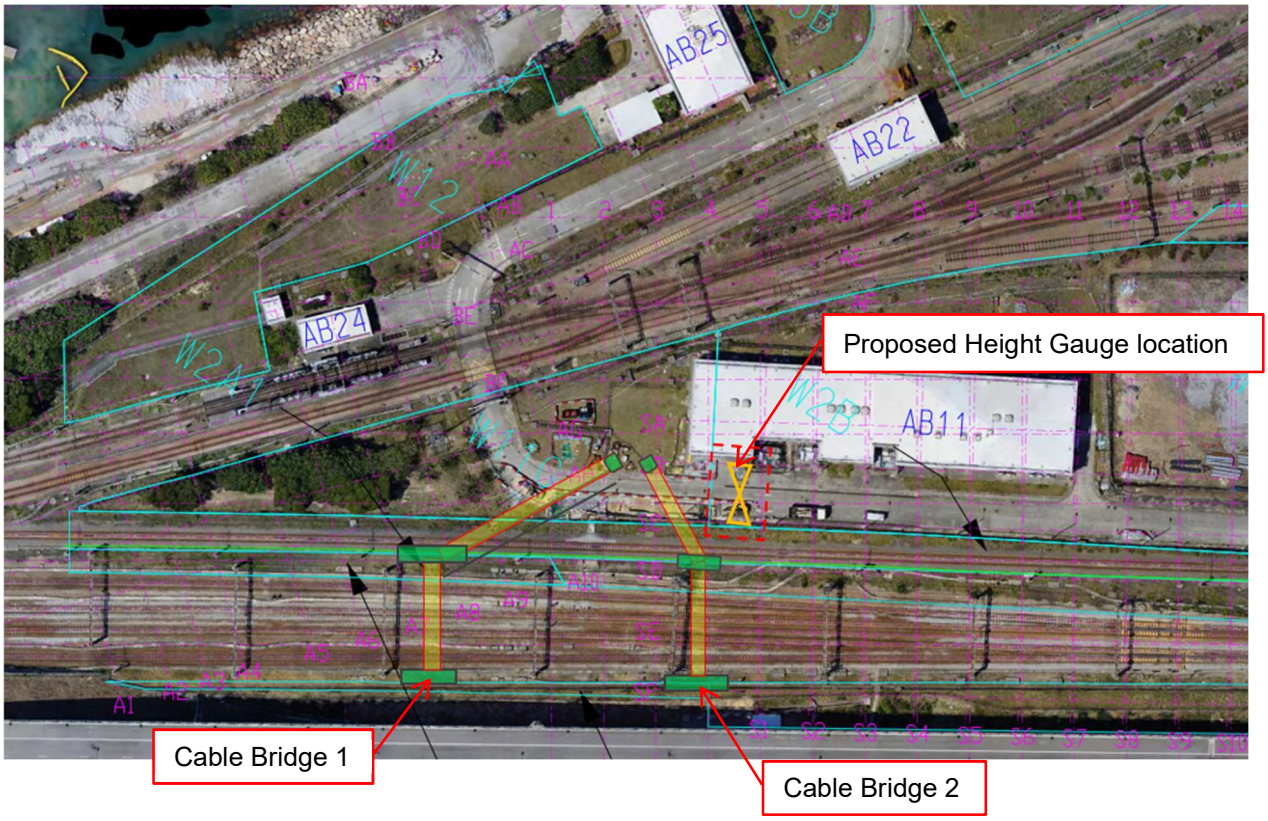
MS Reference Number:	CSHK	CET	MS	C	2024	000108
ACC Reference Number:	1701	W	000	CSC	760	000505

METHOD STATEMENT TITLE	Rev. -
Method Statement of Height-Gauge Erection	

	Prepared by:	Checked by:	Reviewed by:	Reviewed by:
Signature:				
Name:	Edmond MAN	Vincent Li	~~Leung Kwok~~ Fung /Hui Wai Kwan	MH Isa / ~~WH Lam~~
Position:	Engineer	Construction Manager	SM/SO	QM/~~QE~~
Date:	21/5/2024	21/5/2024	21/5/2024	21/5/2024
	Reviewed by:	Reviewed by:	Reviewed by:	Approved by:
Signature:				
Name:	James Ma / Iris Ho	Yeung Wai Lun	Paul Freeman/ Mark McGleenon	Eric Fong
Position:	EM/EO	A. Project Director	Sr. Project Director / A. Project Director	Project Director
Date:	21/5/2024	21/5/2024	21/5/2024	22/5/24

CONTENT

1.	**Objective** (Overview of the operation/works)
	There are two existing cable bridges across southern road at upper ground level position. With the development of site works, the capacity of southern road will tend to achieve its maximum value. In fact, various kinds of vehicle to serve different party and purpose (i.e. internal transportation and piling work) will pass thought southern road. It is necessary to set up height limitation and draw attention to every south road user no tolerance is allowed. Therefore, we would like to propose a 4.5m clearance height gauge for cable bridge protection. We consider to set-up height gauge with reference to location plan below.  Proposed location: x-axis GL4~5 y-axis SB~SC
2.	**Reference Documents** (Identify relevant documents by name and reference number)
	Please refer to Appendix C regarding drawing of height gauge typical design
3.	**Details of Sub-Contractor/Specialist Sub-Contractor**
	The works will be carried out by our subcontractor and supervise by our front-line staff such as foreman and engineer. We will also provide the fill time CP(T) (Railway Safety Rules and Requirements) on site, 1 CP(T) will be appointed for 20 workers at same work area. All worker should possess the qualification Railway Safety Training (RSI). Besides, WPIC will be assigned to supervise the construction works at each work site.
4.	**Responsibilities for Activities described within Method Statement**

CSHK is responsible to inspect and carry out the construction works. The following persons, as listed in the table below, will attend the specific tool-box talk and be responsible for the activities:

Company	Name	Position
CSHK	Vincent Li	Construction Manager
	Nana Chung	Assistant Construction Manager
	Lewis Ng	Assistant Section Agent
	David Lam	Senior Engineer
	Johnson Chung	Senior Engineer
	Sam Tsang	Engineer
	Jacky Luo	Engineer
	Li Wenguang	Engineer
	Edmond Man	Engineer
	Kinsley Zhao	Assistant Engineer
	Li Man Hin	Graduate Engineer
	Cheung Siu Kei	Superintendent (WPIC)
	Benny Yeung	General Foreman
	Jacky To	Foreman
	Chan Man Hin	Foreman
	TBC	CP(T)

5. Programme and Working Hours (Start & finish date of operation/works)

The works target is planned to be commenced on June 2024 and spent 1 work day to complete the task.

Programme & Working Hour

- Daywork ;
- Working hour: 08: 00 ~ 19: 00 (Nominal Time) + 19:00~23:00 (Optional) with valid CNP
- Target Completion Day: Begin at early June until the end of July 2024

For Site Survey and Site clearance

Item	Works	TH/NPH/NTH
1	Site Survey Team will provide mark and level indication on designated location of concrete block set-up.	TH
2	Make sure nearby existing facility and equipment owned by SHW Depot team will not be damaged by placing protective barrier (water filled barrier)	TH

Fence off works area

Item	Works	TH/NPH/NTH
1	Fence off works area by red plastic barrier to eliminate entry of unauthorized people or vehicle. When crane lorry extend its outriggers in maximum stretch, two lanes will be occupied temporarily.	TH

2	Place adequate traffic signs to alert surrounding co-related people a fatal zone is created for Height-gauge construction.	TH
3	A designated banksman will be deployed to stand outside fatal zone and avoid unpermitted enter.	TH

6. Plant, Equipment & Material (Identify type, model and specification of MAJOR plant & equipment)

All plants and equipment will be inspected prior to the mobilization on site to ensure that they are in good working condition and comply with the current regulations. Plant permit system will be adopted ensure condition of lifting crane and appliance are checked before use.

To meet the programme requirement, 1 workfront will be sufficiently fulfilled work task. The major plants and equipment will be deployed to carry out the works are as follow: -

Southern road
1 no. Workfront

Plant / Equipment	Quantity
Mobile Crane/Crane Lorry	1
Cherry Picker/Aerial Platform	1

Manpower	Quantity
Crane operator	1
Rigger	4
Signalman	1
Banksman	1

Lifting Arrangement

No part of the mobile crane/crane lorry will work beyond the water filled barrier and the maximum lifting load shall be <80% of SWL.
Load of LALG must be counted as part of the lifting load.
For any lifting operation by crane lorry, the mobile crane / crane lorry outriggers must be fully extended and the fatal zone will be fenced off by red barrier. Only deployed and competent person (CP) is allowed to enter lifting area.

7. Traffic and Security Management

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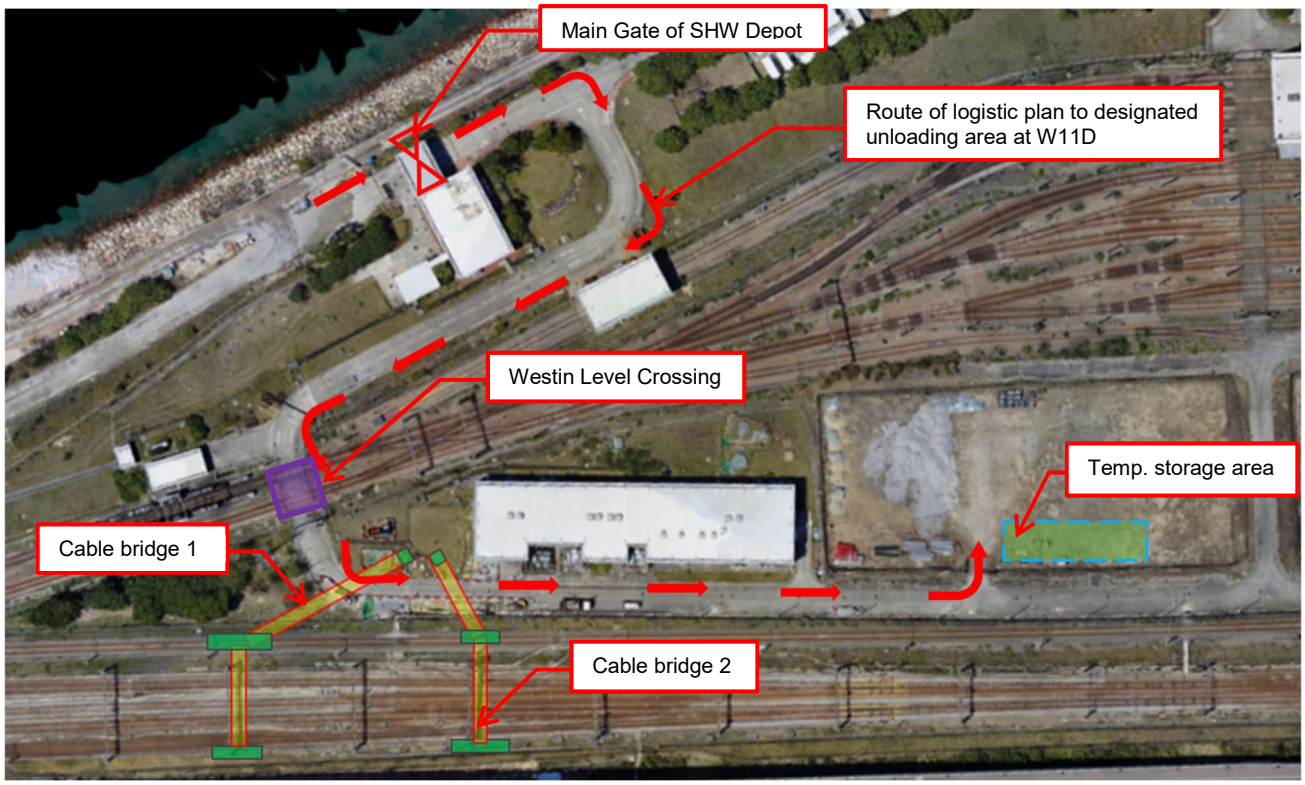
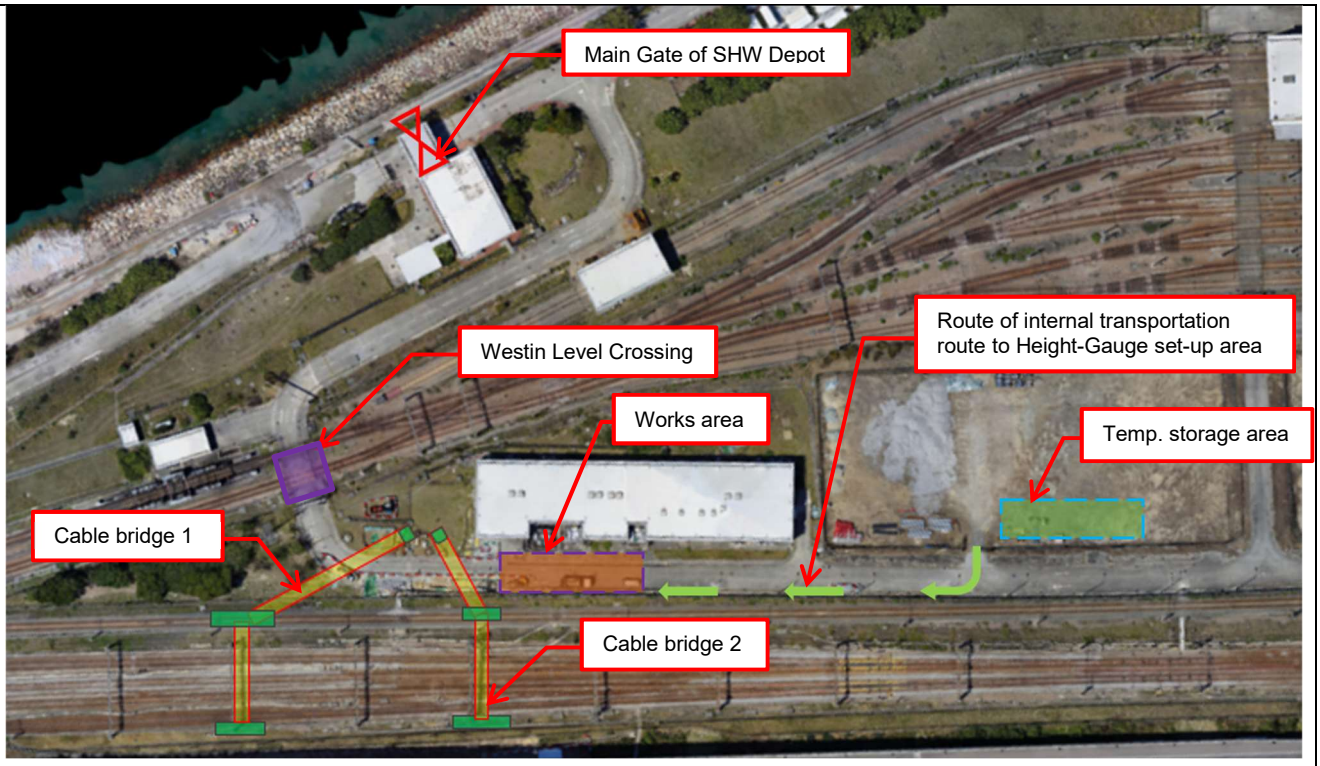


Logistic Plan A shown above direct a proposed traffic route regarding transportation of height gauge components from outside to designated temporary storage area for unloading work.

Crane lorry is guided by a traffic controller to park at a designated location near temporary storage area. Workers then help set-up crane lorry and fence-off works area for unloading work on bed. It should be aware that stacks of height gauge components should not exceed 1m high level measured from ground level.

CP(T) is assigned to carry out registration in main gate of SHW depot and take crane lorry to designated location for unloading and set-up fatal zone. Meanwhile, It is forbidden to pass through west leveling crossing without leading by CP(T). A CP(T) is enforced and required to lead and ahead of vehicle with goods on bed when going to southern road by west levelling crossing during unloading goods and departure of SHW depot



Logistic Plan B shown above direct a proposed traffic route regarding internal transportation of height gauge components from temporary storage area at W11D to works area as mark up on location plan

Worker Verification

- All workers will be picked up at designated area such as Tung Chung Station.
- During boarding the shuttle bus, hand-held facial recognition will be performed to verify the worker's qualification.
- The facial recognition system will check if the person has passed the RSI and possesses a green card.
- List of workers shall be submitted for MTR for registration before starting of works, the list shall be updated weekly and available for MTR as requested.

Uniform and Safety Equipment: All workers shall wear PPE and the standard uniform and safety helmet for easy recognition by security guards and YM.

Template of Label for Safety Helmet

Identify the color for the Safety Helmet

Reflective Vest (MTR Approved Type) 反光衣(港鐵指定款)

The works area is declared as OA area (public road). Person without RSI qualification is not allowed to take part in Height-gauge construction.

8. Introduction of Height Gauge (4.5m Height Clearance)

Isometric View of Height-gauge for typical design

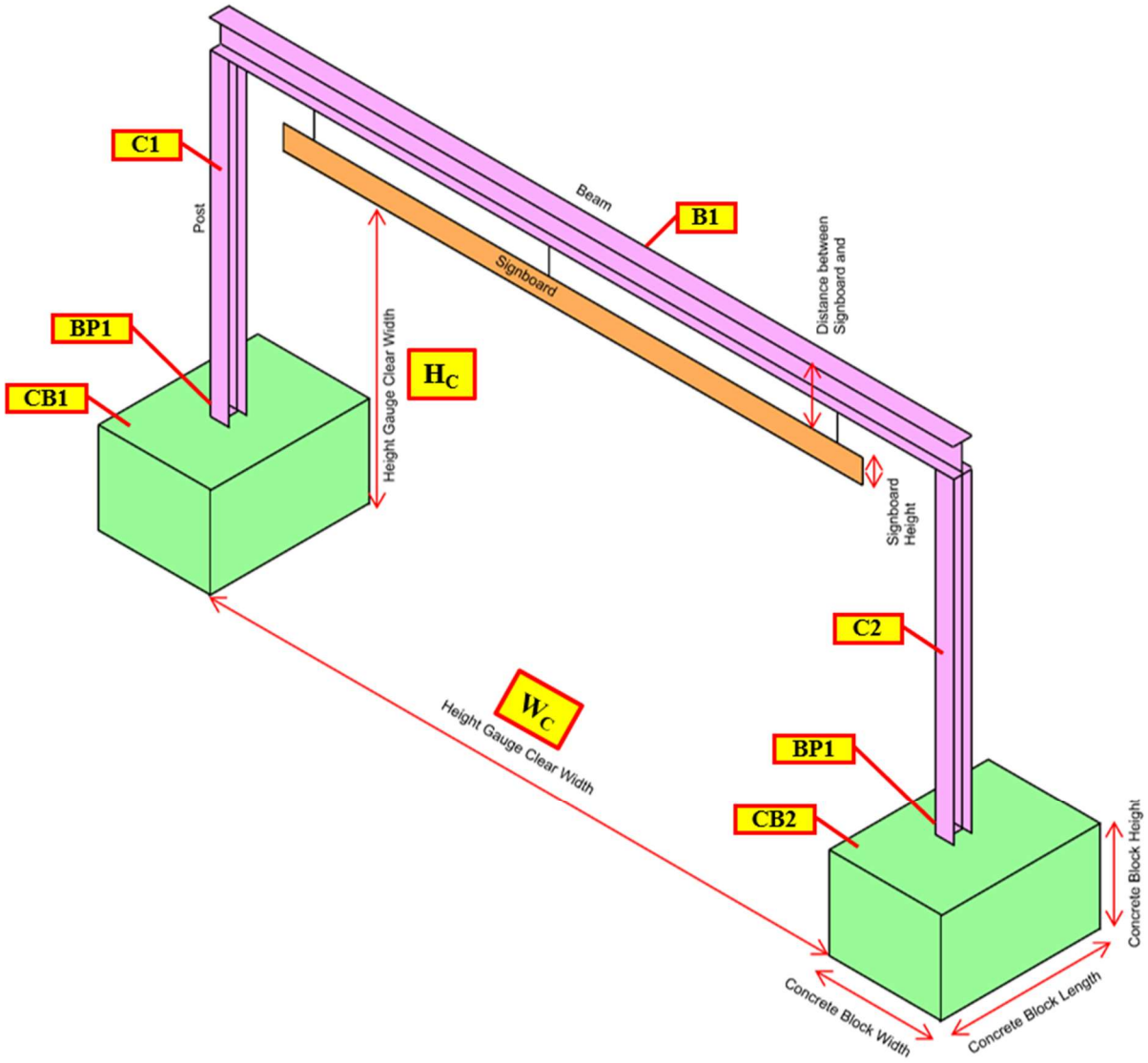


Table of Height-gauge Schedule

Item No.	Size of Height-gauge		Type No.	Location to use	Qty (nos.)
	Clear Height Hc (m)	Clear Width Wc (m)			
1	4.5	8	T1	TT06	1

Table of Height-gauge Steel Member Schedule

Steel member Schedule					
Legend	Type of Steel member	Section Property/ Member size	Grade	Qty (pcs)	Weight (T)
C1	Column	203x203x60kg/m U.C. (4m Long)	S355J0	1	0.24
C2	Column	203x203x60kg/m U.C. (4m Long)	S355J0	1	0.24
B1	Main Beam	203x203x60kg/m U.C. (9.2m Long)	S355J0	1	0.552
BP1	Base plate	550mm(L)x550mm(W)x20mm(T)	S275J0	1	0.04

BP2	Base plate	550mm(L)x550mm(W)x20mm(T)	S275J0	1	0.04

Table of Height-gauge Concrete Block Schedule

Concrete Block Schedule					
Legend	**Material Description**	**Dimension H(m)*W(m)*L(m)**	**Grade**	**Qty (nos.)**	**Weight (T)**
CB1	Concrete block	1*1*2.4	C30D/20	1	5.76
CB2	Concrete block	1*1*2.4	C30D/20	1	5.76
T12-150	Reinforcement	Refer to detailed design drawing	250	N/A	N.I.L.
T1	Reinforcement	Refer to detailed design drawing	250	N/A	N.I.L.
T2	Reinforcement	Refer to detailed design drawing	250	N/A	N.I.L.
B1	Reinforcement	Refer to detailed design drawing	250	N/A	N.I.L.
B2	Reinforcement	Refer to detailed design drawing	250	N/A	N.I.L.

9. Construction Methods / Construction Sequence Drawings

Site Survey work

Site survey team shall provide setting out information in an expression of paint mark on ground. There are different kinds of information site construction team should be acknowledged before proceeding work.

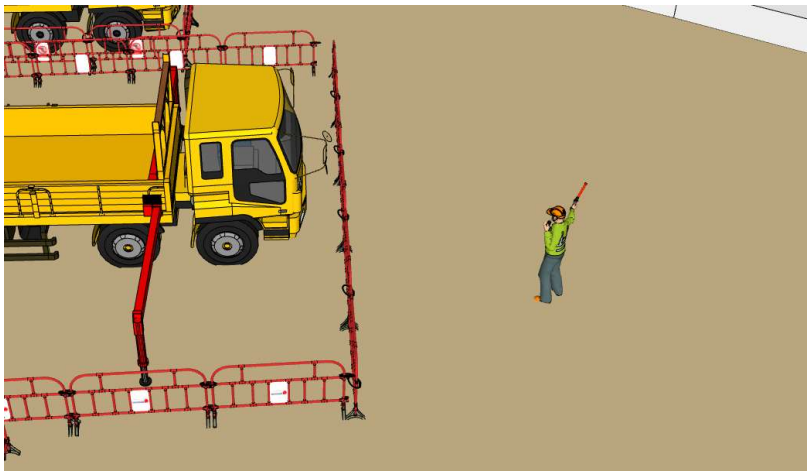
1. Designated location (coordinate information) of concrete block set-up;
2. The distance of relationship between nearby equipment or facility;
3. Orientation of concrete block;
4. Level difference of uneven ground;

Material Transportation

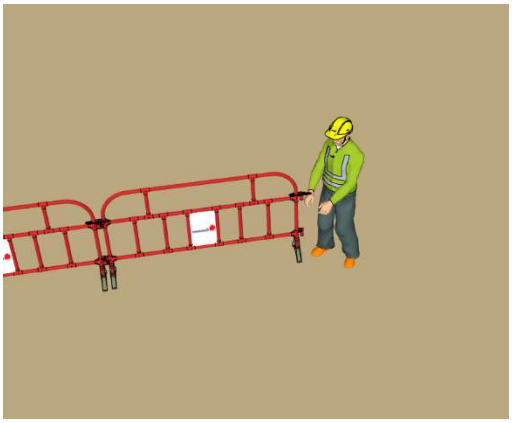
5. The materials will be delivered to site according to the logistic plan;

   Delivery Sequence in ascending order
   Concrete block > Steel components > Signboard

6. For any uncharted vehicle or person without RSI certification, registration in main gate is required and responsible by CP(T);
7. After registration, CP(T) will lead vehicle to the designated location for material unloading;
8. Unloading area is fenced off by red barrier as fatal zone.
9. Set-up crane lorry and make sure out-rigger is fully extended as well as bearing plate is used;
10. Riggers shall use the safe access provided to reach flatbed for rigging of material;
11. The riggers shall attach tag line (7m~10m long) before get down on ground level;
12. The crane will lift/unload the materials to designated location as provided by survey team before. The crane setup shall be strictly followed the lifting plan to prevent exceed the crane capacity.
13. A designated signalman is required to keep good communication with riggers and operators and monitor the lifting process. Everything should be under control during lifting process;
14. Repeat the above step until a full-set of height-gauge assembly parts are being unloaded on the ground;



Detail view of leading the crane lorry to designated



Detail view of fence off the fatal zone by red barrier

Detail view of set up the steel pad for crane lorry

Works Arrangement
Stage 1

1. Crane lorry is parked to designated lifting zone (temp. storage area at W11D) as specific in lifting plan;
2. Fence off the fatal zone with red barriers and set-up crane lorry properly (outriggers shall be under full extension)
3. Rigger attach LALG to rigging point of concrete block with a 6m-long tagline;
4. Lift up concrete block to flatbed and transport to designated location at south road;
5. Crane lorry is parked to designated lifting zone (south road) as specific in lifting plan;
6. Fence off the fatal zone with red barriers and set-up crane lorry properly (outriggers shall be under full extension) in second time;
7. Rigger get on lorry crane by suitable access ladder;
8. Rigger attach LALG to rigging point of concrete block with a 6m-long tagline;
9. Rigger get away from flatbed when it is coming to lift up;
10. After the concrete block turned to upright position, it will be lift to the permanent installation position.
11. Lower down the concrete block until it is about 1.5m above the installation position and steady, rigger

shall then go inside the fatal zone to assist the coming laying process.
12. Keep lower down the concrete block steadily upon pre-set position provided by survey team.
13. After the lifting operation is finished and in the stable stage, the worker will check whether object stay in right position under tolerance before riggers detach LALG;
14. Repeat step 6 to step 12 for another concrete block;

Stage 2

1. Crane lorry is parked to designated lifting zone (temp. storage area at W11D) as specific in lifting plan;
2. Fence off the fatal zone with red barriers and set-up crane lorry properly (outriggers shall be under full extension)
3. Rigger attach LALG to body of steel post (choker hitch) with a 6m-long tagline;
4. Lift up steel post to flatbed and transport to designated location at south road;
5. Crane lorry is parked to designated lifting zone (south road) as specific in lifting plan;
6. Fence off the fatal zone with red barriers and set-up crane lorry properly (outriggers shall be under full extension) in second time;
7. Traffic controller is assigned to direct workers with full-body safety harness on aerial working platform inside the fatal zone to assist the coming installation process;
8. Rigger get on lorry crane by suitable access ladder;
9. Rigger attach LALG to rigging point of steel post;
10. Rigger get away from flatbed when it is coming to lift up;
11. Lift up the steel post directly on flatbed;
12. Tagline shall be used to control the movement of the lifting object;
13. Lower down the steel post until it is about 1.5m above the installation position and steady, rigger shall then go inside the fatal zone to assist the coming installation process;
14. Keep lower down the steel post until the base plate pass through the bolt and sit on the preset units;
15. After the lifting operation is finished and in the stable stage, the worker will check the verticality and alignment of the steel post, and adjust the level of nut and preset units for fine turning if necessary;
16. Fix the steel post in position by following the bolt sequence, and tighten all the nuts to designated torque value (M20 = 165Nm);
17. Lifting sling will then ne detached by workers on the aerial working platform;
18. Repeat step 8 to step 16 until all the height gauge steel posts are installed;

Stage 3

1. Crane lorry is parked to designated lifting zone (temp. storage area at W11D) as specific in lifting plan;
2. Fence off the fatal zone with red barriers and set-up crane lorry properly (outriggers shall be under full extension);
3. Rigger attach LALG to body of steel beam and signboard (choker hitch) with a 6m-long tagline;
4. Lift up steel beam and signboard to flatbed and transport to designated location at south road;
5. Crane lorry is parked to designated lifting zone (south road) as specific in lifting plan;
6. Fence off the fatal zone with red barriers and set-up crane lorry properly (outriggers shall be under full extension) in second time;
7. Traffic controller is assigned to direct workers with full-body safety harness on aerial working platform inside the fatal zone to assist the coming installation process;

8. Rigger get on lorry crane by suitable access ladder;
9. Rigger attach LALG to rigging point of steel beam;
10. Rigger get away from flatbed when it is coming to lift up;
11. Lift up the steel beam directly on flatbed;
12. Tagline shall be used to control the movement of the lifting object;
13. Lower down the steel beam slowly, the connection plate of main beam will then be sat on the connection plate of steel post;
14. Insert and tighten the bolts and nuts to secure the steel beam in position;
15. Fix the steel beam by following the bolt sequence, and tighten all the nuts to designated torque value (M20 = 100Nm).
16. Lifting sling will then be detached by workers on the aerial working platform.
17. Repeat step 8 to step 16 until all the height gauge steel beam and signboard are installed;

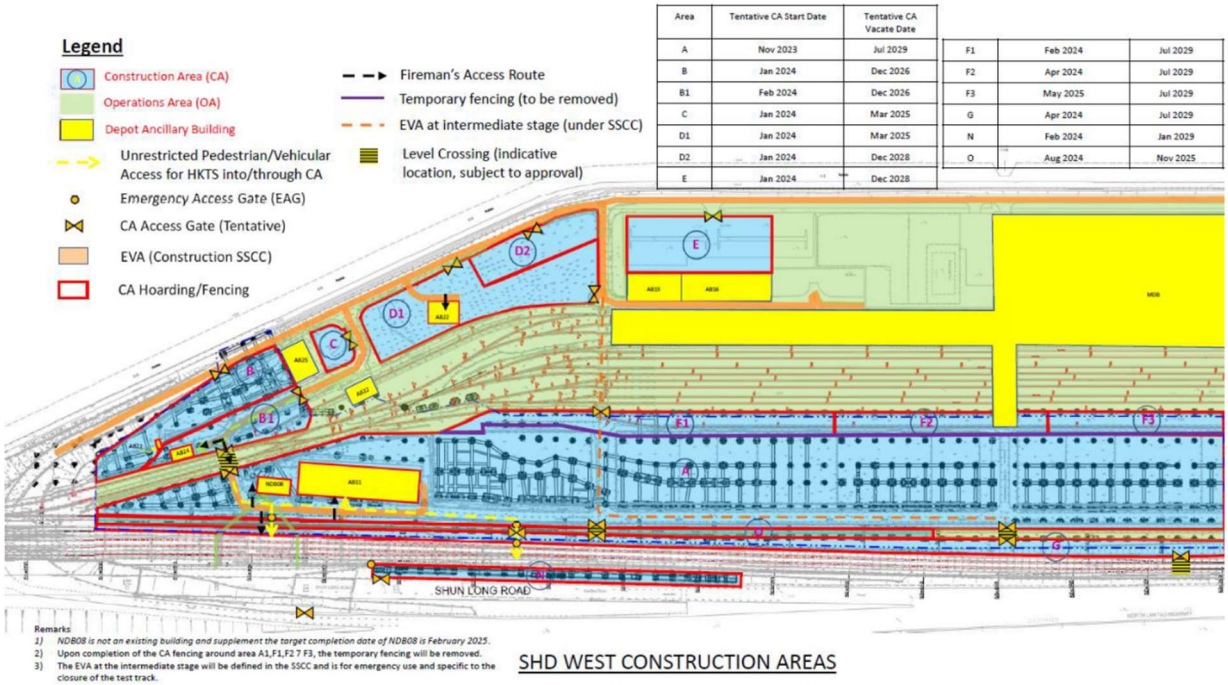
Stage 4

1. Fence off the work area in order to carry out bolt tightening work at height or at ground;
2. Traffic controller is assigned to direct workers with full-body safety harness on aerial working platform inside the work area to assist the coming bolt tightening work;
3. Workers use hand tools or cordless power tools (Impact wrench) to securely fasten nuts on base plate and upper connection plate;
4. Carry out torque test in compliance with COP for The Structural Use of Steel clause 14.4.2.8

Table 14.5 - Recommended tightening torques and approximate bolt tensions for ISO grade 8.8 bolts (Assumes bolts oiled)

Nominal bolt diameter	Tightening torque (Nm)	Approximate bolt load (kN)
M16	55	17
M20	100	25
M22	110	25
M24	120	25
M27	135	25
M30	150	25
M33	165	25
M36	180	25

TTA Scheme



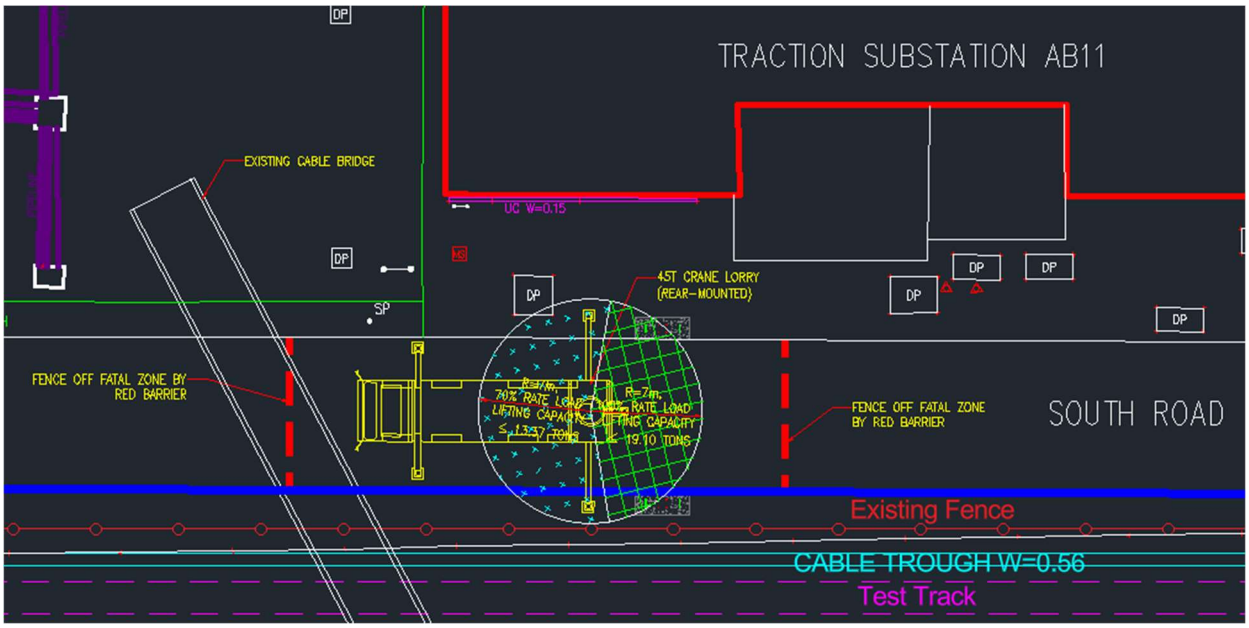
Area	Tentative CA Start Date	Tentative CA Vacate Date
A	Nov 2023	Jul 2029
B	Jan 2024	Dec 2026
B1	Feb 2024	Dec 2026
C	Jan 2024	Mar 2025
D1	Jan 2024	Mar 2025
D2	Jan 2024	Dec 2028
E	Jan 2024	Dec 2028

F1	Feb 2024	Jul 2029
F2	Apr 2024	Jul 2029
F3	May 2025	Jul 2029
G	Apr 2024	Jul 2029
N	Feb 2024	Jan 2029
O	Aug 2024	Nov 2025

SHD WEST CONSTRUCTION AREAS

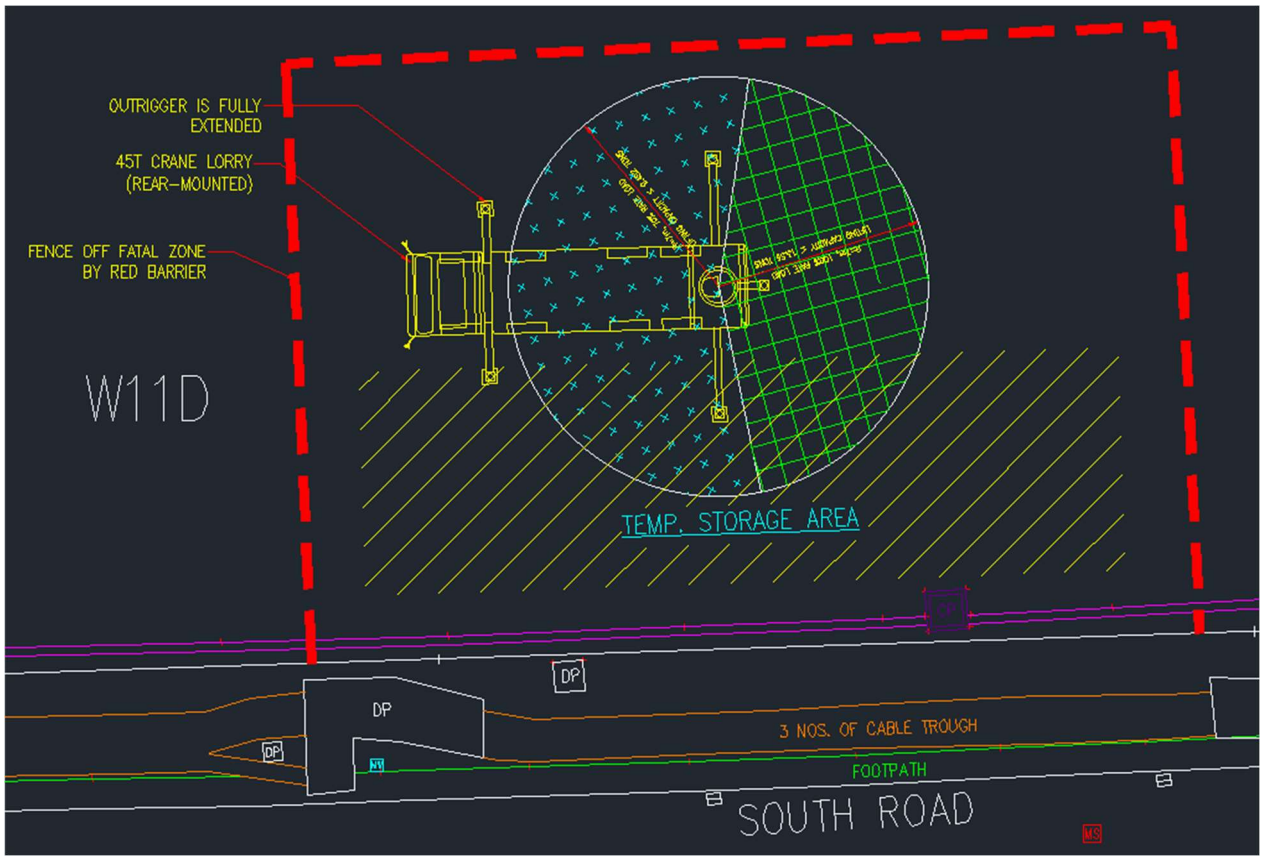
Entire of south road is inclusive in construction area W11G and W11D where cover both works area for height gauge components loading and unloading work as well as assembly work. We would like to assign a pair of traffic controllers in both ends as traffic supervision during height gauge erection on south road. At least one lane is allowable to open for vehicle access under safety condition. (e.g. The moment when lifting work is stopped). There is not required to submit TTA scheme under this situation.

Lifting Plan



Lifting Plan for Installing Height-Gauge components

MODEL: 955/9S (EFFER, ITALY)
BOOM LENGTH: 10m
WORKING RADIUS: 5m @ S.W.L.=19.10T
WEIGHT OF LIFTING OBJECT: 5.76T (Concrete block. Value of weight can refer to slide 7)
WEIGHT OF LA/LG: 0.3T
TOTAL WEIGHT: 5.76+0.3=6.06T
LIFTING CAPACITY: 6.06T/19.10T=31.72% (<80%, LIFTING APPROVAL)



Lifting Plan for Loading Height-Gauge components

MODEL: 955/9S (EFFER, ITALY)
BOOM LENGTH: 10m
WORKING RADIUS: 7m @ S.W.L.=13T
WEIGHT OF LIFTING OBJECT: 5.76T (Concrete block. Value of weight can refer to slide 7)
WEIGHT OF LA/LG: 0.3T
TOTAL WEIGHT: 5.76+0.3=6.06T
LIFTING CAPACITY: 6.06T/13T=46.61% (<80%, LIFTING APPROVAL)

Pre-work Notification

Prior to the height-gauge set-up (material transportation and on-site assembly work), site pictures taking is necessary to be carried out for several reasons.

1. Environment investigation can identify potential dangers of work area in which risk assessment will be more accurate;
2. Protection of existing equipment and facility to avoid any damage during assembly work and component unloading;
3. Ground condition is able to reflect by pictures and decide whether surface treatment is required or not before work.

Site Picture

The definition of overall clearance (4.5m maximum) is linear measurement from top of road level to underneath of Height-gauge. Since the road level is not uniform, our site survey team will counter-check random points we pick on road level and give out raw value of headroom level which does not allow to exceed 4.5m in maximum.

10.	**Safety** (Risk Assessments)
	Risk Assessment attached in Appendix A has been prepared for all general activities. Specific safety procedures and precautions have been developed for all site operatives to follow. A PIC (person-in-charge) together with the RSO, will supervise overall erection works which is complied with construction sequence and guarantee works are taken part in safe and amicable working environment.

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11.	**Environmental** (Environmental aspect & impact identification as well as mitigation measures)
	● Plant with QPME label will be employed if available; ● Only regulated NRMM with approved NRMM label to be used on site; ● All chemicals will be placed on drip tray; ● Any wastewater produced during the work will be treated prior to disposal; ● The works shall follow relevant mitigation measures as required under the Environmental Permit (EP) / EP submission and *Contractor*'s Environmental Management Plan (EMP).
12.	**Quality Control** (Inspection and Test Plan including hold points)
	Refer to Appendix B for Inspection and Test Plan. To ensure the attainment of the required standard of works, the methods of working and the required works standards / acceptance criteria are defined in the method statement, inspection & test plans, and are communicated to relevant staff and workers carrying out the works. Day to day routine inspections of the works will be carried out by the Construction Team Leader, Site Engineers and Foreman as appropriate, to ensure that all works are performed following the requirements of these documents. Specific quality checks shall be carried out in accordance with the approved Inspection & Test Plan with "Hold Points" at critical elements for confirmation of compliance before proceeding further. Request for Inspection and Survey Check (RISC) shall be issued to the RSS following inspection of the works by the CSHK's project team. The Inspection & Test Plan for the works (Appendix B) will identify all Hold Points and Witness Points. Following the Inspection & Test carried out, inspection and / or test records are to be prepared to indicate whether the specified requirements have been met. Records of Inspection and testing will be maintained and kept available for inspection and final handover as appropriate.
13.	**Appendices** (Identify and include additional information in the submission package)
	Appendix A – Risk Assessment Appendix B – Inspection and Test Plan (ITP) Appendix C – Design Drawing of Height Gauge Appendix D – Emergency Contact List Appendix E – Plant Catalogue