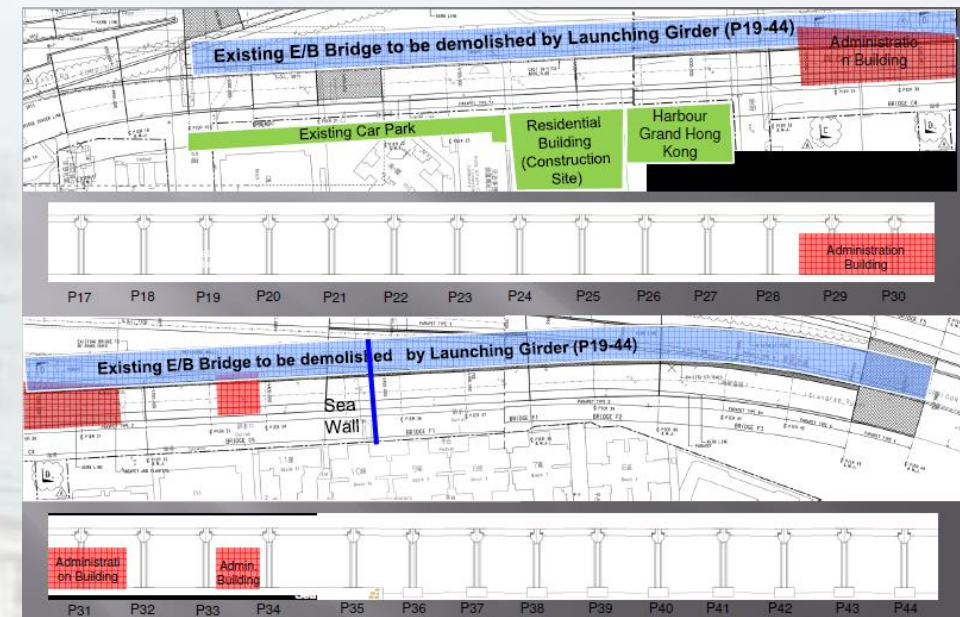


Contract No. HY/2009/19
Central - Wan Chai Bypass – Tunnel (North Point Section) and Island Eastern Corridor Link



Temporary Works Excellence Award 2017 (Civil Engineering Works) - Demolition of Existing Island Eastern Corridor (IEC) Eastbound Bridge (By Launching Girder)

General Layout of IEC



Risk Identification at Planning Stage



1. Collapse of Launching Girder
2. Falling Object
3. Fall from Height

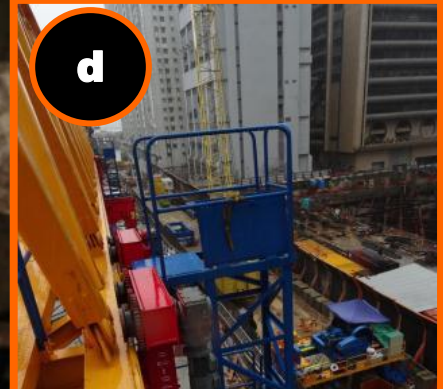
Special Features or Constraints of the site



1. Very close to residential area, hotel, school and FEHD Depot
2. Limited working space for demolition of existing bridge
3. No lane closure of west bound traffic
4. The demolition of bridge beam is extremely close to New IEC traffic


Design Stage

- 1. Construction Method
 - Demolition by coring, saw cutting & wire cutting
 - Lifting by Launching Girder (LG)
- 2. Selection of supplier & Special Contractor
 - YWL (Launching Girder)
 - Kingland (Bridge Demolition)
- 3. Safety Devices of LG
 - a) Provision of guard railing and toe board to prevent falling from height & falling object
 - a) Permit to work system
 - c) Hoisting Weight Limiter to control the load
 - d) Safe access
 - e) Hydraulic Caliper Disc Brake to shut down the winches when emergency stop the girder.
 - f) Prevent over scroll switch









Installation of Launching Girder


ME No. : 610MS/
Revision : 0
Date : 17 Nov 16


俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

Contract No. HY/2009/19
Central – Wan Chai Bypass –
Tunnel (North Point Section) and Island Eastern Corridor Link

METHOD STATEMENT
FOR
LGB-M Assembly Work Between Pier 44 ~
(Rev.0)

Prepared by	Reviewed by	Reviewed by	Reviewed by	Reviewed by	Approved by
 Senior Engineer (Terence Tsun)	 Section Agent (Charles Yeung)	 Construction / QA Manager (Andy Chan)	 Environmental / QA Manager (M.H. Isa)	 Safety Manager (H K Leung)	 Deputy Agent (Eric Fong)

Endorsed By

Dr. Chau Wai Yu
Director
R&E (Eng. P.D., M.Eng., R.P.E. (C), R.P.O. (S&B))
for W T Chan & Associates Ltd



1. Difficulties in Installation on site

- Too close to New IEC Traffic Lane
- Some Components of Launching Girder is too long
- The limited land reserve in construction site

2. Compliance with the New Safety Guideline Issued by Labour Department

- Lifting Supervisor has been appointed
- Competent Person & Workman for (Erection/Re-erection, Dismantling & Relocation) have been appointed

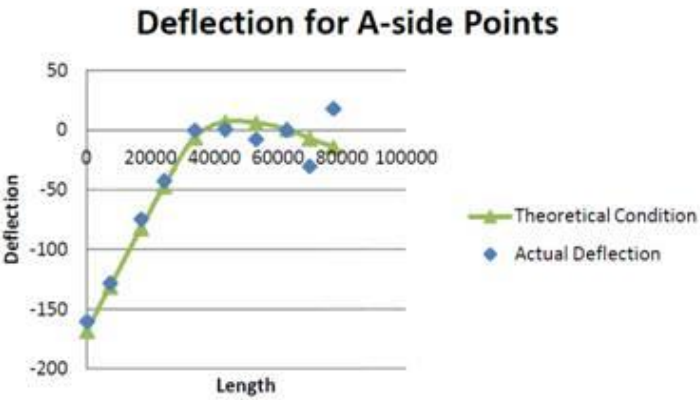
* Lifting supervisor, CP & CW (EDR) have been trained before the installation. The relevant workers to be familiar with the whole operation and design of the Launching Girder.

Testing and Commissioning

Front Cantilever Loading Test for A

Date: 7/Feb/2017

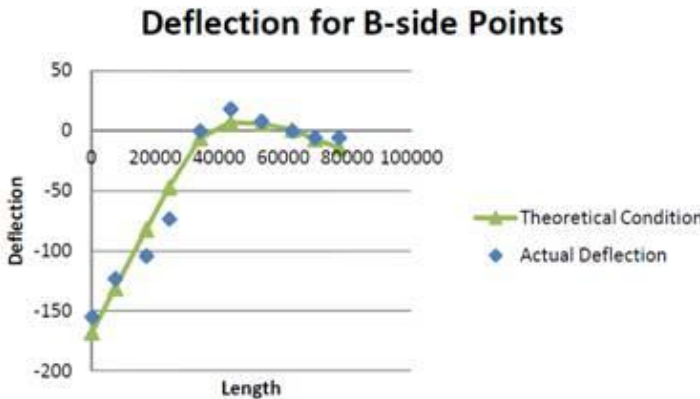
Survey Point	Theoretical Point Coords.			ordinates before FL is Engag			ordinates after FL is Engag			Adjusted Deflection	Actual Deflection	Theoretical Condition			Difference (%)
	X(m)	Y(m)	Z(m)	X(m)	Y(m)	Z(m)	X(m)	Y(m)	Z(m)			x(mm)	y(mm)	z(mm)	
1a	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.155	160	-160	-5	55	-168	4.60%
2a	7.283	-0.045	0.000	7.283	-0.045	-0.015	7.282	-0.045	0.103	113	-128	-5	42	-131	1.72%
3a	16.980	-0.090	0.000	16.980	-0.090	-0.024	16.979	-0.088	0.045	51	-74	-5	25	-82	4.49%
4a	24.175	-0.118	0.000	24.175	-0.118	-0.038	24.176	-0.114	0.000	4	-42	-4	13	-47	2.72%
5a	33.792	-0.164	0.000	33.792	-0.164	-0.058	33.795	-0.159	-0.051	-58	0	-1	1	-6	3.57%
6a	43.310	-0.186	0.000	43.310	-0.186	-0.119	43.316	-0.179	-0.125	-120	1	2	-3	7	-3.86%
7a	52.984	-0.200	0.000	52.984	-0.200	-0.190	52.989	-0.195	-0.196	-182	-8	3	-3	6	-8.11%
8a	62.603	-0.231	0.000	62.603	-0.231	-0.244	62.610	-0.226	-0.249	-244	0	4	-1	1	-0.60%
9a	69.769	-0.260	0.000	69.769	-0.260	-0.321	69.776	-0.257	-0.322	-291	-30	5	2	-7	-13.81%
10a	77.236	0.000	0.000	77.236	0.000	1.213	77.242	0.000	1.209	1195	18	3	5	-14	19.08%



Front Cantilever Loading Test for B

Date: 7/Feb/2017

Survey Point	Theoretical Point Coords.			ordinates before FL is Engag			ordinates after FL is Engag			Adjusted Deflection	Actual Deflection	Theoretical Condition			Differen (%)
	X(m)	Y(m)	Z(m)	X(m)	Y(m)	Z(m)	X(m)	Y(m)	Z(m)			x(mm)	y(mm)	z(mm)	
1b	0.143	6.482	0.000	0.143	6.482	0.017	0.144	6.479	0.185	172	-155	-5	55	-168	7.83%
2b	7.427	6.466	0.000	7.427	6.466	-0.001	7.427	6.465	0.127	122	-123	-5	42	-131	4.72%
3b	17.129	6.441	0.000	17.129	6.441	-0.048	17.129	6.444	0.029	56	-104	-5	25	-82	-13.17%
4b	24.330	6.409	0.000	24.330	6.409	-0.066	24.331	6.415	-0.022	8	-73	-4	13	-47	-15.65%
5b	33.939	6.370	0.000	33.939	6.370	-0.058	33.943	6.375	-0.050	-58	0	-1	1	-6	3.57%
6b	43.522	6.316	0.000	43.522	6.316	-0.105	43.527	6.304	-0.113	-123	18	2	-3	7	6.71%
7b	53.137	6.272	0.000	53.137	6.272	-0.180	53.143	6.279	-0.191	-188	8	3	-3	6	1.26%
8b	62.759	6.245	0.000	62.759	6.245	-0.253	62.767	6.248	-0.259	-253	0	4	-1	1	-0.60%
9b	69.925	6.227	0.000	69.925	6.227	-0.308	69.933	6.231	-0.311	-302	-6	5	2	-7	0.83%
10b	77.416	6.505	0.000	77.416	6.505	1.139	77.425	6.507	1.133	1144	-6	3	5	-14	5.00%



1. Deflection checking has been conducted by YWL.
2. Ensure that the overall structural, mechanical and electric components of the equipment have been maintained in a safe and serviceable condition and are functioning properly according to the original specifications.
3. Deflection on front cantilever converges to the theoretical deflection.
4. There are points at rear of truss (A side & B side) are scattering around theoretical values.
5. The deflection on site converges to the theoretical deflection. LGB-M deflection is acceptable.

1. ICE check has been carried out for the whole launching girder
e.g.: a) Design of the method statement
b) Before use
c) Main Support tie down in each location

8	主權內網(LAUNCHING) (M2)	(M01) LAUNCHING 007123 網絡檢查是否正確	
		(M01) LAUNCHING 007123 網絡檢查是否正確	
		(M01) LAUNCHING 007123 是否打擾	
		(M02) 控制網線是否連接檢查是否正確	
		(M02) LAUNCHING LAUNCH 是否有步	
9	ENIGMA 復查主權	(M02) LAUNCHING 007123 是否檢查正確	
		(M01) LAUNCHING 007123 是否檢查正確	
		主權內網檢查是否正確	
		網線檢查是否正確	
		網線檢查是否正確	
10	收短後主權 (M2) P4.3	網線檢查是否正確	
		網線檢查是否正確	
		網線檢查是否正確	
		網線檢查是否正確	
		網線檢查是否正確	
11	(M2) 內網移動 P4.3 to P5.1	網線檢查是否正確	
		網線檢查是否正確	
		網線檢查是否正確	
		網線檢查是否正確	
		網線檢查是否正確	

	和蘭
w/o w/f	
10-2-17	

Quality Control Sheet		UNIVERSITY OF SOUTH AFRICA			
Cancel: Venter/Bypass Tunnel (Pneum Point Section) and Island Eastern Comber Life					
Launching Older Members' Daily Chipping List (FORM MDP1)					
Date: 0 Feb 2017					
序號	計畫項目	計畫內容	計畫標準	日期	簽核
		逐層逐點檢查	是/否 <input type="checkbox"/>		
		逐點逐層檢查	是/否 <input type="checkbox"/>		
1	中文圖	階梯及鋼絲網部分	是/否 <input type="checkbox"/>		
		逐層逐點檢查	是/否 <input type="checkbox"/>		
2	舊、英文圖	逐層逐點檢查	是/否 <input type="checkbox"/>		
		逐點逐層檢查	是/否 <input type="checkbox"/>		
3	主天車	逐點逐層檢查	是/否 <input type="checkbox"/>		
		逐層逐點檢查	是/否 <input type="checkbox"/>		
4	15t 吊車	逐層逐點檢查	是/否 <input type="checkbox"/>		
		逐點逐層檢查	是/否 <input type="checkbox"/>		
5	主鋼絲網檢查	鋼絲網檢查	是/否 <input type="checkbox"/>		
		鋼絲網檢查	是/否 <input type="checkbox"/>		
		鋼絲網檢查	是/否 <input type="checkbox"/>		

備註:

日期: 1-2-2017

簽名: [Signature]

日期: 1-2-2017

簽名: [Signature]

Checklist ref. Form MDP1 31st May 17

- 2. Checking system has been established for the launching procedures.**
- e.g.:**
- a) Pre-use checking after installation**
 - b) LG Maintenance Daily Checklist**
 - c) Main Support Maintenance Monthly Checklist**
 - d) Winches Maintenance Monthly Checklist**
 - e) Front (Rear) Leg Maintenance Monthly Checklist**

Safety procedures / measures during demolition of U-beam structure



1. Anchorage points & Fall Arresting System has been provided for working at height and working on the crosshead and U-beam
2. Coring & Saw Cut works has been provided guarding, PPE and noise barriers.
3. Provide the lookout man, red flags and highlighted warning notices around the lifting zone

Specific Safety Training and Permit to Work System

YWL Engineering Pte Ltd

Certificate of Attendance

This is to certify that

Cheung Wai Hung

Has attended the following training course:

Title: Plant Specific and Site Specific Training on the Operation of Launching Girders

Date: 19 September 2016

Time: 1:00pm to 3:00pm

Venue: Meeting Room, G/F Site Office at Oil Street, Chun Wo – CRGL – MBEC Joint Venture


James Lok Ying Ming
Plant Manager

YWL Engineering Pte Ltd
Designer/Manufacturer of Launching Girder



- Plant Specific and Site Specific Training on the Operations of Launching Girder has been conducted by the Supplier – YWL.
- The relevant workers to be familiar with the whole operation and design of the Launching Girder.
- LG work permit has been displayed on the relevant worker's helmet.

Dismantle of Launching Girder

Lifting the LG's components by 400ton Crawler Crane



超吊的操作許可證 HY/2009/19

1. 基本資料
許可有效日期至: (總長 2 天) 日期: 14.5.2017 時間: 18:00
有關工程及位置: D18-P14 Bridge Dismantlement
圖則/圖號: 圖則式: 圖號: 其他: 圖則: (1/10) (1/10) (1/10) 400 Ton
操作員姓名: 黃永強 監督: 黃永強 執照編號: N/A 6549R
取銷員姓名: 黃永強 監督: 黃永強

2. 地點及附近危險
危險工程: ☐ 公營地方/行人徑 ☐ 有障礙 ☐ 鄰近的工程 ☐
鋼柱: ☐ 道路 ☐ 鄰近的工程 ☐
地面泥土: ☐ 鐵路 ☐ 鄰近的工程 ☐
凹凸不平的地面: ☒ 學校 ☐ 其他: ☐
架空電纜: ☐ 橋樑 ☐ 其他: ☐
地底設施: ☐ 鄰近有機械 ☐ 其他: ☐
填土開挖的危險分析表

3. 負載物
最大的負載物重量: 138 噸 最長的吊吊距離: 12 米

4. 檢查表
機械的測試合格證書 (表格 1.2 第 5)
操作員的執照 ☒ 裝置 ☐ 不裝置 ☐
起重機具的檢查及保養 ☒ ☐ ☐
鋼索吊具的檢查及保養 (包括檢查地面情況) ☒ ☐ ☐
固定索 (鋼索) 是否完全展開 ☒ ☐ ☐
使用吊鉤吊起負載物, 吊鉤各部分不在負載物底下 ☒ ☐ ☐
5. 操作許可
對評估結果範圍內的潛在危險以及負載物的重量, 本人相信所用機械能夠安全地吊起負載物, 故准予進行工作。
操作員: 黃永強 監督: 黃永強 日期: 21-5-2017

6. 檢查表
本人作為操作員, 明白必須對超吊操作負責, 同時亦明白超吊範圍內的潛在危險, 並已採取所需的安全預防措施。本人須在吊起負載物前, 檢查及保養起重機具, 而且可以繼續安全操作。
操作員: 黃永強 監督: 黃永強 日期: 21-5-2017

7. IV 類工程/施工工程師
本人相信評估結果與實際情況相符, 並已採取所需的安全預防措施。本人相信所用機械能夠吊起負載物, 而且可以繼續安全操作。
IV 類工程/施工工程師: 黃永強 監督: 黃永強 日期: 21-5-2017

Lifting permit for the lifting operations

MS No: 010MS0919
Revision: 0
Date: 24 Mar 17

俊和-中國中鐵-中鐵大橋局聯營
CHUN WO - CRGL - MBEC JOINT VENTURE

Contract No. HY/2009/19
Central - Wan Chai Bypass - Tunnel (North Point Section) and Island Eastern Corridor Link

METHOD STATEMENT
FOR
LGB Disassembly Work Between Pier 33 ~ Pier 35
(Rev.0)

Prepared by	Reviewed by	Reviewed by	Reviewed by	Reviewed by	Approved by	Endorsed by
Senior Engineer	Assistant Construction Manager	Construction Manager	Environmental / QA Manager	Safety Manager	Deputy Project Manager	Site Agent
(Terence Tsui)	(Wingo Wong)	(Andy Chan)	(M.H. Ho)	(H.K. Leung)	(William Luk)	(David Lau)

Method Statement & Risk Assessment for dismantle the LG



Firm ground testing the ground bearing capacity / firmness to prevent lifting failures caused by supporting ground not being firm enough

Effectiveness

- 1. No Accident & Near Miss Cases occurred since the LG assembled**
- 2. No complaint by public, client & consultant**

- The End -

Thank You