

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 706 - HIGHWAYS

#### Transport - Roads

#### **39TR - West Rail (phase 1) - essential public infrastructure works for Sham Shui Po section**

Members are invited to recommend to Finance Committee the upgrading of **39TR** to Category A at an estimated cost of \$731.9 million in money-of-the-day prices for the construction of the essential public infrastructure works for the West Rail (phase 1) Sham Shui Po section.

### PROBLEM

The existing road network and transport interchange facilities around the future Yen Chow Street Station and Mei Foo Station of the West Rail (phase 1) is insufficient to cope with the future traffic demand upon the commissioning of the West Rail (phase 1) in 2003.

### PROPOSAL

2. The Director of Highways (DHy), with the support of the Secretary for Transport, proposes to upgrade **39TR** to Category A at an estimated cost of \$731.9 million in money-of-the-day (MOD) prices for the construction of the essential public infrastructure works (EPIW) for the Sham Shui Po section of the Kowloon-Canton Railway Corporation (KCRC)'s West Rail (phase 1) project.

**/PROJECT .....**

**PROJECT SCOPE AND NATURE**

3. The scope of **39TR** comprises -

(a) **Yen Chow Street (YCS) Station sub-section**

- (i) construction of an at-grade public transport interchange (PTI) to serve the YCS Station of the West Rail (phase 1);
- (ii) construction of a 3-kilometre long three-lane southbound carriageway of Road P1 (including a 1.6 kilometres long elevated road section) between Road D3 and Hoi Fai Road, with slip roads connecting to Yen Chow Street West, Tonkin Street West, Hing Wah Street West and Road D3;
- (iii) reconstruction of the road junction of Sham Mong Road/Yen Chow Street West;
- (iv) realignment and widening of about 500 metres of the Road P1 northbound carriageway between Tonkin Street West and Yen Chow Street West, from three-lane to four-lane;

(b) **Mei Foo (MEF) Station sub-section**

- (i) construction of two bus lay-bys, a signalised at-grade pedestrian crossing, a pedestrian access ramp and a staircase at Lai King Hill Road immediately north of MEF Station;
- (ii) widening of about 150 metres of Lai Wan Road beneath the Kwai Chung Road to a 10 metre-wide carriageway, with additional space for accommodating a kerbside taxi stand, lay-by for general vehicles and a mini-roundabout at the junction with Broadway; and

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- (c) associated road reconstruction, drainage, noise mitigation measures, street lighting, slope and landscaping works for the Sham Shui Po section.

## JUSTIFICATIONS

4. In December 1997 and February 1998, the KCRC completed the West Rail Southern Area and Central Area Technical Studies respectively which established the need to provide a package of EPIW, as described in paragraph 3 above, to tie in with the commissioning of the YCS Station and the MEF Station of the West Rail (phase 1) in 2003.

### **Yen Chow Street Station sub-section**

5. We need to build a PTI with associated vehicular and pedestrian access to the YCS Station to facilitate convenient interchange with other modes of transport for commuters. This PTI will include a franchised bus station with 6 bays, 2 green minibus stands for 8 vehicles, a taxi stand with a capacity for 18 taxis and a general loading area for 10 vehicles.

6. We need to build the southbound carriageway of Road P1 to enhance connections with the West Kowloon Highway and local developed areas. The West Rail (phase 1) project however requires part of the Road P1 southbound carriageway, which overlaps with the YCS Station and the rail tracks, to be built as an elevated link. As a result, we need to construct slip roads connecting the elevated link to Yen Chow Street West, Tonkin Street West, Hing Wah Street West and the Road D3. We also need to re-construct the junction of Sham Mong Road/Yen Chow Street to raise it to a higher level. In addition, due to the close proximity of the adjacent sites which have been earmarked for public housing development after the design of road P1 was finalised, we will incorporate low noise road surfacing on the proposed carriageway and review the need for erecting noise barriers along road P1 so as to help optimise the development potential of these sites. The design of the housing development at these sites is still being developed, and the concerned departments will liaise with Housing Department to determine what would be the most cost-effective arrangement for noise mitigation. Technical information on the estimated traffic noise impacts on the sites adjacent to the road and our policy on noise mitigation for public road are set out in the Enclosure.

7. To accommodate the future passenger platform for interchange with the Tung Chung Line of Airport Railway and cope with the anticipated increase in traffic demand upon the commissioning of the West Rail (phase 1), we need to realign a 500 metres section of the Road P1 northbound carriageway and widen the road from three-lane to four-lane.

#### **Mei Foo Station sub-section**

8. In anticipation of the increasing demand for bus services at Lai King Hill Road (the western access of the MEF Station) upon the commissioning of the railway, we propose to form bus lay-bys at both directions of the Lai King Hill Road to serve the MEF Station. The design of the new bus lay-bys will provide clear and safe passage to other vehicles using Lai King Hill Road. Traffic studies indicate that upon commissioning of the West Rail (phase 1) in 2003, the additional traffic from the West Rail (phase 1) in Lai King Hill Road will be about 30 vehicles per hour during peak hours. In addition to bus lay-bys, we also need to provide a signalised pedestrian crossing across the road, a staircase and a pedestrian access ramp for connection with an existing footbridge from Lai King Hill Road to reach the MEF Station.

9. In order to cope with the additional traffic arising from West Rail (phase 1) and to facilitate convenient interchange with other modes of transport for commuters, we need to widen about 150 metres of the end section of Lai Wan Road (the eastern access of the MEF Station) to provide a 10-metre wide carriageway, with additional space for accommodating a kerbside taxi stand and lay-bys for general vehicles. The widened Lai Wan Road will continue to be a two-lane road but with sufficient space for a 45-metre long kerbside taxi stand and a 100-metre long lay-by for general vehicles. We will also provide a mini-roundabout at its junction with Broadway to improve vehicular flow.

10. Upon commissioning of the railway in 2003, we estimate that there will be about 70 additional vehicles per hour (taxis and private cars only; buses are prohibited) using Lai Wan Road during the morning peak hour. The residual flows onto private roads in Mei Foo Sun Chuen viz. Broadway and Nassau Street is estimated to be about 10 vehicles per hour. Traffic surveys in April and August 1998 showed that the traffic volume of these roads was about 400-450 vehicles per hour. Therefore, we consider the impact of the additional vehicular flow on road traffic, air quality and noise should not be significant.

11. We intend to entrust **39TR** to KCRC for implementation in conjunction with the Sham Shui Po section of the West Rail (phase 1) project in order to avoid interface problems between the two projects and to enable simultaneous completion of these works, by having one single contract package for related works in the same area. Past experience indicates that this arrangement could result in savings up to 10% of the estimated engineering cost. Details of the entrustment arrangement is at the Enclosure.

## FINANCIAL IMPLICATIONS

12. We estimate the cost of this project to be \$731.9 million in MOD prices (see paragraph 13 below), made up as follows -

	<b>\$ million</b>
(a) PTI to serve the YCS Station	63.1
(b) Road P1 southbound carriageway and associated slip roads package	336.7 <sup>1</sup>
(c) Reconstruction of junction of Sham Mong Road/Yen Chow Street West	47.5
(d) Widening of Road P1 northbound carriageway	42.8
(e) Improvements at Lai King Hill Road	13.2
(f) Modifications to Lai Wan Road	5.6
(g) On-cost <sup>2</sup> payable to the KCRC	84.0

/(h) ..

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<sup>1</sup> At the PWSC meeting on 28.4.99 when the previous submission of this paper (PWSC(1999-2000)9) was discussed, Members enquired about the estimated cost of road P1 if it is entirely on elevated structures. We estimate that road P1 would cost about \$467.3 million if it is wholly built as an elevated structure. The present cost estimate of \$336.7 million was derived on the basis that only 55% of road P1 will be elevated structure.

<sup>2</sup> An on-cost at 16.5% of the project base cost (i.e. items (a) to (f) in paragraph 12) will be payable to KCRC for undertaking the technical studies, design and construction supervision of EPIW under **39TR**.

(h) Contingencies	59.3	
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Sub-total	652.2	(at December 1998 prices)
(i) Provision for price adjustment	79.7	
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Total	731.9	(in MOD prices)
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13. Subject to approval, we will phase the expenditure as follows -

Year	\$ million (Dec 1998)	Price adjustment factor	\$ million (MOD)
1999 - 2000	14.4	1.02625	14.8
2000 - 2001	110.6	1.06217	117.5
2001 - 2002	209.6	1.09934	230.4
2002 - 2003	178.0	1.13782	202.5
2003 - 2004	82.3	1.17765	96.9
2004 - 2005	57.3	1.21886	69.8
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	652.2		731.9
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14. We have derived the MOD estimate on the basis of the Government's latest forecast of trend labour and construction prices over the period between 1999 and 2005. The KCRC will tender the works under lump sum contracts without price fluctuation.

15. We estimate the additional annually recurrent expenditure arising from the proposed works to be \$9.3 million.

## **PUBLIC CONSULTATION**

16. DHy and the KCRC consulted the Sham Shui Po Provisional District Board on 27 November 1997 and 26 March 1998<sup>3</sup> on the EPIW under **39TR** together with the West Rail (phase 1) project. The proposed EPIW did not receive any adverse comments but Members expressed concerns on the potential environmental impacts to be caused by the additional traffic arising from the future operation of the West Rail (phase 1). The KCRC has assessed the traffic and environmental impact over the areas in Sham Shui Po, Mei Foo, Lai Wan Road and Lai King Hill Road. KCRC's assessment confirmed that the EPIWs will not cause significant impact on the existing road network. The assessment further confirmed that the effects on air quality caused by the EPIWs are within stipulated standards.

17. We gazetted the EPIW under **39TR** together with the West Rail (phase 1) project under the Railways Ordinance on 3 October 1997. We received no objection to the EPIW.

## **ENVIRONMENTAL IMPLICATIONS**

18. Road construction and widening works at road P1, as described in paragraph 3 above, constitute a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance and an environmental permit is required for the construction and operation of the project. The EIA study, completed in June 1997, concluded that the environmental impact of the project can be controlled within established criteria and guidelines. In January 1998, the Advisory Council on the Environment endorsed the EIA report. Low road noise surfacing will be laid at the proposed road P1 and Sham Mong Road alongside the adjacent residential developments. We estimate the cost of implementing the noise mitigation measures to be \$7.8 million. We have included this cost in the overall project estimate.

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<sup>3</sup> As part of the consultation for the WR works, the provisional district board was briefed on the planned improvement works in Lai Wan Road. Residents of Mei Foo Sun Chuen have also been consulted on a number of occasions on the WR and EPIWs. They have also been provided with KCRC's newsletters on the progress of the West Rail (phase 1) project, including the improvement works at Lai Wan Road and Lai King Hill Road. The Administration will monitor the traffic situation at Lai Wan Road and Lai King Hill Road during the construction phase and after commissioning of the railway.

19. For short term construction impact, we will control the noise, dust and site runoff nuisances to comply with established guidelines and standards through the implementation of environmental pollution control measures and environmental monitoring and audit programme in the contract.

## LAND ACQUISITION

20. The proposed EPIW under **39TR** does not require any land resumption. However, modification works at Lai Wan Road to the south of Kwai Chung Road, as described in paragraph 3(b)(ii) above, requires the surrender of the portion of Lai Wan Road to the south of Kwai Chung Road which is a private road to Government under the lease conditions of the land disposal. The private road was surrendered to the Government without compensation on 14 January 1999.

## BACKGROUND INFORMATION

21. On 27 February 1998, Finance Committee (FC) approved an equity injection of \$29 billion from the Capital Investment Fund to the KCRC for construction of the West Rail (phase 1). We also informed FC at the meeting that the Government would need to carry out essential public infrastructure works in the order of \$3,135 million in 1997 prices<sup>4</sup> for the West Rail.

22. Following authorisation by the Chief Executive-in-Council in September 1998, the KCRC has commenced construction of the West Rail (phase 1). The first phase of West Rail will provide, by late 2003, a domestic passenger railway line serving Tuen Mun, Yuen Long, Tin Shui Wai, Kam Tin, Tsuen Wan West, Mei Foo and Sham Shui Po.

23. The Sham Shui Po section of the West Rail (phase 1) includes the construction of the YCS and MEF Stations and a section of railway tracks connecting the stations up to Ha Kwai Chung Tunnel.

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<sup>4</sup> This is the cost estimate of the EPIWs at the time of the FC submission. As most of the detailed design of the EPIWs have been finalised and some works have already been tendered, we now have a more accurate cost estimate of the works. The latest estimated cost of the EPIWs is at \$3,187 million in MOD prices as stated in the Enclosure.



24. On 12 March 1999, FC approved the upgrading to Cat. A of **42TR** for the EPIW of the West Rail (phase 1) Tsuen Wan section. We are also submitting the funding proposal for **40TR** for the EPIW of Kam Tin section to this meeting for endorsement. In addition, we plan to upgrade **37TR** and **38TR** for the EPIWs of the West Rail (phase 1) Yuen Long and Tuen Mun sections respectively to Category A in June 1999.

25. We included **39TR** in Category B in September 1998. We plan to entrust the construction of **39TR** to the KCRC under the works contracts for the YCS and MEF Stations and the associated railway line in June 1999. We aim to start the essential public infrastructure works in September 1999 and complete most of the construction works by November 2003.

26. We have previously submitted the funding proposal for **39TR** to Members on 28 April 1999<sup>5</sup>. Members raised queries on the arrangements for entrusting the EPIWs to KCRC and the environmental mitigation measures to be provided for road P1. We withdrew the paper in light of the comments made by Members. We have now set out the details of the above aspects in the Enclosure attached.

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Transport Bureau  
May 1999

(PWSC0123/WIN4)

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<sup>5</sup> Paper PWSC(1999-2000)9.

**39TR - West Rail (phase 1) - essential public infrastructure works for Sham Shui Po section**

**Essential Public Infrastructure Works**

Essential Public Infrastructure Works (EPIWs) are defined as works associated with the KCRC West Rail (phase 1) which are necessary to enable it to be opened for operation. Unlike the railway works, these works are owned by Government and will be handed over to Government for management, maintenance and control. Government is responsible for funding these items which are by nature public works.

2. We have identified 27 EPIW items, such as new road sections, bridges and footbridges to stations, public transport interchanges associated with stations, site formation and reclamation etc. that are required for West Rail (phase 1). A list of these works is at the Annex. These works, at an estimated total cost of \$3.187 billion (in MOD prices), is grouped into five PWP items on geographical basis as follows -

<b><u>Section</u></b>	<b><u>Project Estimate (MOD)</u></b>	<b><u>Present situation on funding</u></b>
Tsuen Wan	\$661M	Approved by PWSC and FC on 24.2.99 and 12.3.99 respectively.
Sham Shui Po	\$732M	To be considered by PWSC at this meeting.
Kam Tin	\$547M	- ditto -
Yuen Long	\$732M	To be submitted to PWSC in June.
Tuen Mun	\$515M	- ditto -
<b>Total</b>	<b>\$3,187M</b>	

### **The entrustment arrangement**

3. Due to the close proximity of the location of the EPIW to the sites on which railway works will be undertaken, entrusting the EPIW works to KCRC for implementation in conjunction with the West Rail (phase 1) project will have the benefit of improving the interface between the two kinds of works and enable simultaneous completion of the works, by having much simpler contractual arrangements for related works in the same area. We have therefore proposed to entrust the works, covering the technical studies, design and construction supervision to the KCRC.

4. The entrustment arrangement could lead to savings in the following ways -

- (a) the design, supervision and project management fees and other overheads will be lower as a result of economies of scale; and
- (b) there will be additional costs to the contractors in ensuring interface and co-ordination, if the EPIW and railway works are carried out by different contractors. Any delay in handing over or possession of the works site by different contractors will lead to contractual claims. These additional costs will be saved by carrying out the works under the same contract.

Based on our experience, this arrangement could result in savings up to 10% of the estimated engineering cost.

### **On Cost for the entrustment works**

5. Under the above entrustment arrangement, an on-cost, being 16.5% of the project base cost, is payable to KCRC for undertaking the EPIWs including technical studies, design and construction supervision. This percentage has been agreed with KCRC after negotiation and discussion. This percentage is in line with the on-cost percentage adopted for Airport Railway-related entrustment works between Government and MTRC, and the arrangement for the municipal councils and trading fund departments.

6. The Administration has estimated that the on-cost incurred by Government departments for undertaking such works to be about 17% of the engineering costs and hence considers the 16.5% on-cost for the entrustment works under West Rail (phase 1) reasonable.

### **Noise barriers along road P1**

7. Road P1 is essential for improving traffic in West Kowloon and to provide access to Yen Chow Street Station (YCS). When the planning layout of the area was finalised, the areas adjacent to the road (including Site 6 and Site 10) were zoned for industrial uses. Hence, the planning layout has not assumed any housing development nearby and has not provided any buffer between the road and the adjacent sites. The confined conditions make it very difficult to install noise barriers along road P1 at these locations without major cost and programming impacts.

8. Government policy places much importance on taking mitigation measures to ensure environmental impact of works are at an acceptable level. Where possible, a project will be designed with direct mitigation measures at source to abate any environmental impact, including traffic noise, arising from the project. The West Kowloon Expressway, which had been built before the change in land use was instigated, is the main source of traffic noise to these sites. Traffic noise assessment showed that noise barriers erected along road P1 will only contribute to a very limited reduction in noise impact to the two sites, in the order of 1dB(A), especially to the upper level floors of the developments. In other words, noise mitigation measures will still have to be put in place at the receiving end, i.e. at the two housing sites to mitigate the noise impact from sources other than traffic along road P1. The estimated cost of providing noise barriers along road P1 is in the order of \$100 million. Hence installation of such barriers will not be a cost-effective means to reduce the noise impacts on the developments at these two sites. The Administration has nevertheless included low noise road surfacing (at a cost of \$7.8 million) in the road works and will re-examine what would be the most cost-effective noise mitigation arrangement when the design of the residential developments concerned is ready.

9. Housing Department is developing a layout for the residential developments that can best meet the noise impact criteria, through suitable design such as set-back from the road (site 10); building above a podium (site 6); and the use of air conditioning (site 6 and site 10). The work to date has indicated that these measures would help to maximise the development potential of the respective sites given the severely constrained site conditions.

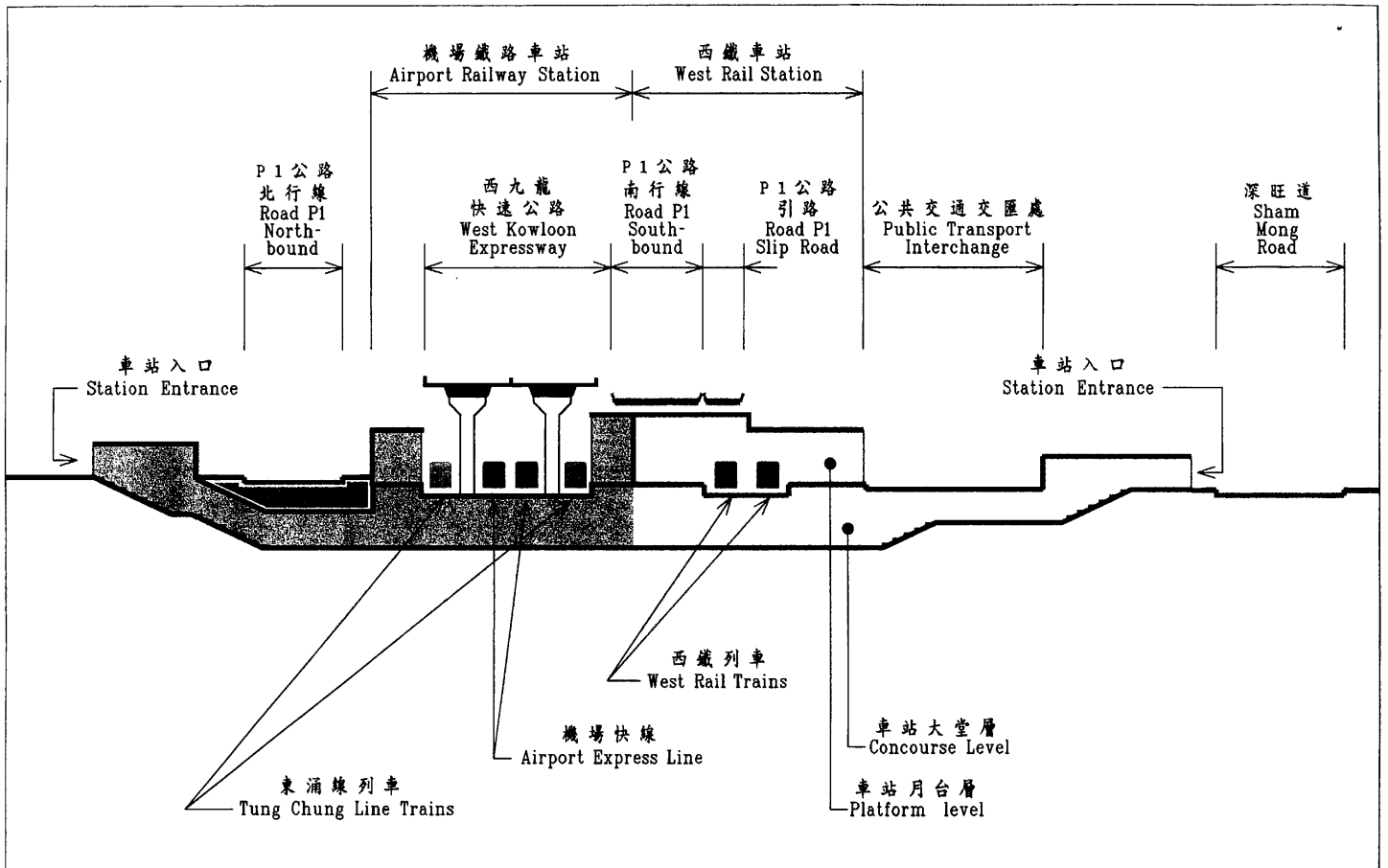
**Annex to the Enclosure**


**List of Essential Public Infrastructure Works  
for West Rail (phase 1)**

1. Public transport interchanges near Yen Chow Street Station
2. Construction and/or modification of Roads P1, D2, D4, D5, D6 and the associated slip roads to serve Yen Chow Street Station
3. Modification of Lai Wan Road to serve Mei Foo Station
4. Road lay-bys at Lai King Hill Road, pedestrian ramp and staircase link and the associated slope works at the north of Mei Foo Station
5. Public transport interchange near Tsuen Wan West Station
6. Construction of access roads, footpaths and modification to existing road junctions to serve Tsuen Wan West Station
7. Reclamation at Tsuen Wan West and the associated seawall and temporary seawall
8. Ma Tau Pa Culvert under Tsuen Wan West Reclamation
9. Tai Ho Culvert under Tsuen Wan West Reclamation
10. Public transport interchange near Kam Tin Station
11. Northern and Eastern Station Access Roads serving Kam Tin Station
12. Western Perimeter Road including retaining walls serving West Rail Depot
13. Footbridge, footpath and cycle path serving Kam Tin Station
14. Public transport interchanges near Yuen Long Station
15. Modification to Long Yat Road, construction of Roads L2, L3 and 6/L3 and

widening of junction at Long Yat Road and Castle Peak Road to serve Yuen Long Station

16. One footbridge crossing Road L2 and one footbridge extension crossing Castle Peak Road to serve Yuen Long Station
17. Public transport interchanges near Long Ping Station
18. Modifications to Yuen Long On Lok Road and Wang Lok Road to serve Long Ping Station
19. Public transport interchange near Tin Shui Wai Station
20. Modifications to Tin Fuk Road, Ping Ha Road and Tin Yiu Road to serve Tin Shui Wai Station
21. One footbridge crossing Ping Ha Road and one footbridge crossing Tin Fuk Road to serve Tin Shui Wai Station and its associated public transport interchange
22. Public transport interchanges near Tuen Mun North Station
23. Access ramps from Tsing Lun Road and Castle Peak Road, and service roads serving Tuen Mun North Station
24. Public transport interchange near Tuen Mun Centre Station
25. Improvements to Tuen Mun Heung Sze Wui Road, Yan Ching Street, Pui To Road, Ho Pong Street and Kin Fung Circuit to serve Tuen Mun Centre Station
26. Two footbridges crossing Tuen Mun Heung Sze Wui Road and one footbridge crossing Pui To Road to serve Tuen Mun Centre Station and its associated public transport interchange
27. Road Bridge from Kin Fung Circuit crossing the nullah to serve Tuen Mun Centre Station and its associated public transport interchange

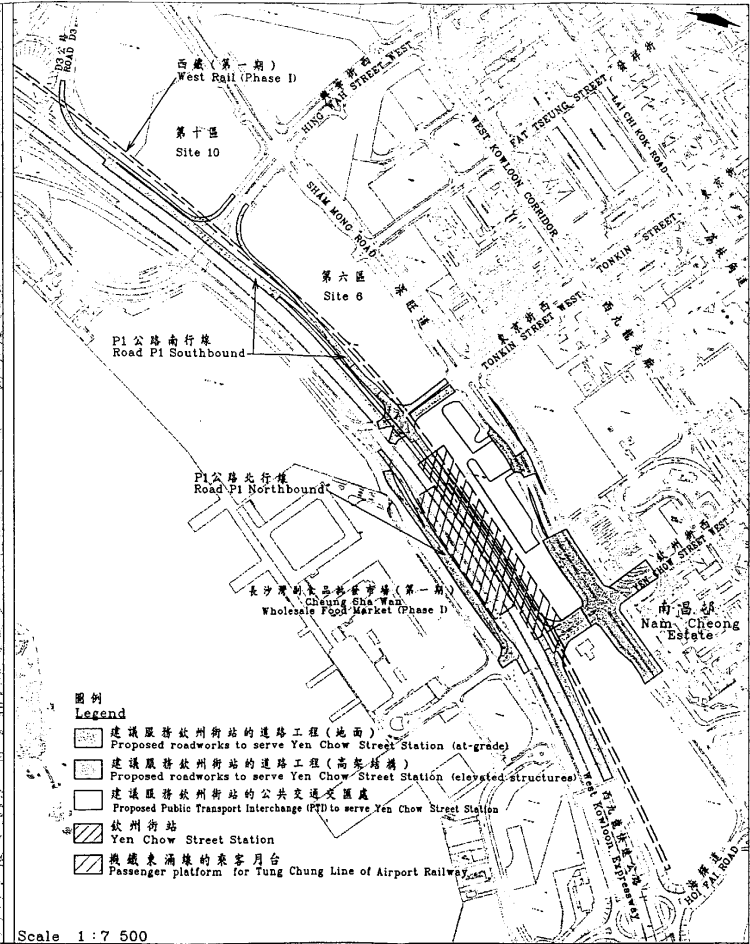
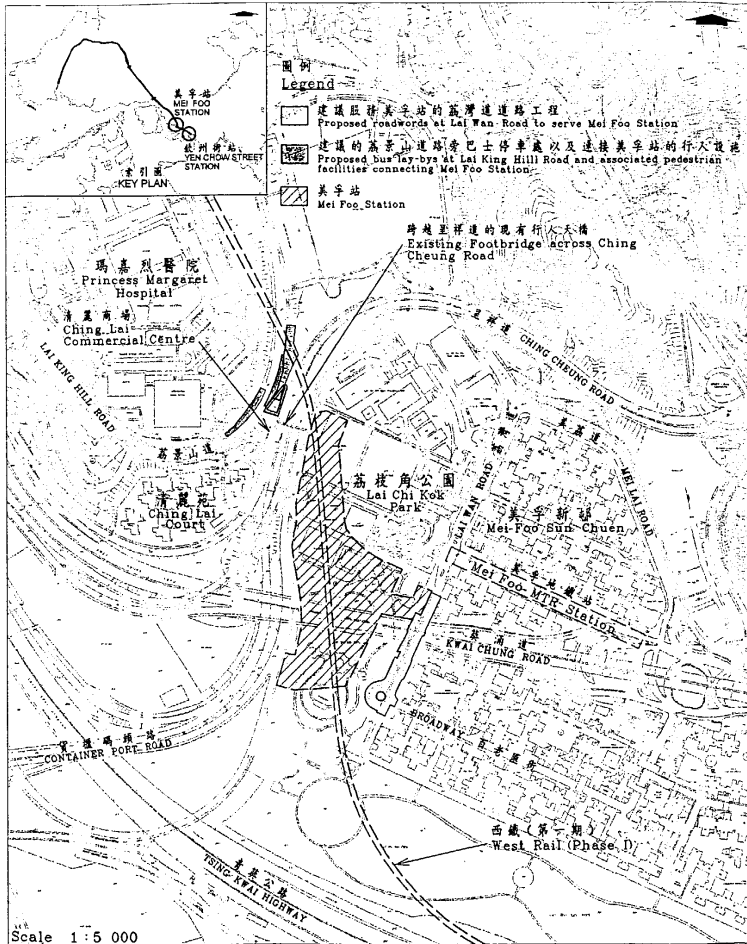


project no. 工程編號 <b>39TR</b> 九鐵西鐵(第一期) 典型橫切面於欽州街站-工程由九鐵執行 KCRC West Rail (Phase I) Typical Cross Section at Yen Chow Street Station- Works to be Constructed by KCRC	drawn by Y Y WOO	date 22/4/99	drawing no. RW9721	scale SCHEMATIC
	approved by T C CHUNG	date 22/4/99	 路政署 HIGHWAYS DEPARTMENT	
	office 鐵路拓展處 RAILWAY DEVELOPMENT OFFICE			

RTVWJLSC0001

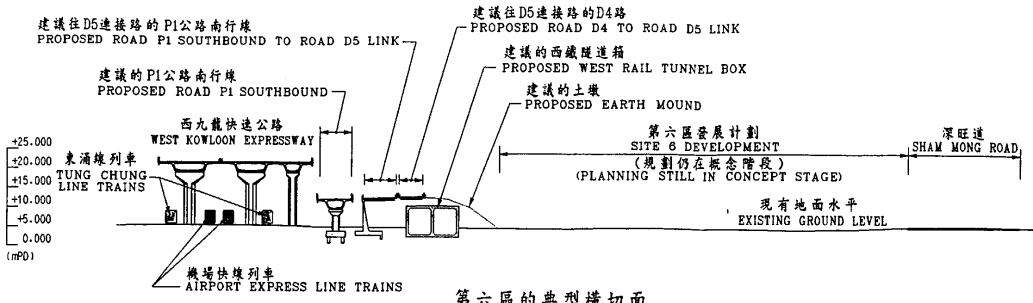
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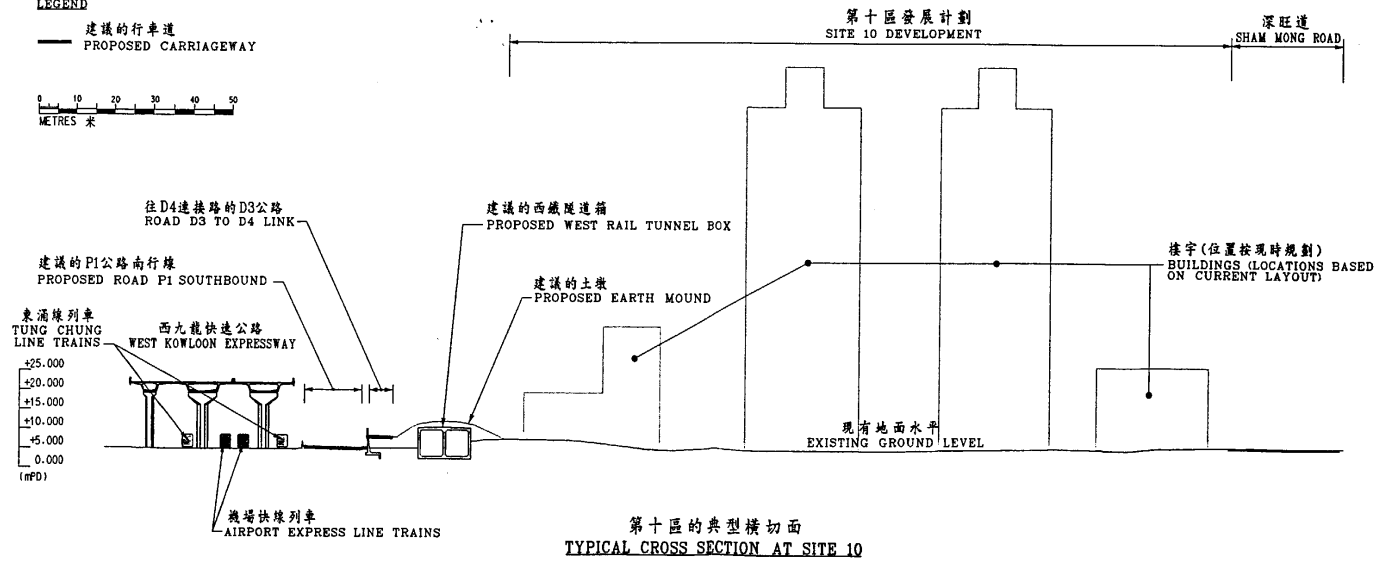
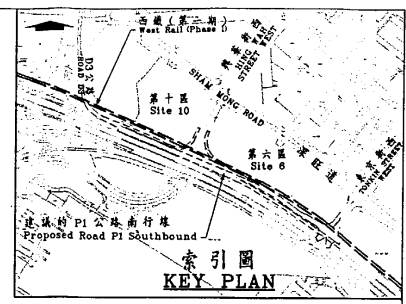


project no. 工程編號  
39TR  
九鐵西鐵(第一期)  
深水埗段的主要公共基礎設施工程  
KCRC West Rail (Phase D)  
Essential Public Infrastructure Works for Sham Shui Po Section


drawn by K S YAU	date 29/3/99	drawing no. RW9711A	scale AS SHOWN
approved by T C CHUNG	date 29/3/99		
office 鐵路拓展處 RAILWAY DEVELOPMENT OFFICE			



第六區的典型橫切面  
TYPICAL CROSS SECTION AT SITE 6



第十區的典型橫切面  
TYPICAL CROSS SECTION AT SITE 10

project no. 工程編號 39TR 九鐵西鐵(第一期) 第六區及第十區的典型橫切面 KCRC West Rail (Phase I) Typical Cross Sections at Site 6 & Site 10	drawn by K S YAU	date 7/5/99	drawing no. RW9722	scale as shown
	approved by T G CHUNG	date 7/5/99	 路政署 HIGHWAYS DEPARTMENT	
	office 鐵路拓展處 RAILWAY DEVELOPMENT OFFICE			