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HIGHWAYS DEPARTMENT

Agreement No. 5/95

Design and Construction of Central-Wan Chai Bypass and Island Eastern Corridor Link

Construction of the Trunk Road Tunnel in Causeway Bay Typhoon Shelter and ex-Wan Chai Public Cargo Working Area

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MAUNSELL | AECOM
Maunsell Consultants Asia Ltd

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DESIGN AND CONSTRUCTION OF CENTRAL-WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

CONSTRUCTION OF THE TRUNK ROAD TUNNEL IN CAUSEWAY BAY TYPHOON SHELTER AND EX-WAN CHAI PUBLIC CARGO WORKING AREA

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1 INTRODUCTION

1.1 The Trunk Road Scheme

1.1.1 A comprehensive planning and engineering review of development and reclamation proposals for the Wan Chai Development Phase II project (the WDII Review) has sought to assess individually the purpose and extent of each proposed reclamation by reference to the Overriding Public Need Test in accordance with the Court of Final Appeal (CFA) judgment handed down on 9 January 2004 in respect of the judicial review on the Draft Wan Chai North Outline Zoning Plan (OZP) No. S/H25/1 and, if needed, to make recommendations on the revised alignment for the Trunk Road (the Central-Wan Chai Bypass (CWB) and Island Eastern Corridor Link (IECL)) and at-grade roads, extent of reclamation and/or the land uses for the review area covered by the assignment.

1.1.2 Under the WDII Review and through an extensive public engagement process, a Trunk Road scheme (known as the Trunk Road Tunnel Variation 1, or Trunk Road Tunnel) has been developed that satisfies the traffic and functional requirements for the Trunk Road. The Trunk Road scheme also accommodates harbour-front enhancement ideas that have been proposed by the public, and the scheme has the broad support of the public.

1.2 Cogent and Convincing Materials for the Trunk Road Scheme

1.2.1 A "Report on Cogent and Convincing Materials to Demonstrate Compliance with the Overriding Public Need Test" (CCM Report) that was prepared in February 2007 sets out the process by which the Trunk Road scheme and its associated reclamation were derived, and presents the cogent and convincing materials in support of the proposed reclamation required for such scheme under the PHO. The CCM Report provided a full package of materials which explained how the presumption against reclamation was intended to be rebutted by an overriding public need for reclamation, for the purpose of PHO as clarified in the CFA Judgment.

1.2.2 The CCM Report sought to explain how the Overriding Public Need Test was intended to be complied with, why the extent of reclamation was justified, and provided an account of the process of identifying the alignment that would best serve to protect and preserve the Harbour.

1.3 Gazettal of the Trunk Road

1.3.1 By Gazette Notice 4767 published on 27 July 2007 (G.N. 4767), the Permanent Secretary for Transport and Housing (Transport), under the delegated powers by the Secretary for Transport and Housing, gave notice under section 3(3) of the Roads (Works, Use and Compensation) Ordinance (Cap. 370) of proposed road

works as shown in Plans Nos. 92995/GAZ/1000 to 92995/GAZ/1008 (the Plans) and described in the scheme annexed thereto. A copy of GN 4767 and the Plans are enclosed for reference at **Annex A**.

1.3.2 As stated in G.N. 4767, the general nature of the proposed works is, inter alia, the construction of a dual three-lane road tunnel between Rumsey Street Flyover in Central and Island Eastern Corridor (IEC) in North Point and the construction of approach roads to the proposed road tunnel west portal and the associated slip roads in Central, Wan Chai and Causeway Bay. The proposed works also include "*ancillary works including construction of noise barriers and noise semi-enclosures along IEC, central medians/ refuge islands, amenity areas, landscaped decks, temporary breakwater, temporary piled wave walls, phased temporary reclamation works; and drainage and landscaping works*". It is stated expressly in G.N. 4767 that after the construction of sections of the proposed road tunnel, the temporary breakwater, temporary piled wave walls and phased temporary reclamation works will be removed. Areas to the immediate west of and within the ex-Public Cargo Working Area (ex-PCWA), areas within the Causeway Bay Typhoon Shelter (CBTS) and the existing sea-bed will be reinstated.

1.4 Temporary Works for the Construction of the Trunk Road and the Applicability of the PHO to these Temporary Works

1.4.1 As noted in G.N. 4767, temporary works will be required for the implementation of the Trunk Road scheme. Of particular relevance in respect of the CFA ruling on the presumption against reclamation in the PHO are the temporary works that impinge upon the water areas of the Harbour. These include temporary reclamation for the Trunk Road construction through the ex-PCWA and CBTS, temporary bridge construction for temporary traffic arrangements at the connection with the existing IEC (of concern is the area of the temporary bridge over water) and temporary typhoon shelter for boats displaced by the construction works in the CBTS to facilitate the construction of the sub-seabed tunnel (**Annex B**).

1.4.2 In October 2007, a declaration was sought through a judicial review that the PHO and the presumption against reclamation contained therein apply to the proposed temporary harbour reclamation works referred to in G.N. 4767 and more particularly delineated in the plans referred thereto.

1.4.3 The Court of First Instance (CFI) delivered its judgment on 20 March 2008, ruling "… That the Protection of the Harbour Ordinance (Cap. 531) and the presumption against reclamation contained therein does apply to the proposed harbour reclamation works referred to in Gazette Notice 4767 published

on 27 July 2007 and more particularly delineated in the plans referred thereto."

1.4.4 The CFI judgment can be viewed in the Internet through the link: http://legalref.judiciary.gov.hk/lrs/common/search/search_result_detail_frame.jsp?DIS=60524&QS=%28%7BHCAL116%2F2007%7D%7C%7BHCAL000116%2F2007%7D+%25caseno%29&TP=JU.

1.5 Demonstrating Compliance of the Temporary Reclamation with the PHO

1.5.1 In deriving the Trunk Road scheme and demonstrating that the Trunk Road and its associated reclamation is in compliance with the PHO, due acknowledgement has been given to the need for temporary works including temporary reclamation. The need for temporary reclamation was raised in the "Report on Trunk Road Alignments and Harbour-front Enhancement" that was issued in April 2006 which describes the derivation of the Trunk Road scheme, in the Project Profile for WDII and CWB that was exhibited in August 2006 under the Environmental Impact Assessment Ordinance (EIAO) (Cap 499) for public comments, and in the CCM Report.

1.5.2 However, in response to the CFI judgment on 20 March 2008 on the applicability of the PHO to temporary reclamation and in recognition that the temporary reclamation was not separately

or specifically presented in the CCM Report, the overriding public need for the temporary reclamation that is required for the Trunk Road construction and its compliance with the PHO are now presented in this report.

1.5.3 The following approach is taken to demonstrate that the temporary reclamation for Trunk Road construction satisfies the CFA judgment on the PHO:

(i) The CCM Report sought to explain how the Overriding Public Need Test was intended to be complied with, why the extent of reclamation was justified, and provided an account of the process of identifying the alignment that would best serve to protect and preserve the Harbour. Overall, the Trunk Road Tunnel is considered the best option in complying with the PHO. There has been overwhelming public support for this option as the preferred Trunk Road scheme, following extensive consultations with various public, advisory and relevant statutory bodies. Section 2 describes the layout of the Trunk Road Tunnel in the ex-PCWA and CBTS.

It is how the end result of minimum reclamation and least affected area of the Harbour is achieved that is now of concern, specifically to confirm that temporary reclamation is required and that it is the minimum necessary to meet the overriding public need.

(ii) Any reasonable alternative to the temporary reclamation needs to be identified, i.e. the feasibility of the Trunk Road Tunnel be implemented with no/less temporary works (including temporary reclamation). If there is a reasonable alternative construction method that involves no/less temporary reclamation, then it should be pursued. Section 3 of this report addresses this issue. In fact, no reasonable alternative construction method for the Trunk Road Tunnel that could avoid the temporary works (including temporary reclamation) was found.

(iii) Section 4 of this report examines the details of temporary reclamation, including staging of works, to confirm the compelling and present need for the temporary reclamation for the Trunk Road construction, and to ensure that the temporary reclamation is restricted to only the minimum amount necessary to meet the overriding public need.

(iv) Section 5 gives an account of the public engagement activities that have been undertaken and the views of the public in relation to the feasible method of construction of the Trunk Road Tunnel and the associated need for temporary reclamation.

(v) Finally, Section 6 of this report summarises the conclusions of the compliance of the temporary

reclamation for Trunk Road Tunnel construction with the Overriding Public Need Test and hence with the PHO.

1.6 Purpose of this Report

1.6.1 This report presents supplementary cogent and convincing materials to demonstrate that the temporary reclamation for the construction of the Trunk Road Tunnel satisfies the Overriding Public Need Test, as laid down in the CFA judgment handed down on 9 January 2004 in respect of the judicial review of the Draft Wan Chai North OZP (No. S/H25/1), and in compliance with the CFI ruling on 20 March 2008 that the PHO and the presumption against reclamation therein does apply to these temporary reclamation works.

1.6.2 The report has also been prepared with reference to the requirements of the then Housing, Planning and Lands Bureau (HPLB) and Environment, Transport and Works Bureau (ETWB) Circular No. 1/04 on Protection of the Harbour Ordinance, for the consideration of the reclamation proposals of the WDII project and the Trunk Road, as appropriate to this supplementary consideration of temporary reclamation.

1.6.3 In addressing the temporary reclamation for the construction of the Trunk Road Tunnel, this report is intended to supplement the CCM Report prepared in February 2007 that presents cogent and convincing materials demonstrating that the Trunk Road Tunnel satisfies the Overriding Public Need Test. As such, it

should be read in conjunction with the CCM Report, which has been issued separately.

1.6.4 Finally, it should be noted that various temporary works that will affect the Harbour (temporary reclamation for the Trunk Road construction, temporary bridge construction for temporary traffic diversions and temporary typhoon shelter) may be required to facilitate the Trunk Road construction. This report focuses on the discussion of the construction methodology, using safe, well proven and reliable techniques, for the section of the Trunk Road Tunnel between the area to the immediate west of the ex-PCWA and the eastern breakwater of the CBTS, where temporary reclamation has been proposed as an essential part of the construction of the Trunk Road Tunnel.

2 THE TRUNK ROAD SCHEME

2.1 Derivation of the Trunk Road Scheme

2.1.1 A detailed examination on the Trunk Road's needs and constraints, including an exhaustive investigation into the need for reclamation for the Trunk Road construction and of alternative schemes that might avoid reclamation, has been carried out. The Report on Trunk Road Alignments and Harbour-front Enhancement, April 2006, has described step-by-step the derivation of the Trunk Road Tunnel as the option that serves best to protect and preserve the Harbour.

2.1.2 The CCM Report sets out the process by which the Trunk Road scheme and its associated reclamation were derived, and presents the cogent and convincing materials in support of the proposed reclamation required for such scheme under the PHO. The CCM Report provided a full package of materials which explained how the presumption against reclamation was intended to be rebutted by an overriding public need for reclamation, for the purpose of PHO as clarified in the CFA Judgment. The CCM Report sought to explain how the Overriding Public Need Test was intended to be complied with, why the extent of reclamation was justified, and provided an account of the process of identifying the alignment that would best serve to protect and preserve the Harbour.

2.1.3 Copies of the CCM Report have been widely distributed to relevant public bodies and key stakeholders. It has also been uploaded onto the website of the Government (http://www.devb-plb.gov.hk/reclamation/eng/ccm/cogent.htm) and a link has been provided in the HEC website for public reference. The Report on Trunk Road Alignments and Harbour-front Enhancement is an annex to the CCM Report and can likewise be viewed on the same Government and HEC websites.

2.2 Trunk Road Tunnel Layout

2.2.1 The layout of the Trunk Road Tunnel is presented in **Annex C**. Details of the Trunk Road scheme can be found in the Report on Trunk Road Alignments and Harbour-front Enhancement and the CCM Report.

Trunk Road Tunnel Layout through ex-PCWA and CBTS

2.2.2 The engineering layout and profile of the Trunk Road Tunnel through the ex-PCWA and the CBTS are shown in **Annex C**.

2.2.3 The alignment of the Trunk Road is governed by a number of constraints, including highway design standards that dictate the geometry of the road and physical obstructions or restrictions. Together, these determine the road curvature and profile.

2.2.4 To the west of the ex-PCWA the existing electricity substation and the Wan Chai East Sewage Screening Plant obstruct the Trunk Road from a more southerly alignment. Then, the crossing under the CHT is restricted southwards by the foundations of the Police Officers' Club and vertically by the existing rock anchors of the CHT portal structure. The Trunk Road tunnel structure must avoid these rock anchors that tie down the CHT approach ramp structure to the underlying rock; these anchors are there to prevent uplift caused by hydrostatic forces (flotation). The rock anchors, based on available as-built information, are installed from just below ground level to a depth of around –17mPD, therefore, allowing for minimum clearance beneath the anchors, a box tunnel section of the Trunk Road must pass beneath the CHT at a road level deeper than –30mPD.

2.2.5 Inside the CBTS, the Trunk Road Tunnel will cross the proposed SCL tunnel, which will either pass above or beneath the Trunk Road Tunnel. The SCL alignment and form of construction are subject to preliminary design by MTRCL. There will be a construction interface between the Trunk Road Tunnel and the SCL, with the two tunnels crossing each other in close separation. The forms of construction of the Trunk Road and the SCL are important considerations in respect of avoiding conflict with the SCL: a cut-and-cover tunnel can be constructed with much closer separation allowance and, as the Trunk Road tunnel box would be on diaphragm wall supports, it should not be structurally adversely affected by the later

construction of the SCL tunnel above it. Alternatively, bored tunnel for SCL crossing underneath the Trunk Road will have less interface with the Trunk Road Tunnel if the required clearance is provided.

2.2.6 Through the central part of the CBTS, conflict with the existing seawall of the Causeway Bay Promenade must be avoided while at the same time maintaining a smooth curvature of the Trunk Road alignment. The existing seawall in this area is an old sheetpile seawall which is tied back to anchorage blocks along the edge of Victoria Park Road. This seawall would be extremely susceptible to loss of support or movement of the seabed material in front of it. Behind the seawall are utilities including cooling water intakes and mains serving, amongst others, World Trade Centre, Excelsior Hotel and Windsor House, and then the Victoria Park Road and the Causeway Bay Flyover structures of Gloucester Road. Towards the eastern end of the CBTS the Trunk Road Tunnel would again pass in close proximity to the existing seawall; here, this is a blockwork seawall on rubble mound foundation. Behind the seawall is the Tung Lo Wan Fireboat Station and adjacent to that is the Causeway Bay Zone Electric Substation. Behind these is the Hing Fat Street Upramp for the eastbound connection to the IEC.

2.2.7 Slip Road 8 connects to the Trunk Road mainline tunnel through the central part of the CBTS. This slip road provides connection from Victoria Park Road to the westbound Trunk

Road. The alignment for Slip Road 8 has been chosen to avoid permanent reclamation; the slip road runs along the northern boundary of Victoria Park before dropping into tunnel to cross under Victoria Park Road and connect with the Trunk Road Tunnel at a deep enough level beneath the seabed of the typhoon shelter so that permanent reclamation for the slip road is not required.

2.2.8 To the east of the CBTS, the Trunk Road Tunnel is located adjacent to the existing IEC foundation piles, which constrain the extent of the Trunk Road to move southwards further. This therefore fixes the horizontal alignment of the Trunk Road at this location. The tunnel alignment rises through the eastern part of the CBTS and along the North Point shoreline to the eastern tunnel portal. Connection to the existing elevated IEC road structure is made on the northern side of the IEC, which is the least disruptive form of connection.

2.2.9 The resulting alignment of the Trunk Road through the ex-PCWA and the CBTS, as shown in **Annex C**, has been found to be the optimal alignment in meeting the necessary highway design standards within the physical alignment constraints. The alignment ensures the least intrusion into the Harbour and the minimum extent of permanent reclamation.

2.2.10 **Annex C** also shows the outline geological profile of the bedrock through the ex-PCWA and CBTS, overlaid on the Trunk Road Tunnel profile. The bedrock level lies at around –

30mPD to –35mPD under the ex-PCWA, rising up to around –8mPD through Kellett Island and under the CHT portal, then dropping down to around –60mPD towards the eastern end of the CBTS. Therefore, through the ex-PCWA and CBTS, the Trunk Road Tunnel will pass through varied ground conditions, including the bed rock (strong to very strong granite) and the overlying materials which comprise completely decomposed granite (silty clay and sands, gravels and cobbles), alluvial sediments (silty/sandy clay and silty/clayey sands) and marine deposits (marine mud of very soft to soft clay/silt).

2.2.11 Through the ex-PCWA, the Trunk Road Tunnel will need to be constructed mainly in the alluvial sediments layer, but it will then pass entirely through the rising rock stratum under the CHT. Through the CBTS, as the rock level drops away and the road level rises, the Trunk Road Tunnel will need to be constructed mainly through alluvial sediments and marine deposits.

2.3 Realising Minimum Reclamation for the Trunk Road Scheme – the Need for Temporary Works

2.3.1 The basis of the need for reclamation for the Trunk Road Tunnel construction is that where the tunnel lies beneath the seabed, no permanent reclamation is required, but where the tunnel structure lies above the seabed, reclamation is required for the tunnel construction and to provide protection to the tunnel structure. The rationale is discussed in the Report on

Trunk Road Alignments and Harbour-front Enhancement and in the CCM Report.

2.3.2 For the Trunk Road Tunnel, which has been demonstrated to affect the least area of the Harbour among all the feasible options, reclamation has been minimised by having the tunnel running beneath the seabed at the ex-PCWA and the CBTS. This means that permanent reclamation in the area immediately to the west of and within the ex-PCWA basin and in the CBTS could be avoided. However, temporary works would be required in order to construct the sub-seabed Trunk Road tunnel structure beneath the sea of the ex-PCWA and the CBTS. Such temporary works, as discussed in Section 4 of this report, include forming temporary working platforms by temporary reclamation for tunnel construction purposes. These temporary works, including temporary reclamation, can and will be removed on completion of the construction of the Trunk Road Tunnel, and the existing seabed and water area would be reinstated. The end result is minimum permanent reclamation and least affected area of the Harbour. The temporary reclamation is therefore be viewed as an essential component of achieving the end result of minimum permanent reclamation, in compliance with the PHO.

2.3.3 During the course of the planning and preliminary design stages of the development of the Trunk Road Tunnel scheme (i.e. with tunnel below the seabed of the ex-PCWA and CBTS to avoid permanent reclamation in these areas), it has been considered

whether there are alternative construction methods that could avoid the need for temporary works, especially temporary reclamation (this is discussed in the following Section 3), and if not, whether the extent of temporary reclamation proposed affects the minimum area of the Harbour (Section 4 of this report).

2.3.4 As these temporary works would be required primarily in the CBTS, the following discussion focuses on the construction of the Trunk Road through the CBTS, although similar reasoning applies to the ex-PCWA area where temporary works in the Harbour would also be required. As can be seen in **Annex C**, through the ex-PCWA, the Trunk Road Tunnel is at similar depth (road levels are around –30mPD on both sides of the CHT crossing), and the Trunk Road alignment is in close proximity to the existing seawall of the ex-PCWA, similar to the central part of the CBTS. Behind the ex-PCWA seawalls are major roads (such as CHT approach roads) and utilities (such as cross harbour gas mains). Geological conditions are also similar, with the bedrock level dropping away to the west under the ex-PCWA just as it does to the east under the CBTS, and overlain by alluvial sediments and marine deposits. Therefore, similar arguments on construction methods and the need for temporary works in the CBTS would prevail for the Trunk Road Tunnel construction through the ex-PCWA.

3 CONSTRUCTION OF THE TRUNK ROAD TUNNEL IN THE CBTS AND AT THE EX-PCWA

3.1 Avoiding Temporary Reclamation

3.1.1 Before examining the temporary works requirements, any reasonable alternative to the temporary works (in particular where these may constitute reclamation in respect of the PHO) needs to be identified. If the Trunk Road Tunnel can be implemented without such temporary works, i.e. if there is a reasonable alternative method of construction of the Trunk Road Tunnel that requires no/less temporary works, then it should be pursued.

3.2 Alternative Methods of Construction

3.2.1 Alternative construction methods that have been examined for the construction of the Trunk Road Tunnel in the CBTS and at the ex-PCWA include immersed tube construction, bored tunnel construction and cut-and-cover tunnel construction. These alternatives encompass the range of possible forms of construction based on well proven and reliable techniques commonly adopted for tunnel construction.

3.2.2 In examining alternative methods of construction, all pertinent aspects including technical engineering feasibility and constructability, risk of damage to adjacent infrastructure,

construction safety, environmental impacts, implementation time and costs are considered.

3.2.3 Further, in deriving a feasible scheme and method of construction, it should be recognised that the recommended proposals will form the basis of contract requirements on which competitive open tendering can be conducted. It is the Government's intention to promote fairness in selecting contractors through open tender, and the scheme that had been developed and was gazetted under the relevant ordinances, will become the reference scheme for tendering purposes. The proposals for construction of the Trunk Road should not be so specialised or unique that they deprive most contractors of the opportunity of tendering for this work. By this approach, a tried and tested reference construction scheme is in place while any possible innovative alternative construction methods can always be put forward by the tendering contractors for acceptance provided that the requirement of minimum reclamation in compliance with PHO is fulfilled.

3.2.4 In response to queries raised at the Public Forum of the public engagement activities (discussed later in Section 5), further elaboration is also provided in paragraphs 3.2.5 to 3.2.8 of this report on tunnelling by the envisaged open face excavation (drill and break) method for the tunnel section underneath the CHT portal.

Tunnelling by Open Face Excavation

3.2.5 As discussed in paragraph 2.2.10, the bedrock rises up to a high level (around –8mPD) through Kellett Island and under the CHT portal, dropping away on either side through the CBTS to the east and through the ex-PCWA to the west. Construction of the Trunk Road Tunnel through the rock under the CHT will require a special tunnel mining or "drill and break" technique to avoid disturbance to the CHT portal and tunnel structures and to ensure the stability of the surrounding ground, including the CHT approach roads. The "drill and break" technique is the only feasible method for constructing this particular length of Trunk Road Tunnel underneath the CHT as it will cause the least vibration and hence avoid any adverse impacts on the CHT structures. Other methods like drill and blast, roadheader, rock sawing are not feasible for this location. Drill and blast method would cause unacceptable vibration to the CHT portal structures. Roadheader is adopted for soft rock excavation and cannot be applied here. Rock sawing can only be used for a short length or volume of excavation.

3.2.6 Deep excavations (access portals) will be required on both sides of the CHT for commencing tunnelling beneath the CHT structures. These excavations will be supported by braced diaphragm walls. Tunnelling under the CHT will then be carried out using mining techniques from below a horizontal pipe pile roof without the use of explosives. Small diameter bores will be drilled through the rock from one access portal to

the other until a "swiss cheese" structure is created in the rock, which can then be broken up using rock breakers. **Annex D** illustrates the construction technique.

3.2.7 Numerical analyses have been undertaken to determine ground settlements that would take place due to excavation of the access portals and tunnelling. These analyses have demonstrated that the settlements of ground around the CHT portal and approach roads can be kept to within acceptable limits. The proposed scheme will not require the closure of any of the tunnel approach roads during construction period.

3.2.8 This tunnelling technique would be confined to the section under the CHT, where the Trunk Road Tunnel passes through the high rock level. On either side of the CHT, in the CBTS and in the ex-PCWA, the rock levels drop away and the Trunk Road Tunnel needs to be constructed through soft ground, where the drill and break technique is not feasible. Excavating a tunnel through soft ground will have high risk of collapse of the tunnel; seepage through the tunnel roof will lead to ground settlement and instability of the ground cover above the tunnel roof.

3.2.9 Tunnelling by excavating through the soft seabed material of the CBTS with ground freezing has been considered, but is considered not feasible. Ground freezing for tunnelling works involves the installation of freeze pipes around the circumference of the tunnel. Brine water with temperature at

about –35^{o}C would be circulated inside the freeze pipes until, in effect, an ice ring surrounding the tunnel is formed. However, ground freezing is normally used for short sections of tunnel in poor ground or for cross passages between bored tunnels only. For example, ground freezing was used for excavation of cross passages between the bored tunnels of the KCRC Lok Ma Chau Spur Line. The cross sectional area of these cross passages is approximately 3m x 4m with length of about 20m. Ground freezing to facilitate excavation work of the Trunk Road Tunnel in the CBTS, on the other hand, with a span of around 35m (or more, up to 90m where Slip Road 8 joins the mainline) and length of some 700m, is considered not feasible. The infeasibility of this construction method is reinforced by the fact that it would be difficult to freeze and maintain the frozen soil mass at the level close to the seabed, due to heat transfer from the flowing body of seawater just above the seabed, therefore significantly increases the risks of this tunnelling approach.

3.2.10 Other ground improvement methods including permeation grouting, jet grouting, and deep cement mixing have been considered but found not suitable to enable safe tunnel excavation through the soft seabed material beneath the CBTS. Permeation grouting (high pressure injection of cement water into the soil to improve the shear strength of the soil) in the clayey alluvium will result in flow along more permeable seams forming a localised grout network near the permeable seam rather than forming a uniform grouted soil mass. For subsequent tunnel excavation, there will be a very high risk of

encountering localised areas of unsuccessful grouting treatment leading to tunnel collapse. Similarly, jet grouting or deep cement mixing (normally used to form columns of high strength soil-cement mix), would not provide a uniformly strengthened soil mass through all the different soil strata, therefore during tunnel excavation there would be a high risk of tunnel collapse and is considered not feasible.

Immersed Tube Construction

3.2.11 Immersed tube (IMT) construction is usually a suitable form of construction for tunnels across open waterways (for example, across the Harbour) where the tunnel lies just below seabed level. In this method, the tunnel is made up of lengths of precast concrete units that are floated to the site and sunk (i.e. immersed) into place. Before installing the tunnel, a trench is excavated in the seabed and soft seabed material removed so that the immersed tube units lie in the trench on a firm foundation.

3.2.12 However, for construction of the Trunk Road Tunnel which runs through the CBTS along the shoreline, the deep Trunk Road Tunnel structure would require an extremely deep open cut trench (up to around 30m deep, with side slopes). Due to the close proximity of this deep trench to the existing seawalls (especially the Causeway Bay promenade seawall), typhoon shelter breakwater and the immersed tube CHT, all these key utilities and infrastructure would be undermined or disturbed by

its excavation. By way of example, typical sections through the CBTS seawall for the IMT, at both the western and eastern parts of the typhoon shelter, are illustrated in **Annex E**. Failure of the seawall would in turn cause failure of the roads and utilities behind the seawall (for example, Victoria Park Road, and cooling water systems for Excelsior Hotel and World Trade Centre). Towards the eastern end of the CBTS, the IMT trench would undermine the existing typhoon shelter breakwater. Failure of the CBTS breakwater would mean that the typhoon shelter would not be functional in providing protection to the vessels moored therein. At the western end of the CBTS, the IMT trench would disturb the IMT section of the CHT. Any movement of the CHT tunnel would cause structural damage to this tunnel thus paralysing one of the most vital road links in Hong Kong.

3.2.13 Reinforcement or structural protection of the existing seawalls may mitigate the impacts of the deep IMT trench. The installation of a retaining structure (sheet pile or bored pile wall) in front of the existing seawall, to limit the extent of excavation and thus to try to prevent undermining of the seawall, has been examined. However, the height of retained soil arising from the deep excavation of the trench in front of the retaining structure would be too large to be retained by a cantilevered piled wall and temporary anchors cannot be installed as supports below water level; the retaining wall would deflect and therefore there would be movement (i.e. failure) of the seawall as well as the utilities and infrastructure behind the seawall.

3.2.14 There are a number of other issues that make IMT construction not suitable in the CBTS. Lack of access for floating in the IMT units is one other major issue. The existing seabed of CBTS is not deep enough (less than –4mPD) for towing in the precast concrete tunnel box units that would be up to 12m in height. In addition, the western and eastern entrances of the CBTS are too narrow (50m and 70m respectively) for manoeuvring the precast tunnel box units, together with several attendant tug boats, through the entrances. It would therefore be necessary to dredge a large part of the typhoon shelter as well as a large area at one of the entrances to provide sufficient draft to float in the IMT units, and the entrance will need to be widened by demolishing part of the breakwater to provide adequate access, which will affect the serviceability of the CBTS.

3.2.15 Cofferdams would be needed at the landfalls of the submarine tunnels (an in-situ connection would need to be made with the section of the Trunk Road that is tunnelled beneath the CHT and with the cut-and-cover tunnel along the North Point shoreline, which would require cofferdams to be constructed inside the CBTS). These cofferdams would constitute temporary works of the very nature that the IMT alternative would be seeking to avoid.

3.2.16 The feasibility of adoption of IMT construction in part of the CBTS has also been examined. At the western end, tunnel

construction under the CHT would extend into the typhoon shelter within the diaphragm walls of the access portals as described in paragraph 3.2.6 above; also, the IMT construction must start far enough eastwards, away from the CHT, so that the IMT trench does not disturb the IMT section of the CHT (as noted in paragraph 3.2.12 above). Also as discussed in paragraph 3.2.12, through the central part of the CBTS, IMT is not feasible due to undermining of the existing seawall of the Causeway Bay Promenade, while at the eastern end of the CBTS, IMT construction is not feasible due to undermining of the existing seawall and breakwater. It is only in between the central and eastern areas of the typhoon shelter, for a length of around 100m, where IMT might be revisited. It is not practical to dredge over half the typhoon shelter as well as demolish part of the breakwater for the installation of a single 100m length of IMT. More importantly, with the partial demolition of the breakwater, the protection of the vessels which will still be mooring in the CBTS during construction would be vitiated. Safety problems would be caused and the operation of the CBTS would be severely affected.

3.2.17 From the engineering point of view, a mixed construction method with cut-and-cover tunnel in the western part of the typhoon shelter and IMT in the eastern part is not feasible: a safe and reliable connection between the cut-and-cover tunnel with end diaphragm wall and the first IMT unit in the middle of the typhoon shelter at nearly 30m depth cannot be properly made. The reason is that a water-tight connection can only be

achieved by deploying the hydraulic pressure from the far end of the IMT unit in pushing the Gina gasket to close up the joint completely. In order to do so, the surface of the concrete on which the Gina gasket has to sit should be fairly flat. However, the end of the cut-and-cover tunnel which is formed by diaphragm wall construction cannot provide such flatness to ensure such a water-tight connection for the long term serviceability of the tunnel structure.

3.2.18 Therefore, IMT construction is considered not feasible in any part of the CBTS.

Bored Tunnel Construction

3.2.19 Bored tunnel construction by using a tunnel boring machine (TBM) has also been examined. This method would involve the TBM boring beneath the seabed surface to form a circular tunnel through the existing soil and rock, which is then lined with concrete and within which the road tunnel is constructed. In order to accommodate three traffic lanes on each carriageway of the Trunk Road, separate tunnels would be required for each carriageway, and the diameter of the circular bores would need to be very large (more than 15.5m for each carriageway).

3.2.20 Use of a TBM requires sufficient ground cover above the tunnel (i.e. the tunnel must lie at a deep enough level beneath the seabed to avoid failure through the soft marine sediment and alluvial layers above the tunnel bore). Normal practice requires

a minimum ground cover of around 1 time the bored tunnel diameter to be provided, but in this case, with tunnelling in or immediately below soft marine sediments within the CBTS, a clearance beneath the seabed level of at least 1.5 (and preferably even 2) times the bored tunnel diameter should be provided to ensure stability of the soil layer above the bored tunnel in view of the smaller densities of the overlying marine sediments in countering the floatation of the tunnel structure.

3.2.21 Throughout the whole CBTS, soil cover would not be sufficient for safe TBM construction; indeed, at the eastern end of the typhoon shelter where the tunnel rises back up towards the seabed to the ground level portal, there would be no cover at all. This situation is illustrated in **Annex F**.

3.2.22 Furthermore, Slip Road 8 is a shallow tunnel connecting the at-grade roads at Causeway Bay with the mainline tunnel, to be constructed by cut-and-cover method. The connection with the mainline tunnel would be at a small oblique angle, resulting in a long taper connection. Therefore, if TBM were to be used for the construction of the mainline tunnel, creation of the Slip Road 8 connection would require cutting into this long taper length of the bored tunnel shaft and breaking out the bored tunnel lining for the full height of the tunnel, resulting in loss of structural integrity of the bored tunnel, which would likely cause its collapse. There is no precedent case in which two joining tunnels at sharp angle can be constructed using TBM. As a result, the Slip Road 8 connection could not be provided if

the Trunk Road Tunnel through the western part of the CBTS were to be constructed by TBM, and this would undermine the function of the Trunk Road in relieving traffic congestion. For this reason, bored tunnel through the western part of the typhoon shelter is also not feasible.

3.2.23 The PHO implications of bored tunnel construction are also of concern. Due to the separation of the two tunnel bores in order to allow sufficient clearance (conventionally 1 diameter separation) between the eastbound and westbound TBM tunnels (as illustrated in **Annex F**) to ensure ground stability in the vicinity, there will be a consequential increase of the extent of permanent reclamation at the Wan Chai shoreline and the North Point shoreline; this will go against the requirement under the PHO for a minimum reclamation alternative.

3.2.24 Another factor to be considered is the unknown technical feasibility of construction with TBM diameters greater than 15m in mixed ground conditions (in this case the TBM would be tunnelling through rock, alluvium and marine sediments), and especially through hard rock condition (TBM with such large diameter through hard rock has not been used anywhere else).

3.2.25 In view of the above, construction of the Trunk Road through any part of the CBTS by bored tunnel is found to be not feasible.

Cut-and-Cover Construction

3.2.26 In simple terms, cut-and-cover tunnels are built by excavating from the land surface, constructing the tunnel box and then backfilling over the tunnel structure to reinstate the ground above it. For cut-and-cover construction using diaphragm walls, the tunnel side walls are installed first: these diaphragm walls are reinforced concrete wall panels that are constructed by excavating a narrow trench from ground level down to the required depth, often to the underlying rock layer, and then inserting steel reinforcement and concrete filling.

3.2.27 Diaphragm walls are commonly used for retention systems and foundation walls. They can be installed in close proximity to existing structures with minimal loss of support to the existing foundations. They also provide effective deep groundwater barriers, avoiding groundwater drawdown outside the site. Consequently there is no associated subsidence of the surrounding ground. After the diaphragm walls are installed on both sides of the tunnel, the soil in the area between the walls is excavated down to the bottom level of the tunnel while the two side walls are propped against each other. Then the top and bottom slabs of the tunnel are constructed between the diaphragm walls to form the tunnel box. Afterwards the area above the tunnel is backfilled (in this case, to the original seabed level).

3.2.28 The diaphragm wall technique is a tried and trusted construction method, and provides unequalled support of existing foundations during adjacent construction operations. It is well-suited to the construction of the Trunk Road Tunnel structure along the existing shoreline and through the CBTS, catering for the varying depths of the tunnel alignment and in particular the deep tunnel through the CBTS, and avoiding disturbance to the adjacent seawall, other tunnel structures and infrastructure.

3.2.29 In essence, this cut-and-cover form of construction will not cause any disturbance to the existing adjacent infrastructure, does not have any minimum ground cover or clearance restrictions, will readily enable the Slip Road 8 connection and facilitates the minimum extent of permanent reclamation at the adjoining areas.

3.2.30 However, construction of the Trunk Road by cut-and-cover method requires a dry working platform on which the contractor's construction plant would stand and is thus normally carried out on existing or formed land to provide the necessary construction access from the land surface. Diaphragm walls would need to be constructed from a surface above sea level. It is not feasible to construct diaphragm walls through water. Therefore, where the tunnel alignment crosses over water, land would need to be formed first, through which the diaphragm walls would be constructed.

3.2.31 The provision of a dry working platform through the CBTS and ex-PCWA, and the formation of land through which diaphragm walls can be constructed, constitute temporary works that would be required to facilitate the cut-and-cover tunnel construction through these water bodies.

Alternative to Adopting Diaphragm Wall in Cut-and-Cover Construction

3.2.32 The only alternative to diaphragm wall that might practically be considered to facilitate a cut-and-cover tunnel construction would be by building a cofferdam around the works area and pumping out the seawater inside the cofferdam so that the contractor can work on the dry seabed (cut-and-cover construction cannot feasibly be carried out under water). Though there are views that dry seabed formed through the method of cofferdam as working platform could also be regarded as reclamation under the PHO, the cofferdam has been examined to see whether it is a feasible and reasonable alternative.

3.2.33 The cofferdam would need to be constructed around the outer edge of the Trunk Road tunnel structure. Enough working space around the edges of the tunnel has to be reserved to enable the tunnel structure to be constructed in situ within the deep excavation inside the cofferdam. The main structure of the cofferdam wall would comprise tubular steel bored piles: preliminary assessment indicates that these would be 2m

diameter concrete-filled piles at 3m spacing (this spacing is necessary to allow for vertical misalignment (i.e. driving tolerance)) that would take up the structural loading. To cater for water tightness above sea level, a double row sheet pile wall would be constructed on either side of the row of tubular piles, with clay infill. To cater for water tightness below seabed, a grout curtain would be installed between the piles. However, a large lateral deflection would be expected (possibly as much as 450mm) and the effectiveness of the grout curtain would be in question, which would lead to safety concerns.

3.2.34 For the very deep excavations below the seabed required for the Trunk Road tunnel structure construction (up to 35 metres below sea level), there would be very high water and soil pressure, and the critical issues in relation to the cofferdam would be possible movement of the cofferdam walls which would lead to movement of and consequential damage to adjacent structures and facilities such as the Causeway Bay Promenade seawall and the CHT, and ingress of water which would lead to safety concerns. Furthermore, construction of the Trunk Road tunnel structure inside the CBTS would be carried out while the typhoon shelter is still in operation, and the cofferdam would therefore be susceptible to damage from accidental ship impact. This would again be a major cause of concern regarding the safety of the workers working at depths of up to 35 metres below sea level. Past practice suggests that, more usually, around 20m would already be considered a 'deep' cofferdam, so working at nearly twice this depth would

certainly raise both technical engineering and safety concerns. Certainly, use of cofferdam in this particular situation is not a reliable method to provide a safe working environment.

3.2.35 Staged cofferdam construction across the CBTS and ex-PCWA is also examined. Whilst construction using diaphragm walls within temporary reclamation will give a robust seawater/groundwater retention system with the end walls providing effective retention and allowing adjacent reclamation from a preceding stage to be safely removed, intermediate cofferdam walls will not provide such structural or watertight integrity. This is particularly so when considering the depth of construction and the complexity of the CWB tunnels (separate eastbound and westbound bores and the joining Slip Road 8 tunnel, all at varying alignments and levels, i.e. not a single continuous tunnel box section). There would be problems of sealing the intermediate cofferdam walls around the various tunnel structures, massive retaining structures over the top of the tunnel structure, and always an overriding risk of inundation with obvious safety implications. Therefore, in this particular instance, staged construction of the Trunk Road Tunnel through the CBTS is considered not practically feasible using cofferdam. Instead, the cofferdam would need to be constructed entirely around the whole of the works area to form a barrier to the surrounding water. This means that the whole of the works in the CBTS would need to be constructed in one single stage (as illustrated in **Annex G**).

3.2.36 The consequence of this is that, instead of affecting a relatively small area of the typhoon shelter for limited periods of time as would be the case for staged construction using temporary reclamation, construction of a cofferdam around the whole of the works area in the CBTS means that the whole of this works area would be occupied throughout the whole Trunk Road Tunnel construction period at the CBTS. The total area of the CBTS affected by the cofferdam, including the area occupied by the cofferdam and the typhoon shelter area to the south of the cofferdam that would be isolated by the cofferdam, would be around 12ha.

3.2.37 A further consequence of using the cofferdam approach is that, with the cofferdam constructed around the whole of the works area through the typhoon shelter, from the western to the eastern end, the inner water bodies of the CBTS would be cut off from the open water and isolated. There would be no circulation or flushing in these isolated water areas whilst drainage outfalls continue to discharge into them. This would result in extremely poor water quality, verging on a cesspit. In turn, it would not be possible to maintain the seawater supply to the existing cooling water intakes at the CBTS (including Excelsior Hotel, World Trade Centre and Windsor House).

3.2.38 Due to the above reasons, the cofferdam approach is considered not to be a reasonable or practical alternative to diaphragm wall.

3.2.39 Rather, the use of diaphragm wall with temporary reclamation is found to be the safe, feasible and practicable approach for constructing the Trunk Road Tunnel structure through the CBTS. A cut-and-cover tunnel construction method using diaphragm walls through temporary reclamation which forms a temporary working platform above sea level, is the reasonable construction method. The proposed works using temporary reclamation in the CBTS would not cause any disturbance to the CHT or to the adjacent seawalls, and operation of all the adjacent roads, tunnels and services would be maintained at all times during construction of the Trunk Road Tunnel.

3.2.40 By enabling the construction of the Trunk Road Tunnel beneath the seabed of the CBTS and ex-PCWA, the approach of using temporary reclamation to facilitate the cut-and-cover tunnel construction would, in the end, affect the least extent of the Harbour, thus serving best to protect and preserve the Harbour.

3.3 Conclusion on the Need for Temporary Works

3.3.1 All alternative forms of construction have been examined for the construction of the Trunk Road Tunnel beneath the seabed of the CBTS and ex-PCWA to determine if there is any reasonable or practically possible form of construction that would require no/less temporary works, in particular temporary reclamation.

3.3.2 All construction methods have different limitations and constraints for constructing the Trunk Road Tunnel in the CBTS and at the ex-PCWA. Drill and break tunnelling is the appropriate method of construction under the CHT, but this or similar form of open face excavation tunnelling under the seabed of the CBTS and ex-PCWA is not feasible through the soft ground on either side of the CHT. IMT may be considered a "zero temporary reclamation" method, but, primarily because it would cause unacceptable damage to adjacent infrastructure and utilities, and severely affect the operation of the CBTS, this method is found to be not feasible. Bored tunnel is not feasible as there is insufficient ground cover through the CBTS and ex-PCWA for its construction. It would not allow the construction of Slip Road 8, and the separation of the eastbound and westbound bores would result in a greater extent of permanent reclamation at Wan Chai and North Point. There is therefore no practically feasible form of construction for the Trunk Road Tunnel through the CBTS and ex-PCWA that could achieve "no/less temporary reclamation" while minimising permanent reclamation.

3.3.3 The only safe, feasible and practicable form of construction for the Trunk Road Tunnel, and indeed the only suitable form of construction, is by cut-and-cover method using diaphragm walls. This, though, will require temporary works (including temporary reclamation) to provide a dry working platform for the construction of the cut-and-cover tunnel.

3.3.4 It is concluded that there is no reasonable alternative method of constructing the Trunk Road Tunnel that require no/less temporary works, and that temporary works (including temporary reclamation) are required to enable the construction of the Trunk Road Tunnel beneath the seabed of the CBTS and the ex-PCWA.

4 TEMPORARY WORKS IN THE CBTS AND EX-PCWA

4.1 Temporary Works Required for Construction of the Trunk Road Tunnel

4.1.1 Cut-and-cover method is the only safe, feasible and practicable method for construction of the Trunk Road.

4.1.2 It is particularly well-suited to the construction of the Trunk Road tunnel structure along the existing shoreline and through the CBTS and ex-PCWA. (The exception is the section of the Trunk Road Tunnel under the CHT, where a drill and break technique will be employed for tunnelling through the rock.)

4.1.3 However, construction of the Trunk Road by cut-and-cover method requires a dry working platform from which the contractor can carry out his works. Construction of diaphragm walls must be carried out through land from above sea level.

4.1.4 Through the CBTS and ex-PCWA, this would mean forming a working platform above water level by means of temporary reclamation to around +2.5mPD. These are temporary works that would be required to facilitate the cut-and-cover tunnel construction through these water bodies.

4.2 Justifications for the Temporary Reclamation for Trunk Road Tunnel Construction

4.2.1 The use of temporary reclamation to provide a working platform for the construction of the Trunk Road tunnel structure beneath the seabed at the CBTS is the only safe, feasible and practicable way of constructing the Trunk Road Tunnel and thereby ultimately avoid permanent reclamation. Diaphragm walls would be installed through the temporary working platform above the sea level in a safe working environment for the construction of the tunnel box at depth. In addition, the temporary seawalls that contain the temporary reclamation would protect the diaphragm walls against damages from ship impact by vessels using the surrounding water areas.

4.2.2 After the tunnel has been constructed, the temporary reclamation and temporary seawalls above the seabed level will be removed and the seabed reinstated, as stated in the road scheme referred to in G.N. 4767, thereby returning this part of the Harbour to its original condition. The contractor would be legally bound by the construction contract to remove the temporary reclamation and reinstate the seabed.

4.2.3 In facilitating the construction of the Trunk Road Tunnel and therefore meeting the overriding public need for the Trunk Road, there is consequently a compelling and present need for the temporary reclamation in the CBTS and at the ex-PCWA. Without the temporary reclamation, the Trunk Road Tunnel

cannot be constructed. In other words, the purpose of the temporary reclamation is to avoid the need for permanent reclamation, and therefore, ultimately, to serve best to protect and preserve the Harbour.

4.2.4 The use of temporary reclamation for construction of the Trunk Road Tunnel structure will also enable staged construction of the works through the CBTS, which minimises the extent of temporary reclamation. The works can be completed in several stages of temporary reclamation: temporary reclamation will be undertaken to enable construction of the first section of the tunnel box, then temporary reclamation will be formed for the construction of the next section of the tunnel, allowing the temporary reclamation from the previous stage to be removed. In this manner, the tunnel construction will advance progressively through the typhoon shelter while only occupying minimum water area at any one time.

4.2.5 This staged construction is very important for three main reasons:

(i) it will minimise the area of temporary reclamation at any one time;

(ii) it will allow water circulation through the typhoon shelter during the construction period, which is critical for maintaining acceptable standards of water quality and for ensuring uninterrupted supply to the existing cooling

water intakes at the CBTS (including Excelsior Hotel, World Trade Centre and Windsor House); and

(iii) it will minimise the loss of mooring area for the vessels currently using the typhoon shelter as sheltered anchorage, and therefore the extent of reprovisioning of typhoon shelter.

4.2.6 The use of temporary reclamation for the Trunk Road Tunnel construction will enable staged construction, use of temporary reclamation for the Trunk Road Tunnel construction which in turn minimises environmental impacts and impacts to the concerned CBTS users.

4.3 Minimum Extent of Temporary Reclamation for Trunk Road Tunnel Construction

4.3.1 In the preceding paragraphs, temporary reclamation has been shown to be required for the Trunk Road cut-and-cover tunnel construction through the CBTS. This temporary reclamation is for the purpose of enabling the construction of the diaphragm walls, between which the tunnel structure will be constructed.

4.3.2 The extent of temporary reclamation is determined primarily by the extent of the temporary seawall in front of the tunnel. In order to minimise the construction works and hence the temporary reclamation above the seabed, a vertical seawall is proposed to contain the temporary reclamation. Blockwork

seawall is the most effective type of seawall in these circumstances. It is an inherently stable gravity structure that can be reasonably easily removed upon completion.

4.3.3 The separation between the edge of the Trunk Road diaphragm wall and the seawall copeline is determined by the widths of the seawall and foundation, and the clearance between the seawall foundation and the diaphragm wall. It has been determined from ground investigation that for a typical dredge level of around –11 mPD in the typhoon shelter and maintaining the necessary clearance between the seawall foundation and the diaphragm wall of the Trunk Road tunnel structure, a distance of approximately 20m, derived on the same principles as presented in Annex O of the CCM Report, needs to be maintained between the outer edge of the Trunk Road tunnel structure and the seawall copeline, in general.

4.3.4 A typical section through the temporary reclamation is illustrated in **Annex H**.

4.3.5 This minimum separation between the Trunk Road tunnel structure and seawall copeline is maintained along the temporary reclamation through the CBTS, with the seawall copeline following the curvature of the Trunk Road Tunnel edge. The overall area of temporary reclamation in the CBTS as defined by this seawall copeline is 6.4ha.

4.3.6 Temporary works and temporary reclamation are also required at the ex-PCWA (within and immediately to the west of the ex-PCWA basin). The need for and the minimum extent of the temporary reclamation in these areas are similar to the temporary reclamation in the CBTS. The overall minimum temporary reclamation requirements for the Trunk Road at the ex-PCWA and in the CBTS, in terms of total working areas to be formed during the course of construction, are:

(i) CBTS :			6.4 ha
(ii) ex-PCWA :	{within the basin	1.5 ha }	
	{to the west of the basin	0.4 ha }	1.9 ha

4.3.7 This is considered to be the minimum overall extent of temporary reclamation required to facilitate the construction of the Trunk Road Tunnel beneath the seabed in the CBTS and at the ex-PCWA. A layout of the proposed temporary reclamation works in the CBTS and at the ex-PCWA is shown in **Annex I**.

4.3.8 However, this is not the maximum extent of temporary reclamation that is required to be in place at any one time. Staging of the works will significantly reduce the extent of temporary reclamation at any point in time.

4.4 Staging of the Works

4.4.1 The construction of the Trunk Road Tunnel in the CBTS will be carried out in stages. Whilst the entire works in the CBTS will require an overall construction period of around 6 years, there will actually be four stages of works within the CBTS and the temporary reclamation areas under each stage will only need to be in place for a much shorter period of time than 6 years.

4.4.2 An illustrative construction staging plan for the works through the CBTS is shown in **Annex J**. The staging plan also illustrates some of the individual construction works areas that have been broken down further in relation to their major construction activities, in order to demonstrate more clearly what areas of the CBTS will be affected and for how long. The timing of the stages for each of the areas of works shown is from the time of starting seawall construction and filling above the seabed to the time when the temporary reclamation is removed and the seabed reinstated.

4.4.3 Referring to **Annex J**, construction works would commence at both the western and eastern ends of the CBTS at Stage 1 and then move progressively towards the centre of the CBTS from the eastern end. At the western end, this part of Stage 1 will be constructed to form the access portal at the side of the CHT so as to commence tunnelling beneath the CHT as soon as possible (as this is a time consuming activity). At the eastern end, the

Stage 1 works will be carried out piece by piece in order to avoid blocking the eastern entrance to the typhoon shelter. First the temporary seawall at the western part of Stage 1 will be constructed, keeping the area behind this clear for access; then, with access moved to the front of the completed seawall, the seawalls of the remainder of the Stage 1 works area will be completed and fill placed inside the seawalls. After completion of the tunnel works, the temporary reclamation will be removed before starting the Stage 2 temporary reclamation (leaving an approximately 30m wide transition section behind) so that access to the eastern entrance of the typhoon shelter is restored behind the Stage 1 works area.

4.4.4 The works areas of Stages 2, 3 and 4 would then proceed progressively in similar fashion (though not as constrained as Stage 1 to avoid blocking the eastern entrance due to the more distant locations of the Stage 2-4 works areas from the entrance). Essentially, before each new area of temporary reclamation is constructed, the preceding area will be removed, except for an intermediate transition section which is left in place as part of the next temporary reclamation area's construction works. In this way, the area of temporary reclamation that is in place at any one time is minimised, as is the disruption to the CBTS users. Upon completion of each area of works, with the removal of the temporary reclamation, the seabed will be reinstated to its original levels.

4.4.5 The critical areas of works in terms of construction programme are the Stage 1 works at the western end of the CBTS, where access is required for a longer period for the rock tunnelling under the CHT, and the Stages 3 and 4 works at the centre of the CBTS, for the connection of Slip Road 8 where the more complex construction of the slip road tunnel joining to the middle of the mainline Trunk Road Tunnel requires a longer construction period. Each of these areas of works will take around 3 years to complete. The temporary reclamation for these two areas must be carried out consecutively in order to avoid cutting off water circulation to the south-west corner of the typhoon shelter and seawater supply to the cooling water intakes. Therefore, the works under these stages account for the critical path for construction works in the CBTS, with overall duration of CBTS works being around 6 years.

4.4.6 In respect of the overall works in the CBTS, the durations when the individual temporary reclamation areas will be in place would vary from around 1 year to just over 3 years. At any one time the affected area of the seabed in the CBTS will vary from 1.8ha to a maximum of 3.7ha. (The durations when the individual areas of temporary reclamation will be in place in the CBTS, together with their associated plan areas, are indicated in **Annex J**.) In determining the staging of the temporary reclamation, consideration has been given to the efficiency and effectiveness of the staging. For example, scattered areas of temporary reclamation will require more temporary works and

will extend the overall duration of the construction, which in turn will lead to more disturbance to the Harbour.

4.4.7 Therefore, whilst the overall area of temporary reclamation in the CBTS in terms of total seabed coverage is 6.4ha, the area of temporary reclamation in the CBTS under staged construction will actually range from 1.8ha to a maximum of 3.7ha at any one time and, as stated above, for a period of 1 to just over 3 years for any given temporary reclamation area.

4.4.8 Similar considerations apply to the temporary reclamation at the ex-PCWA. While the overall area of temporary reclamation in terms of total seabed coverage is 1.9ha, these works will be divided into three stages, two of 0.7ha and 0.8ha in the ex-PCWA basin and the third of 0.4ha at the west of the basin. The temporary reclamation at the ex-PCWA at any one time will range from 0.7ha to a maximum of 1.2ha. The durations of these temporary reclamation stages will vary from 2.5 years to just over 3 years. (The durations when the individual areas of temporary reclamation will be in place at the ex-PCWA, together with their associated plan areas, are also indicated in **Annex J**.)

4.4.9 Provisions will be included in the contract documents to ensure that the temporary reclamation works to be carried out by the contractor will be the minimum extent of temporary reclamation. The temporary reclamation will be removed by the contractor

after completion of the tunnel construction and the seabed will be reinstated.

Marine Access Arrangements

4.4.10 It is important that marine access is maintained in the CBTS during construction. The detailed temporary marine traffic arrangement will be worked out in the detailed design stage with the assistance from Marine Department in consultation with concerned CBTS users. The temporary marine traffic arrangement will maintain a safe navigation environment for all users in the CBTS. The agreed arrangements will be incorporated in the construction contract for implementation to ensure safe and smooth operation of the CBTS.

4.4.11 Notwithstanding the above provision, at this stage the envisaged works have taken into consideration the need to allow the maintenance of marine access to the CBTS through both entrances of the typhoon shelter. In particular, the Stage 1 works at the eastern entrance have been planned to keep access through this entrance available at all times as mentioned in paragraph 4.4.3 above. However, for provision of a safe navigation environment to the CBTS users, the eastern entrance will only be used as emergency access while construction works are taking place in this area (normal access would be through the western entrance during this period). For works inside the CBTS, provision has been made for the works areas, to separate construction plant from nearby moorings.

4.4.12 More details of the provision of marine access envisaged at this stage are provided in a separate report on Options For Reprovisioning of Affected Moorings and Anchorage During Trunk Road Tunnel Construction at the Causeway Bay Typhoon Shelter.

4.5 Environmental Impacts of Temporary Reclamation

4.5.1 A full environmental impact assessment of the temporary reclamation has been included in the Environmental Impact Assessment ("EIA") Report that was submitted to the Director of Environmental Protection under the EIAO on 31 October 2007 and subsequently exhibited for public inspection and comments from 20 December 2007 to 18 January 2008. The Advisory Council on the Environment endorsed the EIA Report (with conditions) on 14 February 2008.

4.5.2 The findings of the EIA are that there will be no unacceptable impacts during both the construction and operation stages, including the major concerns on water quality and marine ecology.

4.6 Conclusions on Temporary Reclamation Requirements

4.6.1 Having concluded that there is no reasonable alternative to temporary reclamation for constructing the Trunk Road Tunnel

beneath the seabed of the CBTS and ex-PCWA, this requirement for temporary reclamation is found to meet a compelling and present need. Without it, the Trunk Road Tunnel cannot be constructed. The need for the temporary reclamation is, essentially, to avoid the need for permanent reclamation and thus inherently to meet the overriding public need for the Trunk Road.

4.6.2 The use of temporary reclamation is the only safe, feasible and practicable approach to constructing the Trunk Road Tunnel. The use of temporary reclamation to provide a temporary working platform, to facilitate cut-and-cover Trunk Road tunnel structure construction:

- is a structurally sound, safe and cost effective form of construction;
- will adequately protect adjacent key infrastructure and utilities from damage or disruption during construction;
- will allow staged construction that will, in turn, minimise adverse environmental impacts and impacts to the concerned CBTS users.

4.6.3 A minimum extent of temporary reclamation has been determined, that will serve solely to facilitate the Trunk Road construction. Through a staged construction approach, the maximum temporary reclamation area in the CBTS will range from 1.8ha to a maximum of 3.7ha at any one time, while the temporary reclamation at the ex-PCWA at any one time would

range from 0.7ha to a maximum of 1.2ha. These are the minimum extents of temporary reclamation required to meet the overriding public need. The durations of the individual temporary reclamation areas will vary from around 1 year to just over 3 years. The overall duration from the first stage up to the removal of the final stage of temporary reclamation will be around 6 years. The temporary reclamation will be removed after the completion of the tunnel construction and the seabed reinstated.

5 PUBLIC ENGAGEMENT

5.1 Public Engagement Activities

5.1.1 Public engagement exercise to brief and consult the public on the issues associated with the construction of the Trunk Road Tunnel in the CBTS and at the ex-PCWA was undertaken through a number of public and professional forums, seminars, discussions with District Councils, the Harbour-front Enhancement Committee and other concerned parties.

5.1.2 In particular, the following public engagement activities were held over the period from April 2008 to August 2008:

7 April 2008	Hong Kong Institution of Engineers Seminar
11 April 2008	Hong Kong Contractors Association Seminar
16 June 2008	Joint Professional Forum for Hong Kong Institution of Engineers, Hong Kong Institute of Architects, Hong Kong Institute of Planners, Hong Kong Institute of Surveyors and Hong Kong Institute of Landscape Architects
3 July 2008	Eastern District Council
15 July 2008	Wan Chai District Council

17 July 2008	Central and Western District Council
19 July 2008	Public Forum
28 July 2008	Southern District Council
18 August 2008	Harbour-front Enhancement Committee

5.1.3 Records of the Hong Kong Institution of Engineers Seminar, the Hong Kong Contractors Association Seminar, the Joint Professional Forum and the Public Forum can be found at **Annex K** for reference. Minutes of the meetings with the District Councils and the Harbour-front Enhancement Committee can be referenced through their respective websites.

5.2 Public Views

5.2.1 The outcome of the public engagement activities and the public views received on the construction of the Trunk Road Tunnel in CBTS and ex-PCWA are summarised as follows.

Professional Institutes and Contractors

5.2.2 The concerned professional institutes and contractors expressed strong support for the project and agreement to the consideration that cut-and-cover construction is the only safe, feasible and practicable method in view of the various constraints and maintenance of operation in CBTS and ex-PCWA. Some technical issues, such as alternative tunnelling

techniques, staging of temporary reclamation, maintaining the operation of the CBTS, tunnelling under CHT, associated dredging works and potential interfaces with the SCL, were raised for discussion at the professional forums.

5.2.3 In addition to supporting the proposals for the Trunk Road construction, members of the professional institutes and contractors association also urged for early implementation of the project.

District Councils

5.2.4 Members of the Central and Western District Council, Wan Chai District Council and Southern District Council supported early implementation of the project and raised no objection to the proposed construction method. As the CBTS falls within the boundary of the Eastern District Council, members decided to set up a Working Group to help foster the public engagement process. The Working Group held its first meeting on 29 July 2008; members of the Working Group were concerned about the reprovisioning arrangements for the CBTS and the environmental impacts of the project. A forum was held on 22 September for residents of the Eastern District to address concerns on these issues. The Eastern District Council will continue to be engaged through the Working Group.

Public Forum

5.2.5 At the public forum on 19 July 2008, in essence, the public raised questions concerning matters of detail, including whether the method for the CWB tunnelling underneath the CHT (clarified as "drill and break" method at the public forum) could be adopted in the CBTS and ex-PCWA; whether blasting can be used; whether a combination of the different methods for constructing the sections of CWB tunnels in CBTS and ex-PCWA can be considered; consequential effects of cut-and-cover construction with temporary reclamation on the existing moorings in the CBTS; whether the temporary reclamation can be carried out in one go; staging of the temporary reclamation work, and their durations of existence and their removal; environmental impacts during construction on nearby residential receivers; and potential interfaces with the SCL. Public views concerning the interfaces with the SCL and associated reclamation requirements, and marine traffic arrangements, were also received prior to the forum through email enquiries.

5.2.6 These questions or concerns were responded to at the forum. In general, the public did not indicate any strong objection to the recommended option of cut-and-cover construction using temporary reclamation at the conclusion of the forum.

5.2.7 For those aspects which were not fully addressed at the public forum, additional information has been provided through further

liaison with the concerned parties, and more elaboration has now been included in this report on the rationale of the Trunk Road construction method and the assessment findings.

Harbour-front Enhancement Committee

5.2.8 The Harbour-front Enhancement Committee (HEC) raised concerns regarding the maintenance of the operation of the CBTS during construction of the Trunk Road; interfaces with SCL; the potential of alternative tunnel boring techniques or mixed construction methods; arrangement of dredging works and treatment of the dredged marine mud. These concerns were responded to at the meeting, with further elaboration on why alternative construction methods are not feasible.

5.2.9 The HEC also suggested that consideration should be given to improve connectivity to the harbour-front and further shorten the overall construction period and hence the impacts during construction. It also requested early consultation with the users of the CBTS in order to arrive at consensus over the construction methods and the arrangements to relocate their vessels.

5.2.10 There was support from members for the Trunk Road project and acknowledgement of the need for temporary reclamation for its construction.

5.3 Conclusions of the Public Engagement

5.3.1 Overall, through the series of public engagement forums and meetings, the recommended method of cut-and-cover construction with temporary reclamation was generally received as the only safe, feasible and practicable method of construction.

5.3.2 Most of the comments received during the public engagement have been addressed directly in the various forums, or the responses have been further elaborated in this report. Some of the queries which concern matters of detail would be addressed in the detailed design stage or the construction stage of the project.

6 CONCLUSIONS

6.1 Overriding Public Need

6.1.1 The proposed Trunk Road scheme (the Trunk Road Tunnel) affects the least area of the Harbour among all feasible options. Reclamation would be minimised by having the Trunk Road Tunnel running beneath the seabed of the CBTS and ex-PCWA, which means that permanent reclamation in these areas would not be required. However, to achieve this end result, temporary works (with temporary reclamation being considered to be the safe, feasible and practicable form of temporary works) would be required in order to construct the sub-seabed tunnel.

6.1.2 Alternative forms of construction have been explored for the construction of the Trunk Road Tunnel beneath the seabed of the CBTS and ex-PCWA to examine if there is any reasonable form of construction that would not require temporary works, in particular temporary reclamation. It is concluded that there is no reasonable alternative method of constructing the Trunk Road Tunnel that does not require temporary works, and that temporary works in the form of temporary reclamation are required to enable the construction of the Trunk Road Tunnel beneath the seabed of the CBTS and the ex-PCWA. The only safe, feasible and practicable form of construction method for the Trunk Road Tunnel sections at the ex-PCWA and CBTS is by cut-and-cover method with diaphragm walls.

6.1.3 The requirement for temporary reclamation is found to meet a compelling and present need. Without it, the Trunk Road Tunnel cannot be constructed. The need for the temporary reclamation is, essentially, to avoid the need for permanent reclamation and thus inherently to meet the overriding public need for the Trunk Road, with the end result being a Trunk Road scheme with the minimum amount of reclamation and the least affected area of the Harbour.

6.1.4 In meeting an overriding public need, the use of temporary reclamation is found to be the safe, feasible and practicable approach to constructing the Trunk Road Tunnel. Temporary reclamation is the only safe, feasible and practicable form of construction, that will adequately protect adjacent key infrastructure and utilities from damage or disruption during construction, and will allow staged construction that will, in turn, minimise adverse environmental impacts and impacts to the community.

6.2 Minimum Temporary Reclamation Required to Meet the Overriding Public Need

6.2.1 A minimum extent of temporary reclamation has been determined, that will serve solely to facilitate the Trunk Road construction. Through a staged construction approach, the maximum affected area of the Harbour in respect of temporary reclamation in the CBTS will range from 1.8ha to a maximum

of 3.7ha at any one time, while the temporary reclamation at the ex-PCWA at any one time would range from 0.7ha to a maximum of 1.2ha. These are the minimum extents of temporary reclamation required to meet the overriding public need. The durations of the individual temporary reclamation areas will vary from around 1 year to just over 3 years. The overall duration from the first stage up to the removal of the final stage of temporary reclamation will be around 6 years. The temporary reclamation will be removed after the completion of the tunnel construction and the seabed reinstated.

6.3 How Temporary is Temporary Reclamation?

6.3.1 With the Trunk Road Tunnel constructed entirely beneath the seabed of the CBTS and ex-PCWA basin and the area to its immediate west, there is no engineering reason to leave any temporary reclamation behind. The temporary reclamation is planned to be removed after completion of the Trunk Road Tunnel construction. Moreover, under a staged construction programme, the earlier stages of temporary reclamation will be removed as the next stage commences, and the contractor will therefore be removing the temporary reclamation as his works progress through the CBTS. From the engineering point of view, the temporary reclamation will only be in place for the duration of the construction of the works.

6.3.2 From a land use point of view, there is also no reason to leave the temporary reclamation beyond the construction period.

There has never been any intention to use the temporary reclamation for any long term planning purpose. Further, if such reclamation were to be permanent, the isolated water bodies at the south-east and south-west corners of the typhoon shelter would become septic and would need to be filled in, which in turn would require gazettal under the Foreshore and Sea-bed (Reclamations) Ordinance and proper procedures to be gone through. Again, we do not have plan to do so

6.3.3 The Government has committed in the Trunk Road scheme gazetted on 27 July 2007 under the Roads (Works, Use and Compensation) Ordinance that the temporary works will be removed after construction of the Trunk Road Tunnel and the existing seabed reinstated. The construction works will be arranged according to this commitment. In fact, the construction contract will be a legally binding document that will oblige the contractor to remove the temporary reclamation and reinstate the seabed.

6.4 Environmental Impacts of the Temporary Reclamation

6.4.1 A full environmental impact assessment of the temporary reclamation has been included in the EIA Report that was submitted to the Director of Environmental Protection under the EIAO on 31 October 2007. The findings of the EIA are that there will be no unacceptable impacts during both the construction and operation stages, including the major concerns on water quality and marine ecology.

6.5 Public Engagement

6.5.1 A comprehensive public engagement exercise has been undertaken to brief and consult the public on the issues associated with the construction of the Trunk Road Tunnel in the CBTS and at the ex-PCWA. Public engagement activities include public and professional forums, seminars, consultation with District Councils and the HEC, as well as liaison with other concerned parties.

6.5.2 The outcome of the public engagement is that the recommended method of cut-and-cover construction of the Trunk Road in temporary reclamation was generally received as the only safe, feasible and practicable method of construction.

6.5.3 Further on-going engagement with the concerned bodies and stakeholders will continue to be undertaken to address concerns regarding details of the project and its implementation.

6.6 Compliance with the PHO

6.6.1 In facilitating the construction of the Trunk Road Tunnel and therefore in meeting the overriding public need for the Trunk Road, there is consequently a compelling and present need for the temporary reclamation in the CBTS and at the ex-PCWA. The purpose of the temporary reclamation is to avoid the need for permanent reclamation, and therefore, ultimately, to serve best to protect and preserve the Harbour. The temporary reclamation is therefore an essential component in achieving the end result of minimum reclamation, in compliance with the PHO. Without it, the minimum reclamation of the Trunk Road Tunnel cannot be achieved and the requirements and intentions of the PHO to protect and preserve the Harbour would not be satisfied.

6.6.2 No reasonable alternative to temporary reclamation is found for constructing the Trunk Road Tunnel.

6.6.3 The extent of temporary reclamation has been determined to be the minimum required.

Annex A

Gazette Notice No. 4767 &
Plans Nos. 92995/GAZ/1000 to 92995/GAZ/1008

G.N. 4767

ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (Chapter 370)

(Notice under section 8(2))

PWP ITEM NO. 6579TH
CENTRAL—WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

Notice is hereby given that under powers delegated by the Secretary for Transport and Housing under section 3(3) of the Roads (Works, Use and Compensation) Ordinance (Chapter 370), the Permanent Secretary for Transport and Housing (Transport) proposes to execute the road works as shown on Plans Nos. 92995/GAZ/1000 to 92995/GAZ/1008 (the 'Plans') and described in the scheme annexed thereto, which the Plans and scheme have been deposited in the Land Registry.

The general nature of the proposed works is as follows:—

(i) construction of a dual three-lane road tunnel between Rumsey Street Flyover in Central and Island Eastern Corridor (IEC) in North Point;

(ii) construction of approach roads to the proposed road tunnel west portal and the associated slip roads in Central, Wan Chai and Causeway Bay;

(iii) construction of footpaths in Central, Causeway Bay and North Point;

(iv) construction of administration building, ventilation buildings, ventilation shafts and buried fresh/exhaust air adits to facilitate ventilation and tunnel control operations serving the proposed road tunnel in (i) above;

(v) modification and realignment of a section of Man Po Street and its U-turn to Finance Street, and a section of Man Kwong Street westbound and its U-turn to Man Kwong Street eastbound;

(vi) permanent closure and demolition of Man Chiu Street, the link road between Man Chiu Street and Finance Street, a right-turn from Hing Fat Street southbound to Victoria Park Road westbound, and a section of IEC;

(vii) modification of Rumsey Street Flyover westbound up ramp; permanent closure and demolition of Rumsey Street Flyover eastbound down ramp onto Connaught Road Central;

(viii) widening of a section of Rumsey Street Flyover Extension;

(ix) modification of a bus terminus at the junction of Man Yiu Street and Man Po Street;

(x) modification of IEC between Hing Fat Street and Po Leung Kuk Yu Lee Mo Fan Memorial School and an up ramp from Hing Fat Street to IEC eastbound;

(xi) permanent closure and reconstruction/modification of sections of Watson Road and Oil Street;

(xii) permanent closure and demolition of sections of the existing at-grade carriageways, elevated carriageways, footpaths, central medians/ refuge islands and amenity areas;

(xiii) temporary closure and reconstruction/modification of sections of the existing at-grade carriageways, elevated carriageways, footpaths, central medians/refuge islands and amenity areas; and

(xiv) ancillary works including construction of noise barriers and noise semi-enclosures along IEC, central medians/refuge islands, amenity areas, landscaped decks, temporary breakwater, temporary piled wave walls, phased temporary reclamation works; and drainage and landscaping works. After the construction of sections of the proposed road tunnel, the temporary breakwater, temporary piled wave walls and phased temporary reclamation works will be removed; and areas to the immediate west of and within the ex-Public Cargo Working Area, areas within the Causeway Bay Typhoon Shelter and the existing sea-bed will be reinstated.

The lots where land is to be resumed are listed below:—

Lots where land is to be resumed

Lot No.

M.L. 277 RP & Ext. (Portion)
RP of M.L. 281 & Ext. (Portion)
M.L. 293 RP & Ext. (Portion)
I.L. 7106 S.A & Ext. (Portion)
I.L. 7106 RP & Ext. (Portion)

The lots where easements and permanent rights are to be created are listed below:—

Lots where easements and permanent rights are to be created

Lot No.

M.L. 293 RP & Ext. (Portion)
M.L. 709 (Portion)

The lots where rights of temporary occupation of land are to be created are listed below:—

Lots where rights of temporary occupation of land are to be created

Lot No.

M.L. 277 RP & Ext. (Portion)
RP of M.L. 281 & Ext. (Portion)
M.L. 293 RP & Ext. (Portion)
M.L. 396 (Portion)
M.L. 709 (Portion)
I.L. 7106 S.A & Ext. (Portion)
I.L. 7106 RP & Ext. (Portion)
I.L. 8898 (Portion)

The Plans and scheme may be inspected by members of the public free of charge at the following places and during the following hours when those offices are normally open to the public:—

Places	*Opening Hours (except on public holidays)*
Central and Western District Office, Public Enquiry Service Centre, Unit 5, Ground Floor, The Center, 99 Queen's Road Central, Hong Kong	Monday to Friday 9.00 a.m.–7.00 p.m.
Wan Chai District Office, Public Enquiry Service Centre, Ground Floor, 2 O'Brien Road, Wan Chai, Hong Kong	
Eastern District Office, Public Enquiry Service Centre, Ground Floor, Eastern Law Courts Building, 29 Tai On Street, Sai Wan Ho, Hong Kong	

Places	*Opening Hours (except on public holidays)*
District Lands Office, Hong Kong West and South, 20th Floor, Southorn Centre, 130–150 Hennessy Road, Wan Chai, Hong Kong District Lands Office, Hong Kong East, 19th Floor, Southorn Centre, 130–150 Hennessy Road, Wan Chai, Hong Kong	Monday to Friday 8.45 a.m.–12.30 p.m. and 1.30 p.m.–5.30 p.m.

Further enquiries regarding the proposed works can be addressed to Major Works Project Management Office, Highways Department, 3rd floor, Ho Man Tin Government Offices, 88 Chung Hau Street, Ho Man Tin, Kowloon and at telephone number 2762 3592.

Any person who wishes to object to the works or the use, or both, is required to address his objection in writing to the Secretary for Transport and Housing, 16th Floor, Murray Building, Garden Road, Hong Kong so as to reach the office of the Secretary not later than the 25th day of September 2007, describing his interest and the manner in which he alleges that he will be affected by the works or the use. Objectors are requested to provide contact details to the Secretary to facilitate communication.

23 July 2007

Francis HO *Permanent Secretary for Transport and Housing (Transport)*

圖例:
LEGEND:

▬ ▪ ▪ ▬ 施工區界限
LIMIT OF WORKS AREA

- - - - 灣仔發展計劃第II期填海範圍(有關填海工程將根據前濱及海床(填海工程)條例(第127章)另行刊憲)(只供指示用途)
RECLAMATION EXTENT FOR WAN CHAI DEVELOPMENT PHASE II (TO BE GAZETTED UNDER FORESHORE AND SEA-BED (RECLAMATIONS) ORDINANCE (CHAPTER 127) SEPARATELY)
(FOR INDICATIVE PURPOSE ONLY)

工程名稱 Project title
工務計劃項目第6579TH號
中環灣仔繞道和東區走廊連接路
PWP ITEM NO. 6579TH
CENTRAL - WAN CHAI BYPASS AND
ISLAND EASTERN CORRIDOR LINK

圖則名稱 Plan title
根據道路(工程、使用及補償)條例
(第370章)而在憲報公布之圖則
PLAN FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

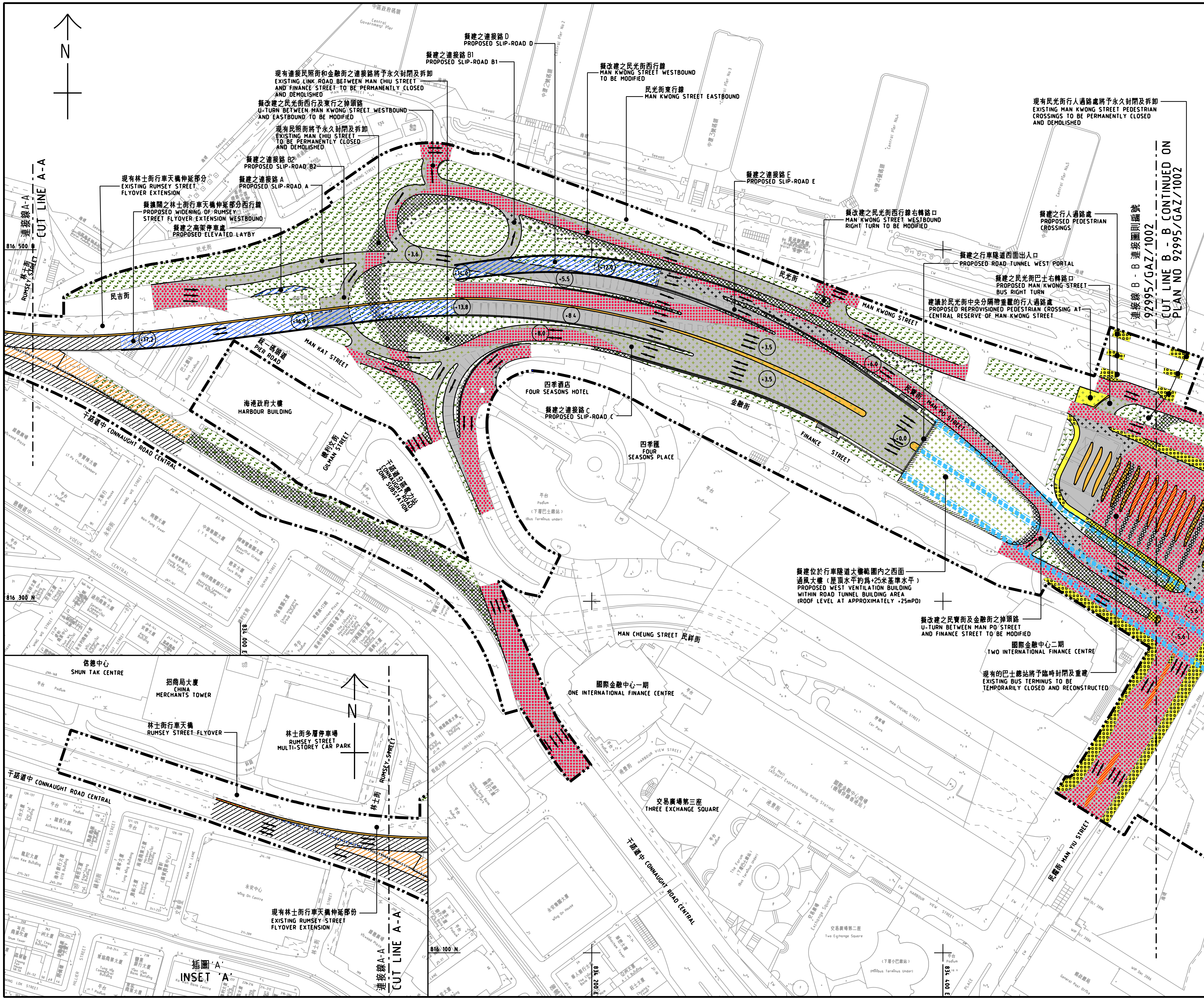
九張中的第一張
SHEET 1 OF 9

圖則編號 Plan no.
92995/GAZ/1000

比例 scale
A1 1 : 8000
A3 1 : 16000

辦事處 Office
主要工程管理處
Major Works Project Management Office

路政署
HIGHWAYS
DEPARTMENT



註釋：
NOTES :

1. 除在其他方面指定外，所有量度以米爲單位。
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均爲約數，以米爲單位，並基於香港主水平基準上。
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之現有行車道及行人路之部分路段或會分階段臨時封閉。
SECTIONS OF EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

圖例：
LEGEND

- 施工區界限 / LIMIT OF WORKS AREA
- 行車道的行車線 (每一箭嘴表示一條行車線) / TRAFFIC LANE FOR CARRIAGEWAY (ONE ARROW REPRESENTS ONE LANE)
- +8.1 露天/於高架園景平台下/半開放式隔音罩下道路之建議路面水平(約數) / PROPOSED ROAD LEVEL OF OPEN ROAD/ROAD UNDER ELEVATED LANDSCAPED DECK/ROAD UNDER NOISE SEMI-ENCLOSURE (APPROXIMATE)
- -8.1 行車隧道之建議路面水平(約數) / PROPOSED ROAD LEVEL INSIDE ROAD TUNNEL (APPROXIMATE)
- 擬建之行車隧道(連緊急行人通道) / PROPOSED ROAD TUNNEL (WITH EMERGENCY PEDESTRIAN WALKWAY)
- 擬建之地面行車道 / PROPOSED AT-GRADE CARRIAGEWAY
- 擬建之行人路 / PROPOSED FOOTPATH
- 擬建之高架行車道 / PROPOSED ELEVATED CARRIAGEWAY
- 擬建之中央分隔帶/安全島 / PROPOSED CENTRAL RESERVE/REFUGE ISLAND
- 擬建之美化市容地帶 / PROPOSED AMENITY AREA
- 現有政府前濱或海床將予臨時填平，以便興建行車隧道 / EXISTING GOVERNMENT FORESHORE OR SEA-BED TO BE TEMPORARILY RECLAIMED FOR ROAD TUNNEL CONSTRUCTION
- 現有地面行車道將予臨時封閉及重建 / EXISTING AT-GRADE CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有地面行車道將予永久封閉及拆卸 / EXISTING AT-GRADE CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有高架行車道將予臨時封閉及重建 / EXISTING ELEVATED CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有高架行車道將予永久封閉及拆卸 / EXISTING ELEVATED CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有行人路將予永久封閉及拆卸 / EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有中央分隔帶/安全島將予重建 / EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE RECONSTRUCTED
- 現有中央分隔帶/安全島將予拆卸 / EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE DEMOLISHED
- 現有美化市容地帶將予重建 / EXISTING AMENITY AREA TO BE RECONSTRUCTED
- 現有美化市容地帶將予拆卸 / EXISTING AMENITY AREA TO BE DEMOLISHED
- 現有行人路將予臨時封閉及重建 / EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 擬建之行車隧道大樓範圍 / PROPOSED ROAD TUNNEL BUILDING AREA

工程名稱 Project title

工務計劃項目第6579TH號
中環灣仔繞道和東區走廊連接路
PWP ITEM NO 6579TH
CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

圖則名稱 Plan title

根據道路(工程、使用及補償)條例(第370章)而在憲報公布之圖則
PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

九張中的第二張
SHEET 2 OF 9

圖則編號 Plan no.	比例 scale
92995/GAZ/1001	A1 1 : 1000 A3 1 : 2000

辦事處 Office
主要工程管理處
Major Works Project Management Office

路政署
HIGHWAYS DEPARTMENT

註釋：
NOTES :

1. 除在其他方面指定外，所有量度以米爲單位.
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均爲約數，以米爲單位，並基於香港主水平基準上.
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之現有行車道及行人路之部分路段或會分階段臨時封閉.
   SECTIONS OF EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

圖例：
LEGEND

▬ · · ▬	施工區界限 LIMIT OF WORKS AREA
←	行車道的行車線 (每一箭嘴表示一條行車線) TRAFFIC LANE FOR CARRIAGEWAY (ONE ARROW REPRESENTS ONE LANE)
(+8.1)	露天/於高架園景平台下/半開放式隔音罩下道路之建議路面水平(約數) PROPOSED ROAD LEVEL OF OPEN ROAD/ ROAD UNDER ELEVATED LANDSCAPED DECK/ ROAD UNDER NOISE SEMI-ENCLOSURE (APPROXIMATE)
(-8.1)	行車隧道之建議路面水平(約數) PROPOSED ROAD LEVEL INSIDE ROAD TUNNEL (APPROXIMATE)
▬ ▬ ▬	擬建之行車隧道(連緊急行人通道) PROPOSED ROAD TUNNEL (WITH EMERGENCY PEDESTRIAN WALKWAY)
▨	擬建之地面行車道 PROPOSED AT-GRADE CARRIAGEWAY
🟨	擬建之行人路 PROPOSED FOOTPATH
▨	擬建之高架行車道 PROPOSED ELEVATED CARRIAGEWAY
🟧	擬建之中央分隔帶/安全島 PROPOSED CENTRAL RESERVE/REFUGE ISLAND
▨	擬建之美化市容地帶 PROPOSED AMENITY AREA
▨	現有政府前濱或海床將予臨時填平，以便興建行車隧道 EXISTING GOVERNMENT FORESHORE OR SEA-BED TO BE TEMPORARILY RECLAIMED FOR ROAD TUNNEL CONSTRUCTION
▨	現有地面行車道將予臨時封閉及重建 EXISTING AT-GRADE CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
▨	現有地面行車道將予永久封閉及拆卸 EXISTING AT-GRADE CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
▨	現有高架行車道將予臨時封閉及重建 EXISTING ELEVATED CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
▨	現有高架行車道將予永久封閉及拆卸 EXISTING ELEVATED CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
▨	現有行人路將予永久封閉及拆卸 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND DEMOLISHED
▨	現有中央分隔帶/安全島將予重建 EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE RECONSTRUCTED
▨	現有中央分隔帶/安全島將予拆卸 EXISTING CENTRAL RESERVE/ REFUGE ISLAND TO BE DEMOLISHED
▨	現有美化市容地帶將予重建 EXISTING AMENITY AREA TO BE RECONSTRUCTED
▨	現有美化市容地帶將予拆卸 EXISTING AMENITY AREA TO BE DEMOLISHED
▨	現有行人路將予臨時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
▨	擬建之行車隧道大樓範圍 PROPOSED ROAD TUNNEL BUILDING AREA

工程名稱 Project title

工務計劃項目第6579TH號
中環灣仔繞道和東區走廊連接路
PWP ITEM NO. 6579TH
CENTRAL - WAN CHAI BYPASS AND
ISLAND EASTERN CORRIDOR LINK

圖則名稱 Plan title

根據道路(工程、使用及補償)條例
(第370章)而在憲報公布之圖則
PLAN FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

九張中的第三張
SHEET 3 OF 9

圖則編號 Plan no.
92995/GAZ/1002

比例 scale
A1 1 : 1000
A3 1 : 2000

辦事處 Office
主要工程管理處
Major Works Project Management Office

路政署
HIGHWAYS DEPARTMENT

圖例(續):
LEGEND (CONTINUED) :

灣仔發展計劃第II期填海範圍(有關填海工程將根據前濱及海床(填海工程)條例(第127章)另行刊憲)(只供指示用途)
RECLAMATION EXTENT FOR WAN CHAI DEVELOPMENT PHASE II (TO BE GAZETTED UNDER FORESHORE AND SEA-BED (RECLAMATIONS) ORDINANCE (CHAPTER 127) SEPARATELY) (FOR INDICATIVE PURPOSE ONLY)

灣仔發展計劃第II期的道路工程範圍(有關工程將根據道路(工程、使用及補償)條例(第370章)另行刊憲)(只供指示用途)
EXTENT OF ROAD WORKS FOR WAN CHAI DEVELOPMENT PHASE II (TO BE GAZETTED UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370) SEPARATELY) (FOR INDICATIVE PURPOSE ONLY)

擬建之行車隧道地下輸氣及排氣管道
PROPOSED ROAD TUNNEL BURIED FRESH/EXHAUST AIR ADITS

N

816 200 N

連接線 C - C 連接圖則編號 92995/GAZ/1002
CUT LINE C - C CONTINUED ON PLAN NO 92995/GAZ/1002

816 000 N

815 800 N

維多利亞港
VICTORIA HARBOUR

2006年12月之填海界線 Limit of Reclamation Dec 2006

擬建之中環灣仔繞道東行線
PROPOSED CENTRAL - WAN CHAI BYPASS EASTBOUND

擬建之中環灣仔繞道西行線
PROPOSED CENTRAL - WAN CHAI BYPASS WESTBOUND

(-11.5)
(-11.5)
(-9.0)
(-9.0)
(-6.5)
(-7.2)
(-2.0)
+5.0
+3.3
+2.9
+5.0
+5.1

擬建之連接路一
PROPOSED SLIP-ROAD 1

擬建之連接路二
PROPOSED SLIP-ROAD 2

擬建之連接路三
PROPOSED SLIP-ROAD 3

博覽道 EXPO DRIVE

博覽道中 EXPO DRIVE CENTRAL

會議道 CONVENTION AVENUE

連接線 D - D 連接圖則編號 92995/GAZ/1004
CUT LINE D - D CONTINUED ON PLAN NO 92995/GAZ/1004

位於行車隧道大樓範圍內的擬建之中通風大樓(屋頂水平約爲+25米基準水平)
PROPOSED CENTRAL VENTILATION BUILDING WITHIN ROAD TUNNEL BUILDING AREA (ROOF LEVEL AT APPROXIMATELY +25mPD)

行人廣場(下層停車場)
Pedestrian Plaza (Car Park under)

LUNG WUI ROAD 龍匯道

TIM MEI AVENUE 添美道

FENWICK PIER STREET 分域碼頭街

LUNG KING STREET 龍景街

海軍商場
FLEET ARCADE

渠務署灣仔西污水隔篩廠
DRAINAGE SERVICES DEPARTMENT WAN CHAI (WEST) SEWAGE SCREENING PLANT

香港演藝學院
THE HONG KONG ACADEMY FOR PERFORMING ARTS

港灣道 HARBOUR ROAD

會展園 Convention Plaza

君悅大酒店 Grand Hyatt

835 000 E

註釋:
NOTES :

1. 除在其他方面指定外,所有量度以米爲單位.
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均爲約數,以米爲單位,並基於香港主水平基準上.
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要,施工區界限內之現有行車道及行人路之部分路段或會分階段臨時封閉.
SECTIONS OF EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

圖例:
LEGEND

施工區界限
LIMIT OF WORKS AREA

行車道的行車線
(每一箭嘴表示一條行車線)
TRAFFIC LANE FOR CARRIAGEWAY (ONE ARROW REPRESENTS ONE LANE)

露天/於高架園景平台下/半開放式隔音罩下道路之建議路面水平(約數)
PROPOSED ROAD LEVEL OF OPEN ROAD/ ROAD UNDER ELEVATED LANDSCAPED DECK/ ROAD UNDER NOISE SEMI-ENCLOSURE (APPROXIMATE)

行車隧道之建議路面水平(約數)
PROPOSED ROAD LEVEL INSIDE ROAD TUNNEL (APPROXIMATE)

擬建之行車隧道(連緊急行人通道)
PROPOSED ROAD TUNNEL (WITH EMERGENCY PEDESTRIAN WALKWAY)

擬建之地面行車道
PROPOSED AT-GRADE CARRIAGEWAY

擬建之行人路
PROPOSED FOOTPATH

擬建之高架行車道
PROPOSED ELEVATED CARRIAGEWAY

擬建之中央分隔帶/安全島
PROPOSED CENTRAL RESERVE/REFUGE ISLAND

擬建之美化市容地帶
PROPOSED AMENITY AREA

現有政府前濱或海床將予臨時填平,以便興建行車隧道
EXISTING GOVERNMENT FORESHORE OR SEA-BED TO BE TEMPORARILY RECLAIMED FOR ROAD TUNNEL CONSTRUCTION

現有地面行車道將予臨時封閉及重建
EXISTING AT-GRADE CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

現有地面行車道將予永久封閉及拆卸
EXISTING AT-GRADE CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有高架行車道將予臨時封閉及重建
EXISTING ELEVATED CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

現有高架行車道將予永久封閉及拆卸
EXISTING ELEVATED CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有行人路將予永久封閉及拆卸
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有中央分隔帶/安全島將予重建
EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE RECONSTRUCTED

現有中央分隔帶/安全島將予拆卸
EXISTING CENTRAL RESERVE/ REFUGE ISLAND TO BE DEMOLISHED

現有美化市容地帶將予重建
EXISTING AMENITY AREA TO BE RECONSTRUCTED

現有美化市容地帶將予拆卸
EXISTING AMENITY AREA TO BE DEMOLISHED

現有行人路將予臨時封閉及重建
EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

擬建之行車隧道大樓範圍
PROPOSED ROAD TUNNEL BUILDING AREA

工程名稱 Project title
工務計劃項目第6579TH號
中環灣仔繞道和東區走廊連接路
PWP ITEM NO 6579TH
CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

圖則名稱 Plan title
根據道路(工程、使用及補償)條例(第370章)而在憲報公布之圖則
PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

九張中的第四張
SHEET 4 OF 9

圖則編號 Plan no.
92995/GAZ/1003

比例 scale
A1 1 : 1000
A3 1 : 2000

辦事處 Office
主要工程管理處
Major Works Project Management Office

路政署
HIGHWAYS DEPARTMENT

圖例(續):
LEGEND (CONTINUED) :

灣仔發展計劃第II期填海範圍(有關填海工程將根據前濱及海床(填海工程)條例(第127章)另行刊憲)(只供指示用途)
RECLAMATION EXTENT FOR WAN CHAI DEVELOPMENT PHASE II (TO BE GAZETTED UNDER FORESHORE AND SEA-BED (RECLAMATIONS) ORDINANCE (CHAPTER 127) SEPARATELY) (FOR INDICATIVE PURPOSE ONLY)

受建議之臨時填海工程影響的政府前濱或海床大約範圍
EXTENT OF GOVERNMENT FORESHORE OR SEA-BED AFFECTED BY PROPOSED TEMPORARY RECLAMATION (APPROXIMATE)

連接線 D - D 連接圖則編號
92995/GAZ/1003
CUT LINE D - D CONTINUED ON PLAN NO 92995/GAZ/1003

816 200 N

Seawall

Wan Chai Temporary Promenade

金紫荊廣場
GOLDEN BAUHINIA SQUARE

博覽道 EXPO DRIVE

博覽道東 EXPO DRIVE EAST

香港會議展覽中心
HONG KONG CONVENTION AND EXHIBITION CENTRE

816 000 N

擬建之中環灣仔繞道東行線
PROPOSED CENTRAL - WAN CHAI BYPASS EASTBOUND

博覽道中 EXPO DRIVE CENTRAL

擬建之連接路二
PROPOSED SLIP-ROAD 2

-3.2

(-8.8)

擬建之連接路三
PROPOSED SLIP-ROAD 3

擬建之中環灣仔繞道西行線
PROPOSED CENTRAL - WAN CHAI BYPASS WESTBOUND

香港會議展覽中心
HONG KONG CONVENTION AND EXHIBITION CENTRE

815 800 N

Landscaped Roof Garden

平台
Podium

會展廣場辦公大樓
Convention Plaza Office Tower

HARBOUR ROAD

港灣道

836 000 E

維多利亞港
VICTORIA HARBOUR

重置渡輪碼頭(有關工程將根據前濱及海床(填海工程)條例(第127章)另行刊憲)(只供指示用途)
REPROVISIONED FERRY PIER (TO BE GAZETTED UNDER FORESHORE AND SEA-BED (RECLAMATIONS) ORDINANCE (CHAPTER 127) SEPARATELY) (FOR INDICATIVE PURPOSE ONLY)

灣仔發展計劃第II期中擬拆卸之現有渡輪碼頭(有關工程將根據道路(工程、使用及補償)條例(第370章)另行刊憲)(只供指示用途)
EXISTING FERRY PIER TO BE DEMOLISHED FOR WAN CHAI DEVELOPMENT PHASE II (TO BE GAZETTED UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370) SEPARATELY) (FOR INDICATIVE PURPOSE ONLY)

(-16.6)

灣仔北公共交通交匯處
WAN CHAI NORTH PUBLIC TRANSPORT INTERCHANGE

港灣道體育館
HARBOUR ROAD SPORTS CENTRE

灣仔游泳池
WANCHAI SWIMMING POOL

菲林明道 FLEMING ROAD

杜老誌道 TONNOCHY ROAD

灣仔運動場
WAN CHAI SPORTS GROUND

鴻興道 HUNG HING ROAD

灣仔分區電力站
WANCHAI ZONE SUBSTATION

馬師道 MARSH ROAD

會議道 CONVENTION AVENUE

麗君中心
GREAT EAGLE CENTRE

海港中心
HARBOUR CENTRE

平台下層停車場
Podium (Car Park Under)

港灣道 HARBOUR ROAD

港灣道花園
Harbour Road Garden

836 200 E

836 400 E

N

連接線 E - E 連接圖則編號
92995/GAZ/1005
CUT LINE E - E CONTINUED ON PLAN NO. 92995/GAZ/1005

註釋:
NOTES :

1. 除在其他方面指定外，所有量度以米爲單位.
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均爲約數，以米爲單位，並基於香港主水平基準上.
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之現有行車道及行人路之部分路段或會分階段臨時封閉.
SECTIONS OF EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

圖例:
LEGEND

- 施工區界限 LIMIT OF WORKS AREA
- 行車道的行車線(每一箭嘴表示一條行車線) TRAFFIC LANE FOR CARRIAGEWAY (ONE ARROW REPRESENTS ONE LANE)
- (-8.1) 露天/於高架園景平台下/半開放式隔音罩下道路之建議路面水平(約數) PROPOSED ROAD LEVEL OF OPEN ROAD/ ROAD UNDER ELEVATED LANDSCAPED DECK/ ROAD UNDER NOISE SEMI-ENCLOSURE (APPROXIMATE)
- (-8.1) 行車隧道之建議路面水平(約數) PROPOSED ROAD LEVEL INSIDE ROAD TUNNEL (APPROXIMATE)
- 擬建之行車隧道(連緊急行人通道) PROPOSED ROAD TUNNEL (WITH EMERGENCY PEDESTRIAN WALKWAY)
- 擬建之地面行車道 PROPOSED AT-GRADE CARRIAGEWAY
- 擬建之行人路 PROPOSED FOOTPATH
- 擬建之高架行車道 PROPOSED ELEVATED CARRIAGEWAY
- 擬建之中央分隔帶/安全島 PROPOSED CENTRAL RESERVE/REFUGE ISLAND
- 擬建之美化市容地帶 PROPOSED AMENITY AREA
- 現有政府前濱或海床將予臨時填平，以便興建行車隧道 EXISTING GOVERNMENT FORESHORE OR SEA-BED TO BE TEMPORARILY RECLAIMED FOR ROAD TUNNEL CONSTRUCTION
- 現有地面行車道將予臨時封閉及重建 EXISTING AT-GRADE CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有地面行車道將予永久封閉及拆卸 EXISTING AT-GRADE CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有高架行車道將予臨時封閉及重建 EXISTING ELEVATED CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有高架行車道將予永久封閉及拆卸 EXISTING ELEVATED CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有行人路將予永久封閉及拆卸 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有中央分隔帶/安全島將予重建 EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE RECONSTRUCTED
- 現有中央分隔帶/安全島將予拆卸 EXISTING CENTRAL RESERVE/ REFUGE ISLAND TO BE DEMOLISHED
- 現有美化市容地帶將予重建 EXISTING AMENITY AREA TO BE RECONSTRUCTED
- 現有美化市容地帶將予拆卸 EXISTING AMENITY AREA TO BE DEMOLISHED
- 現有行人路將予臨時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 擬建之行車隧道大樓範圍 PROPOSED ROAD TUNNEL BUILDING AREA

工程名稱 Project title
工務計劃項目第6579TH號
中環灣仔繞道和東區走廊連接路
PWP ITEM NO 6579TH
CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

圖則名稱 Plan title
根據道路(工程、使用及補償)條例(第370章)而在憲報公布之圖則
PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

九張中的第五張
SHEET 5 OF 9

圖則編號 Plan no.
92995/GAZ/1004

比例 scale
A1 1 : 1000
A3 1 : 2000

辦事處 Office
主要工程管理處
Major Works Project Management Office

路政署
HIGHWAYS DEPARTMENT

圖例(續):
LEGEND (CONTINUED) :

受建議之臨時填海工程影響的政府前濱或海床大約範圍
EXTENT OF GOVERNMENT FORESHORE OR SEA-BED AFFECTED BY PROPOSED TEMPORARY RECLAMATION (APPROXIMATE)

連接線 E - E 連接圖則編號
92995/GAZ/1004
CUT LINE E - E CONTINUED ON
PLAN NO 92995/GAZ/1004

連接線 H - H 連接圖則編號
92995/GAZ/1008
CUT LINE H - H CONTINUED ON
PLAN NO 92995/GAZ/1008

連接線 F - F 連接圖則編號
92995/GAZ/1006
CUT LINE F - F CONTINUED ON
PLAN NO. 92995/GAZ/1006

維多利亞港
VICTORIA HARBOUR

銅鑼灣避風塘
CAUSEWAY BAY TYPHOON SHELTER

香港遊艇會
ROYAL HONG KONG YACHT CLUB

前公衆貨物裝卸區
EX-PUBLIC CARGO WORKING AREA

擬建之中環灣仔繞道東行線
PROPOSED CENTRAL - WAN CHAI BYPASS EASTBOUND

擬建之中環灣仔繞道西行線
PROPOSED CENTRAL - WAN CHAI BYPASS WESTBOUND

擬建之連接路八
PROPOSED SLIP-ROAD 8

海底隧道 CROSS HARBOUR TUNNEL

警官會所
POLICE OFFICERS' CLUB

午砲
THE NOONDAY GUN

銅鑼灣行車天橋重建工程及維園道道路擴闊工程的道路工程範圍(進行中)
EXTENT OF ROAD WORKS OF RECONSTRUCTION OF CAUSEWAY BAY FLYOVER AND ASSOCIATED WIDENING OF VICTORIA PARK ROAD (IN PROGRESS)

樂務署
灣仔東污水隔篩廠
DRAINAGE SERVICES DEPARTMENT
WANCHAI EAST SEWAGE SCREENING PLANT

告士打道 GLOUCESTER ROAD

謝斐道 JAFFE ROAD

軒尼詩道 HENNESSY ROAD

鴻興道 HUNG HING ROAD

維園道 VICTORIA PARK ROAD

816 200 N
816 000 N
815 800 N
836 400 E
836 600 E
836 800 E
837 000 E

註釋:
NOTES :

1. 除在其他方面指定外,所有量度以米爲單位.
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均爲約數,以米爲單位,並基於香港主水平基準上.
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要,施工區界限內之現有行車道及行人路之部分路段或會分階段臨時封閉.
SECTIONS OF EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

圖例:
LEGEND

施工區界限
LIMIT OF WORKS AREA

行車道的行車線
(每一箭嘴表示一條行車線)
TRAFFIC LANE FOR CARRIAGEWAY (ONE ARROW REPRESENTS ONE LANE)

露天/於高架園景平台下/半開放式隔音罩下道路之建議路面水平(約數)
PROPOSED ROAD LEVEL OF OPEN ROAD/ ROAD UNDER ELEVATED LANDSCAPED DECK/ ROAD UNDER NOISE SEMI-ENCLOSURE (APPROXIMATE)

行車隧道之建議路面水平(約數)
PROPOSED ROAD LEVEL INSIDE ROAD TUNNEL (APPROXIMATE)

擬建之行車隧道(連緊急行人通道)
PROPOSED ROAD TUNNEL (WITH EMERGENCY PEDESTRIAN WALKWAY)

擬建之地面行車道
PROPOSED AT-GRADE CARRIAGEWAY

擬建之行人路
PROPOSED FOOTPATH

擬建之高架行車道
PROPOSED ELEVATED CARRIAGEWAY

擬建之中央分隔帶/安全島
PROPOSED CENTRAL RESERVE/REFUGE ISLAND

擬建之美化市容地帶
PROPOSED AMENITY AREA

現有政府前濱或海床將予臨時填平,以便興建行車隧道
EXISTING GOVERNMENT FORESHORE OR SEA-BED TO BE TEMPORARILY RECLAIMED FOR ROAD TUNNEL CONSTRUCTION

現有地面行車道將予臨時封閉及重建
EXISTING AT-GRADE CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

現有地面行車道將予永久封閉及拆卸
EXISTING AT-GRADE CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有高架行車道將予臨時封閉及重建
EXISTING ELEVATED CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

現有高架行車道將予永久封閉及拆卸
EXISTING ELEVATED CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有行人路將予永久封閉及拆卸
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有中央分隔帶/安全島將予重建
EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE RECONSTRUCTED

現有中央分隔帶/安全島將予拆卸
EXISTING CENTRAL RESERVE/ REFUGE ISLAND TO BE DEMOLISHED

現有美化市容地帶將予重建
EXISTING AMENITY AREA TO BE RECONSTRUCTED

現有美化市容地帶將予拆卸
EXISTING AMENITY AREA TO BE DEMOLISHED

現有行人路將予臨時封閉及重建
EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

擬建之行車隧道大樓範圍
PROPOSED ROAD TUNNEL BUILDING AREA

工程名稱 Project title
工務計劃項目第6579TH號
中環灣仔繞道和東區走廊連接路
PWP ITEM NO 6579TH
CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

圖則名稱 Plan title
根據道路(工程、使用及補償)條例(第370章)而在憲報公布之圖則
PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

九張中的第六張
SHEET 6 OF 9

圖則編號 Plan no.
92995/GAZ/1005

比例 scale
A1 1 : 1000
A3 1 : 2000

辦事處 Office
主要工程管理處
Major Works Project Management Office

路政署
HIGHWAYS DEPARTMENT

圖例(續):
LEGEND (CONTINUED):

— — —	受建議之臨時填海工程影響的政府前濱或海床大約範圍 EXTENT OF GOVERNMENT FORESHORE OR SEA-BED AFFECTED BY PROPOSED TEMPORARY RECLAMATION (APPROXIMATE)
▽	擬建之高架園景平台 PROPOSED ELEVATED LANDSCAPED DECK

註釋:
NOTES :

1. 除在其他方面指定外,所有量度以米爲單位.
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均爲約數，以米爲單位,並基於香港主水平基準上.
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之現有行車道及行人路之部分路段或會分階段臨時封閉.
   SECTIONS OF EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

圖例:
LEGEND

▬ ▪ ▪ ▬	施工區界限 LIMIT OF WORKS AREA
←	行車道的行車線 (每一箭嘴表示一條行車線) TRAFFIC LANE FOR CARRIAGEWAY (ONE ARROW REPRESENTS ONE LANE)
(+8.1)	露天/於高架園景平台下/半開放式隔音罩下道路之建議路面水平(約數) PROPOSED ROAD LEVEL OF OPEN ROAD/ ROAD UNDER ELEVATED LANDSCAPED DECK/ ROAD UNDER NOISE SEMI-ENCLOSURE (APPROXIMATE)
(-8.1)	行車隧道之建議路面水平(約數) PROPOSED ROAD LEVEL INSIDE ROAD TUNNEL (APPROXIMATE)
▬ ▬ ▬	擬建之行車隧道(連緊急行人通道) PROPOSED ROAD TUNNEL (WITH EMERGENCY PEDESTRIAN WALKWAY)
■	擬建之地面行車道 PROPOSED AT-GRADE CARRIAGEWAY
🟨	擬建之行人路 PROPOSED FOOTPATH
▨	擬建之高架行車道 PROPOSED ELEVATED CARRIAGEWAY
🟧	擬建之中央分隔帶/安全島 PROPOSED CENTRAL RESERVE/REFUGE ISLAND
✓	擬建之美化市容地帶 PROPOSED AMENITY AREA
+	現有政府前濱或海床將予臨時填平，以便興建行車隧道 EXISTING GOVERNMENT FORESHORE OR SEA-BED TO BE TEMPORARILY RECLAIMED FOR ROAD TUNNEL CONSTRUCTION
●	現有地面行車道將予臨時封閉及重建 EXISTING AT-GRADE CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
▩	現有地面行車道將予永久封閉及拆卸 EXISTING AT-GRADE CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
▨	現有高架行車道將予臨時封閉及重建 EXISTING ELEVATED CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
▨	現有高架行車道將予永久封閉及拆卸 EXISTING ELEVATED CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
+	現有行人路將予永久封閉及拆卸 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND DEMOLISHED
▨	現有中央分隔帶/安全島將予重建 EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE RECONSTRUCTED
○	現有中央分隔帶/安全島將予拆卸 EXISTING CENTRAL RESERVE/ REFUGE ISLAND TO BE DEMOLISHED
✓	現有美化市容地帶將予重建 EXISTING AMENITY AREA TO BE RECONSTRUCTED
+	現有美化市容地帶將予拆卸 EXISTING AMENITY AREA TO BE DEMOLISHED
□	現有行人路將予臨時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
▨	擬建之行車隧道大樓範圍 PROPOSED ROAD TUNNEL BUILDING AREA

工程名稱 Project title

工務計劃項目第6579TH號
中環灣仔繞道和東區走廊連接路
PWP ITEM NO. 6579TH
CENTRAL - WAN CHAI BYPASS AND
ISLAND EASTERN CORRIDOR LINK

圖則名稱 Plan title

根據道路(工程、使用及補償)條例(第370章)而在憲報公布之圖則
PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

九張中的第七張
SHEET 7 OF 9

圖則編號 Plan no.
92995/GAZ/1006

比例 scale
A1 1 : 1000
A3 1 : 2000

辦事處 Office
主要工程管理處
Major Works Project Management Office

路政署
HIGHWAYS DEPARTMENT

817 000 N

連接線 M - M
CUT LINE M - M

擬建之高架行車道所需的下層結構
PROPOSED SUBSTRUCTURES FOR PROPOSED ELEVATED CARRIAGEWAY

重置之樁柱式保護墩
REPROVISIONED PILED DOLPHIN

連接線 N - N
CUT LINE N - N

香港浸信教會顯理中學
HONG KONG BAPTIST CHURCH HENRIETTA SECONDARY SCHOOL

保良局余李慕芬紀念學校
PO LEUNG KUK YU LEE MO FAN MEMORIAL SCHOOL

城市花園
CITY GARDEN

插圖"B"
INSET "B"

837 700 E

816 900 N

維多利亞港
VICTORIA HARBOUR

圖例(續):
LEGEND (CONTINUED)

灣仔發展計劃第II期填海範圍(有關填海工程將根據前濱及海床(填海工程)條例(第127章)另行刊憲)(只供指示用途)
RECLAMATION EXTENT FOR WAN CHAI DEVELOPMENT PHASE II (TO BE GAZETTED UNDER FORESHORE AND SEA-BED (RECLAMATIONS) ORDINANCE (CHAPTER 127) SEPARATELY)
(FOR INDICATIVE PURPOSE ONLY)

N

重置之樁柱式保護墩
REPROVISIONED PILED DOLPHIN

擬建之高架行車道所需的下層結構
PROPOSED SUBSTRUCTURES FOR PROPOSED ELEVATED CARRIAGEWAY

連接線 M - M
CUT LINE M - M

註釋:
NOTES :

1. 除在其他方面指定外,所有量度以米爲單位.
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均爲約數,以米爲單位,並基於香港主水平基準上.
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要,施工區界限內之現有行車道及行人路之部分路段或會分階段臨時封閉.
SECTIONS OF EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

圖例:
LEGEND

施工區界限
LIMIT OF WORKS AREA

行車道的行車線
(每一箭嘴表示一條行車線)
TRAFFIC LANE FOR CARRIAGEWAY
(ONE ARROW REPRESENTS ONE LANE)

(-8.1) 露天/於高架園景平台下/半開放式隔音罩下道路之建議路面水平(約數)
PROPOSED ROAD LEVEL OF OPEN ROAD/ ROAD UNDER ELEVATED LANDSCAPED DECK/ ROAD UNDER NOISE SEMI-ENCLOSURE (APPROXIMATE)

(-8.1) 行車隧道之建議路面水平(約數)
PROPOSED ROAD LEVEL INSIDE ROAD TUNNEL (APPROXIMATE)

擬建之行車隧道(連緊急行人通道)
PROPOSED ROAD TUNNEL (WITH EMERGENCY PEDESTRIAN WALKWAY)

擬建之地面行車道
PROPOSED AT-GRADE CARRIAGEWAY

擬建之行人路
PROPOSED FOOTPATH

擬建之高架行車道
PROPOSED ELEVATED CARRIAGEWAY

擬建之中央分隔帶/安全島
PROPOSED CENTRAL RESERVE/REFUGE ISLAND

擬建之美化市容地帶
PROPOSED AMENITY AREA

現有政府前濱或海床將予臨時填平,以便興建行車隧道
EXISTING GOVERNMENT FORESHORE OR SEA-BED TO BE TEMPORARILY RECLAIMED FOR ROAD TUNNEL CONSTRUCTION

現有地面行車道將予臨時封閉及重建
EXISTING AT-GRADE CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

現有地面行車道將予永久封閉及拆卸
EXISTING AT-GRADE CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有高架行車道將予臨時封閉及重建
EXISTING ELEVATED CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

現有高架行車道將予永久封閉及拆卸
EXISTING ELEVATED CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有行人路將予永久封閉及拆卸
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有中央分隔帶/安全島將予重建
EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE RECONSTRUCTED

現有中央分隔帶/安全島將予拆卸
EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE DEMOLISHED

現有美化市容地帶將予重建
EXISTING AMENITY AREA TO BE RECONSTRUCTED

現有美化市容地帶將予拆卸
EXISTING AMENITY AREA TO BE DEMOLISHED

現有行人路將予臨時封閉及重建
EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

擬建之行車隧道大樓範圍
PROPOSED ROAD TUNNEL BUILDING AREA

816 800 N

圖例(續):
LEGEND (CONTINUED) :

擬建之行車隧道地下輸氣/排氣管道
PROPOSED ROAD TUNNEL BURIED FRESH/EXHAUST AIR ADITS

受建議之臨時填海工程影響的政府前濱或海床大約範圍
EXTENT OF GOVERNMENT FORESHORE OR SEA-BED AFFECTED BY PROPOSED TEMPORARY RECLAMATION (APPROXIMATE)

受建議之臨時防波堤影響的政府前濱或海床大約範圍
EXTENT OF GOVERNMENT FORESHORE OR SEA-BED AFFECTED BY PROPOSED TEMPORARY BREAKWATER (APPROXIMATE)

擬建之高架園景平台(以供噪音緩解措施)
PROPOSED ELEVATED LANDSCAPED DECK (FOR NOISE MITIGATION MEASURE)

擬建之隔音屏障
PROPOSED NOISE BARRIER

擬建之半開放式隔音罩
PROPOSED NOISE SEMI-ENCLOSURE

816 700 N

連接線 J - J 連接圖則編號
92995/GAZ/1008
CUT LINE J - J CONTINUED ON PLAN NO 92995/GAZ/1008

擬建之臨時防波堤
PROPOSED TEMPORARY BREAKWATER

擬建之臨時樁柱式防浪牆
PROPOSED TEMPORARY PILED WAVE WALL

食物環境衛生署運輸組戚菲車房
FOOD & ENVIRONMENTAL HYGIENE DEPARTMENT TRANSPORT SECTION WHITFIELD DEPOT

東面通風大樓的擬建之通風塔排氣口
(最高水平約爲+25米基準水平)
PROPOSED EXHAUST VENT SHAFT OF EAST VENTILATION BUILDING (MAXIMUM LEVEL AT APPROXIMATELY +25mPD)

位於行車隧道大樓範圍內的擬建之東面通風大樓
(屋頂水平約爲+13米基準水平)
PROPOSED EAST VENTILATION BUILDING WITHIN ROAD TUNNEL BUILDING AREA
(ROOF LEVEL AT APPROXIMATELY +13mPD)

臨時繫泊區
TEMPORARY MOORING AREA

816 500 N

連接線 G - G 連接圖則編號
92995/GAZ/1006
CUT LINE G - G CONTINUED ON PLAN NO 92995/GAZ/1006

837 500 E

擬建之行車隧道東面出入口
PROPOSED ROAD TUNNEL EAST PORTAL

擬建之中環灣仔繞道西行線
PROPOSED CENTRAL - WAN CHAI BYPASS WESTBOUND

擬建之中環灣仔繞道東行線
PROPOSED CENTRAL - WAN CHAI BYPASS EASTBOUND

擬建之重置屈臣道掉頭位置
PROPOSED REPROVISION OF WATSON ROAD U-TURN

位於東區走廊西行線之下和行車隧道大樓範圍內的擬建之行政大樓
PROPOSED ADMINISTRATION BUILDING UNDERNEATH ISLAND EASTERN CORRIDOR WESTBOUND AND WITHIN ROAD TUNNEL BUILDING AREA

前政府物料供應處倉庫
EX-GOVERNMENT SUPPLIES DEPARTMENT DEPOT

油街 OIL STREET

城市花園
CITY GARDEN

海峰園
HARBOUR HEIGHTS

海景大廈
SEA VIEW ESTATE

屈臣道 WATSON ROAD

維多利中心
VICTORIA CENTRE

東區走廊 ISLAND EASTERN CORRIDOR

837 700 E

837 900 E

連接線 N - N
CUT LINE N - N

重置之樁柱式保護墩
REPROVISIONED PILED DOLPHIN

擬建之高架行車道所需的高架結構
PROPOSED ELEVATED STRUCTURE FOR PROPOSED ELEVATED CARRIAGEWAY

東區走廊 ISLAND EASTERN CORRIDOR

擬建之高架行車道所需的下層結構
PROPOSED SUBSTRUCTURES FOR PROPOSED ELEVATED CARRIAGEWAY

保良局余李慕芬紀念學校
PO LEUNG KUK YU LEE MO FAN MEMORIAL SCHOOL

和富中心
PROVIDENT CENTRE

插圖"C"
INSET "C"

816 900 N

837 900 E

工程名稱 Project title
工務計劃項目第6579TH號
中環灣仔繞道和東區走廊連接路
PWP ITEM NO 6579TH
CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

圖則名稱 Plan title
根據道路(工程、使用及補償)條例(第370章)而在憲報公布之圖則
PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

九張中的第八張
SHEET 8 OF 9

圖則編號 Plan no.
92995/GAZ/1007

比例 scale
A1 1 : 1000
A3 1 : 2000

辦事處 Office
主要工程管理處
Major Works Project Management Office

路政署
HIGHWAYS DEPARTMENT

圖例(續):
LEGEND (CONTINUED)

擬建之行車隧道地下輸氣/排氣管道
PROPOSED ROAD TUNNEL BURIED FRESH/EXHAUST AIR ADITS

受建議之臨時填海工程影響的政府前濱或海床大約範圍
EXTENT OF GOVERNMENT FORESHORE OR SEA-BED AFFECTED BY PROPOSED TEMPORARY RECLAMATION (APPROXIMATE)

受建議之臨時防波堤影響的政府前濱或海床大約範圍
EXTENT OF GOVERNMENT FORESHORE OR SEA-BED AFFECTED BY PROPOSED TEMPORARY BREAKWATER (APPROXIMATE)

維多利亞港
VICTORIA HARBOUR

N

擬建之臨時格柱式防浪牆
PROPOSED TEMPORARY PILED WAVE WALL

816 600 N

擬建之臨時防波堤
PROPOSED TEMPORARY BREAKWATER

HIGH WATER MARK

東面通風大樓的擬建之通風塔排氣口
(最高水平約爲+25米基準水平)
PROPOSED EXHAUST VENT SHAFT OF EAST VENTILATION BUILDING (MAXIMUM LEVEL AT APPROXIMATELY +25mPD)

臨時繫泊區
TEMPORARY MOORING AREA

擬建之臨時格柱式防浪牆
PROPOSED TEMPORARY PILED WAVE WALL

816 400 N

擬建之中環灣仔繞道西行線
PROPOSED CENTRAL - WAN CHAI BYPASS WESTBOUND

擬建之中環灣仔繞道東行線
PROPOSED CENTRAL - WAN CHAI BYPASS EASTBOUND

連接線 H - H 連接圖則編號
92995/GAZ/1005
CUT LINE H - H CONTINUED ON PLAN NO 92995/GAZ/1005

銅鑼灣避風塘
CAUSEWAY BAY TYPHOON SHELTER

連接線 J - J 連接圖則編號
92995/GAZ/1007
CUT LINE J - J CONTINUED ON PLAN NO. 92995/GAZ/1007

836 800 E
837 000 E
837 200 E
837 400 E

註釋:
NOTES :
1. 除在其他方面指定外,所有量度以米爲單位.
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均爲約數,以米爲單位,並基於香港主水平基準上.
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要,施工區界限內之現有行車道及行人路之部分路段或會分階段臨時封閉.
SECTIONS OF EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

圖例:
LEGEND

施工區界限
LIMIT OF WORKS AREA

行車道的行車線
(每一箭嘴表示一條行車線)
TRAFFIC LANE FOR CARRIAGEWAY (ONE ARROW REPRESENTS ONE LANE)

-8.1 露天/於高架園景平台下/半開放式隔音罩下道路之建議路面水平(約數)
PROPOSED ROAD LEVEL OF OPEN ROAD/ ROAD UNDER ELEVATED LANDSCAPED DECK/ ROAD UNDER NOISE SEMI-ENCLOSURE (APPROXIMATE)

(-8.1) 行車隧道之建議路面水平(約數)
PROPOSED ROAD LEVEL INSIDE ROAD TUNNEL (APPROXIMATE)

擬建之行車隧道(連緊急行人通道)
PROPOSED ROAD TUNNEL (WITH EMERGENCY PEDESTRIAN WALKWAY)

擬建之地面行車道
PROPOSED AT-GRADE CARRIAGEWAY

擬建之行人路
PROPOSED FOOTPATH

擬建之高架行車道
PROPOSED ELEVATED CARRIAGEWAY

擬建之中央分隔帶/安全島
PROPOSED CENTRAL RESERVE/REFUGE ISLAND

擬建之美化市容地帶
PROPOSED AMENITY AREA

現有政府前濱或海床將予臨時填平,以便興建行車隧道
EXISTING GOVERNMENT FORESHORE OR SEA-BED TO BE TEMPORARILY RECLAIMED FOR ROAD TUNNEL CONSTRUCTION

現有地面行車道將予臨時封閉及重建
EXISTING AT-GRADE CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

現有地面行車道將予永久封閉及拆卸
EXISTING AT-GRADE CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有高架行車道將予臨時封閉及重建
EXISTING ELEVATED CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

現有高架行車道將予永久封閉及拆卸
EXISTING ELEVATED CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有行人路將予永久封閉及拆卸
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND DEMOLISHED

現有中央分隔帶/安全島將予重建
EXISTING CENTRAL RESERVE/REFUGE ISLAND TO BE RECONSTRUCTED

現有中央分隔帶/安全島將予拆卸
EXISTING CENTRAL RESERVE/ REFUGE ISLAND TO BE DEMOLISHED

現有美化市容地帶將予重建
EXISTING AMENITY AREA TO BE RECONSTRUCTED

現有美化市容地帶將予拆卸
EXISTING AMENITY AREA TO BE DEMOLISHED

現有行人路將予臨時封閉及重建
EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

擬建之行車隧道大樓範圍
PROPOSED ROAD TUNNEL BUILDING AREA

工程名稱 Project title
工務計劃項目第6579TH號
中環灣仔繞道和東區走廊連接路
PWP ITEM NO. 6579TH
CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

圖則名稱 Plan title
根據道路(工程、使用及補償)條例(第370章)而在憲報公布之圖則
PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

九張中的第九張
SHEET 9 OF 9

圖則編號 Plan no.
92995/GAZ/1008

比例 scale
A1 1 : 1000
A3 1 : 2000

辦事處 Office
主要工程管理處
Major Works Project Management Office

路政署
HIGHWAYS DEPARTMENT

Annex B

Temporary Works for Trunk Road Construction

LEGEND:

- PROPOSED PERMANENT RECLAMATION EXTENT
- PROPOSED TRUNK ROAD TUNNEL
- PROPOSED TEMPORARY RECLAMATION TO BE CARRIED OUT IN STAGES
- PROPOSED TEMPORARY BRIDGE OVER WATER

PROPOSED TEMPORARY BRIDGE FOR TRAFFIC DIVERSION

PROPOSED TEMPORARY PILED WAVE WALL

PROPOSED TEMPORARY BREAKWATER FOR TEMPORARY TYPHOON SHELTER (IF REQUIRED)

PROPOSED ISLAND EASTERN CORRIDOR LINK

VICTORIA HARBOUR

CWB TRUNK ROAD TUNNEL

PROPOSED TEMPORARY PILED WAVE WALL

CAUSEWAY BAY TYPHOON SHELTER

PROPOSED TEMPORARY RECLAMATION FOR TRUNK ROAD TUNNEL CONSTRUCTION

RHKYC

EX-PCWA

SLIP ROAD 8

816 900 N

816 400 N

815 900 N

837 200 E

838 200 E

N

MAUNSELL | AECOM

Maunsell Consultants Asia Ltd

CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

TEMPORARY WORKS FOR TRUNK ROAD CONSTRUCTION

ANNEX B

Annex C

Trunk Road Tunnel Layout & Plan and Profile through ex-PCWA and CBTS

LEGEND:

- PROPOSED RECLAMATION EXTENT FOR WAN CHAI DEVELOPMENT PHASE II
- PROPOSED TRUNK ROAD TUNNEL
- PROPOSED AT GRADE TRUNK ROAD & SLIP ROAD AND OTHER ASSOCIATED WORKS
- PROPOSED ELEVATED CARRIAGEWAY
- PROPOSED SLIP ROAD IN TUNNEL

N

817 400 N

816 400 N

815 400 N

834 200 E

835 200 E

836 200 E

837 200 E

838 200 E

VICTORIA HARBOUR

TSIM SHA TSUI

NORTH POINT

SHEUNG WAN

CENTRAL

ADMIRALTY

WAN CHAI

CAUSEWAY BAY

MORRISON HILL

LEIGHTON HILL

CAROLINE HILL

TAI HANG

SO KON PO

THE PEAK

EXISTING RUMSEY ST. FLYOVER

PROPOSED TRUNK ROAD TUNNEL WEST PORTAL

PROPOSED TRUNK ROAD TUNNEL EAST PORTAL

SLIP ROAD 1

SLIP ROAD 2

SLIP ROAD 3

SLIP ROAD 8

EN CORRIDOR

WESTERN HARBOUR CROSSING

MASS TRANSIT RAILWAY

CROSS HARBOUR TUNNEL

KEY PLAN

MAUNSELL AECOM

Maunsell Consultants Asia Ltd

CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

TRUNK ROAD TUNNEL LAYOUT

ANNEX C

SHEET 1 OF 3

LEGEND:

- PROPOSED PERMANENT RECLAMATION EXTENT
- TRAFFIC LANE FOR CARRIAGEWAY (ONE ARROW REPRESENTS ONE LANE)
- PROPOSED TRUNK ROAD TUNNEL
- EXISTING STORMWATER DRAIN PIPE / BOX CULVERT

816 900 N

816 400 N

815 900 N

836 700 E

837 200 E

837 700 E

VICTORIA HARBOUR

CAUSEWAY BAY TYPHOON SHELTER

PROPOSED TRUNK ROAD TUNNEL EAST PORTAL

PROPOSED SHATIN TO CENTRAL LINK

CROSS HARBOUR TUNNEL

EXISTING TYPHOON SHELTER BREAKWATER

EXISTING HING FAT STREET UPRAMP

OUTFALL S

ROYAL HONG KONG YACHT CLUB

EXISTING ISLAND EASTERN CORRIDOR

EX-WAN CHAI PUBLIC CARGO WORKING AREA

OUTFALL R

SLIP ROAD 8

EXISTING FOOTBRIDGE

EXISTING SHEETPILE SEAWALL

POLICE OFFICERS' CLUB

EXISTING COOLING WATER INTAKE FOR WINDSOR HOUSE

OUTFALL O

OUTFALL Q

EXISTING COOLING WATER INTAKE FOR WORLD TRADE CENTRE AND EXCELSIOR HOTEL

OUTFALL P

THE NOONDAY GUN

MAUNSELL AECOM

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CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

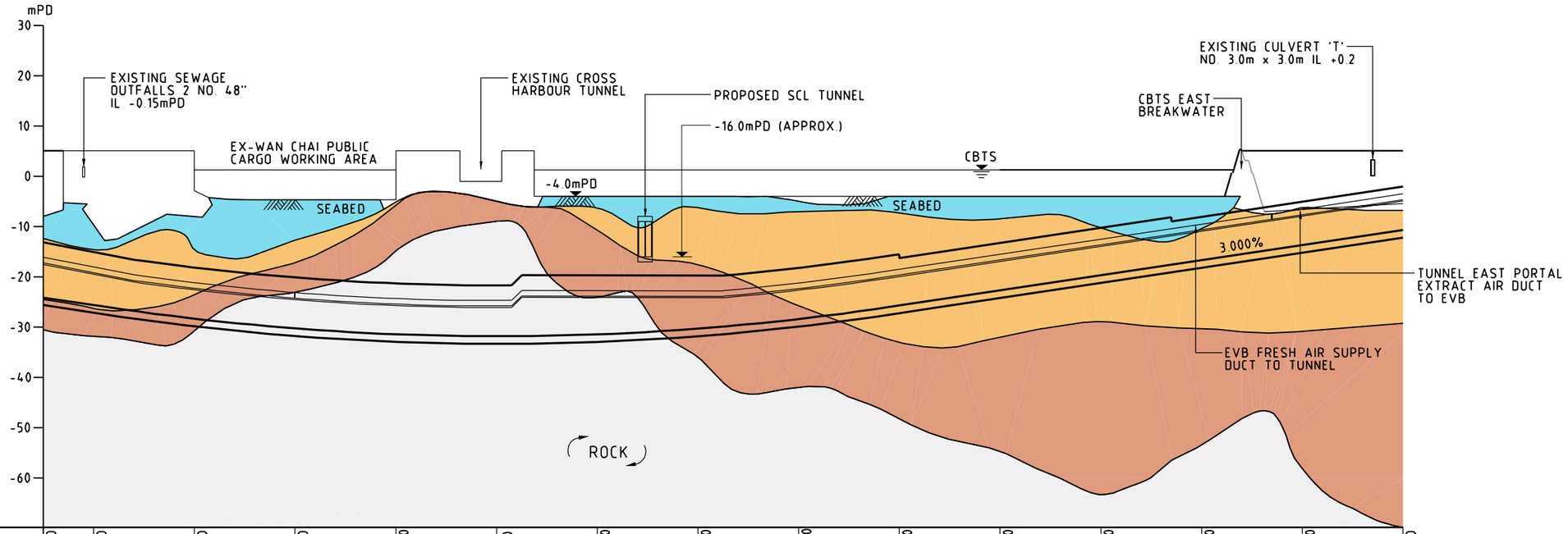
TRUNK ROAD TUNNEL PLAN THROUGH EX-PCWA AND CBTS

ANNEX C

SHEET 2 OF 3

LEGEND :

- MARINE DEPOSIT
- ALLUVIUM
- COMPLETELY DECOMPOSED GRANITE



CHAINAGE (m)	3650.000	3700.000	3800.000	3900.000	4000.000	4100.000	4200.000	4300.000	4400.000	4500.000	4600.000	4700.000	4800.000	4900.000	5000.000
LEVEL (mPD)	-24.105	-25.605	-28.304	-30.238	-31.403	-31.799	-31.426	-30.283	-28.371	-25.693	-22.693	-19.693	-16.693	-13.693	-10.693

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CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

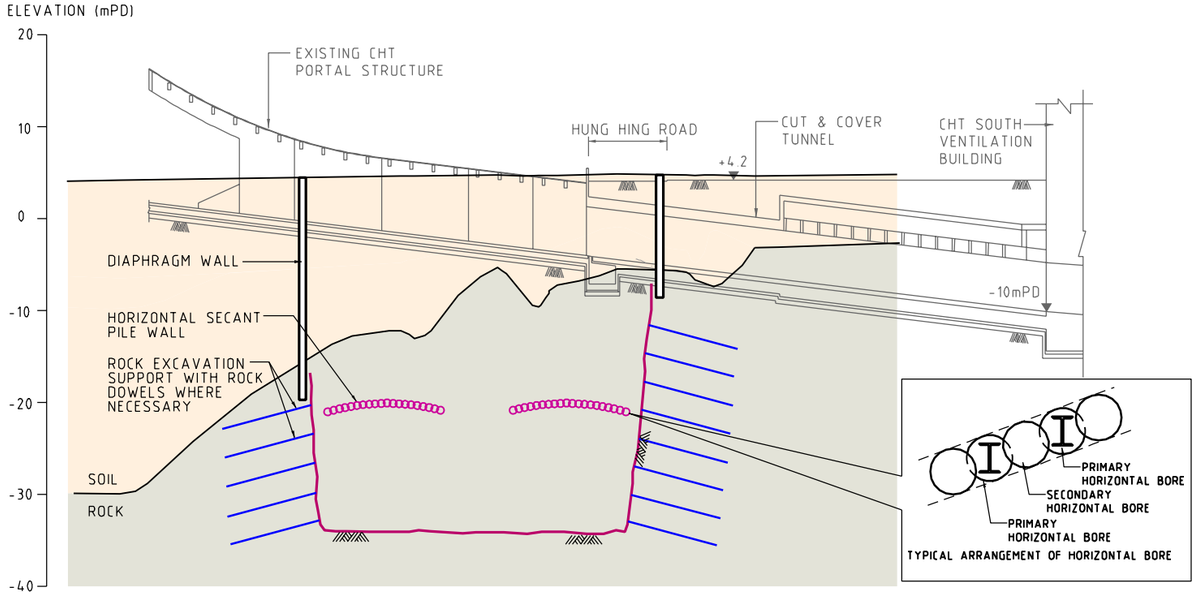
TRUNK ROAD TUNNEL PROFILE THROUGH EX-PCWA AND CBTS

ANNEX C

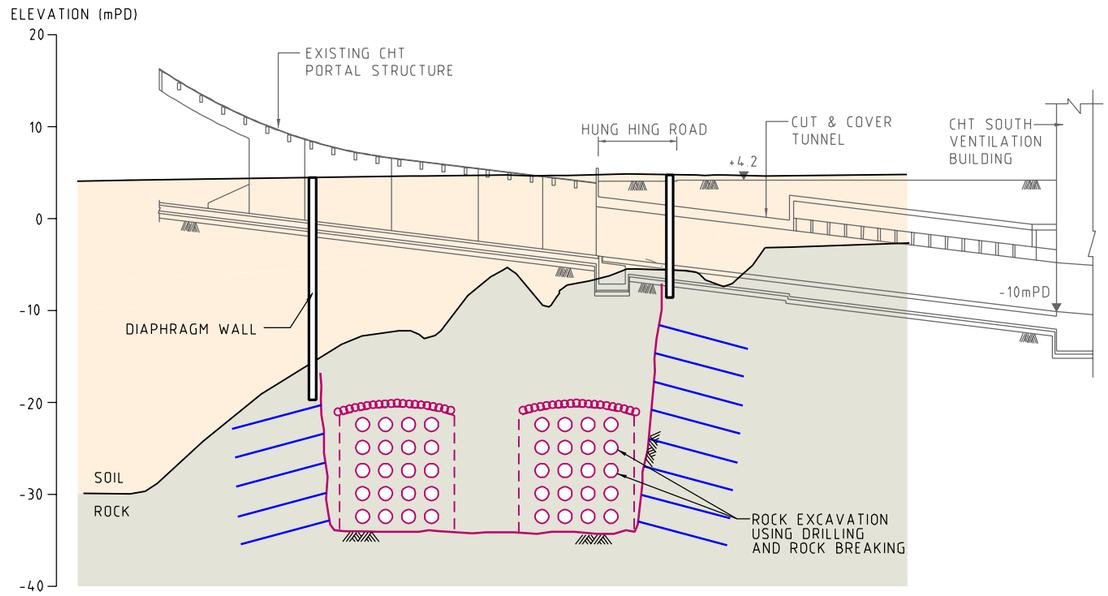
SHEET 3 OF 3

Annex D

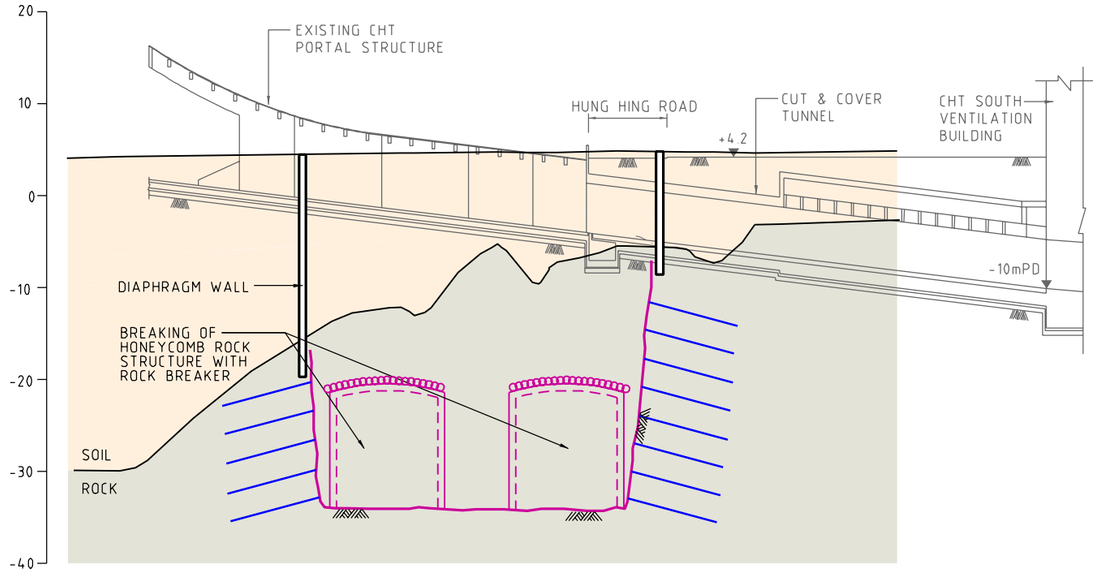
Trunk Road Tunnel Construction Technique under the Cross Harbour Tunnel



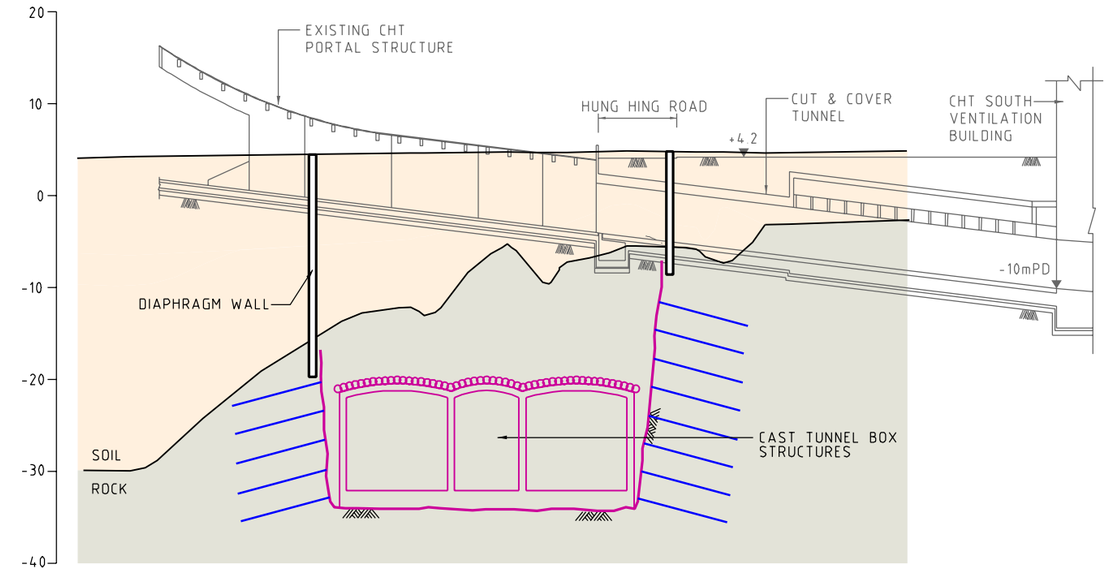
STAGE 1 :
ROCK DRILLING AND INSTALLATION OF TEMPORARY ROOF SUPPORT FOR EAST AND WEST BOUND MAINLINE



STAGE 2 :
EXCAVATION OF ROCK BELOW TEMPORARY ROOF BY DRILLING AND ROCK BREAKING



STAGE 3 :
EXCAVATION OF DRILLED ROCK BY BREAKERS AND INSTALLATION OF STEEL RIB TEMPORARY SUPPORTS



STAGE 4 :
CAST TUNNEL BOX STRUCTURE AND REPEAT STAGE 1 TO 4 FOR SLIP ROAD 8 TUNNEL BOX

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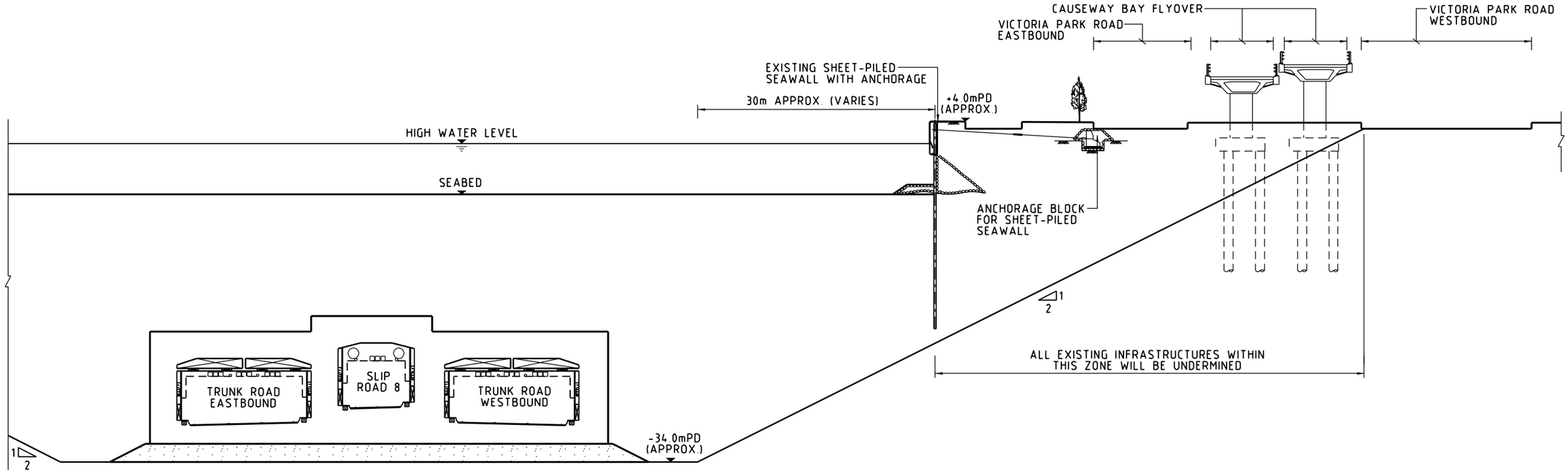
TRUNK ROAD TUNNEL CONSTRUCTION TECHNIQUE UNDER THE CROSS HARBOUR TUNNEL

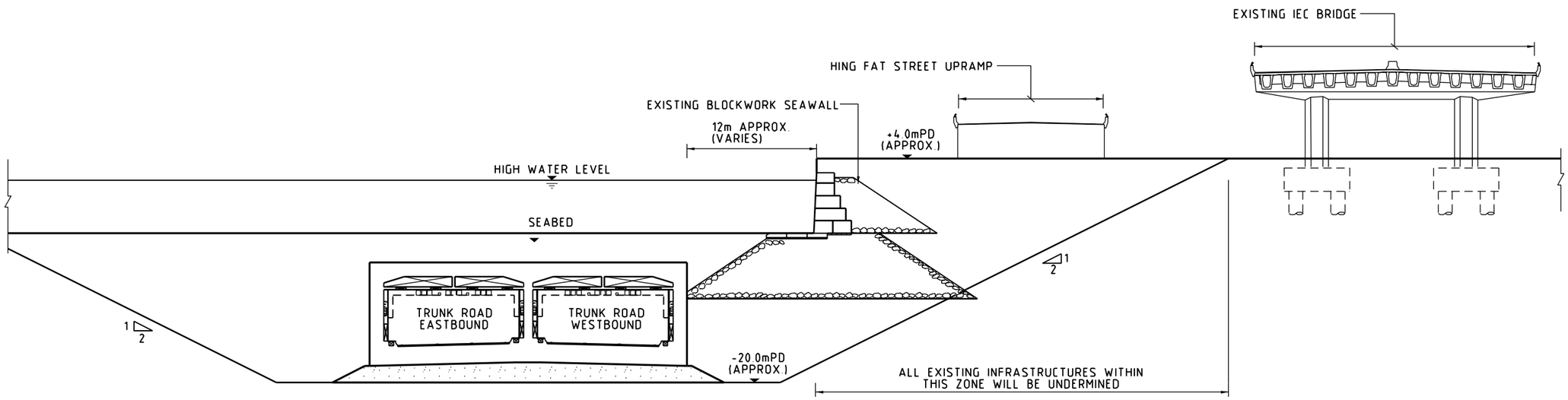
ANNEX D

Annex E

Typical Sections through Immersed Tube Tunnel



TYPICAL SECTION AT CENTRE OF TYPHOON SHELTER (NEAR CAUSEWAY BAY FLYOVER)



TYPICAL SECTION AT EASTERN END OF TYPHOON SHELTER

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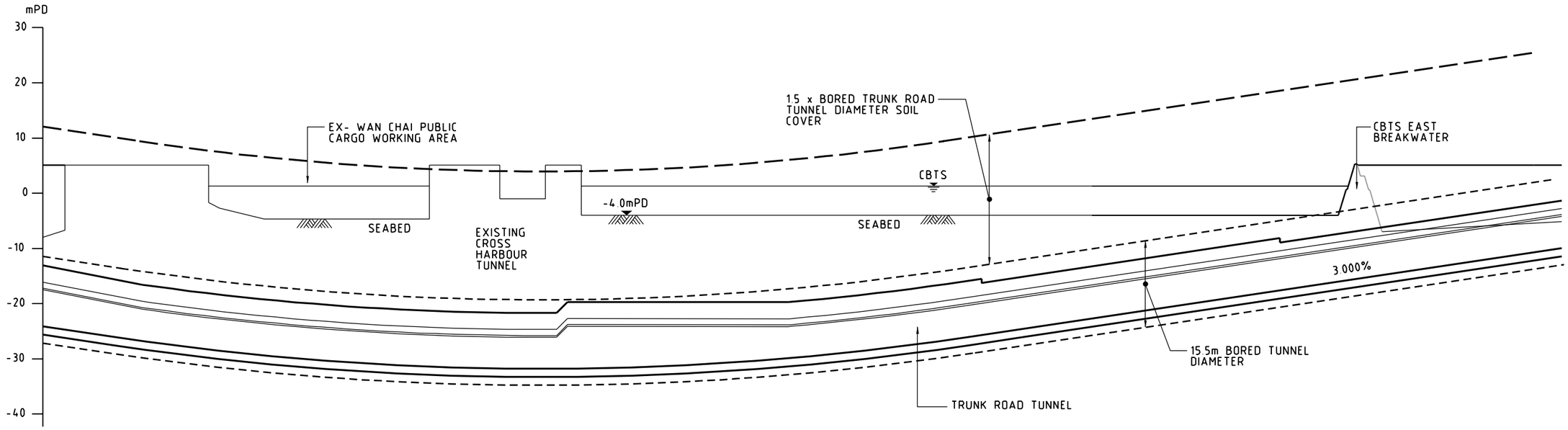
TYPICAL SECTIONS THROUGH IMMERSED TUBE TUNNEL

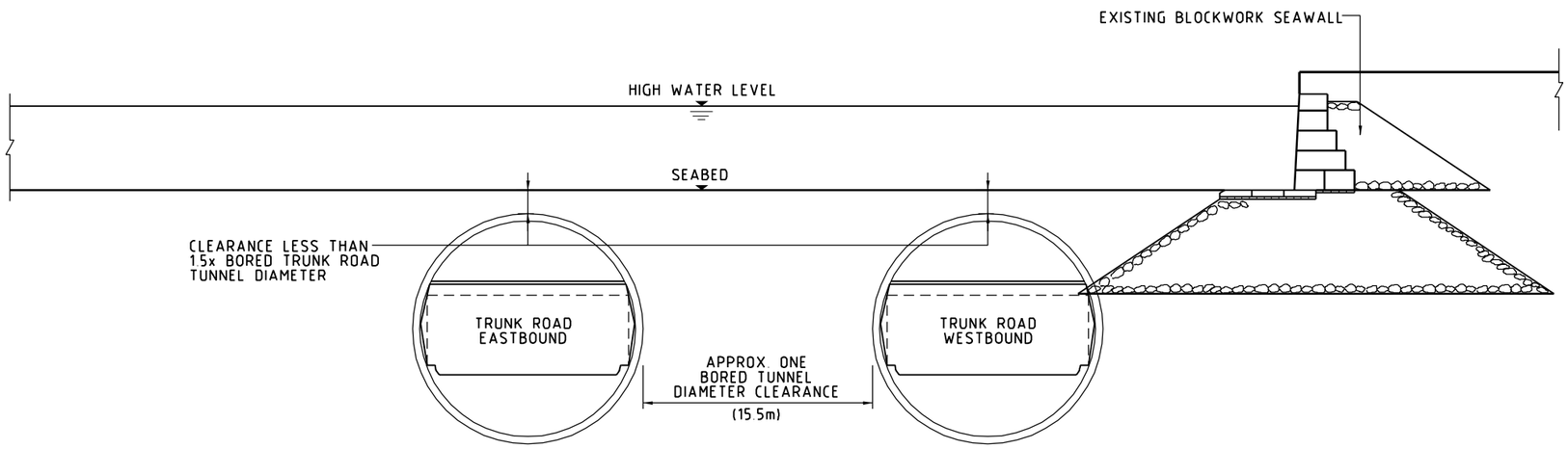
ANNEX E

Annex F

Vertical Profile and Typical Section through Bored Tunnel



VERTICAL PROFILE THROUGH BORED TUNNEL



BORED TUNNEL AT TYPHOON SHELTER

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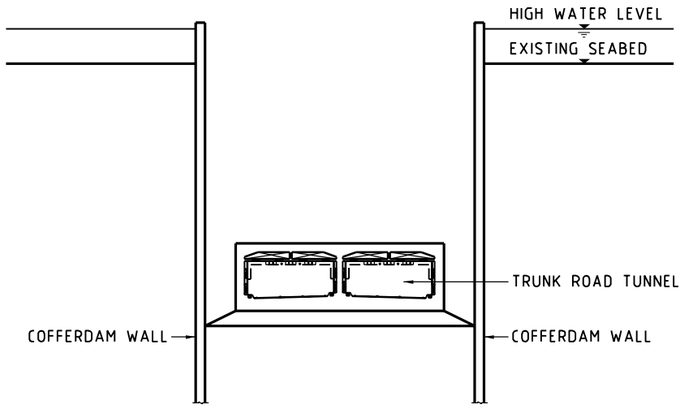
VERTICAL PROFILE AND TYPICAL SECTION THROUGH BORED TUNNEL

ANNEX F

Annex G

Illustrative Cofferdam Approach



SCHEMATIC SECTION THROUGH COFFERDAM

816 400 N

816 200 N

816 000 N

836 800 E

837 200 E

837 600 E

N

港口
HARBOUR

VICTORIA HARBOUR

CAUSEWAY BAY
TYPHOON SHELTER

銅鑼灣避風塘
CAUSEWAY BAY TYPHOON SHELTER

ROYAL HONG KONG
YACHT CLUB

EX-PCWA

POLICE
OFFICERS' CLUB

TRUNK ROAD EASTBOUND TUNNEL

TRUNK ROAD WESTBOUND TUNNEL

SLIP ROAD 8

LEGEND:

PROPOSED PERMANENT RECLAMATION EXTENT

PROPOSED TRUNK ROAD TUNNEL

INDICATIVE COFFERDAM WORKS AREA

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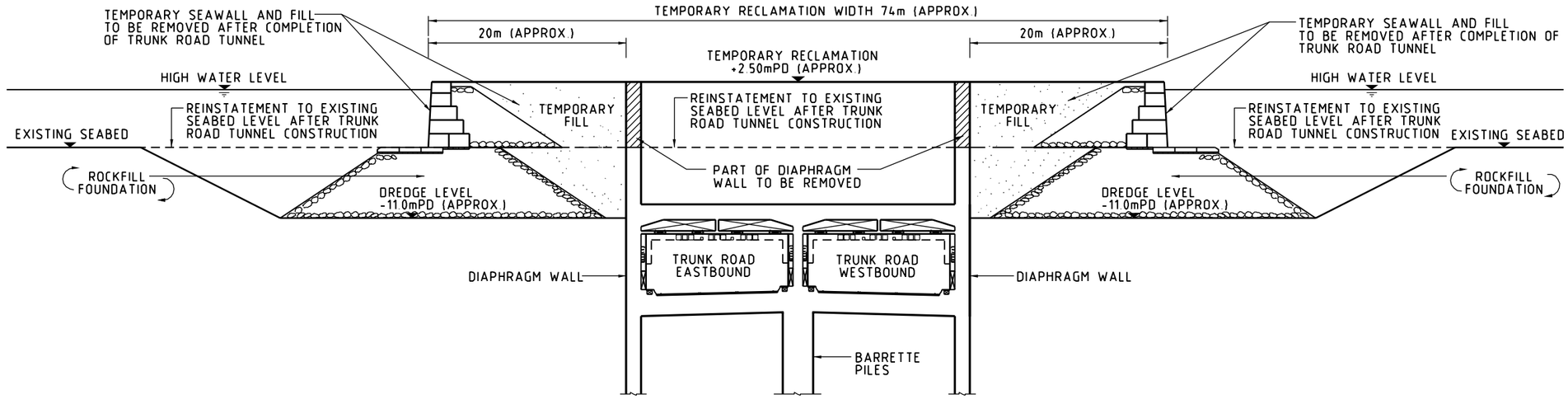
CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

ILLUSTRATIVE COFFERDAM APPROACH

ANNEX G

Annex H

Typical Section through Temporary Reclamation



TYPICAL SECTION FOR DUAL 3-LANE MAINLINE

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TYPICAL SECTION THROUGH TEMPORARY RECLAMATION

ANNEX H

Annex I

Temporary Reclamation Layout Plan

LEGEND:

PROPOSED PERMANENT RECLAMATION EXTENT

TEMPORARY RECLAMATION EXTENT

816 600 N

816 200 N

VICTORIA HARBOUR

港口
HARBOUR

維多利亞港
VICTORIA HARBOUR

EX-PCWA

N

TEMPORARY RECLAMATION FOR TRUNK ROAD TUNNEL CONSTRUCTION

CAUSEWAY BAY TYPHOON SHELTER	6.4 ha
EX-WAN CHAI PUBLIC CARGO WORKING AREA BASIN (EX-PCWA)	1.5 ha
EX-WAN CHAI PUBLIC CARGO WORKING AREA WEST	0.4 ha
TOTAL	8.3 ha

836 400 E

836 800 E

837 200 E

837 600 E

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TEMPORARY RECLAMATION LAYOUT PLAN

ANNEX I

Annex J

Construction Staging at CBTS and ex-PCWA

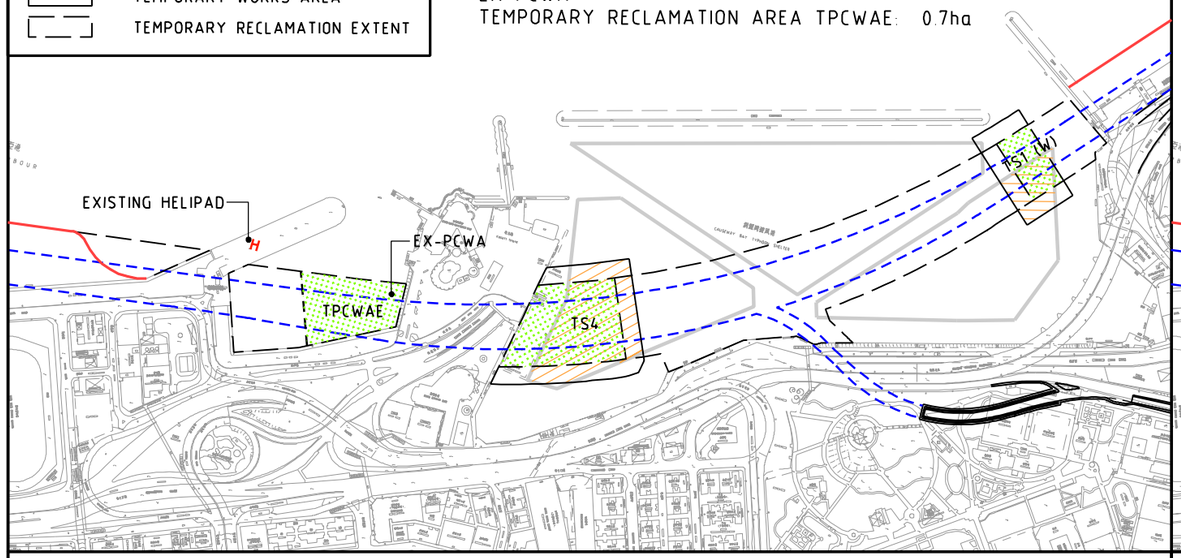
LEGEND:

- PROPOSED PERMANENT RECLAMATION EXTENT
- CWB TUNNEL
- ACTIVE TEMPORARY RECLAMATION AREAS
- AFFECTED MOORING AREAS
- EXISTING MOORING AREAS
- TEMPORARY WORKS AREA
- TEMPORARY RECLAMATION EXTENT

STAGE 1A
INDICATIVE DURATION: 1 MONTH

CBTS
TEMPORARY RECLAMATION AREA TS1 (W): 0.3ha
TEMPORARY RECLAMATION AREA TS4: 1.1ha

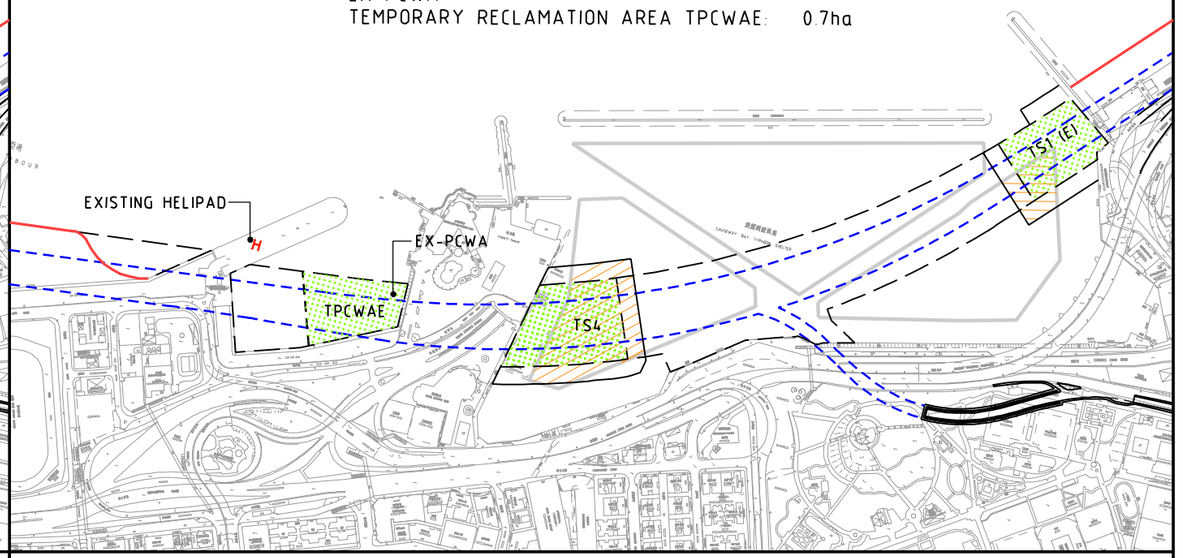
EX-PCWA
TEMPORARY RECLAMATION AREA TPCWAE: 0.7ha



STAGE 1B
INDICATIVE DURATION: 13 MONTHS

CBTS
TEMPORARY RECLAMATION AREA TS1 (E): 0.7ha
TEMPORARY RECLAMATION AREA TS4: 1.1ha

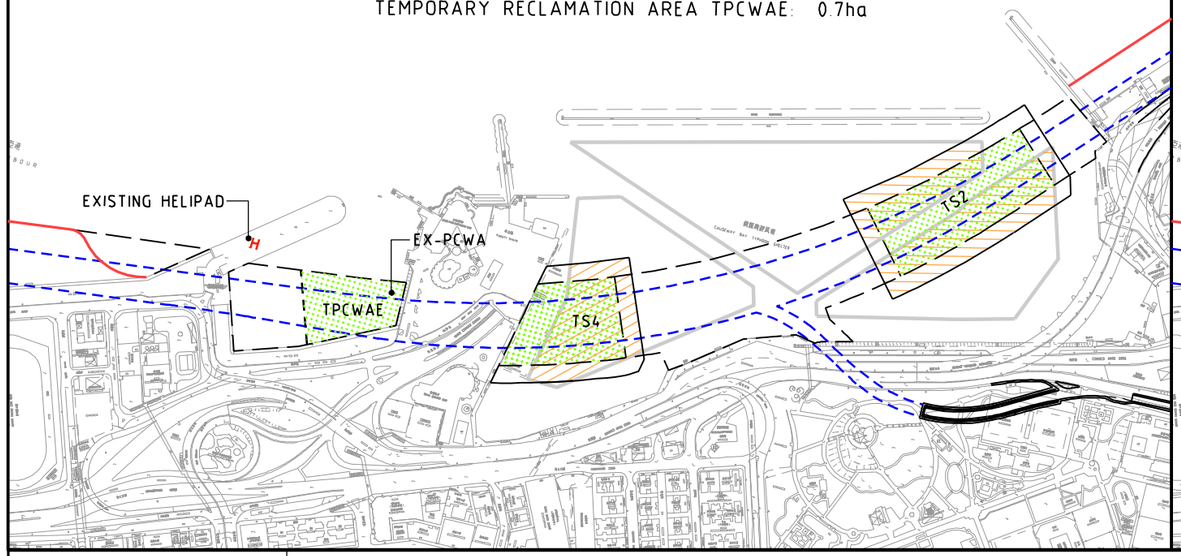
EX-PCWA
TEMPORARY RECLAMATION AREA TPCWAE: 0.7ha



STAGE 2
INDICATIVE MONTHS: 22 MONTHS

CBTS
TEMPORARY RECLAMATION AREA TS2: 1.6ha
TEMPORARY RECLAMATION AREA TS4: 1.1ha

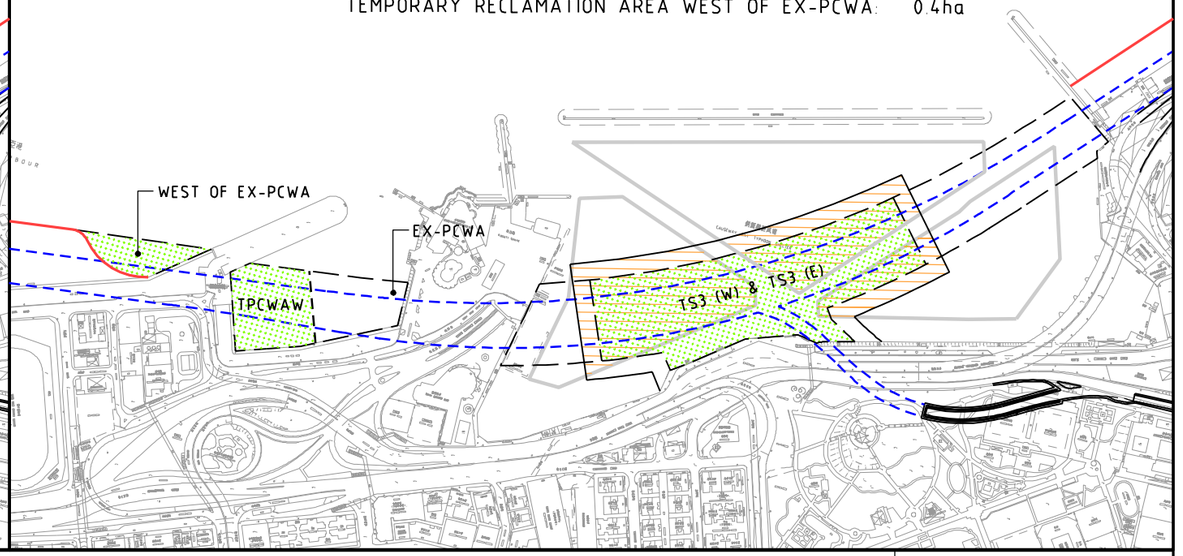
EX-PCWA
TEMPORARY RECLAMATION AREA TPCWAE: 0.7ha



STAGE 3
INDICATIVE DURATION : 24 MONTHS

CBTS
TEMPORARY RECLAMATION AREA TS3 (W) & TS3 (E): 3.7ha

EX-PCWA
TEMPORARY RECLAMATION AREA TPCWAW: 0.8ha
TEMPORARY RECLAMATION AREA WEST OF EX-PCWA: 0.4ha



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CONSTRUCTION STAGING AT CBTS AND EX-PCWA

ANNEX J
SHEET 1 OF 2

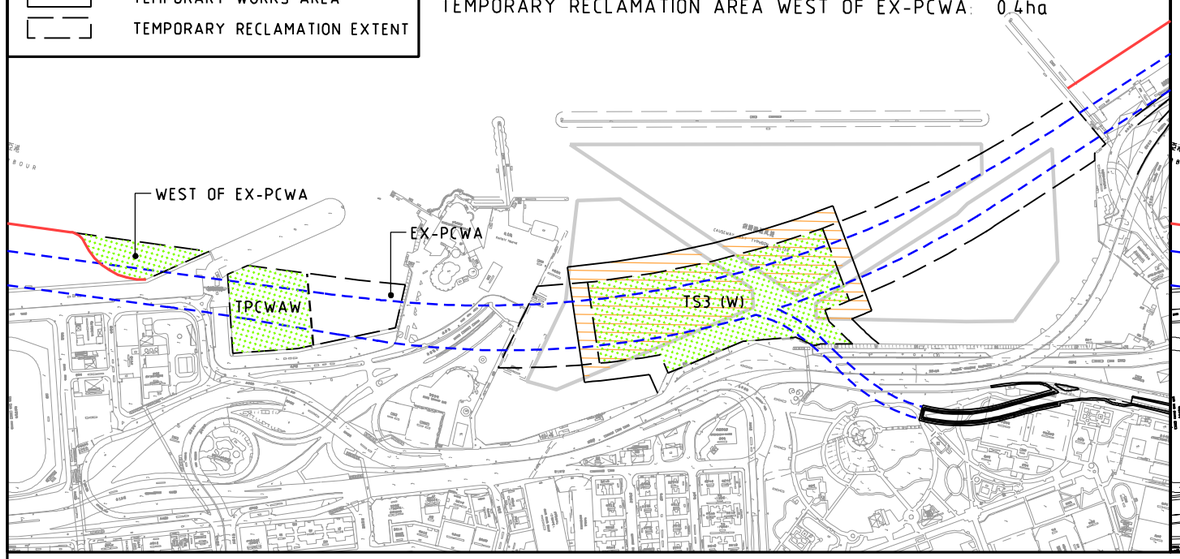
LEGEND:

- PROPOSED PERMANENT RECLAMATION EXTENT
- CWB TUNNEL
- ACTIVE TEMPORARY RECLAMATION AREAS
- AFFECTED MOORING AREAS
- EXISTING MOORING AREAS
- TEMPORARY WORKS AREA
- TEMPORARY RECLAMATION EXTENT

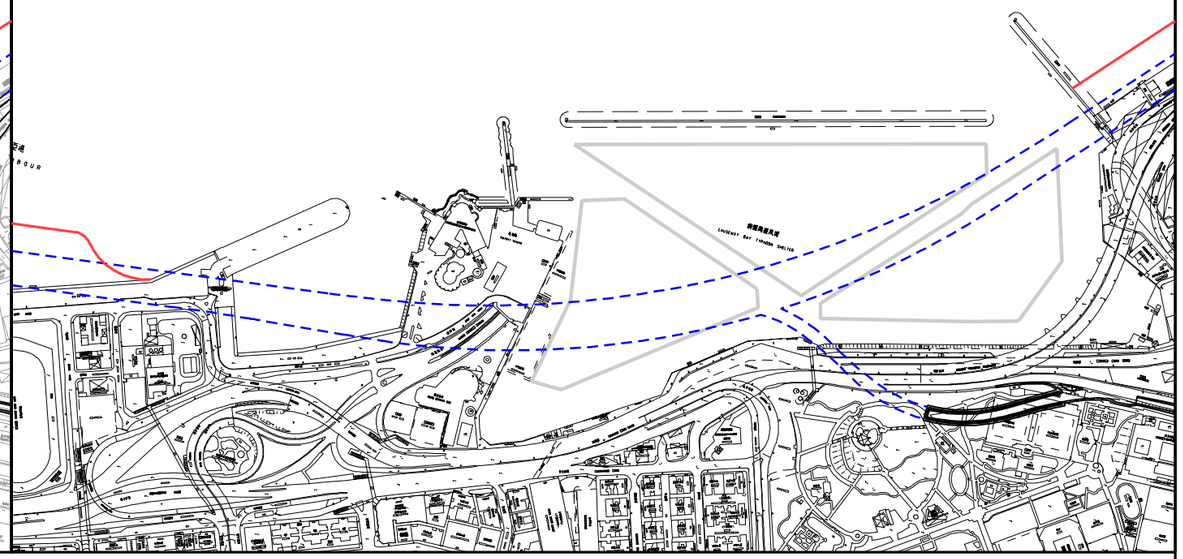
STAGE 4
INDICATIVE DURATION : 14 MONTHS

CBTS
TEMPORARY RECLAMATION AREA TS3 (W): 3.0ha

EX-PCWA
TEMPORARY RECLAMATION AREA TPCWAW: 0.8ha
TEMPORARY RECLAMATION AREA WEST OF EX-PCWA: 0.4ha



AFTER CONSTRUCTION



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CENTRAL - WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK

CONSTRUCTION STAGING AT CBTS AND EX-PCWA

ANNEX J
SHEET 2 OF 2

Annex K

Public Engagement Records

Central-Wan Chai Bypass and Island Eastern Corridor Link
(Trunk Road)

Construction of Trunk Road Tunnel in Causeway Bay Typhoon Shelter and Ex-Wan Chai Public Cargo Working Area

Hong Kong Institution of Engineers (HKIE) Seminar
on 7 April 2008

General

Members expressed strong support to the Trunk Road project and appreciated that the proposed tunnel construction method with temporary reclamation at the ex-Public Cargo Working Area (ex-PCWA) and Causeway Bay Typhoon Shelter (CBTS) was a safe, feasible and practicable way of construction and the best option in satisfying the Overriding Public Need Test under the Protection of the Harbour Ordinance. They urged the Government to launch the necessary public engagement with the stakeholders for the temporary reclamation and expressed strong support for the early construction of the Trunk Road as soon as possible.

Major views/questions raised:

1. A member suggested that as the Trunk Road was such an important infrastructure project to the engineering community, HKIE should show expressed support to the Government to press ahead with the implementation of the project. In response, a member said that the Institute has always been supportive of the project and would make public the Institution's position at the appropriate juncture.

2. A member expressed views on the possibility of adopting the alternative method for forming working platform by barrettes or diaphragm walls instead of temporary reclamation with vertical blockwork seawall. MCAL reckoned that the suggested alternative method was unusual and not proven to be a practical and safe construction method to proceed with the statutory procedures. Instead, the currently proposed temporary reclamation with vertical blockwork seawall was considered to be practically feasible and a safe way of construction. The member also agreed with MCAL views. He also enquired about dewatering arrangement under the proposed method and whether sheet piles wall had been considered as an additional environmental control measures. MCAL explained in brief the proposed dewatering arrangement and responded that additional sheet piles wall was considered not feasible due to sideway movement of long

cantilever wall.

3. A member enquired about the comparison of flyover option with tunnel option. Another member said that it was discussed in the previous meeting with HKIE and members supported tunnel option.

4. A member enquired about the arrangement of staged construction of the temporary reclamation and tunnel construction. MCAL explained the arrangement in details.

5. A member enquired why bored tunnel could not be adopted in the design. MCAL explained a minimum cover of 1.5 times the diameter (i.e. about 23m) depth of cover would be required for the tunnel construction. Additional temporary reclamation would thus be required especially near the portal area, which could offset the benefit of saving temporary reclamation at the ex-PCWA and CBTS. Moreover, temporary reclamation might also be required to install the reception shaft for the tunnel boring machine for tunnel construction at the CBTS. The member also asked about whether the constraints of the Shatin to Central Link (SCL) could be minimized with its advanced implementation. MCAL replied that the alignment of the SCL was still uncertain and provision for SCL should be allowed.

6. A member enquired about whether the Government would appeal to the judicial review judgment of the temporary reclamation. HyD responded that the Government was still studying the judgment. Notwithstanding the above, the Government would like to take proactive approach to enhance public engagement on the temporary reclamation under the project.

7. In response to a member's enquiry, HyD expressed that the Hong Kong Contractor Association would be consulted shortly.

Central-Wan Chai Bypass and Island Eastern Corridor Link
(Trunk Road)

Construction of Trunk Road Tunnel in Causeway Bay Typhoon Shelter and Ex-Wan Chai Public Cargo Working Area

Hong Kong Construction Association Seminar
on 11 April 2008

General

Twenty representatives from ten members of the Association attended the seminar. Members expressed strong support to the project and noted that the proposed tunnel construction method with temporary reclamation at the ex-Public Cargo Working Area (ex-PCWA) and Causeway Bay Typhoon Shelter (CBTS) was a safe, feasible and practicable way of construction in satisfying the Overriding Public Need Test under the Protection of the Harbour Ordinance (PHO). They urged for early implementation of the project.

Major views/questions raised:

1. A member expressed the possibility of adopting a combination of Tunnel Boring Machine (TBM) and in-situ method, i.e. to use temporary reclamation on top of the tunnel to overcome the problem of insufficient cover during TBM drilling. He elaborated that the temporary reclamation could be supported by cofferdam in stages. He was also of the view that the extent of reclamation and the period of each stage of works could be much smaller and quicker than the proposed temporary reclamation with diaphragm wall method. In response, MCAL said that temporary reclamation was still required and there existed high risk of failure for adopting cofferdam to support the temporary reclamation. The close proximity with the alignment of the proposed Shatin to Central Link Railway imposed constraints on the use of TBM method. In addition, temporary reclamation would still be required for the construction of slip road 8.

2. A member enquired whether the tunnel construction method would be prescribed in the tender. He was of the view that there was possibility to use cofferdam for construction of the tunnel. MCAL replied that the Engineer's proposed construction method was a feasible, practicable and safe way of construction in satisfying the Overriding Public Need Test under the PHO. Other innovative construction method proposed by the Contractor based on his own expertise,

which could fulfill the requirements of PHO, would be considered. MCAL reminded that alternative construction method would be allowed and the design of all temporary works was the contractor's responsibility. The meeting also noted that there was no precedence of installing cofferdam to a depth of 35m below water as required in the subject site condition.

3. A member enquired the rationale for staged construction of the tunnel within the CBTS. MCAL replied that the proposed staging of works was developed based on a balance between the programme of works and the effects on the water quality within the CBTS. The proposed staging of works could maintain the water flow and hence, the water quality, within the CBTS to an acceptable level, as well as ensuring uninterrupted supply to the existing cooling water intakes to the nearby buildings (including Excelsior Hotel, World Trade Centre and Windsor House).

4. A member enquired whether strengthening the soft material at the seabed by grouting to facilitate the use of TBM method had been considered. MCAL replied that the required grouting works would be extremely expensive and difficult. In addition, the strengthening of soft material could not overcome the problem of insufficient cover for TBM method and hence, temporary reclamation would still be required.

Central-Wan Chai Bypass and Island Eastern Corridor Link (Trunk Road)

Construction of Trunk Road Tunnel in Causeway Bay Typhoon Shelter and Ex-Wan Chai Public Cargo Working Area

Joint Professional Forum for HKIA/HKIE/HKILA/HKIP/HKIS on 16 June 2008

General

Attendees raised questions on the details of the construction methodology, duration and phasing of works, potential impacts on the continued operation of CBTS, construction method for section underneath CHT etc while acknowledging that the current trunk road scheme has an overriding public need and the cut-and-cover method using temporary reclamation is the only safe, feasible and practicable construction method.

Major views/questions raised:

1. A member raised the interface with SCL construction. In response, HyD mentioned that the two currently considered alignments of SCL were still very preliminary and the interface would be kept in view.

2. A member asked whether the considerations for CBTS could be applied similarly to ex-PCWA like the non-applicability of cofferdam construction. MCAL replied that as the tunnel profile on both sides of CHT continued, the tunnel was also very deep at ex-PCWA and the same considerations applied.

3. A member enquired whether the operation of CBTS would be affected. MCAL responded that in order to minimize the impacts of construction the temporary reclamation would be carried out in stages but not in one go. HyD pointed out that water quality within the CBTS was a major issue and had to be maintained during construction.

4. A member enquired about the construction method and precaution for the section of CWB tunnel underneath CHT. MCAL responded that sufficient clearance from the rock anchors of the CHT approach had already been allowed and a mining operation adopting temporary pipe pile arches was envisaged as the construction method.

5. A member enquired about details of dredging for the envisaged construction

method and details were clarified by MCAL. MCAL also elaborated briefly on the construction sequence of cut-and-cover method and the associated diaphragm walls.

6. A member enquired about the duration of the temporary reclamation stages. MCAL responded that within the overall period of 6 years the different stages would last for about 1 year to 3 years depending on locations and complexity of construction.

7. A member enquired about the transition from one stage to another. MCAL responded that the effect of the transition had already been considered and taken into account in coming up with the temporary reclamation area at any one time so as to identify the maximum area of temporary reclamation within CBTS at any one time being 3.7ha.

8. A member enquired whether the tunnel portal could be shifted from the current location to ex-North Point Estates. HyD responded that this would result in greater permanent reclamation at North Point and hence not acceptable and this issue had been addressed during the previous consultation.

Central-Wan Chai Bypass and Island Eastern Corridor Link (Trunk Road)

Construction of Trunk Road Tunnel in Causeway Bay Typhoon Shelter and Ex-Wan Chai Public Cargo Working Area

Public Forum on 19 July 2008

General

The public did not indicate any strong objection to the recommended option of cut-and-cover construction using temporary reclamation for the tunnel construction although there were questions concerning matters of details, including whether the method for the CWB tunnelling underneath the CHT (clarified as "drill and break" method at the public forum) could be adopted in the CBTS and ex-PCWA; whether blasting can be used; whether a combination of the different methods for constructing the sections of CWB tunnels in CBTS and ex-PCWA can be considered; consequential effects of cut-and-cover construction with temporary reclamation on the existing moorings in the CBTS; whether the temporary reclamation can be carried out in one go; staging of the temporary reclamation work, and their durations of existence and their removal; environmental impacts during construction on nearby residential receivers; and potential interfaces with the SCL.

Major views/questions raised:

1. An attendee asked whether the issue of temporary typhoon for reprovisioning the existing vessels in CBTS would be addressed and the public would be consulted. HyD responded that the method of constructing the concerned section of CWB tunnel within CBTS and ex-PCWA has to be established first so that the effect of construction on the existing vessels can be ascertained and any methods of reprovisioning can then be considered and assessed.

2. An attendee asked whether there would be any overlapping periods of different stages of temporary reclamation. MCAL responded that the durations of individual reclamation areas would vary from about 1 to 3 years. MCAL further advised that there would be transition from one stage to another and that due consideration had been given to this aspect in assessing the construction time and the area of temporary reclamation at any one time.

3. An attendee enquired whether the cut-and-cover method using temporary reclamation could be constructed in one go. MCAL responded that this would

sterilize the whole CBTS and block the existing drainage outfalls and cooling seawater intakes. In order to minimize the impacts to the existing vessels in CBTS the temporary reclamation would be carried out in stages.

4. An attendee asked whether the four stages of temporary reclamation could be shortened to say 3 or even 2 stages, thus reducing the overall construction period. MCAL responded that the staging had been considered and the currently envisaged 4-stage construction would be optimum in terms of time management and minimizing the impacts on the existing vessels in CBTS.

5. An attendee enquired who would be responsible for removing the temporary reclamation and how to make sure he would fulfill this obligation. HyD responded that the future construction contract would obligate the contractor to remove the temporary reclamation. In case the contractor does not fulfill, the Government undertakes to remove the temporary reclamation according to the road gazette.

6. An attendee enquired whether the three discussed construction methods could be made use of in combination in view of their pros and cons. MCAL clarified that the other two methods of IMT and TBM had been assessed as not feasible and could not be applied. Precast IMT tunnel segments could not be towed into CBTS because of inadequate navigation widths and draft. The required ground cover for TBM operation cannot be achieved in the CBTS.

7. An attendee asked about the construction method for the tunnel length underneath CHT and why this method could not be applied to CBTS. MCAL clarified that the tunnel underneath CHT would be constructed by "different drill and break" method through rock using temporary pipe pile arch to be constructed in advance of excavation by small scale drilling machine. The excavation would be carried out in dry condition being surrounded by diaphragm walls constructed on the two temporary reclamation areas abutting CHT tunnel approach. This method could not used to excavate the soft materials under CBTS as the soft materials would collapse under water pressure during excavation. Besides, drill and blast method could not be used for constructing the tunnel underneath the CBTS as there is mainly soft material instead of rock underneath the CBTS.

8. An attendee enquired about the environmental impacts arising from the project especially the air quality impact due to the proposed eastern ventilation building. As this subject was outside the scope of the public forum, it was not addressed at the public forum. (Follow-up action: HyD met the attendee and explained the

subject in details on 14 August 2008.)

9. An attendee enquired about the potential interface with SCL and whether additional temporary reclamation would be required for SCL. HyD explained that MTRCL would carry out preliminary design of the SCL alignment and taking all considerations especially the PHO into account in finalizing the alignment.