MS Reference Number:	CSHK	CET	MS	C	2024	000075
ACC Reference Number:	1701	W	000	CSC	760	000205

METHOD STATEMENT TITLE	Rev. A
Method Statement for Construction of PM Office Foundation	

	Prepared by:	Checked by:	Reviewed by:	Reviewed by:
Signature:				
Name:	Nick Wang	Anthony He	Leung Kwok Fung / ~~Hui Wai Kwan~~	MH Isa / ~~WH Lam~~
Position:	Site Agent	A. Construction Manager	SM/~~SO~~	QM/QE
Date:	12 Apr 2024	12 Apr 2024	15 Apr 2024	15 Apr 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:	15 Apr 2024	17 Apr 2024	22 Apr 2024	22 Apr 2024

CONTENT

1.	**Introduction** (Overview of the operation/works)

This Method Statement gives a general guideline for the execution of the foundation construction work for PM office under Contract 1701. This document shall be distributed to relevant parties to introduce the work scopes, to present the sequence of works and to define the associated responsibilities to ensure the health, safety, environment and quality issues addressed. The details of the procedures contained herewith shall be reviewed periodically and updated based on the actual site conditions. The principle methods as described in the following sections are subject to review during construction and may be amended if required. All the construction works for the Project Manager's Office will be inside Construction Area (CA).

The general working procedures outlined in this method statement are applicable to the following scopes of work:

- Protection existing drainage system under PM office in W7 area.
- Slew existing cables under PM office in W7 area.
- Casting blinding for the footing of PM office
- Steel fixing for the footing of PM office
- Formwork for the footing of PM office
- Placement of concrete for the footing of PM office
- Curing of concrete for the footing of PM office
- Resource for the footing of PM office
- Construction sequence

The site layout is shown below:

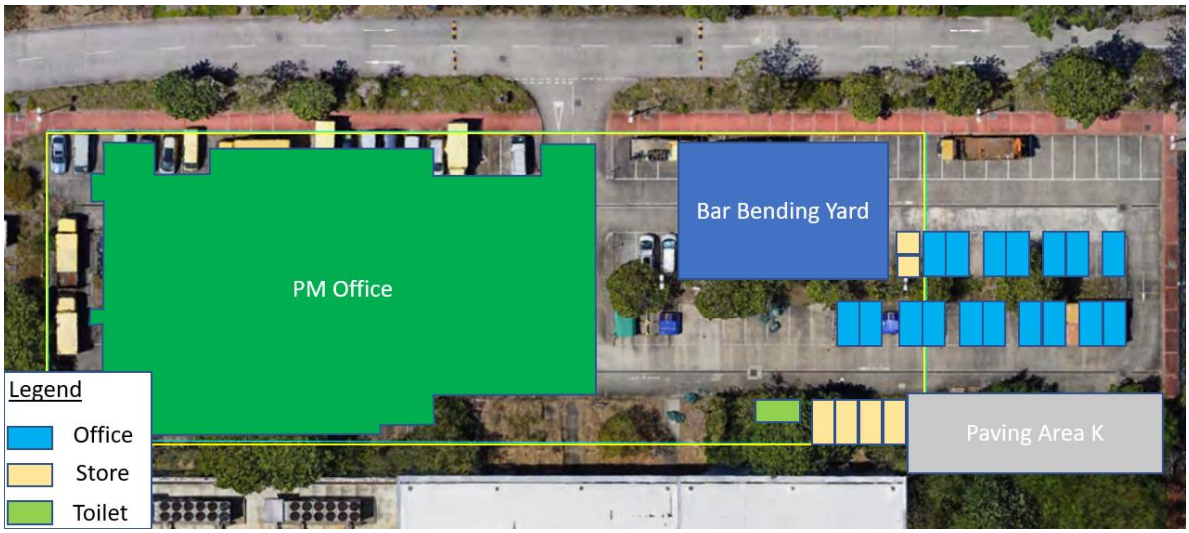

Figure 1 – Site Layout and container village rearrangement

2.	**Reference Documents** (Identify relevant documents by name and reference number)

- General Specification for Civil Engineering Works (NEC4) (MTR Corporation Limited - 2022)
- Scope for Contract 1701.
- Materials and Workmanship Specification for Civil Engineering Works
- Working drawings refer to **Appendix G**.

3.	**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:

Name	Position
WL Yeung	Assistant Project Director
Anthony He	Assistant Construction Manager
Nick Wang	Site Agent
Andrew Mak	Engineer
Cai Jintian, Tim	Engineer
Andrew Lo	Graduate Engineer
Xu Wenxuan, Charles	Graduate Engineer
Leung Kwok Fung	Project Safety Manager
Hui Wai Kwan	Safety Officer
Ernest Young	Safety Officer
Lau Yu Tat	Senior Surveyor
Cheung Siu Kei	Superintendent
Ng Ho Lun	Senior Foreman (WPIC)

(a) Assistant Project Director / Assistant Construction Manager
Responsible for overall administration, monitoring, controlling progress and quality of works in a safe manner.

(b) Site Agent/ Engineer/ Senior Foreman
Responsible for developing works procedures, controlling progress and quality of works in a safe manner. They also have to implement safety at works area for workers via guidance from safety officers.

(c) Safety Manager/ Safety Officer
Responsible for assessing working conditions of work areas in safety means. To prepare risk assessment before works, enforce safety works practice and environment in the workplace and work site.

(d) Worksite Person In Charge (WPIC)
WPIC is in charge of the work in the works areas, which are located at various positions of site. Site Supervisor is also responsible in implementing works control checklist. WPIC/ Site supervisor shall attend pre-work briefing and deliver the work arrangement, included but not limited to proposed working area, sequence of works and safety precautions measures.

(e) Registered Electrical Workers (REW)
Workers who have valid certificate of registered electrical worker and completed MTR RSI training and obtain qualification.

(f) Workers
Workers who have completed RSI training and received a valid qualification.

(g) Competent Person (CP(T)/CP(NT))

	CP shall provide pre-work briefing to all workers and anyone work within the Railway Operation Area (Siu Ho Wan Depot). Pre-work briefing shall cover the regulation within the proposed working area and relevant work safety precaution measures. Briefing attendance records shall be kept on site for inspection. CP shall report to depot before works could commence. CP(T)/CP(NT) is to ensure works are within CA area and any opening of the existing Manhole shall notify Depot relevant parties such as IMD in advance. Emergency Team contact list is enclosed so that work can be safely arranged to suspend for contingency/ reasons. Please refer to **Appendix C**.
4.	**Programme and Working Hours** (Start & finish date of operation/works)
	The tentative work commencement is scheduled in end of Mar 2024. The general working hours will be from 08:00 – 19:00 daily, from Monday to Saturday. However, it may be required to carry out works from 19:00 to 23:00 and Sunday and Public Holidays in case of essential speeding up of the working process. CSHK would check internally to fulfil the Construction Noise Permit Requirement. All the works shall be led by WPIC during the approved working period.
5.	**Plant, Equipment & Material** (Identify type, model and specification of MAJOR plant & equipment)
	The major equipment will be deployed to carry out the works are as follow: - ● Crane Lorry ● Backhoe with breaker ● 3 ton/7 ton/20 ton Backhoe with excavator ● 56m Pump truck ● Concrete truck ● Telescoping crane ● Cherry picker ● Circular saw ● Spade The specification of major plants and equipment are shown in **Appendix B**.
6.	**Preparation Before Commencement of Works**
	The location for inspection (for underground drainage, underground signal/ Electrical cables and other pipelines) is summarised on the combined existing underground utility layout with Works Area in **Appendix A.** Before commencement of works related to the existing underground utilities, all the relevant stakeholders will be advised. The method statements for underground utilities survey and excavation of trial pit are under separated submission. The document reference numbers are 1701-W-000-CSC-760-000095 and 1701-W-000-CSC-760-000115. The underground utility protection summary is shown in the below drawing and table.

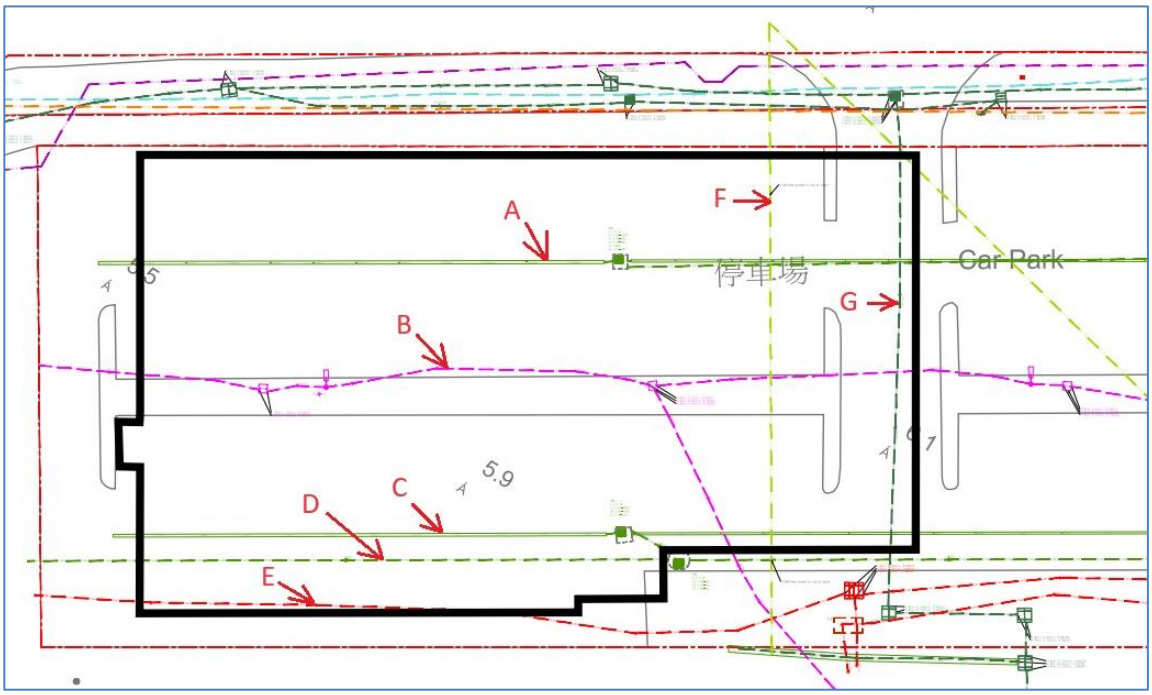

Figure 6 – Summary of Existing Underground Utility

	Utility Type	Current Location	Proposal
A	Surface channel	Ground level	Break out.
B	Lamp post cable	700mm below ground	Disconnect from the lamp posts. Plug the live ends. Protect by split duct and lay below the on-grade slab.
C	Surface channel	Ground level	Break out.
D	Storm drain pipe (525 dia.)	2.6m below ground	No diversion required. Monitoring regularly.
E	HV cable	1.3m below ground	Relocate away from the PMO foundation by manually shifting sideway.
F	Sewage pipe (150 dia.)	1.5m below ground	Concrete surround
G	Fiber and signal cable	1m below ground	Slew away from PMO foundation. See attachment for diversion details.

Table 6 - Summary of Existing Underground Utility

6.1 Protection existing drainage system under PM office footprint in W7 area.

There is one 150mm diameter sewage pipe under PM office footprint. The depth of the sewage pipe is 1.5m from ground level. As the sewage pipe is below but close to the footing foundation, concrete surround method to be applied for protecting this sewage pipe.

A 3-tonnage backhoe to excavate 1200mm deep trench approx. 300mm above the existing sewage pipe then **manually** excavate to expose the whole section of existing sewage pipe by spade and concrete surround to this existing sewage pipe. The concrete surround details refer to the DSD standard drawing no. DS 1049B. During the excavation period, WPIC and CPT shall fully supervise the work. Open excavation with maximum 30^0 slope is applied to the excavation work. Soil stairs with

cement harden treatment is applied to the access. Metal hand rail will be installed at both side of the access. All the excavation area will be fenced off by using plastic barriers with rebar poles fixing to the ground.

There is one 525mm diameter stormwater pipe under the footprint of the PM office. As the location of this stormwater pipe is 2.8m deep from the ground level which is about 1.4m away from the footing, CCTV inspection will be applied to keep monitoring the condition of the existing stormwater pipe. Permit to dig system will be adopted and approved prior to work commencement, the template of Permit to Dig is attached in **Appendix H.**

6.2 Slew existing cables under PM office footprint in W7 area.

There are 7 nos. Lamp post cables (approx. 600mm deep from existing ground level) under the PM office footprint. The Lamp post cables will be excavated manually to expose the cables then deepen the excavated trench to 1m deep from existing ground and to provide PVC split duct and concrete surround. The concrete surround details refer to the drawing no.1701/W/SHD/OAP/G06/452.

There are 10 nos. fiber and signal cables in 2 nos. 100mm PVC ducts (approx. 700mm deep from existing ground level at the south drawpit, and approx. 1500mm deep from existing ground level at the north drawpit) under the PM office footprint. After the trial pit inspection, the middle part of the cables are 1.8m deep from existing ground level. If all the cables are below the foundation level, concrete surround will be applied to protect the cables. If the cables are clashing with the foundation, slew method will be applied. The sequence is shown below. Protect the 10 existing LV cables by PVC split pipes within the existing manholes. Break out the existing manholes. Shift the cables to the west direction. To aim to slew the cables away from the PM Office foundation. Build new manholes to retain the cables.

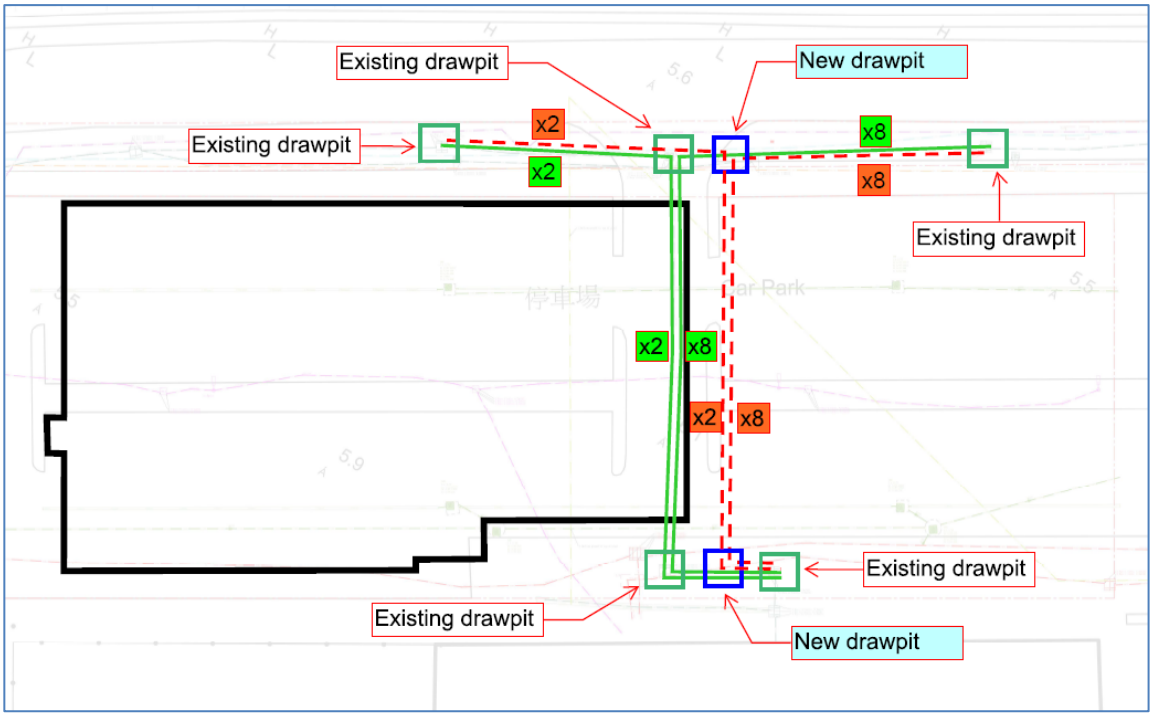

Figure 6.2a – Slew the LV Cables

There are two existing street lights crash with the PM office footprint. The street lights will be removed by special list sub-contractor during the diversion work of LV cables.

Application to depot authority for cutting power supply and isolation is shown below:

- Apply to depot authority for cutting power supply and isolation of the street lights. Arrange qualified electrician to test the power supply to the steer lights in advance to verify connection to AB16.
- Arrange competent persons to duly sign the statuary forms or certificates or Work Permits prior to physical work. All necessary permits must be obtained from Depot before cutting power supply to the street light. The LO/TO system will be applied in the permit to work system. Permit to work form is attached in the Appendix H.
- Turn off the power supply with assistance from depot authority. Make the isolation by posting the “Work in progress. Do not use/ Do not make live” safety notice that controls handle or equipment indicating that persons are working on the circuit or apparatus which must not be made live or used. See samples below.

Figure 6.2b – Work in Progress Safety Notice

- The qualified electrician MUST test the street lights first to ensure there is NO electricity leakage.
- Cut off the cables by qualified electrician. Prior to cutting off, electrician MUST test on site to double check if the power is safety turned off.

Figure 6.2c – Example of Decommission of lighting.

- Insulation treatment to the cable ends.
- Proper protection to the remaining power supply cables by embedded cable ducts or cable trough or withdraw back to the nearest draw pit.
- Upon removal of the street light, it is suggested that the warning signage “Street light removed, Do Not Turn on” should be displayed on the Control box, subject to approval from Depot.
- Upon removal of the street light, issue WR1 form to Depot.

Demolition Sequence is shown below:

- The 12m street light is divided into 2 segments, namely S1 and S2. Each segment is 6m long.
- Mobile crane facilitated with cherry picker will be deployed for the cutting and lighting removal works.
- Step 1 – Clear the site area for mobile crane operation.
- Step 2 – Deploy the required mobile crane on site. Check the ground condition and outrigger extension points make sure the ground support is suitable for loading. The outrigger should not stand on the manholes or other weak points. TWC is required to check and issue certificate after ground condition checking.
- Step 3 – Check the LA & LG safety forms and certificates before use. Handrails and toe boards shall be provided according to the safety requirement. The worker assigned to work at height shall be equipped with full body safety harness fastening to designated point or independent life wire, safety helmet, reflective vest and safety shoes.
- Step 4 – Fence off the lifting zone. Post warning signage to remind no unauthorized entry.
- Step 5 – Operate the cherry picker to hoist working platform to approach the S1 column.
- Step 6 – Operate the mobile crane to extend the jib to overhead of the S1. Workers in the working platform of the cherry picker helps to rig with S1 to the hooks that connect to the lifting appliance of the mobile crane.

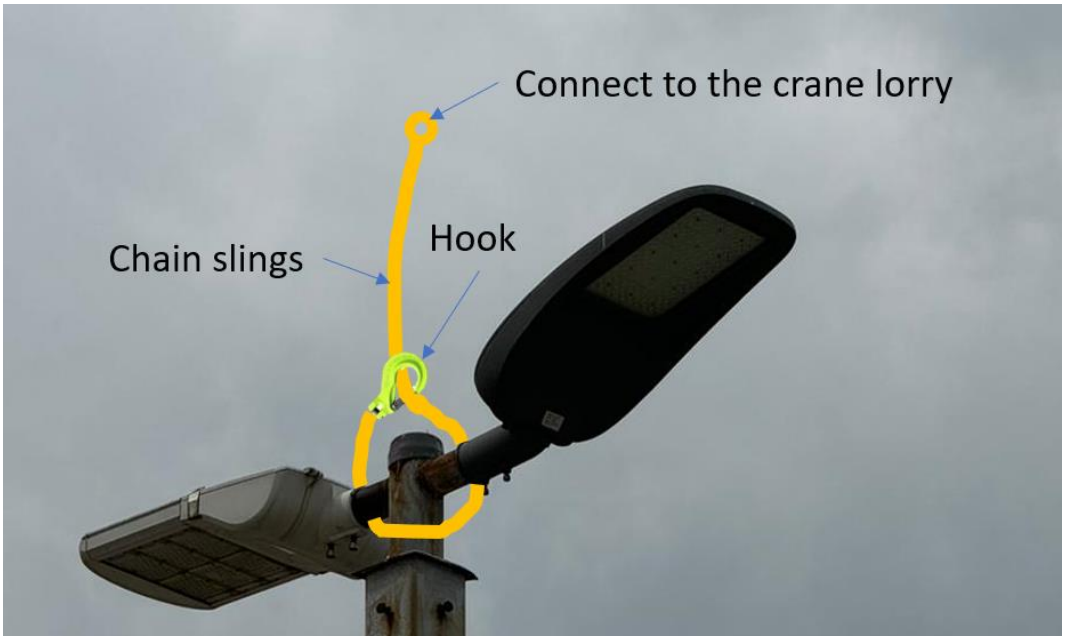

Figure 6.2c – Lifting details

- Step 7 – The S1 segment is hanging by the mobile crane.
- Step 8 – Maintain the S1 fastened to the mobile crane jib. Lower the working platform of cherry picker to Cut 1 that is the joint between S1 and S2 at 6m height. Flame cut carefully. Make sure no sparks area leaking out of the surrounding fire-resistant apron. Upon

completion of cutting, fasten 2 pieces of tag rope at tail of S1. Lift S1 slowly to the ground. The S1 segment remaining in vertical position during the whole lifting process. When the foot of the S1 stands on the ground, slowly lower its head to the ground, taking the standing point of rotatory origin.

- Step 9 – Flame cutting 2 holes in 40mm diameter with edge distance 200mm at head of S2. Hang the S2 at its head to the jib of mobile crane.
- Step 10 – Flame cutting at toe of the S2. Repeat the steps aforesaid to dismantle remaining segment. Strictly implement the Permit to Lift system and 3-3-3 lifting principle to safeguard the lifting operation. Provide suitable and sufficient personal protection equipment to guarantee the safety of working at height.

6.3 Casting Bay and Construction Joints Determination

The foundation is separated to 5 casting bays shown in below **Figure - 6.3**, which are north bay(A&B), middle bay and south bay(A&B).

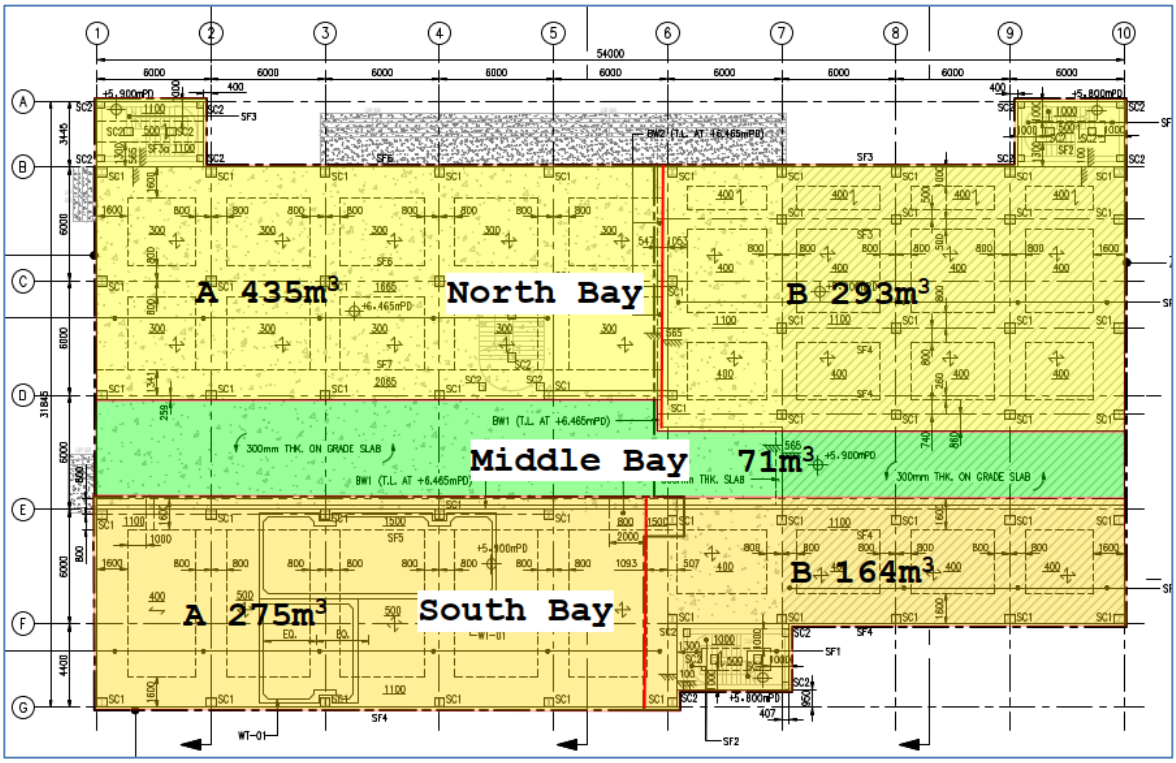

Figure – 6.3

6.4 Steel fixing

The steel fixing of foundation will be carried out after blinding is laid. The rebar will be fabricated on the bar bending yard at +6.0mPD. Rebar fabrication will be according to the casting bay determination and corresponding bar bending schedules, which will be under separated submission. Fabricated rebar will be transported by a telescoping crane.

Any changes on the footing rebar arrangement/ lapping to the details stipulated on working drawings due to such changes as construction sequences shall be submitted separately for the Engineer's approval.

6.5 Formwork

Blinding will be used as permanent formwork for the footing construction. 7ton excavators will be arranged to excavate to 75mm below the formation level. 75mm thk blinding will be placed on the formation level of footing. Temporary formwork with struts supports to be applied for the vertical blinding in the footing trench. The design of temporary struts and formwork will be under separate submission.

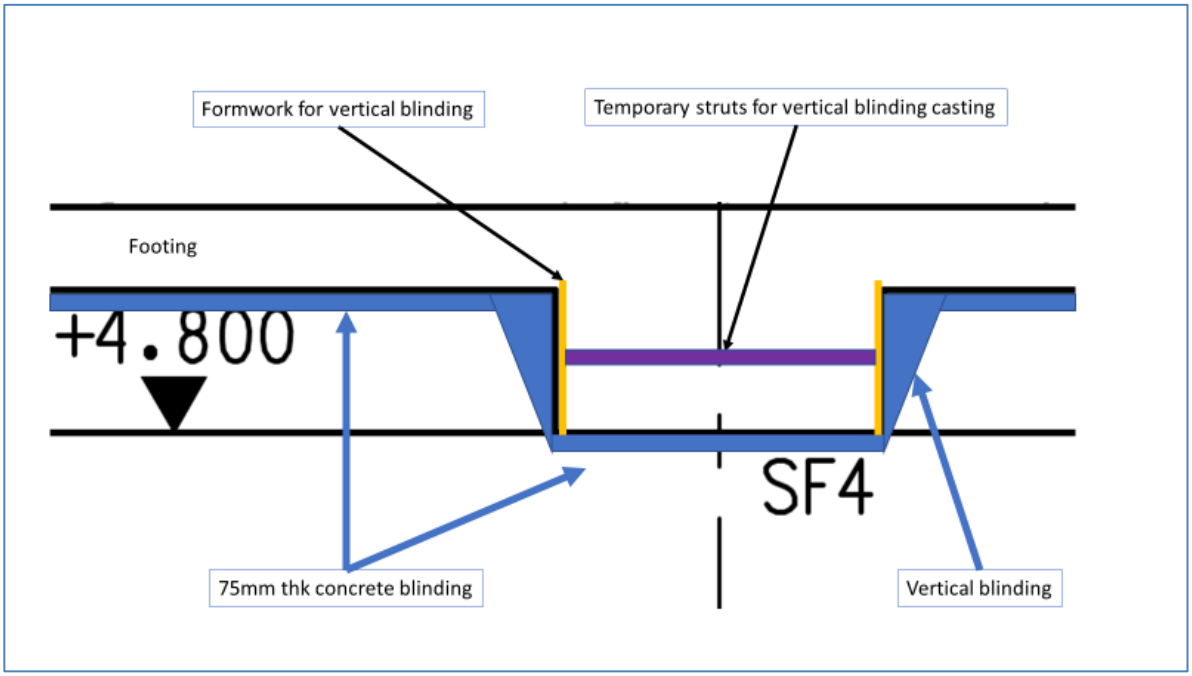

Figure – 6.5

6.6 Ordering of Concrete

There are 2 types of concrete mix for the PMO footing, which is shown in below table. Concrete demarcation drawing is attached in **Figure – 6.3**

For concrete orders, the Contractor shall fill in the Concrete Order Form, then email back to the concrete supplier. We shall also call to concrete supplier to confirm if they have received the order. For the order less than 300m^3, 1 day notice before concreting works is necessary. If the order more than 300m^3, 2 days notices before the actual delivery is required. The concrete supplier will confirm the order by phone by 17:30 before the concreting day.

6.7 Temperature Control of Concrete

Depending on the weather condition, ice water and/or flaked ice will be used for concrete mixing in achieving the requirement required temperature limits, i.e. Category A <= 25^{0}C, Category B and C <= 30^{0}C. When the concrete delivered on site, temperature measurement will be carried out by using calibrated thermometer before testing and sampling to ensure the compliance of the temperature limits.

6.8 Placement of Concrete

6.8.1 Final Inspection

Prior to concreting, the formwork shall be thoroughly hosed down with high pressure clean water jets. Pump away the water inside the formwork. Final inspection between main contractor and MTRC site representatives on the formwork will be arranged before concreting.

6.8.2 Concrete Delivery

At the initial stage, one concrete pump truck will be placed on the working platform for concreting. The general concreting arrangement plan is attached in **Appendix F**.

6.8.3 Mix Code

The unique mix code for each concrete mix was assigned by the Engineer and submitted with the material submission for concrete mix.

6.8.4 Testing and Sampling

In accordance to M&W Specification for Civil Engineering Works and CS1, sampling, workability and 100mm cubes tests are required for each individual concrete mix delivered to site. 3 types of workability test methods are listed as follow table.

Suitable Workability Test Methods		
Low Workability 0-75 mm slump	Medium Workability 80-200 mm slump	High Workability (designed flow value from 340 mm to 600 mm)
Vebe Time or Compaction Factor	Slump (See the Note to Clause 2.1.1 of CS1 for slump value > 175mm and ≤ 200mm)	Flow Table or Slump-flow (for SCC)

Type of Structure	**Rate**
Masts Cantilevers 3m or more in length Columns Shear walls Prestressed or precast elements Other critical elements	One sample each $10m^3$ or 10 batches whichever is less
Types other than the above	One sample each $25m^3$ or 25 batches whichever is the less
Solid rafts Pile caps Mass concrete Tunnel linings	One sample each $50m_3$ or 50 batches whichever is the less

6.8.5 Concrete Placing

In accordance to M&W Specification for Civil Engineering Works Clause 11.84, the concrete placing method as listed as below.

Concrete will be compacted in its final position within 1 hour of discharge from the mixer. The maximum placing time shall be within 150 minutes (2.5 hours). Concrete shall be deposited in horizontal layers to a compacted depth not exceeding 450mm.

Concrete will not be dropped into place from a height exceeding 2m.

All concreting operations will be under the direct control of an experienced supervisor at the pour location, to oversee the delivery and general quality of fresh concrete, and to ensure that the concrete is properly placed and compacted.

6.9 Compaction of Concrete

Concrete mix with specified grade will be poured into the formwork with concrete pump truck. The poker vibrator will be used for compaction of the concrete.

6.10 Curing of Concrete

The concrete surface will be covered by a layer of wet hessian, ~~polyethylene sheet~~ or sprayed with approved water based concrete curing compound of which shall be security fixed such that no air circulation can take place until such time as the concrete has hardened sufficiently to permit further protection. Apply concrete retarder to surface and expose aggregate at construction joint using pressure jet on the following day. In general, three and four days will be allowed for curing depending on weather condition.

The strength of concrete achieved 45MPa or above, join survey of as-built record will be carried out after the completion of curing. After sufficient time as stated in M&W Specification for Civil Engineering Works, the formwork will be removed.

6.11 Contingency plan in case of heavy rain during concreting

In case of heavy rain during concreting, temporary u-channels and sump pits adjacent to the footing will be served as discharge system. All surface pumps at the sump pits will be switched on the discharge water runoff to approved discharge points. Additional pumps will also be added to local waterlogged area to discharge the water. Plastic sheet will also be laid onto the concrete surface.

7. Construction Methods

7.1 Initial condition

- UU protection work
- Excavation to the formation level.
- Lay base blinding and set out the alignment, inform Utilities undertakers to keep the minimum required clearance to the nearby Utilities.
- All plants, lifting machines and equipment and settlement monitoring points would be checked and monitored on regular basis.
- Certificates will be posted at the prominent spot. Work area will be fence off.

7.2 Vertical blinding

- Erect formwork for the vertical blinding
- Install struts for the the formwork
- Casting vertical blinding using C20/20 concrete

	• Remove formwork • Survey check the alignment and modify defect 7.3 Rebar fixing and cast-in item installation • Fabricate rebars according to bar bending schedule • Transport rebar by a telescoping crane • Fix rebar of the footing by steel fixer • Install all cast-in items • Shutter stop ends using high steel ribbed mesh 7.4 Concreting • Cast concrete by concrete pump trucks • Compact fresh concrete using vibrating pokers • Trowel concrete surface before concrete is set 7.5 Pro-concrete curing • Dismantle external and kicker formwork • Wash kicker CJ by hydraulic jet until aggregate is exposed • Apply curing to concrete surface The details construction sequence is shown in **Appendix F.**
8.	**Safety** (Risk Assessments)
	8.1 General Safety ● All workers shall attend a site-specific induction course conducted by Safety Team. The Safety Officer shall explain the necessary safety requirements as identified in the Risk Assessment Record and the Construction Manager/ Engineer / Foreman in charge of the work shall explain the system of work to his supervisors and workers. ● All workers shall be equipped with reflective vests and safety helmets during operation. All workers must go through a briefing by the CS Construction Manager / Safety Officer / Safety Supervisor before commencement of any works. All workers on site shall obtain an approved "Mandatory Basic Safety Training Certificate". ● Toolbox talk training with reference to the recommended safety and environmental control measures after Construction Risk Assessment will be provided to the site personnel prior to commencing works. ● A pre-meeting will be arranged before commencement of the work among Foreman / Engineer / Construction Manager, subcontractor, MTR's representatives and Safety Department to brief the nature of works, the safety aspects and the requirements. ● Safety helmets fitted with chin straps must be worn within the site, safety boots, hearing protectors (if needed), high visibility jackets / sashes, reflective vest, goggles, gloves and full body harnesses for work at height will be provided to all staff working on site. Warning signs and barriers will be erected where necessary. ● Particular care needs to be taken when working on or near busy roads. No works will be undertaken unless safe access, including approved and fully implemented TTM / TTAs where necessary. The voltage of any handheld power tools should not exceed 110V and preferably be less than 24V ● Any emergency situation shall be reported to Subcontractor and Contractor (i.e. Construction Manager / Engineer / Foreman and Safety Department, etc.) for prompt response. The emergency contact list is shown in **Appendix C**.

	8.2 Risk Assessment The risk for the works shall be assessed and the Risk Assessment Analysis is shown in **Appendix D.**
9.	**Environmental**
	- General works shall be carried out during normal working hours (08:00 to 18:00). No works using PME will be carried out after 07:00pm, on Sunday and public holiday without a valid construction noise permit; - ULSD Diesel will be use in all PME; - Plant with QPME label will be employ 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; - Excavated material will be stocked pile at designated area, covered properly to prevent dust generation and reused on site 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).
10.	**Quality Control**
	Refer to **Appendix E** for Inspection and Test Plan. Construction works shall be fully complied with Quality Plan. For work activity which is classified as "Quality Hold Point", no subsequent work can be started unless the former work activity was inspected and accepted by MTR's inspectorate.
11.	**Appendices** (Identify and include additional information in the submission package)
	A. Combined Underground Utility Layout B. Technical Specification of Major Equipment C. Emergency Contact List D. Risk Assessment E. Inspection and Test Plan (ITP) F. Construction Sequence G. Working Drawings H. Permit Forms J. Programme