the site of ex-Kennedy Town Incineration Plant/Abattoir and adjoining area.

PROBLEM

We need to carry out ground decontamination works at the ex-Kennedy Town Incineration Plant (KTIP) and ex-Kennedy Town Abattoir (KTA) and adjoining area (the Site) before it is developed for other uses.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade **570CL** to Category A at an estimated cost of \$1,111.9 million in money-of-the-day (MOD) prices for the ground decontamination works at the Site.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of **570CL** comprises –
 - (a) removal of remaining disused structures within the ex-KTIP and ex-KTA sites as well as other structures at the temporary refuse collection point (RCP), the temporary public car park, the Cadogan Street Temporary Garden and Sai See Street within the Site;
 - (b) carrying out ground decontamination works;
 - (c) implementation of environmental mitigation measures and an environmental monitoring and audit (EM&A) programme for the works in (a) and (b) above; and
 - (d) in-situ reprovisioning of a temporary public car park and a temporary RCP within the Site.

4. Site plans showing the boundary of the proposed works and the locations of the reprovisioned facilities are at Enclosures 1 and 2 respectively.

5. Subject to funding approval of the Finance Committee (FC), we plan to commence the proposed works in late 2015 for completion in late 2022.

JUSTIFICATION

6. The KTIP ceased to operate in March 1993. The KTA was closed in December 1999. The ex-KTIP and ex-KTA sites have been temporarily used as West Island Line (WIL) works area and for accommodating a maintenance depot of the Highways Department (HyD) since 2009. Other existing uses on the Site primarily include a short-term bus depot, a temporary RCP, a temporary public car park, and the Cadogan Street Temporary Garden. The Site is about 3.2 hectares.

/7.

7. According to the Environmental Impact Assessment (EIA) and site investigation, the underground soil of the Site is contaminated with heavy metals and hydrocarbons¹. As a result, ground decontamination works are required before the Site can be developed for other uses. The quantity of contaminated soil that requires decontamination is about 110 000 cubic metres. The proposed decontamination works at the Site are scheduled to commence after the return of the WIL works area to the Government by the MTR Corporation Limited and the removal of the maintenance depot of HyD in the fourth quarter of 2015² to facilitate future development at the Site. According to the Government's latest land use review, the proposed uses at the Site primarily include private housing, primary school, harbour front promenade, public car park, bus terminus and community facilities.

8. Site investigation indicates that contaminated soil is scattered over the Site at different depths. We will dig up, sort and treat the soil on-site, and then use the treated soil after testing to backfill the excavations. To maintain the services of the temporary public car park and RCP to the public throughout the decontamination period, the Site will be cleaned up in sequence to allow their in-situ reprovisioning during the decontamination.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of **570CL** to be \$1,111.9 million in MOD prices (please see paragraph 11 below), broken down as follows –

	\$ million
(a) Removal of remaining disused structures	11.8
(b) Earthworks	246.1
(i) excavation ³	176.0
(ii) backfilling	70.1
	/(c)

¹ Soil with heavy metals and hydrocarbons, if inappropriately exposed, may pose health risks.

² The removal of the maintenance depot of HyD is excluded from the scope of **570CL**. The removal works will be conducted by HyD.

³ The cost of excavation covers the costs of temporary excavation lateral support, provision of dewatering system and soil excavation.

	\$ million
(c) Treatment of soil contaminated with heavy metals and/or hydrocarbons ⁴	376.2
(d) Environmental mitigation measures and EM&A programme	15.1
(e) In-situ reprovisioning of facilities	26.5
(i) a temporary public car park	1.5
(ii) a temporary RCP	25.0
(f) Consultants' fees for	7.3
(i) contract administration	5.8
(ii) management of resident site staff	1.5
(g) Remuneration of resident site staff	68.5
(h) Contingencies	<u>65.7</u>
Sub-total	817.2 (in September 2014 prices)
(i) Provision for price adjustment	<u>294.7</u>
Total	1,111.9 (in MOD prices)

10. In view of insufficient in-house resources, we propose to engage consultants to undertake the contract administration and site supervision for the proposed works. A breakdown of the estimates for consultants' fees and resident site staff costs by man-months is at Enclosure 3.

/11.

⁴ The cost of treatment of soil contaminated with heavy metals and/or hydrocarbons covers the costs of cement solidification and biopiling including the setting up, operation and maintenance of the associated system. The method of biopiling involves heaping contaminated soil into piles (or biopiles) and stimulating aerobic microbial activity to break down the hydrocarbons by biodegradation within the soil through aeration.

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

Year	\$ million (Sept 2014)	Price adjustment factor	\$ million (MOD)
2015 – 2016	18.0	1.05725	19.0
2016 – 2017	58.0	1.12069	65.0
2017 – 2018	74.5	1.18793	88.5
2018 – 2019	92.8	1.25920	116.9
2019 – 2020	129.8	1.33475	173.3
2020 – 2021	179.7	1.40483	252.4
2021 – 2022	179.2	1.47507	264.3
2022 – 2023	78.2	1.54882	121.1
2023 – 2024	7.0	1.62626	11.4
	817.2		1,111.9

12. 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 2015 to 2024. Subject to funding approval, we will deliver the works under a lump sum contract because the scope of the works can be clearly defined. The contract will provide for price adjustment.

13. The proposed project will not give rise to any recurrent expenditure.

/PUBLIC

PUBLIC CONSULTATION

14. We consulted the Food, Environment, Hygiene and Works Committee of the Central and Western District Council on the proposed works on 30 May 2013 and 26 March 2015 respectively. Members in general did not object to the proposed works, and asked for more environmental mitigation measures as well as community liaison efforts during the decontamination period.

15. We consulted the Legislative Council Panel on Development on the proposed works at its meeting on 28 April 2015. Members supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

16. The project is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (Cap. 499) and an Environmental Permit (EP) is required for the ground decontamination works. On 1 April 2015, the EIA report for the project was approved under the EIA Ordinance. The EIA report concluded that the environmental impact of the project can be controlled to within the criteria under the EIA Ordinance and the Technical Memorandum on EIA Process.

17. We shall implement the measures recommended in the approved EIA report. The key measures during the ground decontamination works include control on total active area (i.e. with paved material removed for excavation works) at any one time over the entire project site; installation of activated carbon filter in the outlet of biopile for removing volatile organic compound emissions during biopile operation; adoption of quieter equipment, movable noise barriers and noise insulating fabric to minimise construction noise impact; control of site surface water run-off from the project site; adoption of good site practices for construction dust control; and compensatory tree planting along the proposed future waterfront promenade. We have included in paragraph 9(d) above a sum of \$15.1 million (in September 2014 prices) in the project estimate for the implementation of environmental mitigation measures and the EM&A programme.

/18.

18. At the planning and design stages, we have considered minimising the generation of construction waste as far as possible through the design of decontamination works. In addition, we will require the contractor to reuse inert construction waste (e.g. treated 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 facilities⁵. 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 generation of 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 measures 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 the non-inert construction waste on site for disposal at appropriate facilities. Besides, we will control the disposal of inert and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

20. We estimate that the proposed works will generate about 269 750 tonnes of construction waste in total. Of these, we will reuse about 229 290 tonnes (85.0%) on site and deliver about 40 120 tonnes (14.9%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 340 tonnes (0.1%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$1.13 million for this project (based on a unit charge rate of \$27 per tonne for disposal at public fill reception facilities, and \$125 per tonne for disposal at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation).

HERITAGE IMPLICATIONS

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

/TRAFFIC

⁵ 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 in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

TRAFFIC IMPLICATIONS

22. The proposed works will not cause any significant traffic impact. Temporary traffic arrangements will be implemented to facilitate the construction works. We will display publicity boards on site giving details of the temporary traffic arrangements and the anticipated completion dates of individual sections of works. In addition, we will set up a telephone hotline to respond to public enquiries or complaints.

LAND ACQUISITION

23. The proposed works do not require any land acquisition.

BACKGROUND INFORMATION

24. We engaged consultants to carry out the EIA and site investigation works in September 1999. The cost of these works was \$1.8 million and charged to block allocations **Subhead B100HX** "Minor housing development related works, studies and investigations for items in Category D of the Public Works Programme". We completed the EIA and site investigation works in 2001.

25. We engaged other consultants to carry out the review of the EIA findings and detailed design, to prepare the tender documents and to undertake construction supervision of the project in July 2002. The cost of these works is about \$8.5 million and charged to block allocation **Subhead B100HX** "Minor housing development related works, studies and investigations for items in Category D of the Public Works Programme". We completed the detailed design of the proposed works mentioned in paragraph 3 above in 2004.

26. We upgraded **570CL** to Category B in September 2005. We originally planned to commence the ground decontamination works immediately after completion of the demolition works within the KTIP and KTA sites. However, it was subsequently decided in December 2006 that the sites be used as the temporary works area for the construction of the WIL after the completion of the demolition works in 2009.

/27.

27. On 22 June 2007, FC approved the upgrading of part of **570CL** to Category A as **732CL** “Demolition of buildings, structures and chimneys above ground at Kennedy Town incineration plant and abattoir” at an estimated cost of \$66.6 million in MOD prices for the demolition of buildings, structures and chimneys above the existing ground within the KTIP and KTA. The demolition works were completed in 2009.

28. In the light of the latest guidelines and standards on contaminated land management and the requirements of the EP, we further instructed the consultants to carry out a supplementary EIA on the ground decontamination works as well as review and update the detailed design and tender documents in October 2012. The cost of these works is \$8.7 million and charged to **Subhead 7100CX** “New Towns and urban area works, studies and investigations for items in Category D of the Public Works Programme”. The consultants completed the supplementary EIA and updated the detailed design of the proposed works mentioned in paragraph 3 above in 2014, and are finalising the tender documents.

29. The proposed works will involve removal of 195 trees, none of which are in the Register of Old and Valuable Trees. The roots of all the 195 trees are contaminated and some of them are adhered to the disused structures, rendering them unsuitable for transplantation and obstructive to the demolition and decontamination works. Among the 195 trees, five are important trees⁶ belonging to species listed in the Rare and Precious Plants of Hong Kong. However, those five trees have poor amenity value, form, health and/or structural condition. In particular, it is assessed that those five trees would have an extremely low survival rate after transplanting. All the 195 trees will be removed together with the disused structures. We will incorporate planting proposal of about 195 trees as part of the proposed works. Details about the five important trees are at Enclosure 4.

/30.

⁶ “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.

30. We estimate that the proposed works will create about 210 jobs (165 for labourers and another 45 for professional or technical staff) providing a total employment of 12 700 man-months.

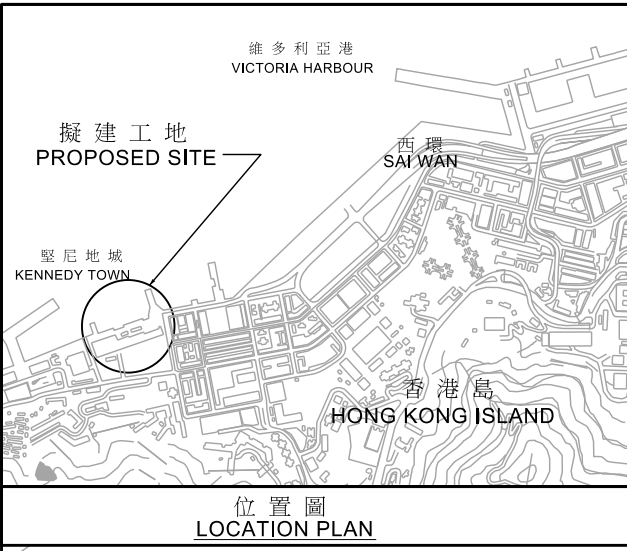
Development Bureau
June 2015

註NOTES :

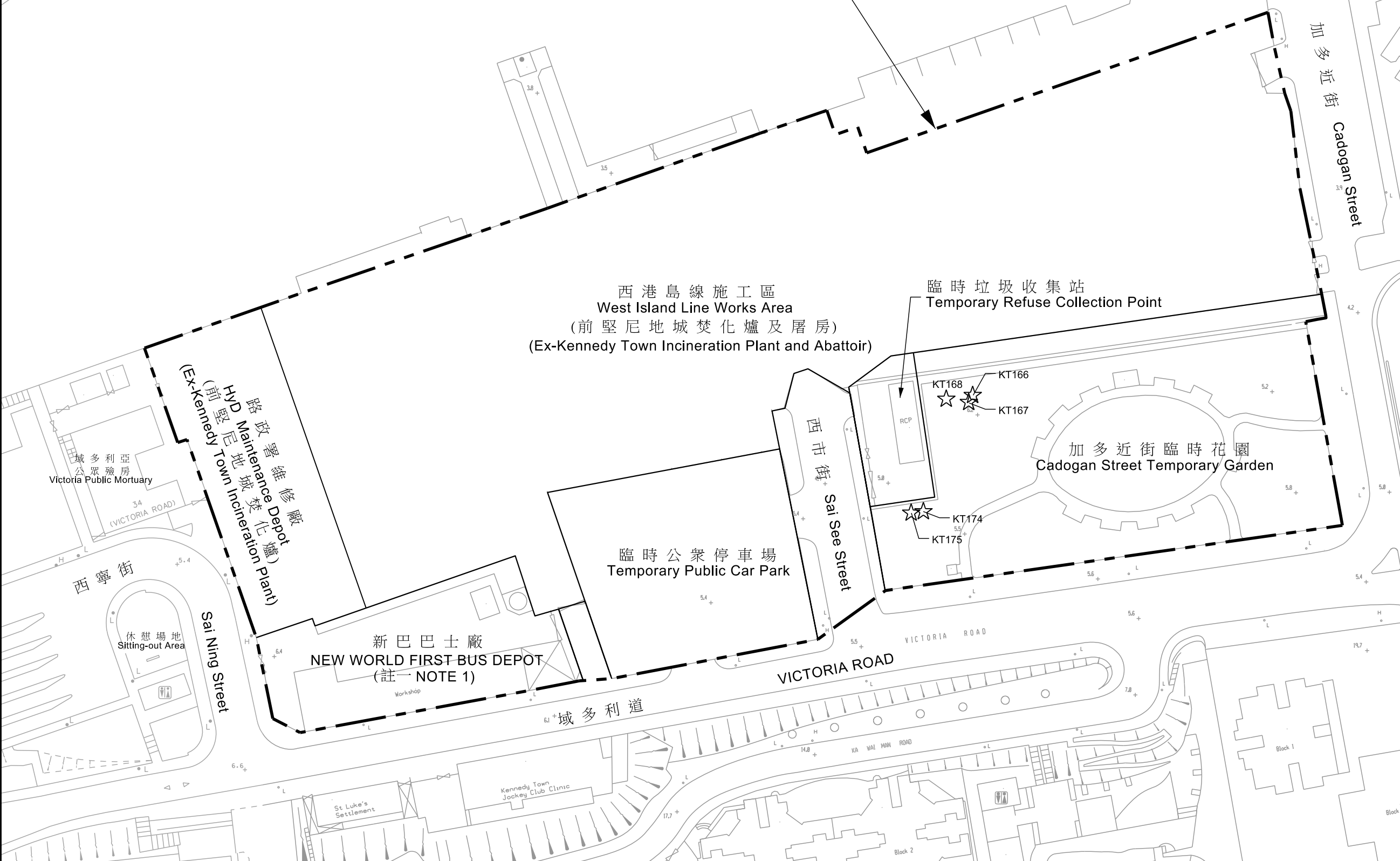
- 1. THE REMOVAL OF NEW WORLD FIRST BUS DEPOT IS NOT INCLUDED IN THE SCOPE OF 570CL. THE REMOVAL WORKS WILL BE CONDUCTED AND FUNDED BY THE NEW WORLD FIRST BUS SERVICES LIMITED.
- 一. 工程計劃570CL號的範圍並不包括新巴士廠拆除工程。新巴士廠拆除工程由新世界第一巴士服務有限公司負責進行及支付款項。

圖例 LEGEND :

- 土地除污工程範圍
GROUND DECONTAMINATION WORKS BOUNDARY
- 受影響的重要樹木位置
LOCATION OF IMPORTANT TREE AFFECTED



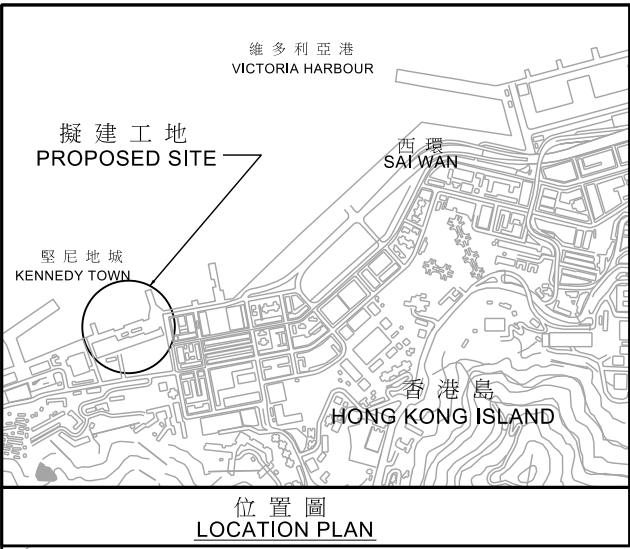
土地除污工程範圍
Ground Decontamination Works Boundary



工程名稱 Project Title
工務計劃項目第570CL號
前堅尼地城焚化爐、屠房及毗鄰用地
土地除污工程
PWP ITEM NO. 570CL
GROUND DECONTAMINATION WORKS
AT THE SITE OF EX-KENNEDY TOWN
INCINERATION PLANT / ABATTOIR
AND ADJOINING AREA

圖則名稱 Plan Title
平面圖
SITE PLAN

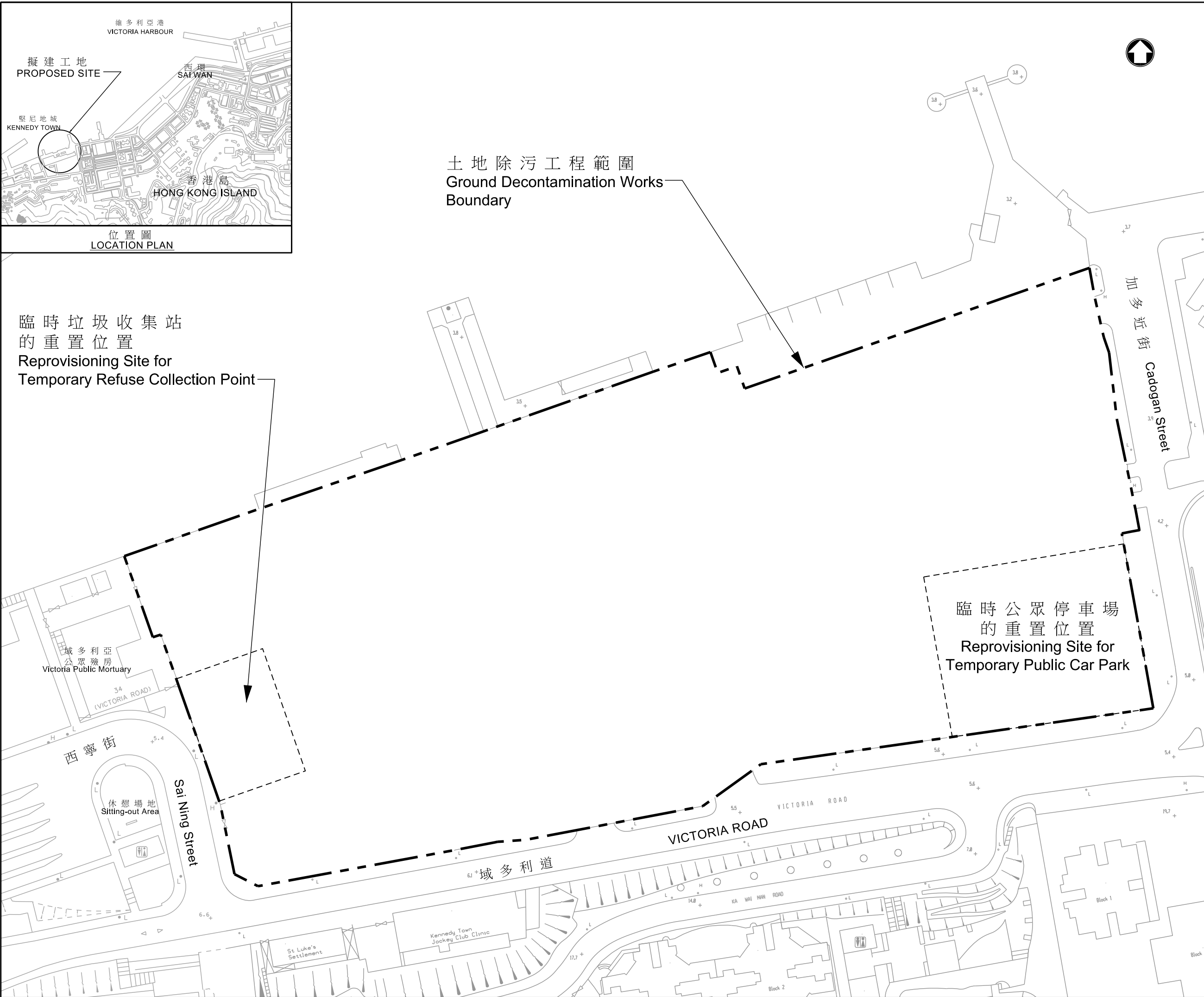
圖例 LEGEND :
 土地除污工程範圍
 GROUND DECONTAMINATION
 WORKS BOUNDARY



土地除污工程範圍
Ground Decontamination Works
Boundary

臨時垃圾收集站
的重置位置
Reprovisioning Site for
Temporary Refuse Collection Point

臨時公眾停車場
的重置位置
Reprovisioning Site for
Temporary Public Car Park



工程名稱 Project Title
 工務計劃項目第570CL號
 前堅尼地城焚化爐、屠房及毗鄰用地
 土地除污工程
 PWP ITEM NO. 570CL
 GROUND DECONTAMINATION WORKS
 AT THE SITE OF EX-KENNEDY TOWN
 INCINERATION PLANT / ABATTOIR
 AND ADJOINING AREA

圖則名稱 Plan Title
 臨時公眾停車場及
 臨時垃圾收集站的重置位置
 REPROVISIONING SITES FOR
 TEMPORARY PUBLIC CAR PARK AND
 TEMPORARY REFUSE COLLECTION
 POINT

Enclosure 3 to PWSC(2015-16)25

570CL – Ground decontamination works at the site of ex-Kennedy Town Incineration Plant/Abattoir and adjoining area

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2014 prices)

		Estimated man- months	Average MPS* salary point	Multiplier <small>(Note 1)</small>	Estimated fee (\$ million)
(a) Consultants' fees for contract administration <small>(Note 2)</small>	Professional	--	--	--	3.4
	Technical	--	--	--	2.4
				Sub-total	5.8
(b) Resident site staff (RSS) costs <small>(Note 3)</small>	Professional	276	38	1.6	31.5
	Technical	987	14	1.6	38.5
				Sub-total	70.0
Comprising –					
(i) Consultants' fees for management of RSS				1.5	
(ii) Remuneration of RSS				68.5	
				Total	75.8

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS cost supplied by the consultants (as at now, MPS point 38 = \$71,385 per month and MPS point 14 = \$24,380 per month).
2. The consultants' staff cost for the contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of **570CL**. The construction phase of the assignment will only be executed upon Finance Committee's approval to upgrade **570CL** to Category A.
3. The actual man-months and fees will only be known after completion of the construction works.

570CL – Ground decontamination works at the site of ex-Kennedy Town Incineration Plant/Abattoir and adjoining area

Tree No. ⁽¹⁾	Species		Measurements			Amenity value ⁽²⁾	Form	Health condition	Structural condition	Suitability for transplanting ⁽³⁾		Conservation Status	Recommen-dation
	Scientific name	Chinese name	height (m)	DBH ⁽⁴⁾ (mm)	crown spread (m)	(good / fair / poor)				(high / medium / low)	Remarks		(retain / transplant / fell)
KT166	<i>Aquilaria sinensis</i>	土沉香	11.3	283	6.2	Poor	Poor	Fair	Poor	Low	<ul style="list-style-type: none"> Contaminated with heavy metal and hydrocarbon Presence of contaminants has an adverse impact on tree health Poor amenity value With poor form and structural condition On slope Codominant stems Unbalanced canopy With included bark Extremely low survival rate after transplanting 	Listed in <i>Rare and Precious Plants of Hong Kong</i> but common in Hong Kong and currently not under any particular threat	Fell
KT167	<i>Aquilaria sinensis</i>	土沉香	10.2	146	4.8	Poor	Poor	Fair	Fair	Low	<ul style="list-style-type: none"> Contaminated with heavy metal and hydrocarbon Presence of contaminants has an adverse impact on tree health Poor amenity value With poor form On slope Unbalanced canopy With dead branches Extremely low survival rate after transplanting 	Listed in <i>Rare and Precious Plants of Hong Kong</i> but common in Hong Kong and currently not under any particular threat	Fell

Tree No. ⁽¹⁾	Species		Measurements			Amenity value ⁽²⁾	Form	Health condition	Structural condition	Suitability for transplanting ⁽³⁾		Conservation Status	Recommendation (retain / transplant / fell)
	Scientific name	Chinese name	height (m)	DBH ⁽⁴⁾ (mm)	crown spread (m)	(good / fair / poor)				(high / medium / low)	Remarks		
KT168	<i>Aquilaria sinensis</i>	土沉香	11.8	161	3.0	Poor	Poor	Fair	Fair	Low	<ul style="list-style-type: none"> Contaminated with heavy metal and hydrocarbon Presence of contaminants has an adverse impact on tree health Poor amenity value With poor form On slope With stubs, pruned wounds and broken stems Low live crown ratio Extremely low survival rate after transplanting 	Listed in <i>Rare and Precious Plants of Hong Kong</i> but common in Hong Kong and currently not under any particular threat	Fell
KT174	<i>Ailanthus fordii</i>	常綠臭椿	12.0	332	6.0	Fair	Fair	Poor	Fair	Low	<ul style="list-style-type: none"> Contaminated with heavy metal and hydrocarbon Presence of contaminants has an adverse impact on tree health With poor health condition Extremely low survival rate after transplanting 	Listed in <i>Rare and Precious Plants of Hong Kong</i> but actively propagated and widely cultivated in Hong Kong as roadside trees and ornamental trees	Fell
KT175	<i>Ailanthus fordii</i>	常綠臭椿	12.0	310	5.0	Fair	Poor	Fair	Fair	Low	<ul style="list-style-type: none"> Contaminated with heavy metal and hydrocarbon Presence of contaminants has an adverse impact on tree health With poor form Extremely low survival rate after transplanting 	Listed in <i>Rare and Precious Plants of Hong Kong</i> but actively propagated and widely cultivated in Hong Kong as roadside trees and ornamental trees	Fell

¹ The above trees are not in the Register of Old and Valuable Trees.

² Amenity value of a 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.

³ Assessment has taken into account conditions of the tree 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).

⁴ Diameter at Breast Height (DBH) of a tree refers to its trunk diameter at breast height (i.e. measured at 1.3m above ground level)

Additional Remarks:

1. The trees are in direct conflict with the proposed decontamination works.
2. On-site tree preservation is not recommended because it necessitates on-site retention of contaminated soil (which contains heavy metals and hydrocarbons) and defeats the purpose of the proposed decontamination works.
3. Tree transplantation is considered impracticable because the soil in the rootball is contaminated with heavy metals and hydrocarbons. Tree transplantation will transfer these contaminants to the soil at the recipient locations, thereby contaminating the recipient site.
4. Decontamination of the tree rootball by “washing off” the contaminated soil before transplanting the trees to their recipient locations is also considered impracticable for the following reasons –
 - (a) by washing off all the soil in the rootball, all the micro-organisms associated with the tree roots will be washed away. This will have a serious adverse impact on tree health and substantially reduce the post-transplantation survival rate of the trees;
 - (b) washing off the soil from the tree roots will not only remove the beneficial micro-organisms associated with the tree roots, but also interrupt the plant hormone secretion of the trees, thereby causing additional impact on tree health; and
 - (c) as preparation for transplantation, root pruning operation is necessary. Physical injury and loss of fine roots (which is crucial to water and nutrient absorption) will be unavoidable. Washing off the soil from the pruned rootball will cause further injury to the tree roots, particularly the fine roots, and largely increase the risk of fungal infection. The survival rate of the trees after such operations is therefore expected to be extremely low.
5. The two concerned species *Aquilaria sinensis* and *Ailanthus fordii* are commonly cultivated in Hong Kong. The use of these two species for compensatory tree planting is therefore practicable and will be duly considered when formulating the detailed compensatory tree planting plan.