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政府總部
運輸及房屋局
運輸科
香港添馬添美道 2 號
政府總部東翼



Transport and
Housing Bureau
Government Secretariat
Transport Branch
East Wing, Central Government Offices,
2 Tim Mei Avenue,
Tamar, Hong Kong
電話 Tel. No.: 3509 8181
傳真 Fax No.: 2136 8017

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17 December 2013

Clerk to Panel on Transport
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong
(Attn: Ms. Macy NG)

By fax and email

Dear Ms. NG,

**Meeting of Legislative Council Panel on Transport
on 15 November 2013
“Central-Wan Chai Bypass and Island Eastern Corridor Link”
Supplementary Information**

At the captioned meeting, the Government was requested to furnish information on the following six items. Our reply is set out below.

- (a) A list of large infrastructural projects under the purview of the Transport and Housing Bureau (THB) the funding of which was approved based on the price adjustment factors projected within one year after the global financial tsunami in 2008.**

During the year following the 2008 global financial tsunami (i.e. during 2009), the Government announced two sets of price adjustment factors successively according to the then assumption on the trend rate of change in the prices for public sector building and construction output. Large infrastructural projects (with the original approved project estimate (“APE”) exceeding \$1 billion, and under the purview of THB), the funding of which was approved based on the project estimate (in money-of-the-day (“MOD”) prices) derived by applying such factors are at Annex I.

- (b) Reasons for the significant increase in the provision for price adjustment from \$3,532.4 million to \$10,491.4 million for the Trunk Road project, given that market fluctuation in labour and material costs had already been taken into account in the original estimate.**

Same as other public works projects, a provision of \$3,532.4 million for price adjustment was allowed under the established mechanism when funding approval for the APE of **579TH** was sought from the Finance Committee in July 2009. The increase/decrease in future costs was estimated based on the Government's assumption on the trend rate of change in the prices for public sector building and construction output in March 2009 and the anticipated cash flow of the project at the time.

According to the projections of March 2009, the prices for public sector building and construction output were assumed to increase by 2% per annum on average in the period from 2009 to 2013 and by 3% per annum from 2014 to 2019. Buffeted by the global financial tsunami and the resulting recession, the local economy fluctuated considerably in 2008 and 2009. Year-on-year economic contraction was recorded for four consecutive quarters from the fourth quarter of 2008 to the third quarter of 2009 (with a rate of 7.8% in the first quarter of 2009). The annual inflation rate in the period from July to November of 2009 as indicated by the underlying consumer price index plummeted to -0.3% from its peak of 6.3% in July/August 2008. As regards prices in the construction sector, various tender price indexes dropped in 2009, with some seeing even double-digit year-on-year decreases. The prices of many construction materials were also dragged down by the falling global commodity prices.

In subsequent years, however, following the successive introduction and long-term implementation of super-loose monetary policies by major economies after the financial tsunami to sustain their aggregate demands, there were rebounds in the global commodity prices in 2010 and 2011. Locally, the increase in the prices of construction materials was notable. Meanwhile, with the increase of construction output in Hong Kong, the supply and demand in the relevant labour markets became tight and wages went up. As a whole, year-on-year increase in the prices for public sector building and construction output was 2.9%, 5.9% and 6.3% in 2010, 2011 and 2012 respectively. The Government has also made gradual upward adjustments to the assumed figures of the prices for public sector building and construction output after 2009. The

latest assumption (as at September 2013) is that the prices for public sector building and construction output will rise by 6% per annum from 2013 to 2017, and by 5% per annum from 2018 to 2023. All these actual and forecast factors are higher than the assumptions in March 2009.

Moreover, there is difference between the original and current cash flow of the project taking into account the actual tender schedule of various works contract, works procedures adopted by the contractors, as well as the current works progress of the project as of now. Such change in cash flow also leads to a need for a higher provision for price adjustment.

Given the above reasons, the provision for price adjustment based on the latest increase in price adjustment factors announced by the Government and the latest estimated cash flow of **579TH** will increase by \$6,959.0 million (i.e. from \$3,532.4 million to \$10,491.4 million).

(c) A list of other large infrastructural projects under construction which had cost overrun, and the reasons for cost overrun for each project.

According to information provided by relevant Bureaux, large infrastructural projects (with the original approved APE exceeding \$1 billion) under construction which have been given approval for the APE increase and the reasons for such increase are at Annex II (not all projects as set out in Annex II are under the purview of THB).

(d) Of the proposed increase in the APE of \$7,934.3 million for the Trunk Road project, the amount of which was related to increase in staff cost.

Of the proposed additional funding of \$7,934.3 million, about \$6,959.0 million is for covering the necessary increase in provision for price adjustment under the original APE and the remaining \$975.3 million is for covering the increase in cost for the tunnel construction works.

Provision for price adjustment is basically an assessment at the macro level based on the trend rate of change in the prices for public sector building and construction output. It does not include a breakdown on the proportion of labour

cost. Notwithstanding that, a rough estimation based on recent years' records and information of the Highways Department ("HyD") indicates that the expenditure on the wages for construction workers generally accounts for about 30% of the contract expenses.

(e) The feasibility study report with supporting figures which rejected the proposal to extend the vertical noise barriers to Provident Centre in North Point under the Trunk Road project.

Local residents, District Council (DC) members and Legislative Council (LegCo) Members had raised their concerns over the traffic noise problem at Island Eastern Corridor near Provident Centre and Victoria Centre and put forward various proposals. Having reviewed and assessed different options for the provision of noise barriers, the Environmental Protection Department ("EPD") and HyD had exchanged views with the residents, as well as DC and LegCo Members.

Regarding one of the proposals suggesting the installation of noise barriers at a section of Island Eastern Corridor opposite to Provident Centre, the EPD and HyD had jointly conducted a study on traffic noise mitigation technologies and measures as requested by the residents and LegCo Members. The study was completed early this year and the study report (see Annex III - in Chinese only) was passed to the relevant LegCo Members for reference in March 2013.

As pointed out in the study report, the Government has examined and assessed various proposals on the provision of noise barriers at Island Eastern Corridor near Provident Centre. It has been concluded that the installation of noise barriers is not feasible given the loading of the road section concerned, space availability, statutory requirements and other reasons. However, the Government has been proactively exploring alternatives for implementation, including (i) timely repairs to the expansion joints along the road section concerned; (ii) applying low noise road surfacing at suitable locations at that section; and (iii) subsequent checks and maintenance on a regular basis, with a view to alleviating the traffic noise nuisance of the highway on the neighbourhood. HyD has finished the abovementioned works items (i) and (ii), as well as will continue with works item (iii).

(f) Among the contractors engaged in the construction of the Trunk Road, the proportion of which were mainland companies.

The contractors undertaking the 12 works contracts under Central-Wan Chai Bypass and Island Eastern Corridor Link are either independent construction firms or joint ventures. Among the 12 participating contractors, 3 are registered on the mainland, accounting for 25% of all construction companies involved (the above figures are based on the countries/regions where the companies are registered).

Yours sincerely,

(Miss Carrie LEE)
or Secretary for Transport and Housing

cc: Secretary for Development	(Attn.: Mr. John KWONG)
Secretary for Financial Services and the Treasury	(Attn.: Ms. Joyce HO)
Director of Highways	(Attn.: Mr. Lawrence HO)

Annex I

**Major infrastructural projects (with the original APE exceeding \$1 billion)
the funding of which was approved based on the project estimate
(in MOD prices)
derived by applying the price adjustment factors announced in 2009
(under the purview of the THB)**

Project No.	Project title
8003QR	Hong Kong-Zhuhai-Macao Bridge — funding support for Main Bridge*
6819TH	Traffic improvements to Tuen Mun Road Town Centre section
6579TH	Central-Wan Chai Bypass and Island Eastern Corridor Link
8001QR	West Island Line — funding support
6053TR	Hong Kong section of Guangzhou-Shenzhen-Hong Kong Express Rail Link — construction of railway works
6057TR	Hong Kong section of Guangzhou-Shenzhen-Hong Kong Express Rail Link — construction of non-railway works

*Applying the Renmenbi exchange rate fluctuation as a replacement of price adjustment factor

Annex II

**Large infrastructural projects (with the original approved APE exceeding \$1 billion) under construction
and which have been given approval for APE increase**

Project no.	Project title	Original APE (\$ billion)	Latest APE (legislative year in which approval was given) (\$ billion)	Reasons for approval to APE increase
B564CL	Development near Choi Wan Road and Jordan Valley	1.8	2.0 (2004-05)	Increase in project cost to cater for extra works due to worse-than-anticipated geotechnical condition.
6746TH	Reconstruction and improvement of Tuen Mun Road	4.6	6.8 (2008-09)	Increase in project cost to cover higher-than-expected tender prices, extra resident site staff cost incurred by the increase in the number of works contract, corresponding adjustment to project contingency; and increase in provision for price adjustment.
4329DS	Upgrading of Pillar Point Sewage Treatment Works	1.4	1.9 (2009-10)	Increase in project cost to cater for higher-than-expected tender prices; and increase in provision for price adjustment.
5045CG	District Cooling System at Kai Tak Development	1.7	3.1 (2010-11 & 2012-13)	Increase in project cost to cater for project design development and changes in construction requirements, phased implementation of works, unexpected site constraints and higher-than-expected tender prices.

Project no.	Project title	Original APE (\$ billion)	Latest APE (legislative year in which approval was given) (\$ billion)	Reasons for approval to APE increase
8008MA	Redevelopment of Caritas Medical Centre, phase 2	1.2	1.7 (2010-11)	Increase in project cost to cover higher-than-expected tender prices; and increase in provision for price adjustment.
6844TH	Hong Kong-Zhuhai-Macao Bridge — Hong Kong Link Road	16.2	25 (2011-12)	Increase in project cost to cover additional cost due to delay in construction programme, higher-than-expected risk assessment by tenderers, corresponding adjustment to project contingency; and increase in provision for price adjustment.
6819TH	Traffic Improvements to Tuen Mun Road Town Centre Section	1.8	2.0 (2012-13)	Increase in project cost to cover higher-than-expected tender prices; and increase in provision for price adjustment.

In conclusion, the reasons for increase in APE could be summarized as increase in project cost (and the relevant provision for price adjustment) to cope with additional cost brought about by unforeseeable circumstances, such as worse-than-anticipated geotechnical condition, higher-than-expected tender prices, as well as increase in provision for price adjustment to cope with higher-than-expected rises in wages and materials prices.

東區走廊近和富中心及維多利中心
緩減道路噪音技術措施研究報告

目錄

1. 背景
2. 香港的整體交通噪音政策
3. 東區走廊及中環灣仔繞道工程
4. 按照現有道路交通噪音政策下考慮興建隔音屏障
5. 已實施的消減交通噪音措施
6. 總結

1. 背景

就東區走廊近和富中心及維多利中心的交通噪音問題，鄰近居民、區議員及立法會議員都表示關注，並曾提出不同的興建隔音屏障的建議。環保署及路政署過去亦已曾就各種興建隔音屏障的建議進行檢視和評估，並將有關結果作出回覆。就近期各方面提出有關興建較輕型及百葉式型隔音屏障的提議，環保署已再次邀請路政署作出評估。本報告旨在就過去各種興建隔音屏障的建議和可行性的檢視及評估結果的最新發展，以及為緩解東區走廊交通噪音對上址居民影響所採取的措施作綜合報告。

2. 香港的整體交通噪音政策

香港是一個高密度發展的地區，因為過往城市的自然發展，很多過往建築的道路和行車天橋都是靠近甚至穿越住宅區，造成各樣的環境問題，例如交通噪音。隨着社會的整體發展，市民對生活質素的要求亦日漸提高，我們亦會逐步建立城市規劃系統和制定各項環境指標，逐步邁向長遠可持續發展的目標。

自80年代中，我們在《香港規劃標準與準則》加入交通噪音標準，在規劃新建道路時，有關政府部門或發展商必須確保噪音感應強的地方的噪音水平符合標準。另外自1998年4月起，交通噪音標準更被納入《環境影響評估條例》（《環評條例》）下的技術備忘錄內，成為《環評條例》指定工程項目的法定道路交通噪音限制。所以新建的主要道路，都必須按交通噪音標準來設計。

雖然我們引入了規劃標準和《環評條例》，很多過往已建築的道路和行車天橋所造成的交通噪音仍然廣泛影響市民。簡單來說，沒有簡單的方法或技術可以把香港的整體交通噪音水平快速地降低下來。為盡可能紓減現有道路噪音對鄰近居民的影響，政府在2000年開始引入政策，在切實可行和資源許可的情況下，研究如何在交通噪音水平超逾70分貝（A）L₁₀（1小時）的現有道路（包括貫穿舊區的行車天橋和快速公路）加建隔音屏障和隔音罩，或使用低噪音物料重鋪路面，減少噪音影響。

現有路段可否加建隔音屏障和隔音罩，除交通噪音水平和資源分配外，技術可行性是必要考慮條件，當中必須考慮的準則包括：

- 一. 隔音屏障或隔音罩會否阻塞緊急通道或妨礙救火工作；
- 二. 隔音屏障或隔音罩會否影響道路安全或阻礙行人和車輛進出；及
- 三. 是否有足夠空間及結構承托力（適用於天橋）加建隔音屏障或隔音罩。

自2001年開始，政府已按以上政策在本港17個現有路段進行加建隔音屏障工程，其中8個路段的加建工程已完成，其餘9段的隔音屏障正在興建中。只是由於種種客觀條件限制，絕大多數的現有道路和天橋在加建隔音屏障或隔音罩都有很大難度；通常沒有足夠空間及結構承托力是最常見的原因。

使用低噪音物料重鋪路面是另一種減少噪音的方式，只是使用低噪音物料時，必須要考慮有關道路具體的交通情況，和使用的車輛種類等。因為在斜路或是很多重型車輛起步或剎停的地點使用這些物料，會導致路面快速損毀，反而造成更大噪音。政府已經選取21個合適高速公路路段（車速限制為時速70公里或以上）重鋪低噪音物料，減音成效可達5分貝（A）。此外，我們再揀選了90多個地區性路段，測試低噪音鋪路物料的減音及工程效益。至今，我們已完成了59個地區性路段的鋪設工程，減音成效亦可達2分貝（A）。

3. 東區走廊及中環灣仔繞道工程

東區走廊天橋是於70至80年代設計和建造的主幹道路，連接銅鑼灣及柴灣，疏導連接該處交通。而中環灣仔繞道工程是根據相關運輸政策立項興建，旨在紓緩現時港島北沿線的交通擠塞情況，屬《環評條例》指定工程項目(參閱圖1)。

在該繞道工程下，介乎維多利中心一座至顯理中學前面一段因該工程而需拆卸及改建的東區走廊，將按照環境許可證的要求設置隔音罩，以緩減繞道落成及通車後的交通噪音。環評報告亦指出，當繞道工程落成及通車後，將提供更便捷行車隧道供往來中區和東區的交通使用，但預期繞道通車後的交通流量並無明顯上升而導致和富中心的交通噪音有重大改變。另外，由於往來中區和東區的主車流將使用新建

的行車隧道，於維多利中心旁的東區走廊交通流量預計較現時減少約一半，交通噪音水平較現時會因而下降。

至於在和富中心及維多利中心旁的兩段現有東區走廊，並不會因繞道工程拆卸及重建，屬繞道項目工程範圍以外的現有道路，不受繞道工程影響，因此並不能透過繞道項目在該兩段現有道路設置隔音屏障。

4. 按照現有道路交通噪音政策下考慮興建隔音屏障

就有關在東區走廊近和富中心及維多利中心的交通噪音問題，環保署過去曾多次就鄰近居民、區議員及立法會議員們的建議，邀請路政署評估和檢視在鄰近和富中心及維多利中心段東區走廊天橋上加建隔音屏障包括普通直立式隔音屏障、半密封式隔音罩及全密封式隔音罩之可行性。路政署認為基於現有橋樑結構設計的局限，在這段東區走廊橋體上加裝上述之隔音屏障或隔音罩在橋樑結構技術上並不可行。環保署及路政署已就該等評估結果回覆有關居民及議員。

而就較近期各方面關於興建較輕型及百葉式型隔音屏障所提出的提議，環保署已再次邀請路政署作出評估。評估結果顯示，採用較輕物料建造隔音屏障雖然較傳統設計的隔音屏障減少了附加在現有天橋的重量荷載，但並不能減少因隔音屏障而附加在橋樑的橫向風力。基於現有的橋樑結構設計並沒有計算加建隔音屏障的負荷，路政署認為在這段東區走廊加建較輕型隔音屏障或百葉式型隔音屏障於橋樑結構上並不可行。總括而言，由於種種現存限制諸如承托力、空間和法例要求等原因，在該等路段興建隔音屏障或隔音罩並不可行(詳情見附件甲)。

5. 已實施的消減交通噪音措施

就鄰近和富中心及維多利中心等東區走廊路段，路政署已採取下列措施以減低該處的交通噪音：

i) 維修伸縮接縫

保持路面的接駁位盡量平滑，可確保行車安全，同時，亦可減低行車時產生的噪音。路政署經檢查和富中心及維多利中心一段東區走廊上的伸縮接縫後，建議維修在和富中心對出的一段東區走廊上的13個伸縮接縫。有關工程已於2012年10月展開，現完成了9個。另外4個，亦預計在2013年第2季前陸續完成，而噪音情況亦預期可獲相應改善(參閱圖2)。

ii) 鋪設低噪音物料

路政署已為維多利中心及和富中心對出的東區走廊等路段，鋪上低噪音物料。該物料除了能夠提高下雨天時的行車安全外，更能紓減可達5分貝(A)的道路交通噪音。資料顯示，路政署於2005年已重鋪在和富中心對開的一段東區走廊的路面。該署亦於2012年3月及4月的檢查中發現上述路段的路面情況仍然理想，故暫時未有計劃重鋪。而維多利中心段西行及東行綫方面，路政署亦已分別於2011年第4季及2012年第2季重鋪了低噪音物料。

至於加厚東區走廊低噪音物料的可行性，路政署指出根據現時的指引，快速公路所鋪設的面層物料厚度為30毫米。加厚面層物料的厚度並不會提高行車安全，所以未能進一步跟進建議。

就上述兩個路段，該署會定期檢查路面物料的情況，並會在有需要時進行維修或改善工程，以確保行車安全，並將交通噪音減低。

6. 總結

政府已就東區走廊近維多利中心及和富中心興建隔音屏障的各項建議作出探討和評估，雖然在該兩段道路都因為種種如承托力、空間和法例要求等原因，而未能在上址興建隔音屏障，政府已積極尋求及落實各種方法，當中包括正依照定出的時間表，維修東區走廊有關路段上的伸縮接縫，及在相關路段的合適位置鋪上低噪音路面和定期檢視和維修等，以減低源自東區走廊的交通噪音對附近居民的影響。

雖然交通噪音問題沒有簡單快捷的解決方法，政府明白市民關注道路交通噪音問題。政府會繼續從多方面着手防止道路交通噪音問題，透過規劃和環境影響評估，要求新發展區、大規模發展計劃和新建道路

採取最適當的噪音緩解措施，避免製造新的噪音問題，令香港邁向可持續發展的目標。環保署會繼續留意措施成效，我們亦會透過法定車輛噪音標準，及在切實可行的範圍內，繼續留意海外國家有沒有新技術，以盡量減少交通噪音對居民造成的影響。

環境保護署

路政署

2013年3月

興建各種隔音屏障可行性的綜合總結

<p>全密封式隔音罩, 半密封式隔音罩, 隔音屏障</p>	<p>路政署指出有關的天橋是於70至80年代設計和建造的，橋樑結構設計主要是根據當時的要求；包括考慮橋體自身的承重、車輛重量以及橋體面對的風力等的荷載。如於現有橋身上額外加建隔音屏障，會帶來額外的重量及不能承受的風力負荷。該署認為在這段東區走廊橋體上加裝隔音屏障在橋樑結構技術上並不可行。</p>
<p>較輕型隔音屏障</p>	<p>採用較輕物料建造隔音屏障雖然較傳統設計的隔音屏障減少了附加在現有天橋的重量荷載，但並不能減少因隔音屏障而附加在橋樑的橫向風力。基於現有的橋樑結構設計並沒有計算加建隔音屏障的負荷，路政署認為在這段東區走廊加建較輕型隔音屏障於橋樑結構上並不可行。</p>
<p>百葉型隔音屏障</p>	<p>隔音屏障可以阻擋噪音影響居民，但隔音效果取決於民居是否置於屏障的陰影區(Shadow Zone)及屏障是否有空隙，固此百葉式屏障的隔音效能很差。應居民查詢，環保署及路政署亦探討採用百葉型隔音屏障於東區走廊的可行性。環保署參考海外隔音屏障的設計，過去只有英國及日本曾經在百葉式屏障作過研究及試驗，但因隔音效能太差而並沒有任何實際安裝的例子。然而，路政署的探討亦指出，雖然百葉型隔音屏障可降低風力荷載，但正如傳統設計的隔音屏障，這些設計也將對現有的橋樑結構帶來不能承受的額外負荷。</p>

獨立隔音屏障

若於和富中心前的現有東廊橋體旁豎建獨立隔音屏障，需要在維港中興建地基和橋墩以支撐新的獨立隔音屏障結構。然而，根據律政司的意見，根據《保護海港條例》第2條對填海的定義，有關地基將被視為填海。根據上述條例的第3(1)條，海港須作為香港人的特別公有資產和天然財產而受到保護和保存，而為此目的，現設定一個不准許進行海港填海工程的推定。

就維多利中心路段方面，要在現有東廊橋體旁豎建獨立隔音屏障空間相當有限。當中可能要佔用食物環境衛生署(食環署)威菲車房的土地。有關工程將影響威菲車房，由於會影響食環署威菲車房的公共服務，於維多利中心段豎建獨立隔音屏障亦不可行。

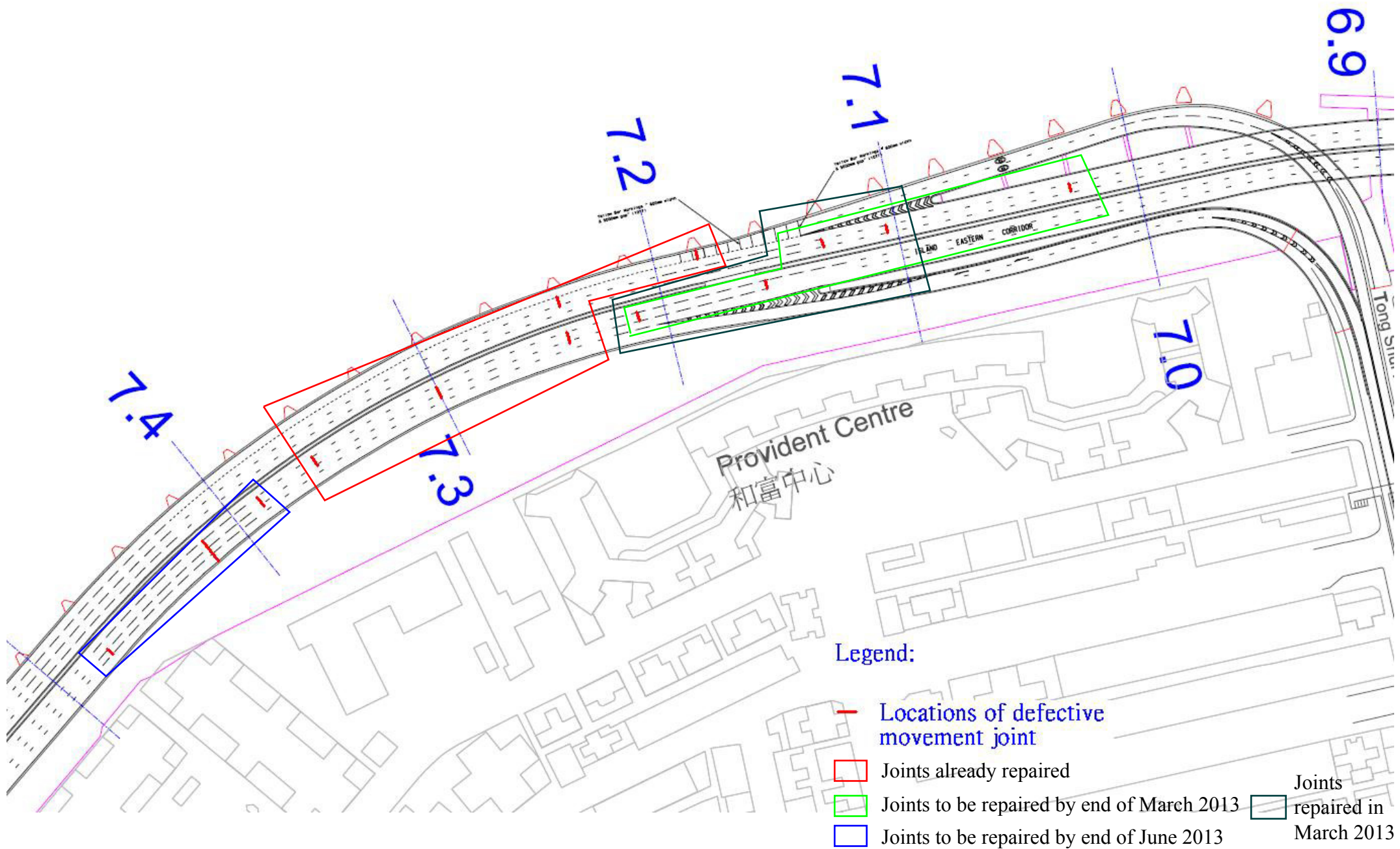


圖2 : Location plan for defective movement joint at IEC near Provident Centre