

DRAWING LIST:
2017/BS/BA/CD/64708

REV.
A

DRAWING TITLE
FPE COMPOSITE DRAWING –
ELEVATION L FOR MRI SIMULATOR ON B2/F, BLOCK A

POWER SUPPLY DEMARCATION

BY JV CONTRACTOR/OTHER UCH DIRECT CONTRACTOR

BY EQUIPMENT SUPPLIER

FROM L TO R

1. 250A TRIPLE POLE ISOLATOR (NORMAL POWER)
2. 250A TRIPLE POLE ISOLATOR (NORMAL POWER)
3. 32A SINGLE POLE ISOLATOR (ESSENTIAL POWER)
4. INTERFACING POINT FOR DATAPORT, NURSE CALL SYSTEM, POWER SUPPLY

OTHER PROVISION DEMARCATION

BY JV CONTRACTOR

BY EQUIPMENT SUPPLIER

FROM L TO R

1. Ø65 CHILLED WATER SUPPLY PIPE PLUG OFF
2. Ø65 CHILLED WATER RETURN PIPE PLUG OFF
3. Ø54 CLEANSING WATER VALVE
4. Ø54 ANAESTHETIC GASES SCAVENGING SYSTEM PIPE PLUG OFF WITH BALL VALVE
5. Ø22 MEDICAL VACUUM PIPE PLUG OFF WITH BALL VALVE
6. Ø22 MEDICAL COMPRESSED AIR PIPE PLUG OFF WITH BALL VALVE
7. Ø22 NITROUS OXIDE AIR PIPE PLUG OFF WITH BALL VALVE
8. Ø15 OXYGEN AIR COMPRESSED AIR PIPE PLUG OFF WITH BALL VALVE
9. BEDHEAD TRUNKING
10. CCTV CAMERA

RAINAGE PROVISION DEMARCATION

BY EQUIPMENT SUPPLIER

BY JV CONTRACTOR

FROM L TO R

1. Ø100mm WASTE PIPE PLUG OFF WITH TRAP

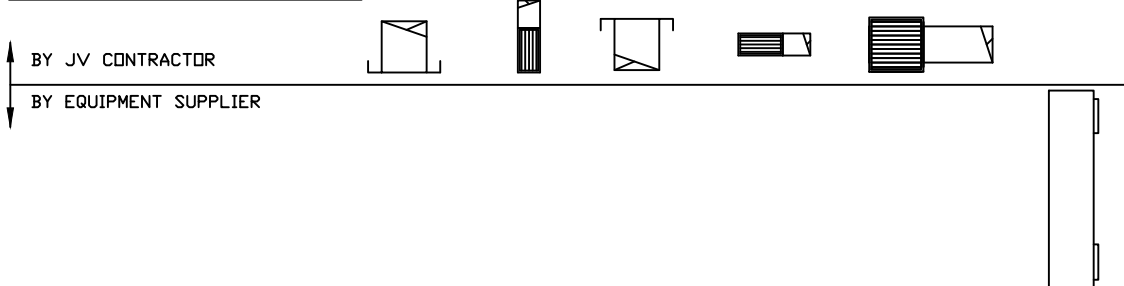
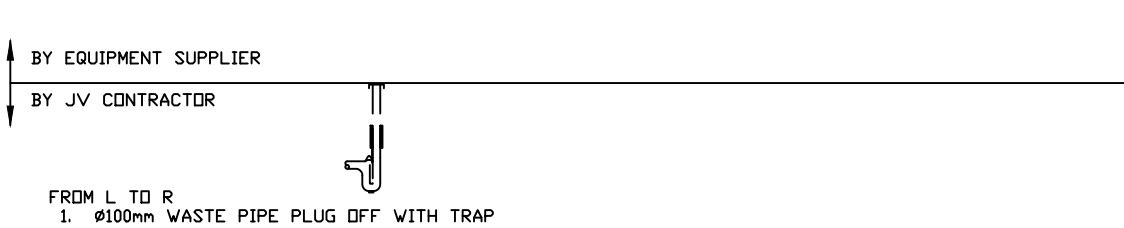
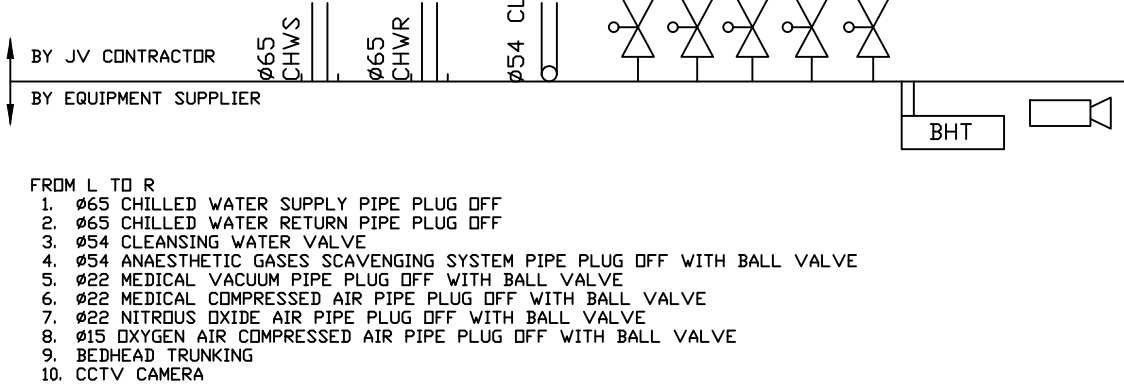
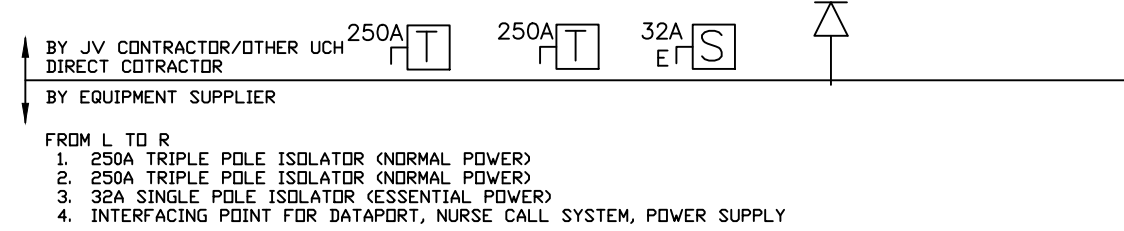
C PROVISION DEMARCATION

BY JV CONTRACTOR

BY EQUIPMENT SUPPLIER

FROM L TO R

1. 600X450 SUPPLY AIR DUCT CAP-OFF INSIDE MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM
2. 300X300 SMOKE EXTRACTION DUCT AND GRILLE INSIDE MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM
3. 600X450 RETURN AIR DUCT CAP-OFF INSIDE MRI SIMULATOR COMPUTER /EQUIPMENT ROOM
4. 300X300 SMOKE EXTRACTION DUCT AND GRILLE INSIDE MRI SIMULATOR COMPUTER /EQUIPMENT ROOM
5. 400X400 SMOKE EXTRACTION DUCT AND GRILLE INSIDE MRI SIMULATOR ROOM
6. AIR DUCT AND GRILLE INSIDE MRI SIMULATOR ROOM



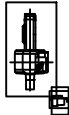
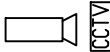
1. FROM L TO R
2. 600X450 SUPPLY AIR DUCT CAP-OFF INSIDE MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM
3. 300X300 SMOKE EXTRACTION DUCT AND GRILLE INSIDE MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM
4. 600X450 RETURN AIR DUCT CAP-OFF INSIDE MRI SIMULATOR COMPUTER /EQUIPMENT ROOM
5. 300X300 SMOKE EXTRACTION DUCT AND GRILLE INSIDE MRI SIMULATOR COMPUTER /EQUIPMENT ROOM
6. 400X400 MOKE EXTRACTION DUCT AND GRILLE INSIDE MRI SIMULATOR ROOM
7. AIR DUCT AND GRILLE INSIDE MRI SIMULATOR ROOM

 基督教管理局 HOSPITAL AUTHORITY		
ARCHITECT  王歐陽(香港)有限公司 WONG & OUTANS (HK) LTD		
BUILDING SERVICES ENGINEER 		
STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER  Meinhardt (CNS) Ltd Consulting Engineers		
MAIN CONTRACTOR 		
PROJECT SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL		
FPE COMPOSITE DRAWING - GENERAL NOTES AND LEGENDS FOR MRI SIMULATOR ON B2/F, BLOCK A (SHEET 1 OF 3)		
SIGNATURE FOR SUBMISSION/CONSTRUCTION  DATE 05 MAR 2020		
DRAWN BY	WYX	DATE 05 MAR 2020
ENTERED BY	WYK	DATE 05 MAR 2020
CHECKED BY	HKT	DATE 05 MAR 2020
SCALE	N.T.S. • A3 PRINT DATE 05 MAR 2020	
JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64001	D

GENERAL NOTES:

1. THE EQUIPMENT SUPPLIER SHALL CO-ORDINATE ON SITE WITH ALL RELEVANT PARTIES FOR THE INSTALLATION.
2. ALL INSTALLATION DETAILS SHALL BE SUBMITTED BY EQUIPMENT SUPPLIER FOR HOSPITAL AUTHORITY APPROVAL PRIOR TO INSTALLATION.
3. EQUIPMENT SUPPLIER SHALL BE RESPONSIBLE FOR CONNECTING THE EQUIPMENT TO THE CORRESPONDING INFRASTRUCTURE SERVICES PROVIDED AS SHOWN ON THE COMPOSITE DRAWINGS. ANY MODIFICATION OR ADDITION WORK ON THE INFRASTRUCTURE SERVICES PROVIDED AS SHOWN SHALL BE RESPONSIBLE BY THE EQUIPMENT SUPPLIER FOR THEIR CONNECTION.
4. EQUIPMENT SUPPLIER SHALL ENSURE THAT THEIR EQUIPMENT CAN BE DELIVERED TO SITE WITH REFERENCE TO THE LATEST ARCHITECTURAL LAYOUT PLAN AND DOOR SCHEDULE AVAILABLE FOR VIEWING AT BHJV SITE OFFICE. FOR ALL ADDITIONAL OR ALTERNATION WORKS RELATED TO BUILDING WORKS, HOSPITAL SHALL BE INFORMED BY EQUIPMENT SUPPLIER.
5. ELECTRICAL HOIST WITH S.W.L. 8000 KG WILL BE PROVIDED BY BHJV AS SHOWN IN DRAWING. EQUIPMENT SUPPLIER IS ALLOWED TO USE THE ELECTRICAL HOIST FOR EQUIPMENT DELIVERY FROM B1/F TO B2/F (LOADING CAPACITY OF ELECTRICAL HOIST SHALL BE ADVISED BY EQUIPMENT SUPPLIER FOR BHJV COORDINATION). EQUIPMENT SUPPLIER SHALL ENSURE THAT THE ELECTRICAL HOIST IS FUNCTIONED NORMALLY BEFORE EQUIPMENT DELIVERY. DURING EQUIPMENT DELIVERY, EQUIPMENT SUPPLIER SHALL PROVIDE PROPER PROTECTION AND/OR TEMPORARY SUPPORT ALONG THE DELIVERY ROUTE. THE INDICATIVE DELIVERY IS SHOWN ON DRAWING REF.: 2017/BS/BA/CD/64201.
6. ALL SERVICES IN BOLD SOLID LINE SHALL BE PROVIDED AND INSTALLED BY EQUIPMENT SUPPLIER/HOSPITAL UNLESS OTHERWISE SPECIFIED.
7. ALL E&M SERVICES OR PROVISION IN GREY COLOR DOTTED LINE SHALL BE PROVIDED AND INSTALLED BY BHJV CONTRACTOR.
8. DELIVERY & INSTALLATION OF MRI SIMULATOR & ALL ACCESSORIES WOULD BE RESPONSIBLE BY EQUIPMENT SUPPLIER.
9. ALL SERVICES INSIDE THE MRI SIMULATOR ROOM TO BE COMPLETED BY EQUIPMENT SUPPLIER.
10. EMERGENCY STOP BUTTON FOR MRI SIMULATOR WOULD BE PROVIDED , INSTALLED BY EQUIPMENT SUPPLIER AND WIRED UP BY EQUIPMENT SUPPLIER.
11. "MAGNET IS ALWAYS ON" WARNING LIGHT WOULD BE PROVIDED BY BHJV. THE ON/OFF OF "MAGNET IS ALWAYS ON" WARNING LIGHT SHALL BE CONNECTED TO MRI SIMULATOR BY EQUIPMENT SUPPLIER. WIRING WORK & THE POWER OF WARNING LIGHT SHALL BE TEED-OFF FROM EMERGENCY SWITCH OF MRI SIMULATOR. THE "MAGNET ON" WARNING LIGHT SHALL BE ACTIVATED ON WHEN THE EQUIPMENT IS SWITCHED ON.
12. 2 NO OF 250A TRIPLE POLE ISOLATOR, NORMAL POWER AND 1 NO OF 32A SINGLE POLE ISOLATOR, ESSENTIAL POWER, WILL BE PROVIDED INSIDE MRI SIMULATOR COMPUTER/EQUIPMENT ROOM. FINAL CONNECTION FROM ISOLATOR TO EQUIPMENT WOULD BE BY EQUIPMENT SUPPLIER
13. 100MM<Dp> WITHOUT FINISHES <50MM FINISHES> SUNKEN SLAB WOULD BE PROVIDED, AS SHOWN ON DRAWING REF.: 2017/BS/BA/CD/64501
14. POWER SUPPLY SHALL BE 220V/50HZ/SINGLE PHASE OR 380V/50HZ/3 PHASE AS STATED.
15. THE FOLLOWING MEDICAL GAS PIPE PLUG OFF WILL BE PROVIDED BY BHJV IN MRI SIMULATOR COMPUTER/EQUIPMENT ROOM FOR FINAL CONNECTION TO MEDICAL GAS TERMINAL OUTLET INSIDE MRI SIMULATOR ROOM BY EQUIPMENT SUPPLIER
 - Ø54 ANAESTHETIC GASES SCAVENGING SYSTEM<AGSS> PIPE
 - Ø22 MEDICAL VACUUM (VAC) PIPE
 - Ø22 MEDICAL COMPRESSED AIR <MA> PIPE
 - Ø22 NITROUS OXIDE AIR <N2O> PIPE
 - Ø15 OXYGEN AIR <O2> COMPRESSED AIR PIPE
16. 300MM THICK RC WALL, FLOOR SLAB & CEILING WOULD BE CONSTRUCTED FOR MRI SIMULATOR COMPUTER/EQUIPMENT ROOM, MRI SIMULATOR ROOM AND MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM
17. ANAESTHETIC GASES SCAVENGING SYSTEM REMOTE CONTROL PANEL AND AREA WARNING & ALARM PANEL FOR MEDICAL GAS SYSTEM SHALL BE INSTALLED INSIDE MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM BY EQUIPMENT SUPPLIER. THEY WILL BE PROVIDED BY BHJV AND INSTALLED BY EQUIPMENT SUPPLIER, CABLE CONTAINMENT TO AFORESAID PANEL TO BE INSTALLED BY EQUIPMENT SUPPLIER
18. EQUIPMENT SUPPLIER SHALL BE RESPONSIBLE FOR THE FINISH INSIDE MRI SIMULATOR ROOM
19. INTERFACING POINT FOR POWER PROVISION & ELV PROVISION INSIDE MRI SIMULATOR ROOM/MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM WILL BE LOCATED OUT OF THE CORRESPONDING ROOM. UNLESS OTHERWISE SPECIFIED, CABLE CONTAINMENT, CABLE WIRING FROM INTERFACING POINT TO CORRESPONDING CONDUIT POINT SHALL BE BY EQUIPMENT SUPPLIER
20. EQUIPMENT SUPPLIER TO PROVIDE AND INSTALL QUENCH PIPE WITH INSULATION AS INDICATED IN DRAWING. MOUNTING LEVEL OF THE QUENCH PIPE TO BE FURTHER COORDINATED.
21. EQUIPMENT SUPPLIER SHALL PROVIDE AND INSTALL TWO NOS OF NON-FERROUS DOOR & 1 NO OF GLAZING.
22. EQUIPMENT SUPPLIER SHALL PROVIDE CEILING OPENING FOR THE E&M PROVISIONS<SPRINKLER, DIFFUSER, LIGHTING FITTINGS,ETC> AS INDICATED ON THE REFLECTED CEILING PLAN INSIDE MRI SIMULATOR ROOM
23. CCTV CAMERA IS REQUIRED TO PROVIDED BY EQUIPMENT SUPPLIER FOR PATIENT MONITORING DURING EXAMINATION WITH VIDEO SIGNALS WIRED BACK TO MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM. RELATIVE CABLE CONTAINMENT AND CABLE WIRING BY EQUIPMENT SUPPLIER
24. BEDHEAD TRUNKING IN MRI SIMULATOR ROOM TO BE PROVIDED AND INSTALLED BY EQUIPMENT SUPPLIER. MEDICAL GAS OUTLET AND RELATIVE NURSE CALL SYSTEM TO BE INSTALLED ON THE TRUNKING BY EQUIPMENT SUPPLIER. MEDICAL GAS OUTLET ON THE BEDHEAD TRUNKING TO BE CONNECTED TO THE MEDICAL GAS PLUG OFF INSIDE MRI SIMULATOR COMPUTER/EQUIPMENT ROOM BY EQUIPMENT SUPPLIER
25. A Ø54mm CLEANSING WATER PLUG OFF WITH VALVE TAP WILL BE PROVIDED AT MRI SIMULATOR COMPUTER/EQUIPMENT ROOM BY BHJV. FINAL CONNECTION TO EQUIPMENT WOULD BE PROVIDED BY EQUIPMENT SUPPLIER
26. A Ø100MM WASTE PIPE PLUG OFF WITH TRAP WILL BE PROVIDED AT MRI SIMULATOR COMPUTER/EQUIPMENT ROOM. FINAL CONNECTION TO EQUIPMENT WOULD BE PROVIDED BY EQUIPMENT SUPPLIER
27. EQUIPMENT SUPPLIER TO PROVIDE AND INSTALL 150MM ACTIVE ELECTROMAGNETIC SHIELDING INSIDE MRI SIMULATOR ROOM
28. WATER LEAKAGE DETECTION WILL BE PROVIDED FOR MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM AND MRI SIMULATOR COMPUTER/EQUIPMENT ROOM BY EQUIPMENT SUPPLIER
29. EQUIPMENT SUPPLIER SHALL BE RESPONSIBLE FOR DOOR INTERLOCK CONTROL FOR MRI SIMULATOR ROOM. ALL RELATIVE CABLE WIRING AND CABLE CONTAINMENT BY EQUIPMENT SUPPLIER
30. Ø65MM CHILLED WATER SUPPLY AND Ø65MM CHILLED WATER RETURN PIPE WILL BE PLUGGED OFF INSIDE MRI SIMULATOR COMPUTER/EQUIPMENT ROOM. FINAL CONNECTION TO EQUIPMENT WILL BE BY EQUIPMENT SUPPLIER
31. "MAGNET IS ALWAYS ON" WARNING LIGHT AND "IN USE" LIGHT WOULD BE PROVIDED BY BHJV/ THEY SHALL BE CONNECTED TO MRI SIMULATOR ROOM BY EQUIPMENT SUPPLIER. THE "MAGNET IS ALWAYS ON" WARNING LIGHT SHALL BE ACTIVATED ON WHEN THE EQUIPMENT IS SWITCHED ON.
32. WIRING WORK FOR TELEPHONE & DATA OF HOSPITAL INFORMATION SYSTEM BY HOSPITAL DIRECT CONTRACTOR.
33. THE TOLERANCE OF ALL E&M SETTING-OUT WOULD BE AROUND ±25MM.
34. ALL DIMENSION SHOULD BE VERIFIED ON SITE.
35. EQUIPMENT SUPPLIER SHALL SUBMIT INSTALLATION DETAILS, MOUNTING DETAILS FOR HOSPITAL AUTHORITY APPROVAL BEFORE COMMENCEMENT OF WORKS
36. WORKBENCH INSIDE MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM TO BE PROVIDED AND INSTALLED BY EQUIPMENT SUPPLIER
37. SUPPLY AIR DUCT CAP OFF WILL BE PROVIDED INSIDE MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM WHILE RETURN AIR DUCT CAP OFF WILL BE PROVIDED INSIDE MRI SIMULATOR COMPUTER/EQUIPMENT ROOM. AIR DUCT AND AIR GRILLE INSIDE MRI SIMULATOR ROOM SHALL BE PROVIDED AND INSTALLED BY EQUIPMENT SUPPLIER. FINAL CONNECTION TO THE AFORESAID AIR DUCT CAP OFF SHALL BE BY EQUIPMENT SUPPLIER

LEGEND :

FPE ITEMS	PLAN VIEW	FPE ITEMS	PLAN VIEW	FPE ITEMS	PLAN VIEW
MRI SIMULATOR		DOUBLE SWITCH SOCKET OUTLET		BEDHEAD TRUNKING AND E&M PROVISION ON BHT	
WORKBENCH		DATAPORT OUTLET - PACS, RIS CMS, HAIT		MICROPHONE WITH ZONE SELECTION KEYPAD	
CCTV CAMERA & CCTV PANEL		LIGHTING SWITCHES <ENGAGE LIGHT, DIMMING>			
EMERGENCY CALL BUTTON		DOOR CONTROL - BREAK GLASS UNIT WITH KEY SWITCH OVERRIDE			
		DOOR CONTROL - RELEASE BUTTON			
		DOOR CONTROL - CARD READER			

DO NOT SCALE DRAWING CHECK ALL MEASUREMENT ON SITE ALL RIGHT RESERVED		
NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	NOV 2022
B	3RD SUBMISSION	DEC 2023
C	4TH SUBMISSION	MAR 2026

REVISIONS

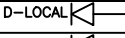
NOTES:

 醫院管理局 HOSPITAL AUTHORITY		
ARCHITECT  王歐陽(香港)有限公司 ARCHITECTS WONG & OUYANG (HK) LTD		
BUILDING SERVICES ENGINEER 		
STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER  MEINHARDT Mehardt (C&S) Ltd Consulting Engineers		
MAIN CONTRACTOR  Build King - HYUNDAI Build King - Hyundai Joint Venture		
PROJECT SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL FPE COMPOSITE DRAWING - GENERAL NOTES AND LEGEND FOR MRI SIMULATOR AT B2/F (SHEET 2 OF 3)		
SIGNATURE FOR SUBMISSION/CONSTRUCTION 		
DATE		05 MAR 2026
DRAWN BY	WYX	DATE 05 MAR 2026
ENTERED BY	WYX	DATE 05 MAR 2026
CHECKED BY	HKT	DATE 05 MAR 2026
SCALE	N.T.S. @ A3 PRINT DATE 05 MAR 2026	
JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64002	C

A. MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM (B2-01A.1-10-01)

- B. MRI SIMULATOR ROOM(B2-01A.1-09-01)

- C. MRI SIMULATOR COMPUTER/EQUIPMENT ROOM(B2-01A.1-37-01)

- | DESCRIPTION (BLK NAME) | PLAN/ELEVATION |
|--|---|
| MEDICAL GAS SYSTEM | |
| AREA WARNING & ALARM PANEL (MG-MGAP) | AA |
| ANAESTHETIC GASES SCAVENGING SYSTEM
REMOTE CONTROL PANEL (MG-AGSP) | AGS |
| ANAESTHETIC GASES SCAVENGING TERMINAL UNIT (MG-AGSS) | AE |
| MEDICAL COMPRESSED AIR TERMINAL UNIT - 4 BAR (MG-MCA) | MA4 |
| NITROUS OXIDE TERMINAL UNIT (MG-N2O) | N2O |
| OXYGEN TERMINAL UNIT (MG-O2) | O2 |
| VACUUM TERMINAL UNIT (MG-MV) | V |
| SECURITY SYSTEM | |
| DOOR CONTROL - BREAK GLASS UNIT WITH
KEY SWITCH OVERRIDE (FS-BG) | B |
| DOOR CONTROL - RELEASE BUTTON (AS05) | P |
| DOOR CONTROL - CARD READER (AS01) | R |
| NURSE CALL SYSTEM | |
| STAFF EMERGENCY CALL (NC08) | E |
| NURSE CALL |  |
| NURSE CALL INDICATOR (DRANGE) | |
| ELECTRICAL SYSTEM | |
| SINGLE SSD |   |
| SINGLE SSD, ESSENTIAL POWER |   |
| DOUBLE SSD |   |
| DOUBLE SSD, ESSENTIAL POWER |   |
| ISOLATOR - 32A SPN (ESSENTIAL) |  32A/E |
| ISOLATOR - 250A TPN |  250A/T |
| DOUBLE SSD, WITH RCD, ESSENTIAL POWER |   |
| EARTH TERMINAL |  |
| EMERGENCY PUSH BUTTON |   |
| COMMUNICATION/BROADCAST SYSTEM | |
| CONDUIT POINT
SUBSCRIPT 'X'
PABX-PRIVATE AUTOMATIC
BRANCH EXCHANGE SYSTEM
DIR- DIRECT TELEPHONE OUTLET |  X |
| MICROPHONE WITH ZONE SELECTION KEYPAD |  M |
| CEILING SPEAKER |  |
| LIGHTING SYSTEM | |
| DIMMER CONTROL (L01) |  D |
| LIGHT SWITCH (L01-SWITCH) |  W 2W (TWO WAY CONTROL) |
| ENGAGE LIGHT SWITCH |  EG |
| LIGHT - RED LIGHT |  R |
| WARNING LIGHT - X-RAY |  X-RAY  |
| WARNING LIGHT - ROOM ENGAGED |  IN-USE  |
| I.T. / DATAPORT SYSTEM | |
| DATAPORT (TS06) |  HAIT  |
| DATAPORT FOR LOCAL SYSTEM |  D-LOCAL  |
| CLINICAL MANAGEMENT SYSTEM |  CMS  |
| DATAPORT FOR RIS |  RIS  |
| DATAPORT FOR PACS SYSTEM |  PACS  |
| PLUMBING AND DRAINAGE | |
| CLEANSING WATER |  O CLW |
| EQUIPMENT DRAIN |  D |

NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	NOV 2022

REVISIONS

NOTES:



醫院管理局
HOSPITAL
AUTHORITY

ARCHITECT



王歐陽(香港)有限公司
WONG & OUYANG (HK) LTD

BUILDING SERVICES ENGINEER



STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER

**MAIN CONTRACTOR**

PROJECT

SUPERSTRUCTURE AND
ASSOCIATED WORKS
FOR MAIN WORKS
PACKAGE 2 FOR
EXPANSION OF UNITED
CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING -
GENERAL NOTES AND LEGEND
FOR MRI SIMULATOR AT B2/F
(SHEET 3 OF 3)

SIGNATURE FOR SUBMISSION/CONSTRUCTION

DATE 05 NOV 2022

DRAWN BY	SPN	DATE	05 NOV 2022
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ENTERED BY	SPN	DATE	05 NOV 2022
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CHECKED BY	HKT	DATE	05 NOV 2022
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SCALE N.T.S. • A3 PRINT DATE 05 NOV 2022

JOB NUMBER	DRAWING NUMBER	REVISION
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2017	2017/BS/BA/CD/64003	A
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MRI SIMULATOR
CONTROL ROOM &
IMAGE DATA
PROCESSING ROOM

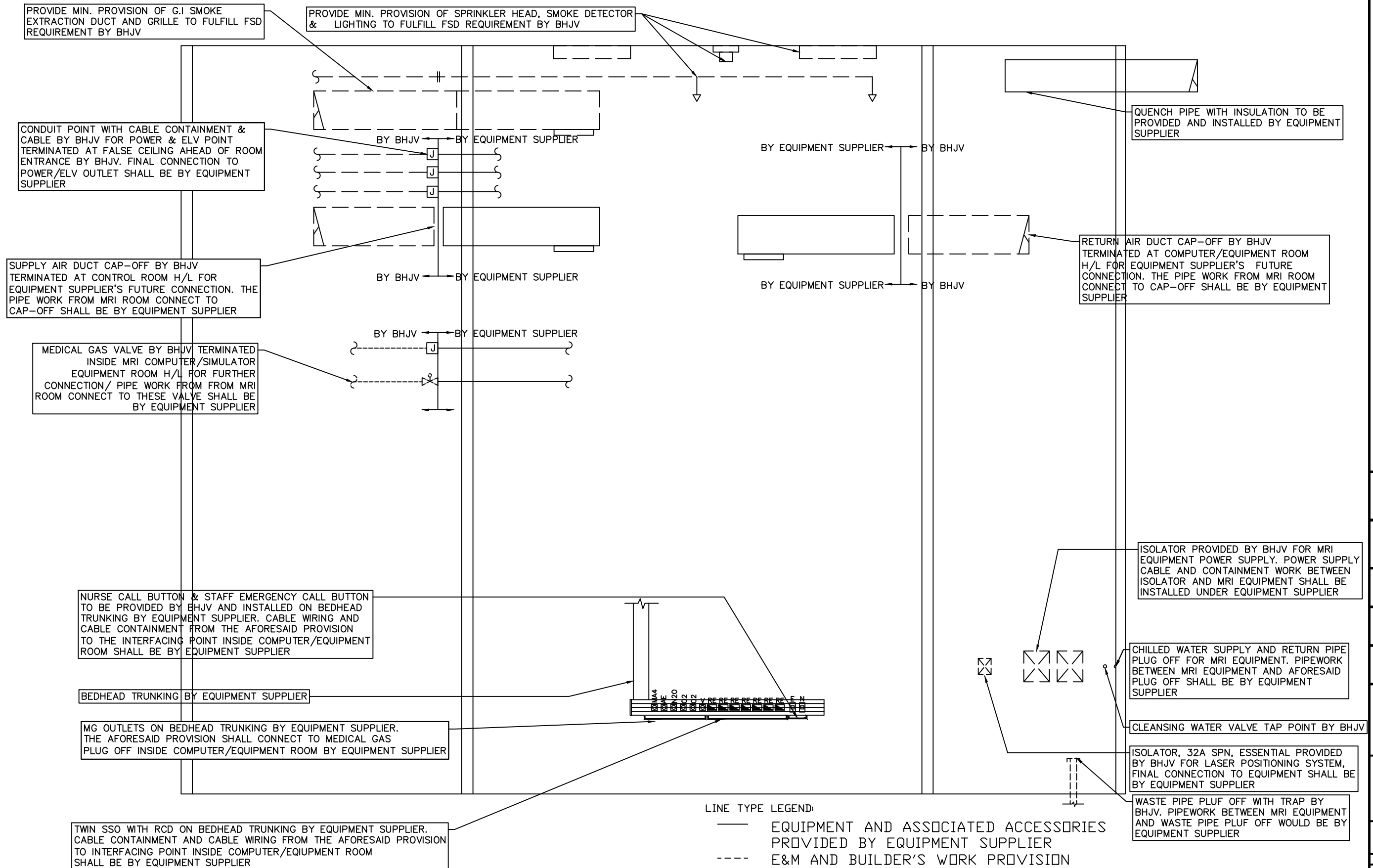
B2-01A.1-10-01

MRI SIMULATOR
ROOM

B2-01A.1-09-01

MRI SIMULATOR
COMPUTER/EQUIPMENT
ROOM

B2-01A.1-37-01

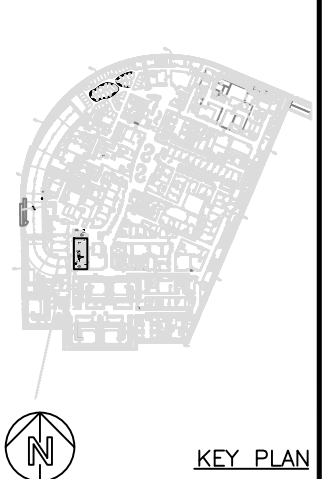


Appendix I
DO NOT SCALE DRAWING
CHECK ALL MEASUREMENT ON SITE
ALL RIGHT RESERVED

NUMBER	DESCRIPTION	DATE
—	1ST SUBMISSION	NOV 2022
A	2ND SUBMISSION	SEP 2023
B	3RD SUBMISSION	MAR 2026

REVISIONS

NOTES:



PROJECT
SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING - DEMARCATION PLAN FOR MRI SIMULATOR ON B2/F, BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

DATE 05 MAR 2026

DRAWN BY VYX DATE 05 MAR 2026

ENTERED BY VYX DATE 05 MAR 2026

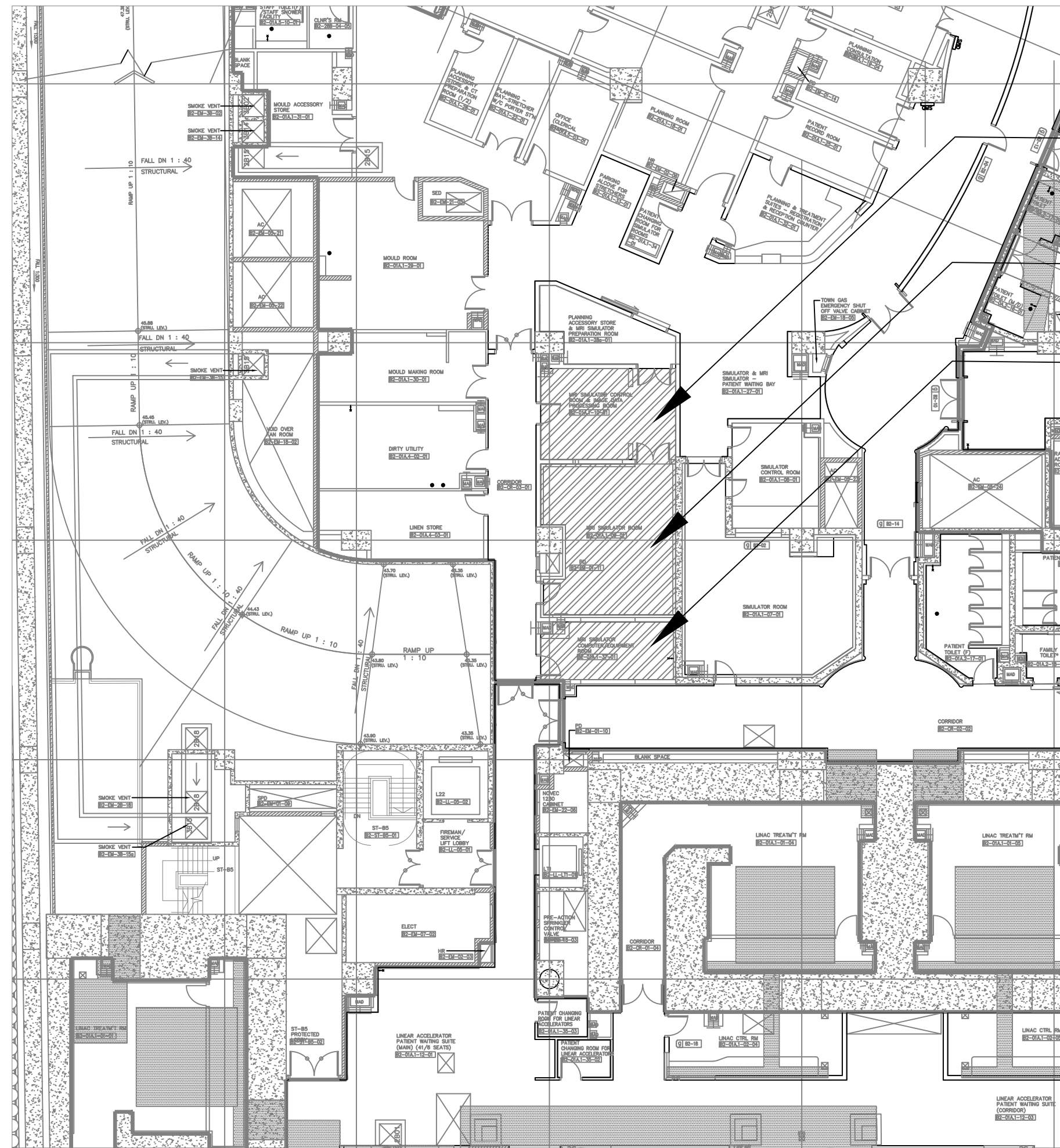
CHECKED BY HKT DATE 05 MAR 2026

SCALE N.T.S. @ A3 PRINT DATE 05 MAR 2026

JOB NUMBER 2017 DRAWING NUMBER 2017/BS/BA/CD/64004 REVISION 8

N.T.S.

DEMARCATION PLAN FOR MRI SIMULATOR



MRI SIMULATOR CONTROL ROOM &
IMAGE DATA PROCESSING ROOM
ROOM NO: B2-01A,1-10-01
ITEM ID: 200016

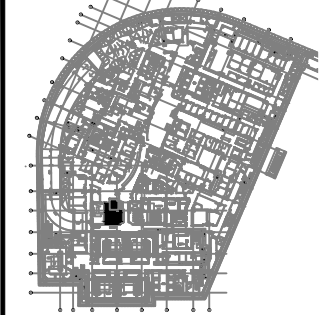
MRI SIMULATOR ROOM
ROOM NO: B2-01A,1-09-01
ITEM ID: 200016

MRI SIMULATOR COMPUTER/EQUIPMENT
ROOM
ROOM NO: B2-01A,1-37-01
ITEM ID: 200016

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NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	JUN 2022
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B	3RD SUBMISSION	MAR 2026

REVISIONS



KEY PLAN



ARCHITECT
WONG & OUTANG
王歐陽(香港)有限公司
ARCHITECTS WONG & OUTANG 010 LTD

BUILDING SERVICES ENGINEER
WSP

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER
MEINHARDT
Meinhardt (C&S) Ltd. Consulting Engineers

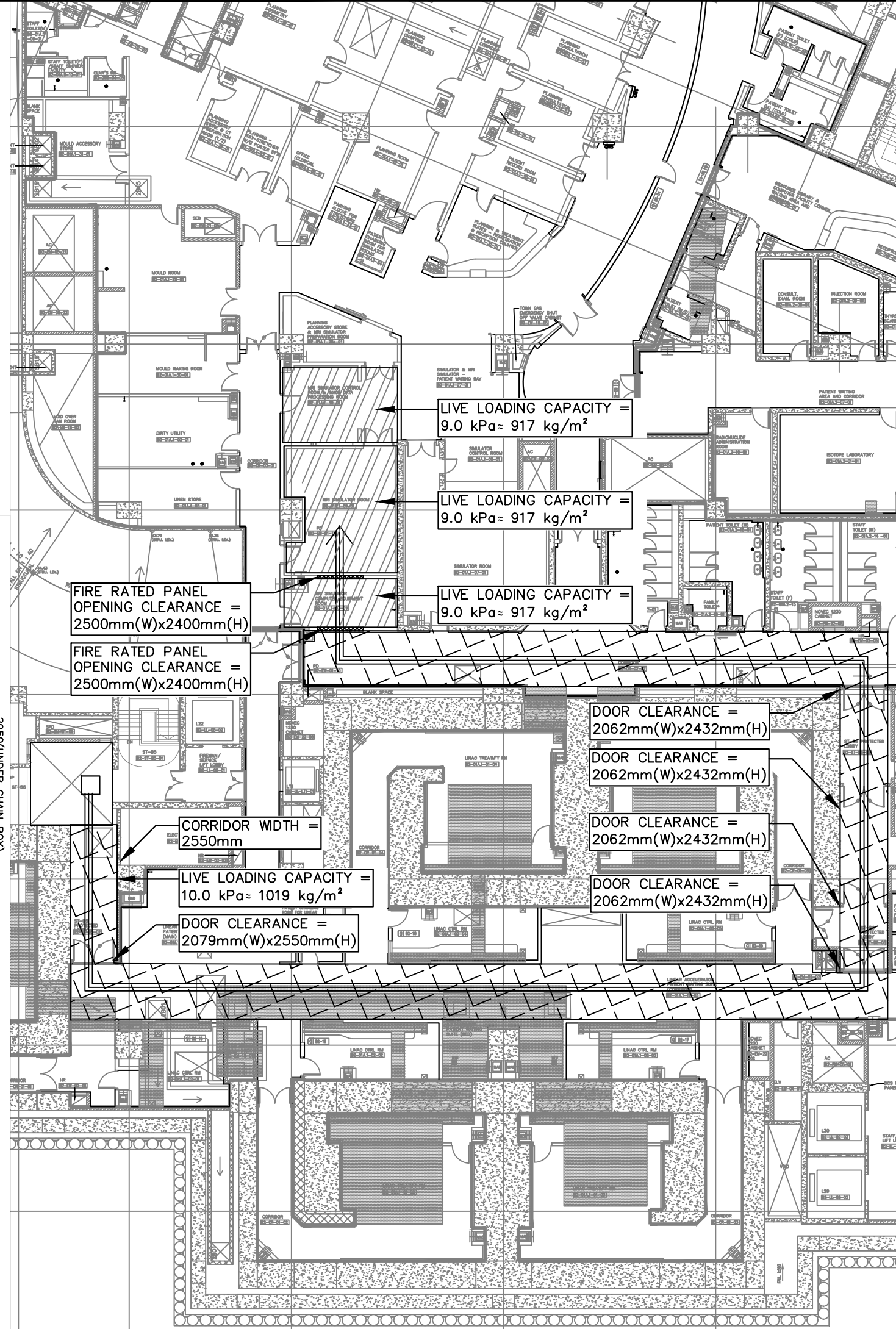
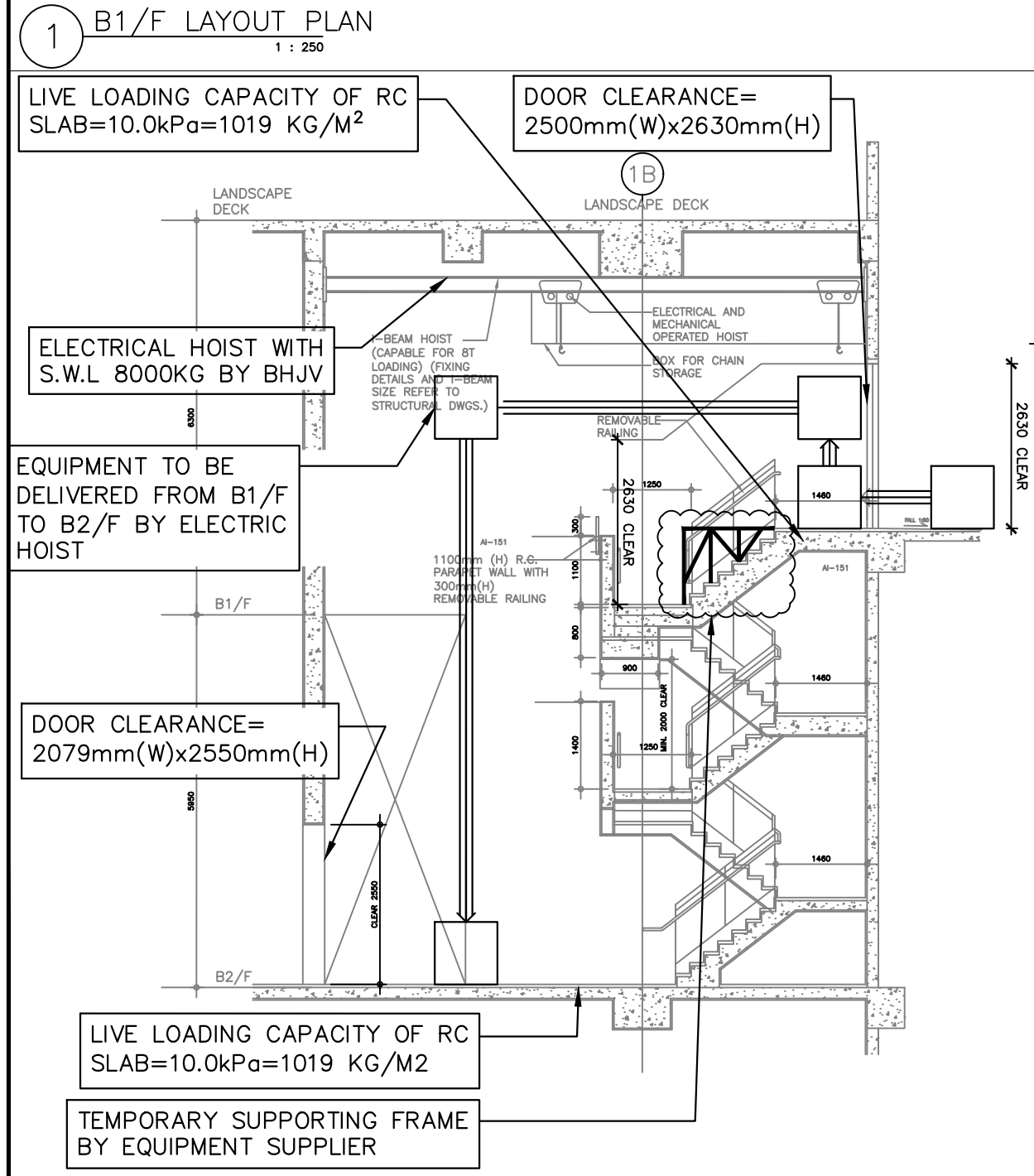
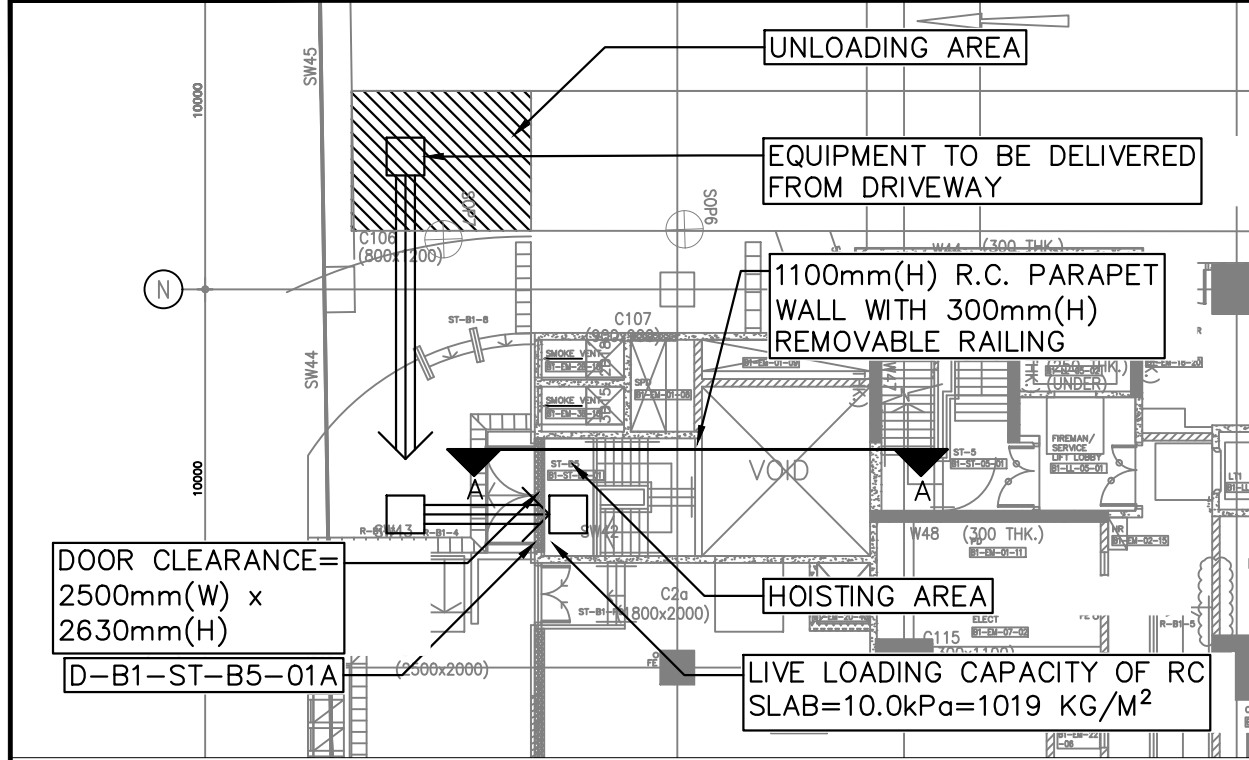
MAIN CONTRACTOR
Build King HYUNDAI
BUILDING & CONSTRUCTION
Build King - Hyundai Joint Venture

PROJECT
**SUPERSTRUCTURE AND
ASSOCIATED WORKS
FOR MAIN WORKS
PACKAGE 2 FOR
EXPANSION OF UNITED
CHRISTIAN HOSPITAL**

FPE COMPOSITE DRAWING -
LOCATION PLAN FOR MRI SIMULATOR ON B2/F,
BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION		
		
DATE	05 MAR 2026	
DRAWN BY	WYX	DATE 05 MAR 2026
ENTERED BY	WYX	DATE 05 MAR 2026
CHECKED BY	CVL	DATE 05 MAR 2026
SCALE	1:200 @ A3 PRINT DATE 05 MAR 2026	
JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64101	B

1 LOCATION PLAN FOR MRI ON B2/F, BLOCK A
1 : 200



Appendix I

DO NOT SCALE DRAWING
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ALL RIGHT RESERVED

NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	NOV 2022
B	3RD SUBMISSION	SEP 2023
C	4TH SUBMISSION	MAR 2026

REVISIONS

NOTES:

KEY PLAN

HOSPITAL AUTHORITY

ARCHITECT

王歐陽(香港)有限公司
ARCHITECTS WONG & OUTANG 0101 LTD

BUILDING SERVICES ENGINEER

WSP

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER

MEINHARDT
Meinhardt (C&S) Ltd. Consulting Engineers

MAIN CONTRACTOR

Build King HYUNDAI
Build King - Hyundai Joint Venture

PROJECT

SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING - INDICATIVE DELIVERY ROUTE FOR MRI SIMULATOR ON B2/F, BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

DRAWN BY WYX DATE 05 MAR 2026

ENTERED BY WYX DATE 05 MAR 2026

CHECKED BY CWL DATE 05 MAR 2026

SCALE 1:1, 1:2, & A3 PRINT DATE 05 MAR 2026

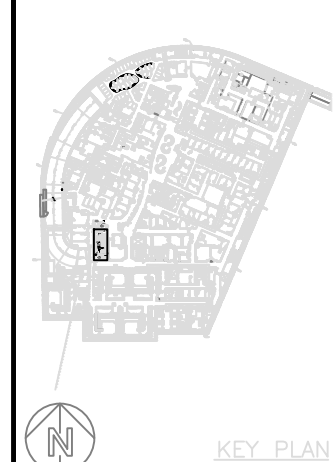
JOB NUMBER 2017 DRAWING NUMBER 2017/BS/BA/CD/64201 REVISION C

DO NOT SCALE DRAWING
CHECK ALL MEASUREMENT ON SITE
ALL RIGHT RESERVED

NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	NOV 2022
B	3RD SUBMISSION	DEC 2023
C	4TH SUBMISSION	MAR 2026

REVISIONS

NOTES:



KEY PLAN



ARCHITECT
WONG & GUYANG
WONG & GUYANG (HONG KONG) LTD

BUILDING SERVICES ENGINEER
WSP

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER
MEINHARDT
Meinhardt (CIS) Ltd. Consulting Engineers

MAIN CONTRACTOR
Build King HYUNDAI
Build King - Hyundai Joint Venture

PROJECT
SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING - EQUIPMENT PLAN FOR MRI SIMULATOR ON B2/F, BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

DATE 05 MAR 2026

DRAWN BY VYX DATE 05 MAR 2026

ENTERED BY VYX DATE 05 MAR 2026

CHECKED BY HKT DATE 05 MAR 2026

SCALE 1:50 @ A3 PRINT DATE 05 MAR 2026

JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64301	C

MRI SIMULATOR CONTROL ROOM & IMAGE DATA PROCESSING ROOM

B2-01A.1-10-01

FINISH FLOOR EVEL = 49.00
STRUCTURE FLOOR LEVEL = 48.95

MRI SIMULATOR ROOM

B2-01A.1-09-01

FINISH FLOOR EVEL = 49.00
STRUCTURE FLOOR LEVEL = 48.85

MAGNET IS ALWAYS ON

MRI SIMULATOR COMPUTER/EQUIPMENT ROOM

B2-01A.1-37-01

FINISH FLOOR EVEL = 49.00
STRUCTURE FLOOR LEVEL = 48.95

LINE TYPE LEGEND:

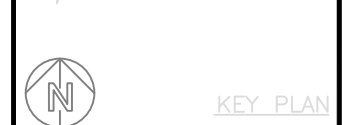
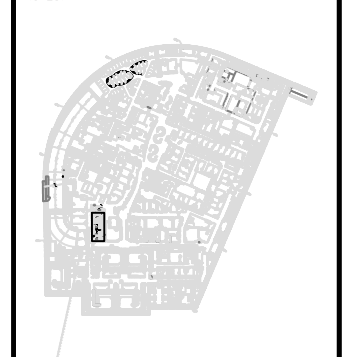
- EQUIPMENT AND ASSOCIATED ACCESSORIES PROVIDED BY EQUIPMENT SUPPLIER
- E&M AND BUILDER'S WORK PROVISION RELATED TO EQUIPMENT PROVIDED BY BHJV
- OTHER E&M AND BUILDER'S PROVISION PROVIDED BY BHJV/UCH

DO NOT SCALE DRAWING
CHECK ALL MEASUREMENT ON SITE
ALL RIGHT RESERVED

NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	MAR 2026

REVISIONS

NOTES:



PROJECT
SUPERSTRUCTURE AND
ASSOCIATED WORKS
FOR MAIN WORKS
PACKAGE 2 FOR
EXPANSION OF UNITED
CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING -
QUENCH PIPE LAYOUT FOR MRI ON B2/F,
BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

DATE 05 MAR 2026

DRAWN BY WYX DATE 05 MAR 2026

ENTERED BY WYX DATE 05 MAR 2026

CHECKED BY HKT DATE 05 MAR 2026

SCALE 1:100 @ A3 PRINT DATE 05 MAR 2026

JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64302	A

STRUCTURE FLOOR LEVEL = 48.85

MRI SIMULATOR
COMPUTER/EQUIPMENT
ROOM

B2-01A.1-37-01

FINISH FLOOR EVEL = 49.00

STRUCTURE FLOOR LEVEL = 48.95

Ø350 QUENCH PIPE AT H/L W/ADDITIONAL
75mm INSULATION
FOR MRI-CT BY EQUIPMENT SUPPLIER

Ø350 QUENCH PIPE BY EQUIPMENT SUPPLIER
AT H/L T/A W/ADDITIONAL
75mm INSULATION FOR MRI-CT
BY EQUIPMENT SUPPLIER

N

P

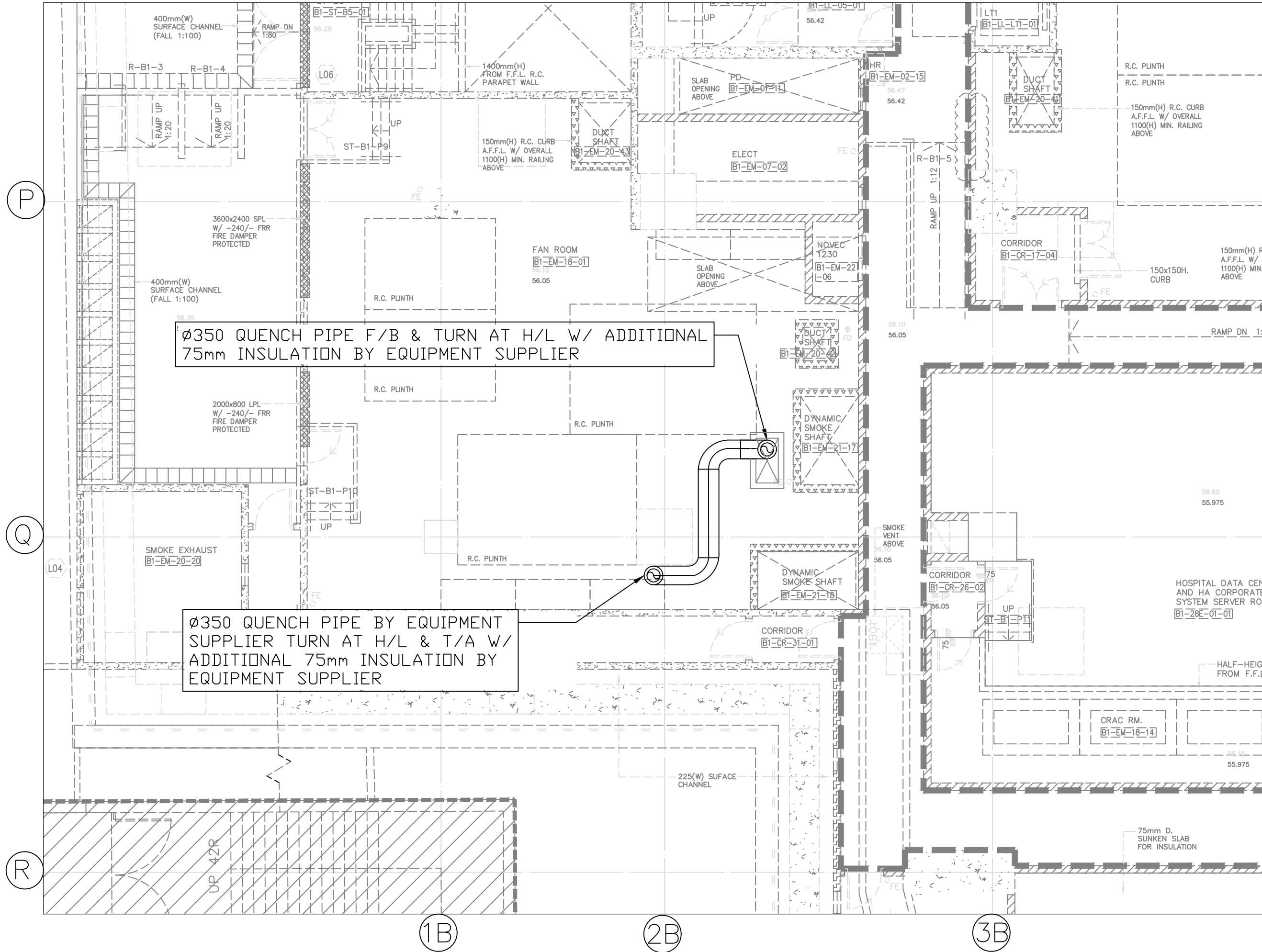
2B

3B

4B

A EQUIPMENT PLAN FOR QUENCH PIPE FOR MRI ON B2/F , BLOCK A

1:100



Appendix I
DO NOT SCALE DRAWING
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NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	MAR 2026

REVISIONS

NOTES:

KEY PLAN

HOSPITAL AUTHORITY

ARCHITECT
WONG & GUYANG (HONG KONG) LIMITED
WONG & GUYANG (HONG KONG) LIMITED

BUILDING SERVICES ENGINEER
WSP

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER
MEINHARDT
Meinhardt (HK) Ltd. Consulting Engineers

MAIN CONTRACTOR
Build King - Hyundai Joint Venture

PROJECT
SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING - QUENCH PIPE LAYOUT FOR MRI ON B1/F, BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION
DATE 05 MAR 2026

DRAWN BY VYX **DATE** 05 MAR 2026

ENTERED BY VYX **DATE** 05 MAR 2026

CHECKED BY HKT **DATE** 05 MAR 2026

SCALE 1:100 @ A3 **PRINT DATE** 05 MAR 2026

JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64303	A

P

Q

R

1B

2B

3B

Ø350 QUENCH PIPE BY EQUIPMENT
SUPPLIER DISCHARGE AT H/L W/
ADDITIONAL 75mm INSULATION BY
EQUIPMENT SUPPLIER

Ø350 QUENCH PIPE BY EQUIPMENT
SUPPLIER RUN AT H/L W/ ADDITIONAL
75mm INSULATION BY EQUIPMENT
SUPPLIER

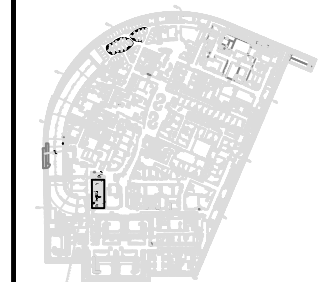
Ø350 QUENCH PIPE BY EQUIPMENT
SUPPLIER F/B & TURN AT H/L W/
ADDITIONAL 75mm INSULATION BY
EQUIPMENT SUPPLIER

L18

SB SB FE (S) GF-F50



KEY PLAN



醫院管理局
HOSPITAL
AUTHORITY

ARCHITECT



王歐陽(香港)有限公司
ARCHITECTS WONG & OUYANG (H.K.) LTD

BUILDING SERVICES ENGINEER



STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER



MAIN CONTRACTOR



PROJECT

SUPERSTRUCTURE AND
ASSOCIATED WORKS
FOR MAIN WORKS
PACKAGE 2 FOR
EXPANSION OF UNITED
CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING -
QUENCH PIPE LAYOUT FOR MRI ON G/F, BLOCK
A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

DATE 05 MAR 2026

DRAWN BY WYX

DATE 05 MAR 2026

ENTERED BY WYX

DATE 05 MAR 2026

CHECKED BY HKT

DATE 05 MAR 2026

SCALE 1:100 @ A3 PRINT DATE 05 MAR 2026

JOB NUMBER
2017

DRAWING NUMBER
2017/BS/BA/CD/64304

REVISION
A

A

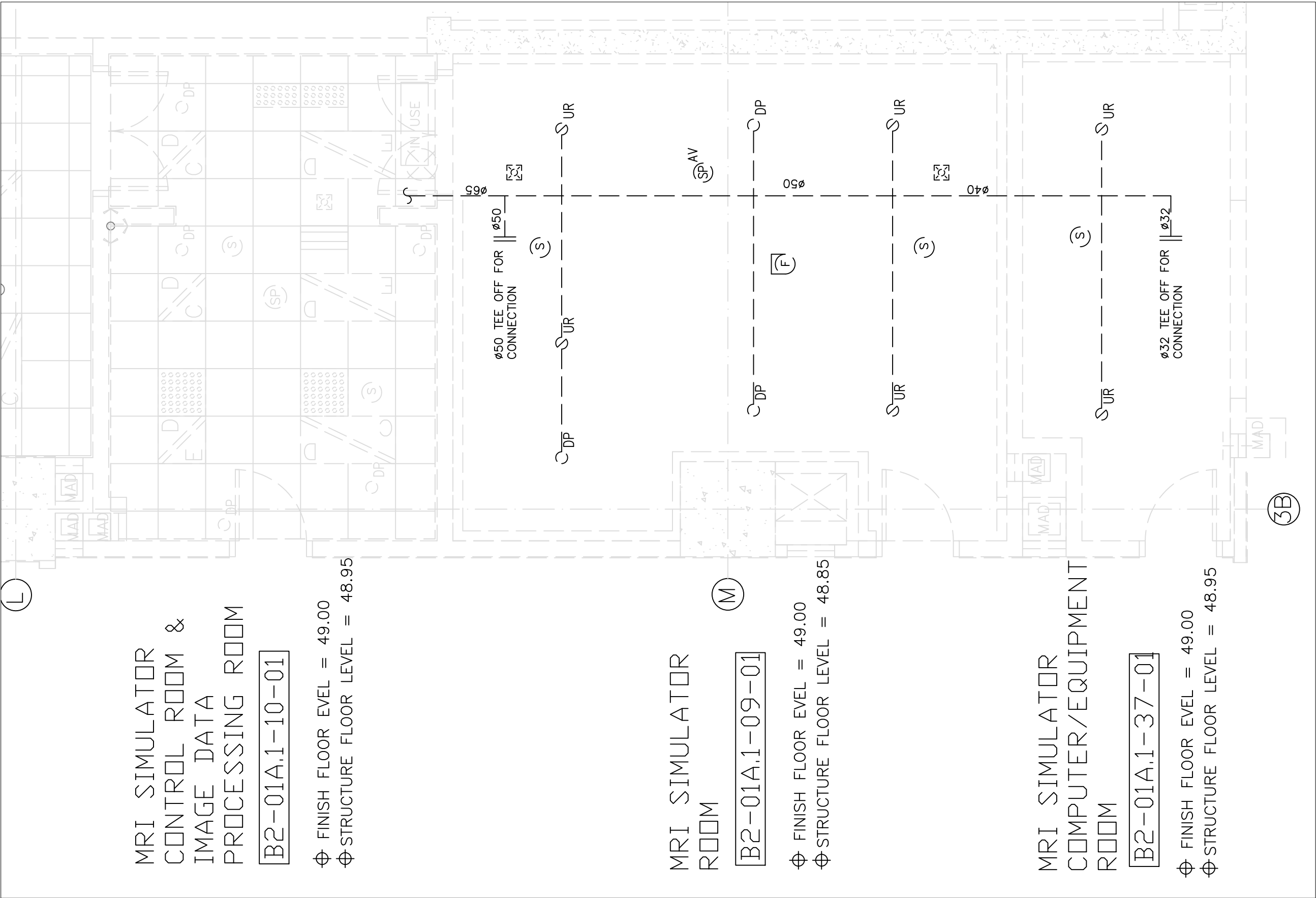
EQUIPMENT PLAN FOR QUENCH PIPE FOR MRI ON G/F , BLOCK A

1:100

A

EQUIPMENT PLAN FOR FS LAYOUT FOR MRI SIMULATOR

1:50



- LINE TYPE LEGEND:
- EQUIPMENT AND ASSOCIATED ACCESSORIES PROVIDED BY EQUIPMENT SUPPLIER
 - E&M AND BUILDER'S WORK PROVISION RELATED TO EQUIPMENT PROVIDED BY BHJV
 - OTHER E&M AND BUILDER'S PROVISION PROVIDED BY BHJV/UCH

Appendix I

DO NOT SCALE DRAWING
CHECK ALL MEASUREMENT ON SITE
ALL RIGHT RESERVED

NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	SEP 2022
A	2ND SUBMISSION	MAR 2026

REVISIONS

NOTES:

KEY PLAN

醫院管理局
HOSPITAL
AUTHORITY

ARCHITECT

王歐陽(香港)有限公司
ARCHITECTS WONG & OUYANG 680 LTD

BUILDING SERVICES ENGINEER

WSP

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER

MEINHARDT
Meinhardt (CIS) Ltd. Consulting Engineers

MAIN CONTRACTOR

Build King & HYUNDAI
Build King - Hyundai Joint Venture

PROJECT

SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING - EQUIPMENT PLAN FOR FS LAYOUT FOR MRI SIMULATOR ON B2/F,BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

DATE 05 MAR 2026

DRAWN BY	WYX	DATE 05 MAR 2026
ENTERED BY	WYX	DATE 05 MAR 2026
CHECKED BY	HKT	DATE 05 MAR 2026
SCALE	1:50 @ A3	PRINT DATE 05 MAR 2026

JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64305	A

MRI SIMULATOR
CONTROL ROOM &
IMAGE DATA
PROCESSING ROOM

B2-01A.1-10-01

Ø FINISH FLOOR EVEL = 49.00
Ø STRUCTURE FLOOR LEVEL = 48.95

MRI SIMULATOR
ROOM

B2-01A.1-09-01

Ø FINISH FLOOR EVEL = 49.00
Ø STRUCTURE FLOOR LEVEL = 48.85

MRI SIMULATOR
COMPUTER/EQUIPMENT
ROOM

B2-01A.1-37-01

Ø FINISH FLOOR EVEL = 49.00
Ø STRUCTURE FLOOR LEVEL = 48.95

LINE TYPE LEGEND:

- EQUIPMENT AND ASSOCIATED ACCESSORIES PROVIDED BY EQUIPMENT SUPPLIER
- E&M AND BUILDER'S WORK PROVISION RELATED TO EQUIPMENT PROVIDED BY BHJV
- OTHER E&M AND BUILDER'S PROVISION PROVIDED BY BHJV/UCH

Appendix I

DO NOT SCALE DRAWING
CHECK ALL MEASUREMENT ON SITE
ALL RIGHT RESERVED

NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	SEP 2022
A	2ND SUBMISSION	MAR 2026

REVISIONS

NOTES:

KEY PLAN

醫院管理局
HOSPITAL
AUTHORITY

ARCHITECT

王歐陽(香港)有限公司
ARCHITECTS WONG & OUYANG 680 LTD

BUILDING SERVICES ENGINEER

WSP

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER

Meinhardt (CIS) Ltd. Consulting Engineers

MAIN CONTRACTOR

Build King - Hyundai Joint Venture

PROJECT

SUPERSTRUCTURE AND
ASSOCIATED WORKS
FOR MAIN WORKS
PACKAGE 2 FOR
EXPANSION OF UNITED
CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING -
EQUIPMENT PLAN FOR AC LAYOUT FOR MRI
SIMULATOR ON B2/F, BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

DATE 05 MAR 2026

DRAWN BY	VYX	DATE 05 MAR 2026
ENTERED BY	VYX	DATE 05 MAR 2026
CHECKED BY	HKT	DATE 05 MAR 2026
SCALE	1:50 @ A3	PRINT DATE 05 MAR 2026
JOB NUMBER	2017	DRAWING NUMBER
2017/BS/BA/CD/64306		REVISION
		A

MRI SIMULATOR
CONTROL ROOM &
IMAGE DATA
PROCESSING ROOM

B2-01A.1-10-01

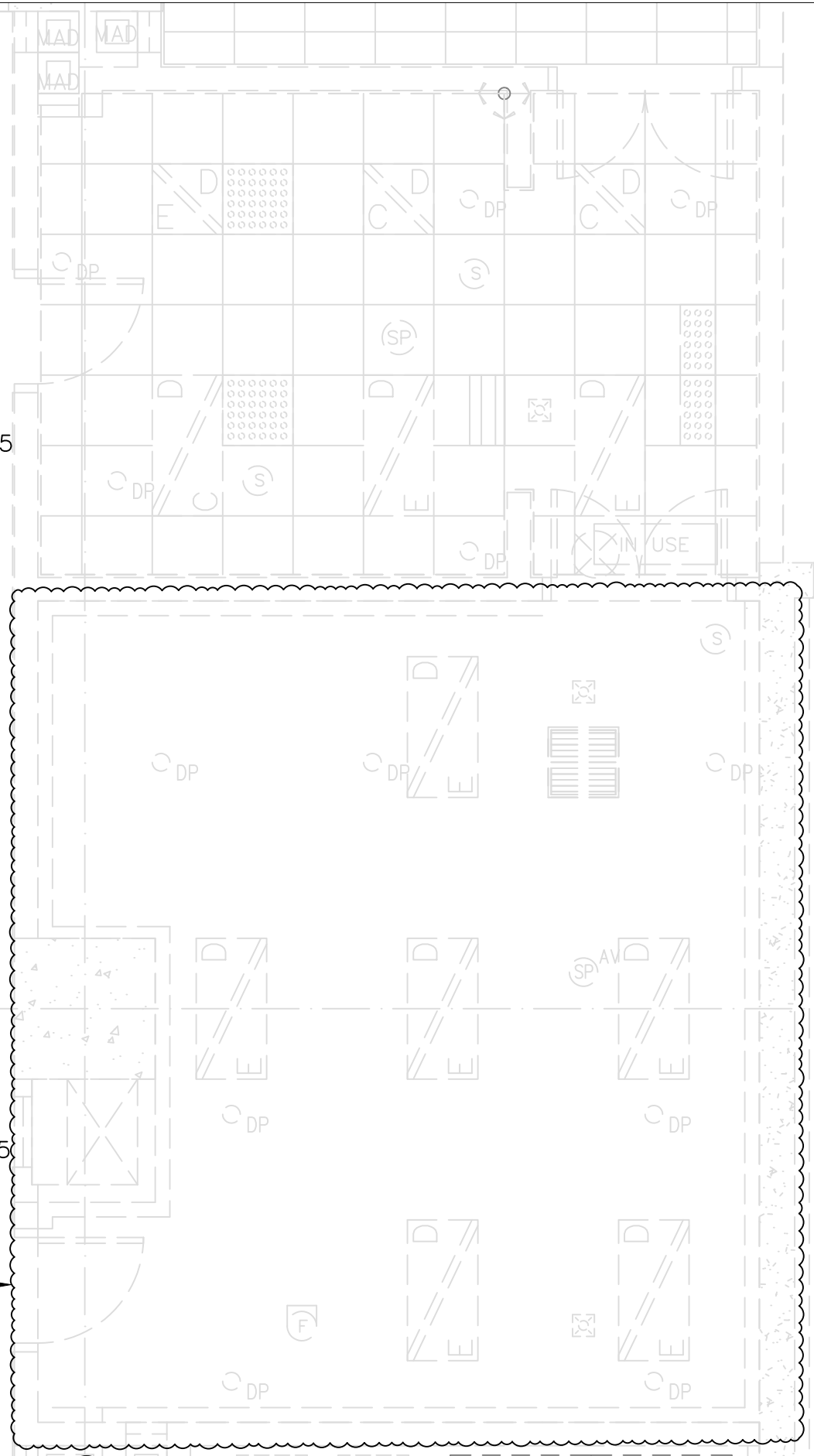
⊕ FINISH FLOOR EVEL = 49.00
⊕ STRUCTURE FLOOR LEVEL = 48.95

MRI SIMULATOR
ROOM

B2-01A.1-09-01

⊕ FINISH FLOOR EVEL = 49.00
⊕ STRUCTURE FLOOR LEVEL = 48.85

CEILING FINISH BY EQUIPMENT
SUPPLIER. BHJV WILL PROVIDE MIN.
PROVISION OF SPRINKLER HEAD,
SMOKE DETECTOR & LIGHTING &
SPRINKLER PIPE PLUG OFF FOR
FUTURE CONNECTION TO FULFILL FSD
REQUIREMENT. EQUIPMENT SUPPLIER
SHALL INCLUDE ALL
NECESSARY MODIFICATION AND E&M
INSTALLATION INSIDE MRI



LEGENDS:

- 1200MM(W) X 600MM(H) RECESSED TYPE LUMINARIE BY BHJV
- 600MM(W) X 600MM(H) RECESSED TYPE LUMINARIE BY BHJV
- 600MM(W)X600(H) PERFORATED DIFFUSER BY BHJV
- 600MM(W)X300(H) LOUVRE FACE DIFFUSER BY BHJV
- 600MM(W)X300(H) LOUVRE FACE DIFFUSER BY BHJV
- CEILING MOUNTED REMOTE INDICATOR LAMP BY EQUIPMENT SUPPLIER
- CEILING SPEAKER FOR AUDIO-VISUAL ADVISORY SYSTEM BY BHJV
- CEILING SPEAKER BY EQUIPMENT SUPPLIER
- SMOKE DETECTOR BY BHJV
- VISUAL FIRE ALARM BY BHJV
- SPRINKLER HEAD BY BHJV
- DRY PENDANT TYPE SPRINKLER HEAD BY BHJV
- FIXED DOME TYPE CCTV CAMERA BY EQUIPMENT SUPPLIER
- IN-USE ENGAGE WARNING LIGHT BY BHJV
- NURSE CALL INDICATOR BY BHJV

LINE TYPE LEGEND:

- EQUIPMENT AND ASSOCIATED ACCESSORIES PROVIDED BY EQUIPMENT SUPPLIER
- E&M AND BUILDER'S WORK PROVISION RELATED TO EQUIPMENT PROVIDED BY BHJV
- OTHER E&M AND BUILDER'S PROVISION PROVIDED BY BHJV/UCH

DO NOT SCALE DRAWING
CHECK ALL MEASUREMENT ON SITE
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NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	NOV 2022
B	3RD SUBMISSION	MAR 2026

REVISIONS

NOTES:

KEY PLAN

HOSPITAL
AUTHORITY

ARCHITECT
WONG & OUYANG (HONG KONG) LTD

BUILDING SERVICES ENGINEER
WSP

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER
MENHARDT

MAIN CONTRACTOR
Build King - Hyundai Joint Venture

PROJECT
SUPERSTRUCTURE AND
ASSOCIATED WORKS
FOR MAIN WORKS
PACKAGE 2 FOR
EXPANSION OF UNITED
CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING -
REFLECTED CEILING PLAN FOR MRI SIMULATOR
ROOM & MRI SIMULATOR CONTROL ROOM ON
B2/F, BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

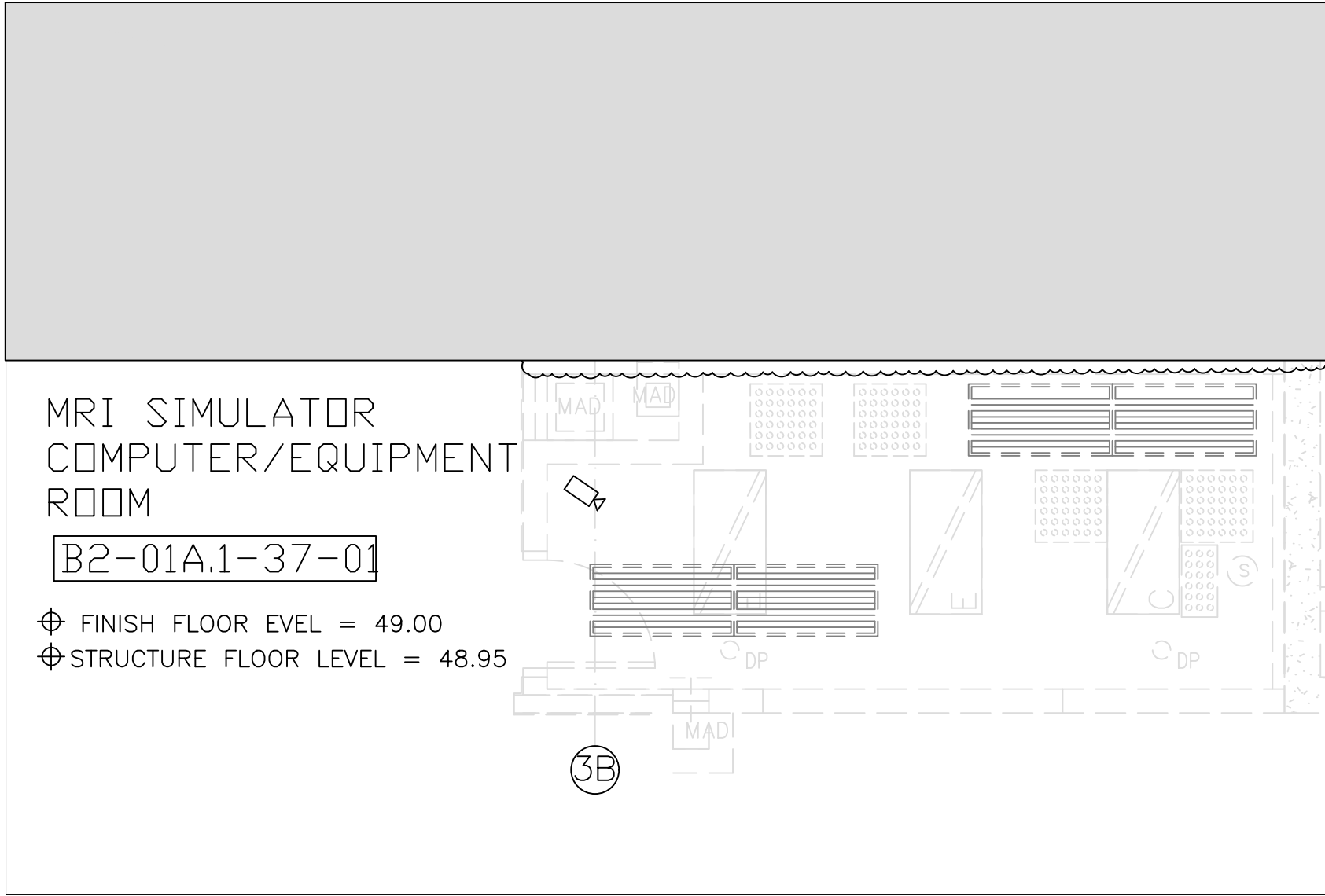
DRAWN BY: WYX DATE: 05 MAR 2026

ENTERED BY: WYX DATE: 05 MAR 2026

CHECKED BY: HKT DATE: 05 MAR 2026

SCALE: 1:50 @ A3 PRINT DATE: 05 MAR 2026

JOB NUMBER: 2017 DRAWING NUMBER: 2017/BS/BA/CD/64401 REVISION: B



LEGENDS:

-
- 1200MM(W) X 600MM(H) RECESSED TYPE LUMINARIE BY BHJV
-
- 1200MM(W) X 600MM(H) RETURN AIR DIFFUSER BY BHJV
-
- 600MM(W)X600(H) PERFORATED DIFFUSER
-
- SMOKE DETECTOR
-
- DRY PENDANT TYPE SPRINKLER HEAD
-
- FIXED DOME TYPE CCTV CAMERA BY EQUIPMENT SUPPLIER

LINE TYPE LEGEND:

-
- EQUIPMENT AND ASSOCIATED ACCESSORIES PROVIDED BY EQUIPMENT SUPPLIER
-
- E&M AND BUILDER'S WORK PROVISION RELATED TO EQUIPMENT PROVIDED BY BHJV
-
- OTHER E&M AND BUILDER'S PROVISION PROVIDED BY BHJV/UCH

Appendix I

DO NOT SCALE DRAWING
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NUMBER	DESCRIPTION	DATE
-	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	NOV 2022
B	3RD SUBMISSION	MAR 2026

REVISIONS

NOTES:

KEY PLAN

醫院管理局
HOSPITAL
AUTHORITY

王歐陽(香港)有限公司
ARCHITECTS WONG & OUYANG CHIO LTD

BUILDING SERVICES ENGINEER

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER

MAIN CONTRACTOR
Build King - Hyundai Joint Venture

PROJECT
SUPERSTRUCTURE AND
ASSOCIATED WORKS
FOR MAIN WORKS
PACKAGE 2 FOR
EXPANSION OF UNITED
CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING -
REFLECTED CEILING PLAN FOR MRI SIMULATOR
COMPUTER/EQUIPEMENT ROOM ON B2/F,BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

DATE 05 MAR 2026

DRAWN BY WYX

DATE 05 MAR 2026

ENTERED BY WYX

DATE 05 MAR 2026

CHECKED BY HKT

DATE 05 MAR 2026

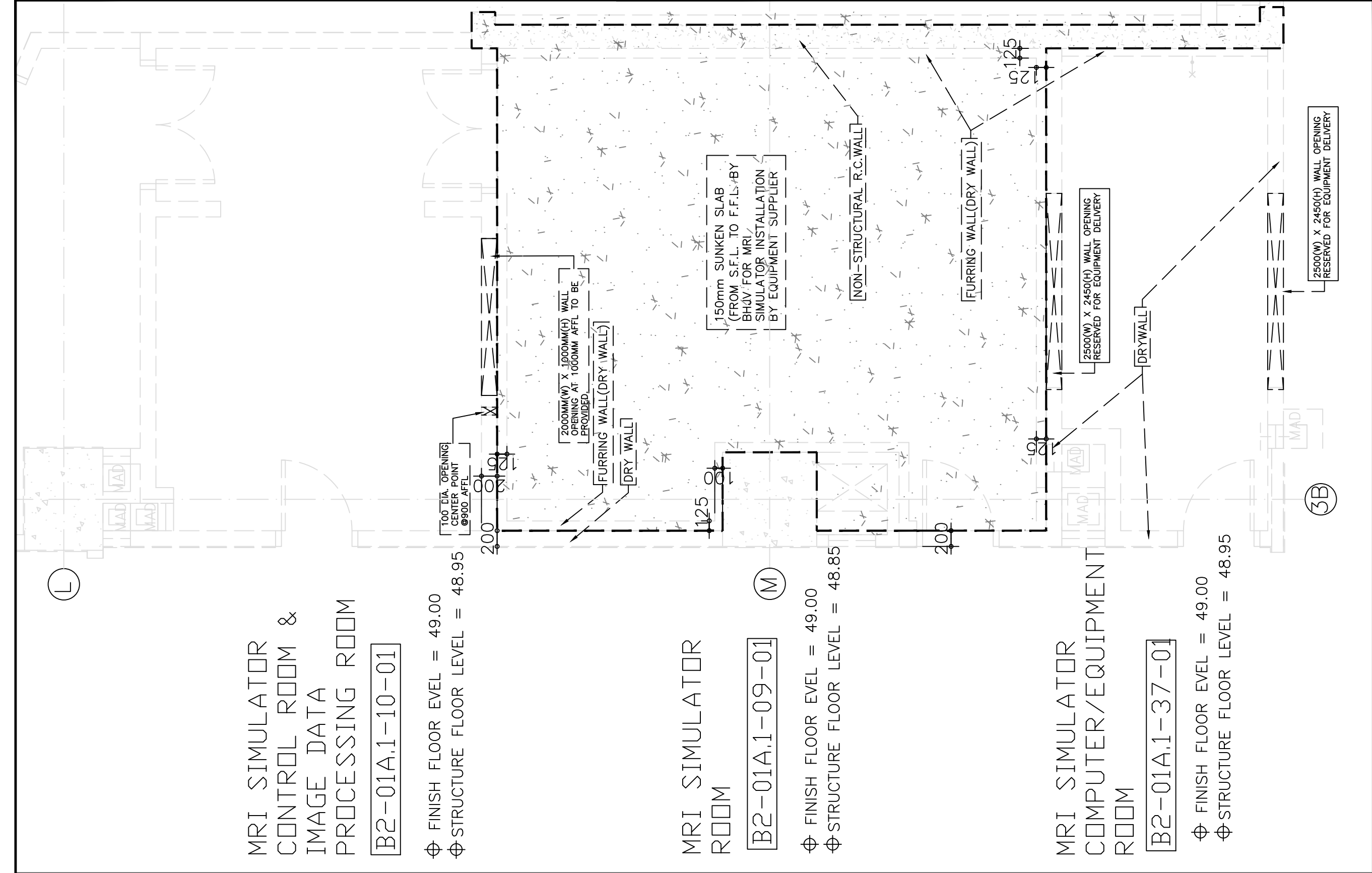
SCALE 1:50 @ A3

PRINT DATE 05 MAR 2026

JOB NUMBER 2017

DRAWING NUMBER 2017/BS/BA/CD/64402

REVISION B



LINE TYPE LEGEND:

- BUILDER'S WORK PROVISION RELATED TO EQUIPMENT PROVIDED BY BHJV
- OTHER E&M AND BUILDER'S PROVISION PROVIDED BY BHJV/UCH

LEGEND:

SUNKEN SLAB AREA

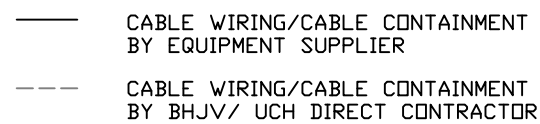
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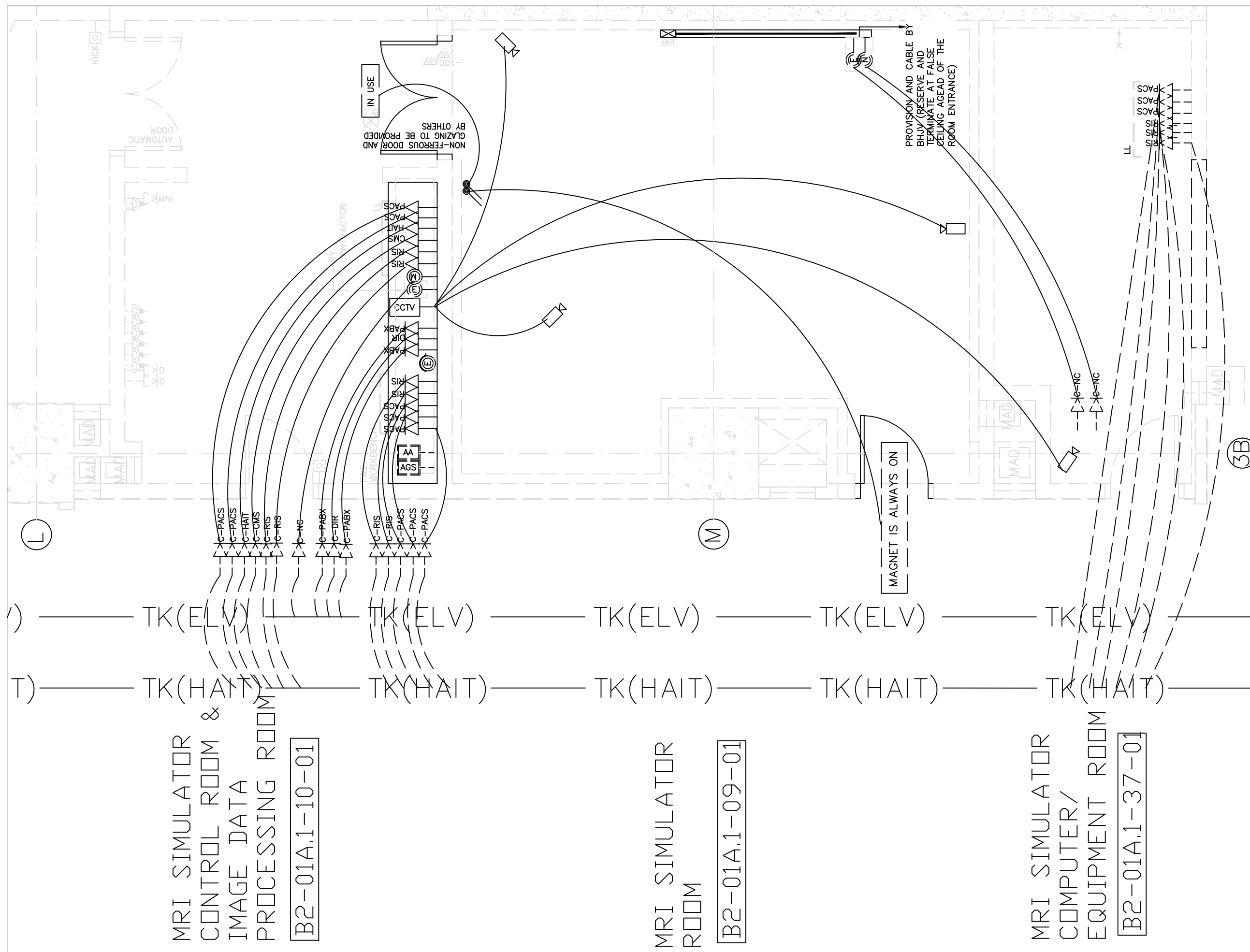
- 300mm THK CONCRETE SLAB (FLOOR/CEILING) AND WALL FOR RADIATION PROTECTION
- ALL WORKS IN SCANNER ROOM BY EQUIPMENT SUPPLIER, INCLUDING POWER POINTS, MEDICAL GAS, SHIELDING JOINERY, FINISH PLUMBING
- 150mm ACTIVE ELECTROMAGNETIC SHIELDING TO BE PROVIDED BY EQUIPMENT SUPPLIER
- WALL FINISH & CEILING FINISH BY EQUIPMENT SUPPLIER

A BUILDER'S WORK PROVISION FOR MRI SIMULATOR ON B2/F, BLOCK A

1:50

DO NOT SCALE DRAWING CHECK ALL MEASUREMENT ON SITE ALL RIGHT RESERVED		
NUMBER	DESCRIPTION	DATE
—	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	SEP 2023
B	3RD SUBMISSION	MAR 2026
REVISIONS		
NOTES:		
KEY PLAN		
醫院管理局 HOSPITAL AUTHORITY		
ARCHITECT 王歐陽(香港)有限公司 ARCHITECTS WONG & OUYANG 680 LTD		
BUILDING SERVICES ENGINEER WSP		
STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER MEINHARDT Meinhardt (C&G) Ltd. Consulting Engineers		
MAIN CONTRACTOR Build King HYUNDAI Build King - Hyundai Joint Venture		
PROJECT SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL		
FPE COMPOSITE DRAWING - BUILDER'S WORK PLAN FOR MRI SIMULATOR ON B2/F, BLOCK A		
SIGNATURE FOR SUBMISSION/CONSTRUCTION DATE 05 MAR 2026		
DRAWN BY WYX DATE 05 MAR 2026		
ENTERED BY WYX DATE 05 MAR 2026		
CHECKED BY HKT DATE 05 MAR 2026		
SCALE 1:50 @ A3 PRINT DATE 05 MAR 2026		
JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64501	B





LINE TYPE LEGEND:

— CABLE CONTAINMENT/CABLE WIRING BY EQUIPMENT SUPPLIER

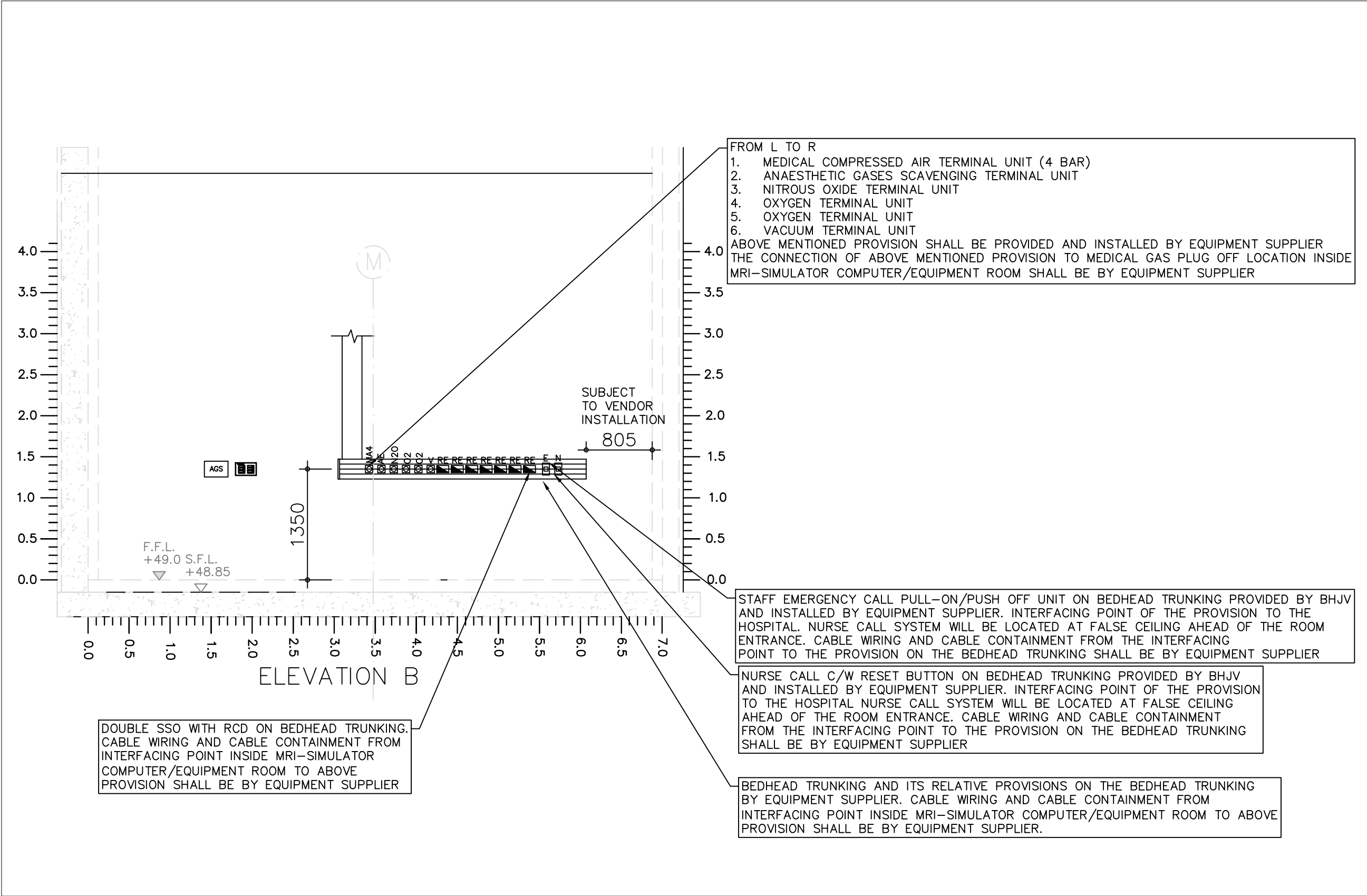
--- CABLE WIRING/CABLE CONTAINMENT BY BHJV/UCH DIRECT CONTRACTOR

ENGAGE LIGHT SWITCH PROVIDED AND INSTALLED BY EQUIPMENT SUPPLIER RELATED CABLE CONTAINMENT AND CABLE WIRING TO EQUIPMENT WOULD BE BY EQUIPMENT SUPPLIER

KEY PLAN

2017	2017/BS/BA/CD/64701	A
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1:50

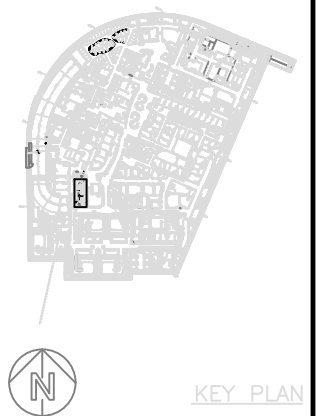


DO NOT SCALE DRAWING
CHECK ALL MEASUREMENT ON SITE
ALL RIGHT RESERVED

NUMBER	DESCRIPTION	DATE
—	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	MAR 2026

REVISIONS

NOTES:



PROJECT
SUPERSTRUCTURE AND
ASSOCIATED WORKS
FOR MAIN WORKS
PACKAGE 2 FOR
EXPANSION OF UNITED
CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING -
ELEVATION B FOR MRI SIMULATOR ON B2/F,
BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION

 DATE 05 MAR 2026

DRAWN BY	VYX	DATE	05 MAR 2026
ENTERED BY	VYX	DATE	05 MAR 2026
CHECKED BY	HKT	DATE	05 MAR 2026

SCALE	1:50 @ A3	PRINT DATE	05 MAR 2026
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JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64702	A

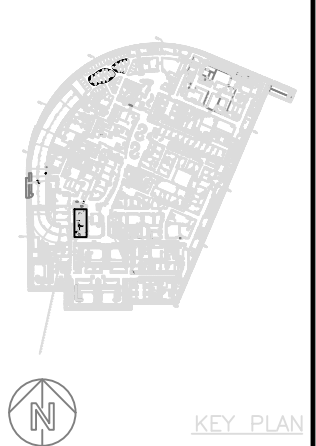
B ELEVATION B FOR MRI SIMULATOR ON B2/F , BLOCK A

DO NOT SCALE DRAWING
CHECK ALL MEASUREMENT ON SITE
ALL RIGHT RESERVED

NUMBER	DESCRIPTION	DATE
—	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	MAR 2026

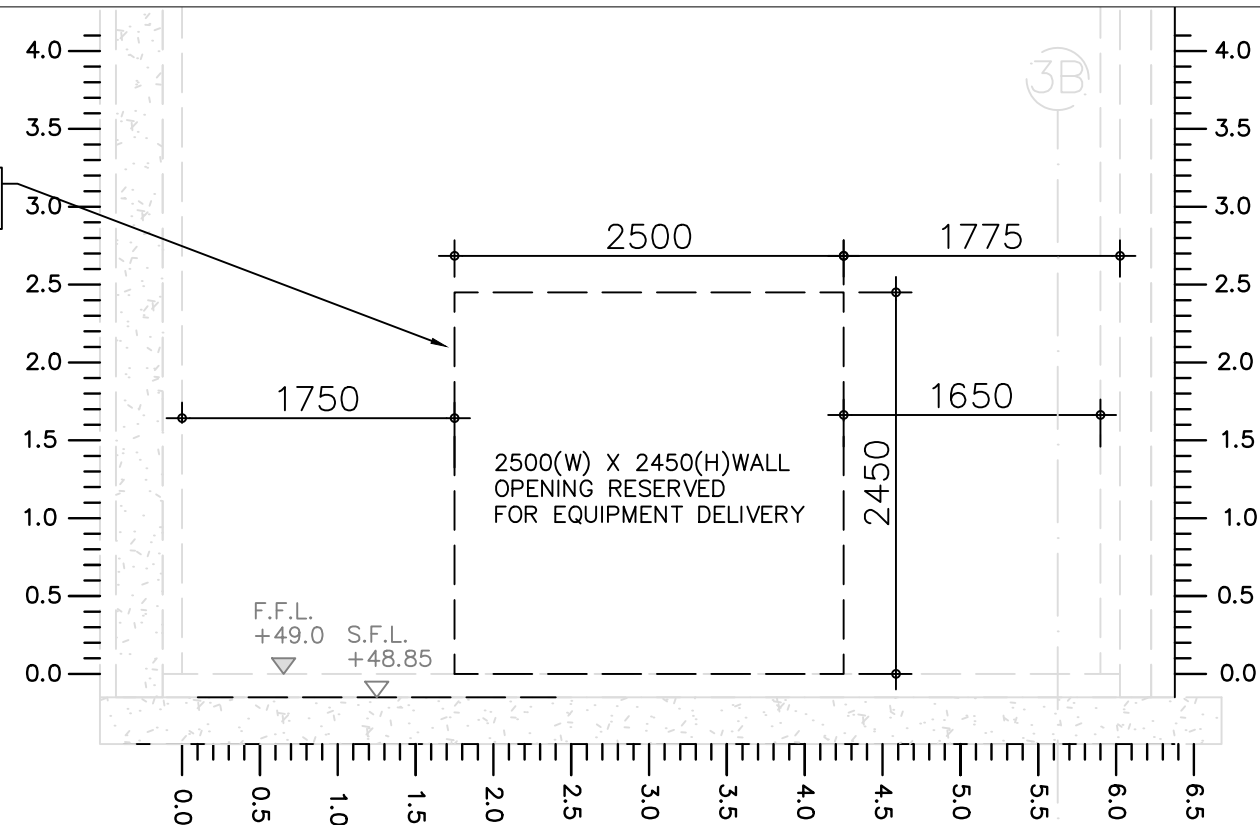
REVISIONS

NOTES:



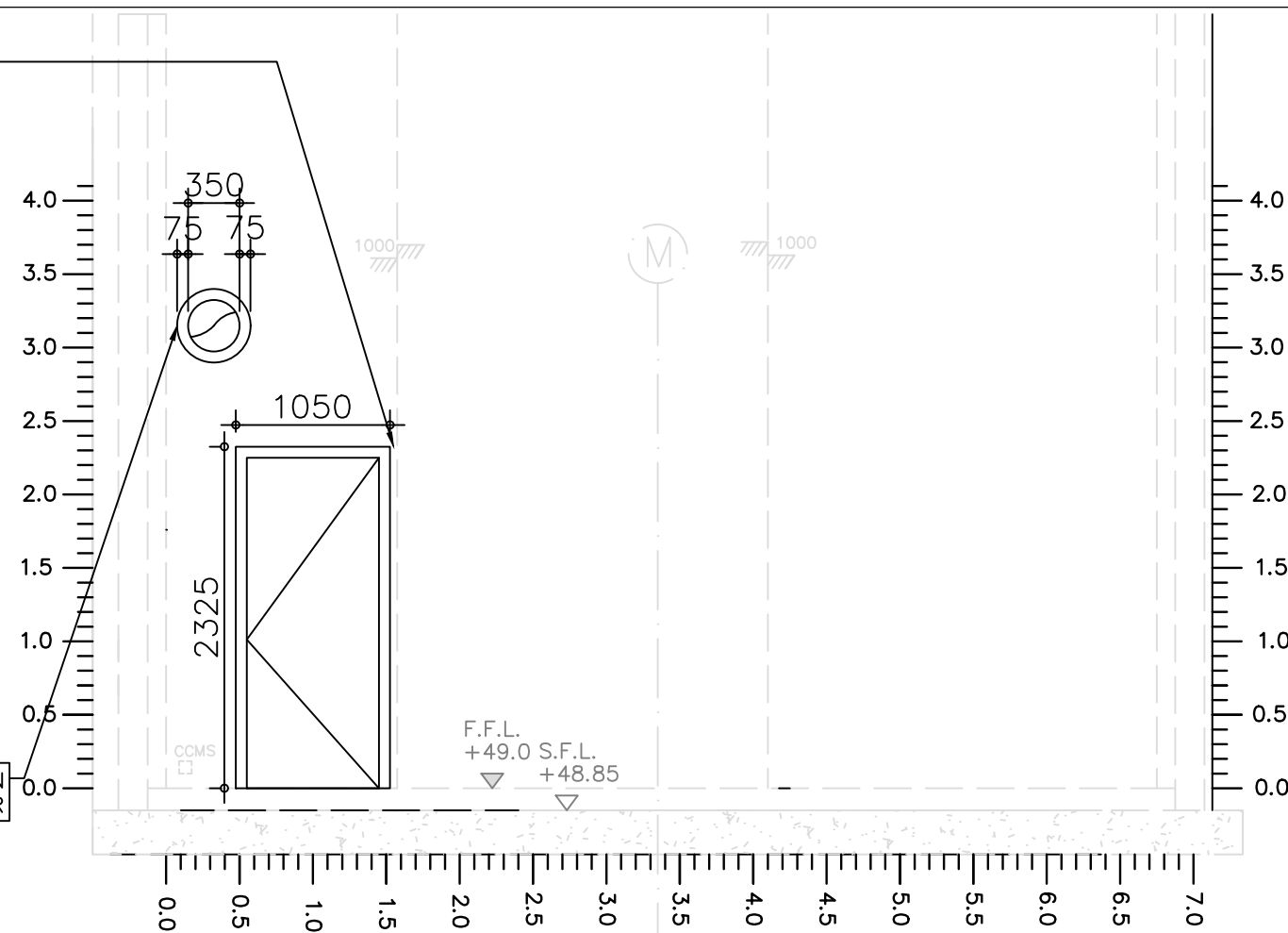
KEY PLAN

2500(W) X 2450(H) WALL OPENING
RESERVED FOR EQUIPMENT DELIVERY



C ELEVATION C FOR MRI SIMULATOR ON B2/F, BLOCK A
1:50

INDICATIVE NON-FERROUS DOOR AND GLAZING
TO BE PROVIDED BY EQUIPMENT SUPPLIER



INDICATIVE Ø350 QUENCH PIPE W/ 75mm INSULATION
PROVIDED AND INSTALLED BY EQUIPMENT SUPPLIER

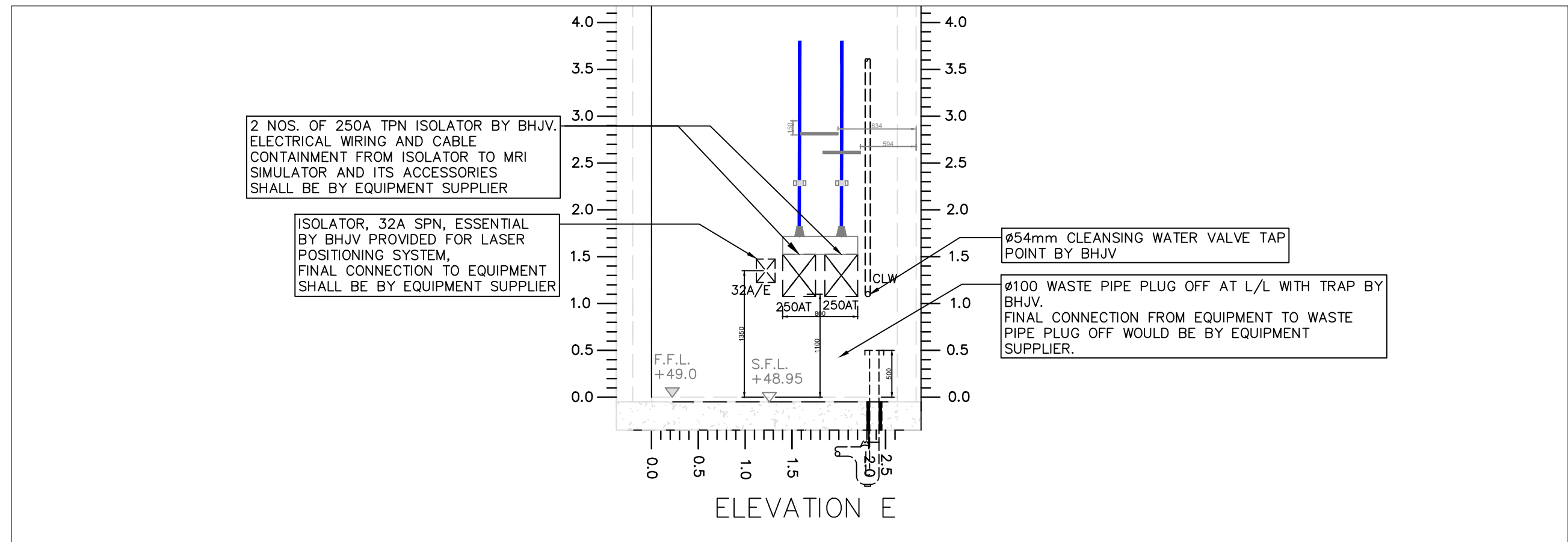
D ELEVATION D FOR MRI SIMULATOR ON B2/F, BLOCK A
1:50



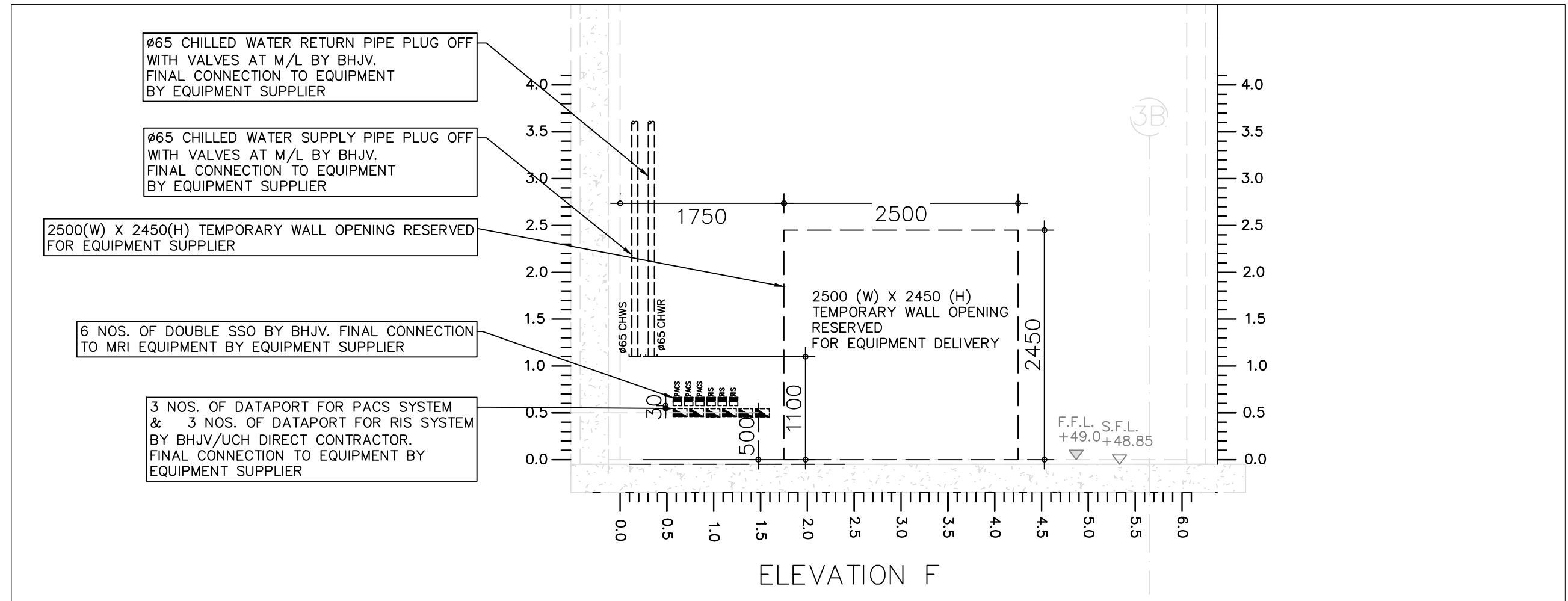
PROJECT
SUPERSTRUCTURE AND
ASSOCIATED WORKS
FOR MAIN WORKS
PACKAGE 2 FOR
EXPANSION OF UNITED
CHRISTIAN HOSPITAL

FPE COMPOSITE DRAWING -
ELEVATION C&D FOR MRI SIMULATOR ON B2/F,
BLOCK A

SIGNATURE FOR SUBMISSION/CONSTRUCTION		
		
DATE	05 MAR 2026	
DRAWN BY	WYX	
DATE	05 MAR 2026	
ENTERED BY	WYX	
DATE	05 MAR 2026	
CHECKED BY	HKT	
DATE	05 MAR 2026	
SCALE	1:50 @ A3	
PRINT DATE	05 MAR 2026	
JOB NUMBER	DRAWING NUMBER	REVISION
2017	2017/BS/BA/CD/64703	A



E ELEVATION E FOR MRI SIMULATOR ON B2/F , BLOCK A
1:50



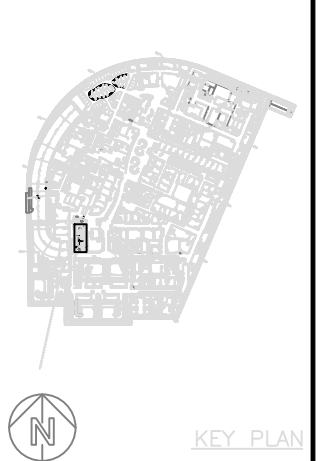
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-	1ST SUBMISSION	JUN 2022
A	2ND SUBMISSION	NOV 2022
B	3RD SUBMISSION	DEC 2023
C	4TH SUBMISSION	MAR 2026

REVISIONS

NOTES:



KEY PLAN

HOSPITAL AUTHORITY

ARCHITECT
WONG & OUYANG
王歐陽(香港)有限公司
ARCHITECTS WONG & OUYANG 680 LTD

BUILDING SERVICES ENGINEER
WSP

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER
MEINHARDT
Meinhardt (C&G) Ltd. Consulting Engineers

MAIN CONTRACTOR
Build King HYUNDAI
Build King - Hyundai Joint Venture

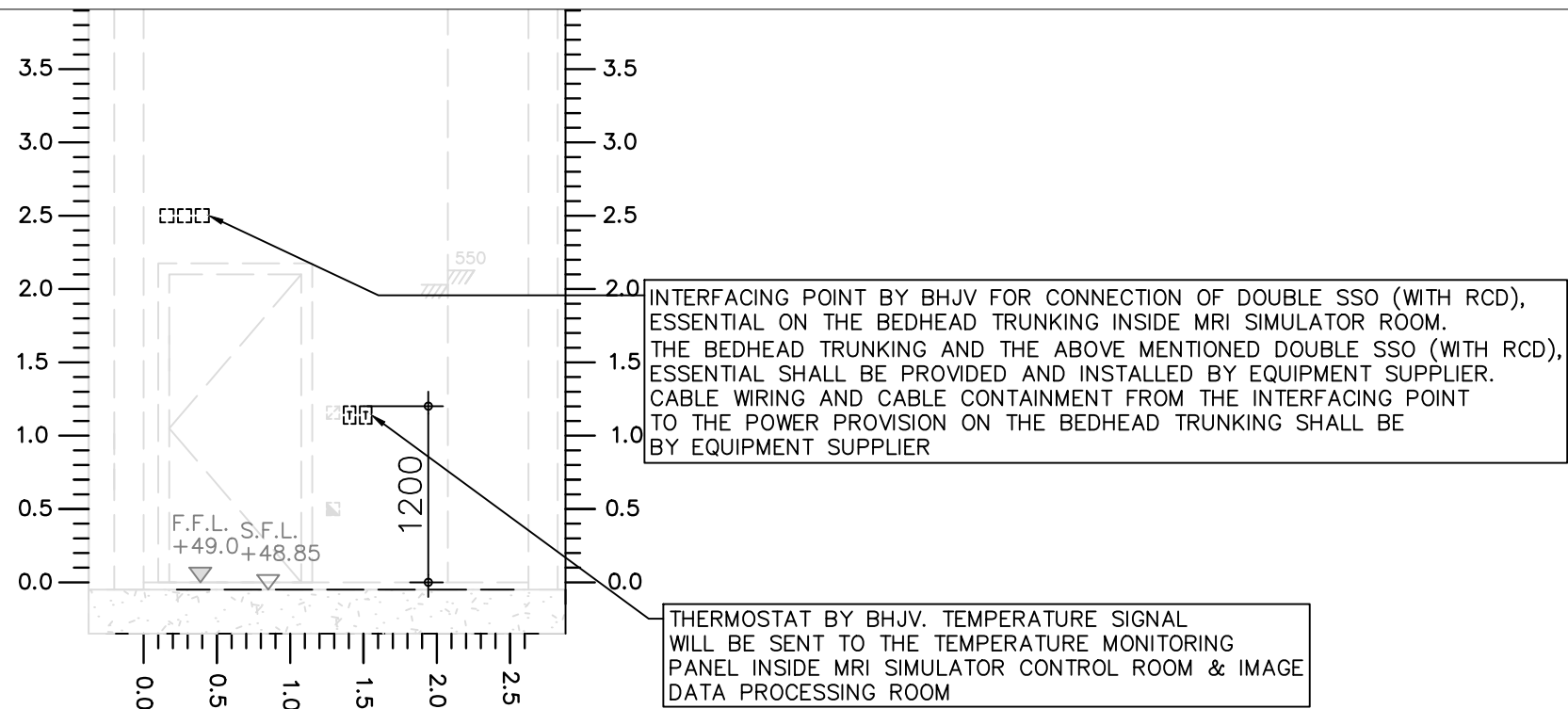
PROJECT
SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL

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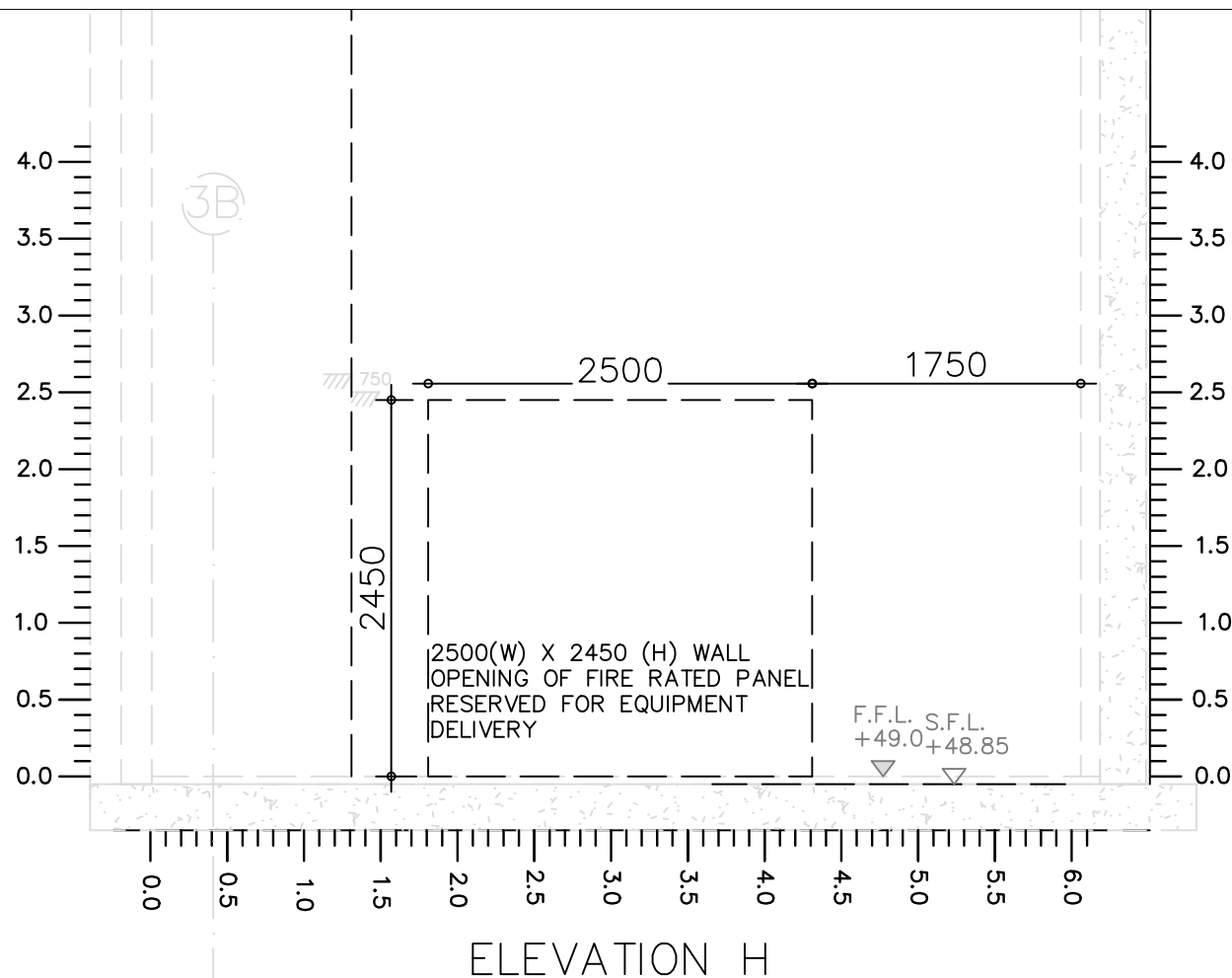
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H ELEVATION H FOR MRI SIMULATOR ON B2/F , BLOCK A
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PROJECT
SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL

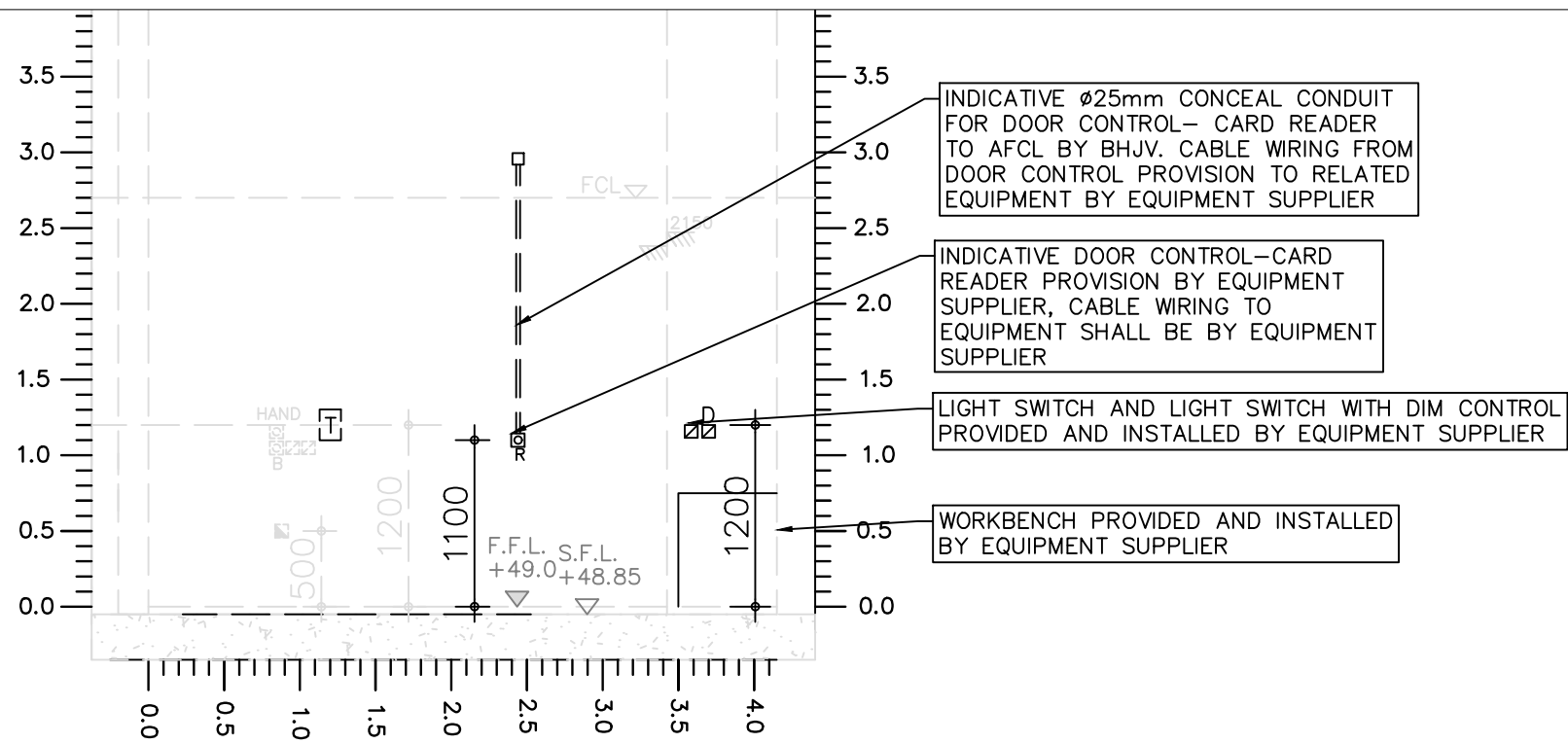
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DATE 05 MAR 2026

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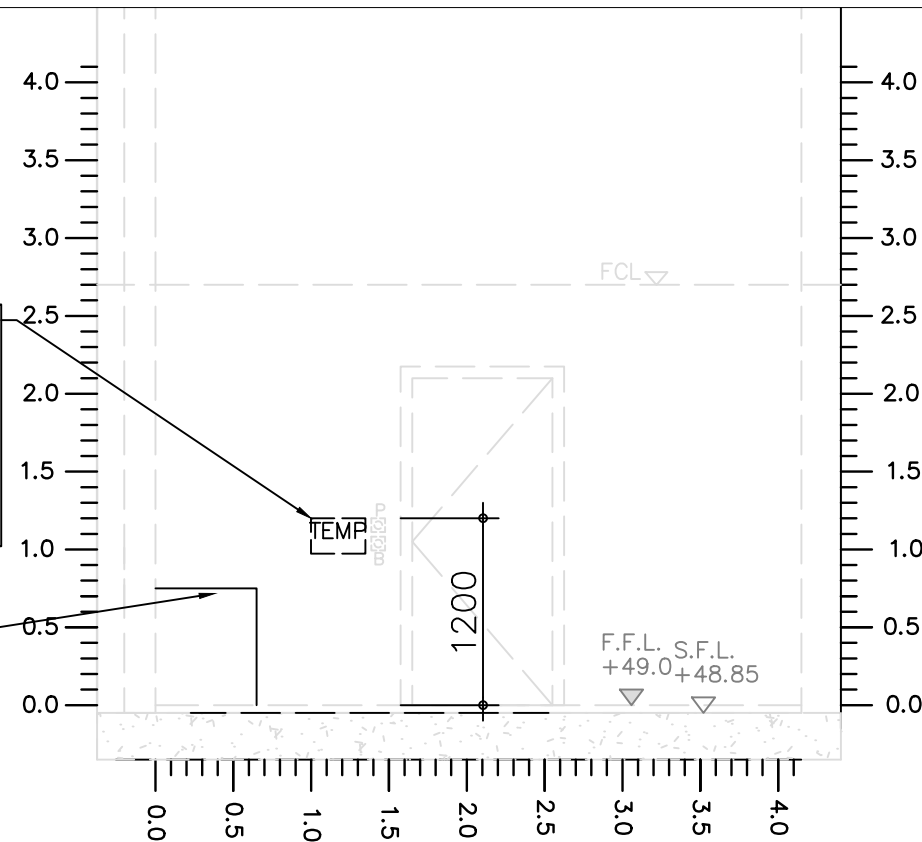
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2017	2017/BS/BA/CD/64705	C



ELEVATION I

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ELEVATION J

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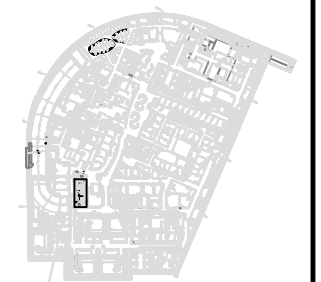
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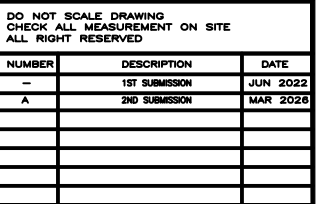
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FOR MAIN WORKS
PACKAGE 2 FOR
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FPE COMPOSITE DRAWING -
ELEVATION I&J FOR MRI SIMULATOR ON B2/F,
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HOSPITAL
AUTHORITY

ARCHITECT

WONG & OUYANG

王歐陽(香港)有限公司
WONG & OUYANG & CO LTD

BUILDING SERVICES ENGINEER

wsp

STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEER



MEINHARDT
Meinhardt (C&S) Ltd. Consulting Engineers

MAIN CONTRACTOR



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KEY PLAN



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WONG & OUYANG (HK) LTD

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Meinhardt (C&S) Ltd. Consulting Engineers

Build King  **HYUNDAI**
ENGINEERING & CONSTRUCTION
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Appendix Details of IT Security Requirements

A. Terms and Definitions

These terms and definitions apply to any System/Equipment requiring access to the HA IT network. Additional terms and definitions appear below in “Connectivity of Vendor Managed Network to HA” (A.19) for System/Equipment operated by the Tenderer on a separate self-contained “vendor” network.

Note:

- i) An alternative security solution able to achieve the same or better security protection, shall be proposed where any System/Equipment security requirements are unable to be fulfilled due to product design limitations;*
- ii) where an alternative security solution is being proposed details shall be included which describe the alternative security solution*

Reference Document:

- (a) Guidelines for Windows Server Hardening
<http://it.home/doc/HAHO-ITD-GL-T03-010.aspx>*
- (b) Guidelines on Connecting External Network in HA (Information Technology Circular 1/2019)
<http://ha.home/circular2/IT-2019-01.pdf>*
- (c) Guidelines for Connecting External Network in HA
<http://it.home/doc/HAHO-ITD-GL-N02-001.aspx>*
- (d) Guidelines for Host Security Hardening
<http://it.home/doc/HAHO-ITD-GL-T02-001.aspx>*
- (e) OWASP Top 10 Vulnerabilities
https://www.owasp.org/index.php/Category:OWASP_Top_Ten_Project*
- (f) Malicious Code Protection Requirements for Medical Equipment Maintenance (IT Circular 2/2018)
<http://ha.home/circular2/IT-2018-02.pdf>*
- (g) Guidelines for Application Security
<http://it.home/doc/HAHO-ITD-GL-ISO-005.aspx>*
- (h) Adopting Security Specifications Standard
<http://it.home/doc/HAHO-ITD-SD-ISO-001.aspx>*
- (i) Guidelines for Mobile Device Security
<http://it.home/doc/HAHO-ITD-GL-ISO-003.aspx>*
- (j) Guidelines for IoT Security
<http://it.home/doc/HAHO-ITD-GL-ISO-008.aspx>*

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(k) *Guidelines for Cabling System and Network Setup in External Network*
<http://it.home/doc/HAHO-ITD-GL-N05-001.aspx>

(l) *Cloud Security Standard*
<http://it.home/doc/HAHO-ITD-SD-ISO-004.aspx>

(m) *Guidelines for Vulnerability Management Process*
<http://it.home/doc/HAHO-ITD-GL-ISO-001.aspx>

(n) *Guidelines for Security Patch Management*
<http://it.home/doc/HAHO-ITD-GL-ISO-013.aspx>

(o) *Guidelines for Security Requirements for HA PCs and Notebooks*
<http://it.home/doc/HAHO-ITD-GL-ISO-009.aspx>

A.1 Safety

A.1.1 Tenderer shall ensure the System/Equipment remains secure and malicious code free in accordance with the terms and conditions of the relevant contract.

A.1.2 Tenderer shall ensure the System/Equipment when being used for healthcare related patient outcomes does not cause danger, risk, harm, injury, or loss to the safety of an individual.

A.1.3 Tenderer shall ensure the System/Equipment is protected from being used in a manner relied upon by other System/Equipment that could result in danger, risk, harm, injury, or loss to the safety of an individual.

A.1.4 Tenderer shall ensure the System/Equipment does not create any non-compliance with regulatory or legal frameworks.

A.2 Confidentiality and Privacy

A.2.1 Tenderer shall ensure the System/Equipment does not capture, store or process sensitive data and/or any data related to any individual, including personal health information, in a manner that allows the data to be made available or disclosed in an unauthorized manner.

A.2.2 Tenderer shall ensure the System/Equipment provides appropriate authentication controls on privacy control when allowing any user, protocol or other form of connection.

A.2.3 Tenderer shall ensure that all its staff and appointed sub-contractors and agents involved in the performance of the Services sign a confidentiality undertaking, declaration form, declaration checklist prior to commencing any work in HA onsite and remote access.

A.2.4 Tenderer shall ensure each user identity (user-ID) for remote support must uniquely identify only one user. . Sharing user account with other individuals is strictly prohibited.

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Any unauthorized use or access may result in consequences, including termination of the user account.

- A.2.5** Tenderer shall ensure to review on the validity and on-going need for each of the User accounts of System/Equipment annually.

A.3 Integrity

- A.3.1** Tenderer shall ensure the System/Equipment preserves the accuracy and completeness (i.e. integrity) of data and the methods used to process and manage this data.
- A.3.2** Tenderer shall ensure the System/Equipment minimises any potential to cause business disruption if the System/Equipment does not operate as expected/planned.
- A.3.3** Tenderer shall ensure the System/Equipment can be accurately relied upon as a result of its function.
- A.3.4** Tenderer shall provide evidence to HA that any source code associated with the System/Equipment is free of common "OWASP Top 10 Vulnerabilities" [Reference Document (e)].

A.4 Availability

- A.4.1** Tenderer shall ensure the System/Equipment will be accessible and usable when needed.
- Tenderer shall ensure the System/Equipment achieves an overall level of availability with reference to the requirement of Uptime under warranty and maintenance support related clause in the Tender Specifications.
- A.4.2** Tenderer shall ensure any System/Equipment interruption with reference to the requirement of Corrective Maintenance under warranty and maintenance support related clause in the Tender Specifications.
- A.4.3** Tenderer shall ensure the System/Equipment provides adequate System/Equipment resilience facilities, including and not limited to redundant hardware components, enabling any faulty components to be switched over to redundant components if applicable.
- A.4.4** Tenderer shall ensure the System/Equipment is supported by uninterruptable power supply (UPS) for maintaining the committed level of System/Equipment availability if applicable.
- A.4.5** Tenderer shall ensure the System/Equipment minimises any disruption if not performing as expected/planned.

A.5 Compatibility

- A.5.1** Tenderer shall ensure the System/Equipment is able to effectively function together with other System/Equipment.

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A.5.2 Tenderer shall ensure the System/Equipment does not adversely interfere with the effective operation of any other System/Equipment.

A.5.3 Tenderer shall ensure the System/Equipment continues to function correctly following any System hardening and security specification requirements imposed by HA.

A.6 Longevity

A.6.1 Tenderer shall ensure the length of effective service of the System/Equipment (i.e. many years) and all of its components will be sufficient to meet the needs of HA.

A.6.2 Tenderer shall ensure the System/Equipment continues to operate beyond the period of time expected by HA.

A.6.3 Tenderer shall ensure updates for patching of vulnerabilities are maintained throughout the System/Equipment's lifetime expected by HA.

A.7 Technological Substitution

A.7.1 Tenderer shall ensure that within the warranty period/maintenance service contract period (if applicable), System/Equipment upgrades are performed, if there is any, without any charge within the contract period.

A.8 Data Sovereignty

A.8.1 Tenderer shall ensure the data processed or stored by the System/Equipment resides in Hong Kong.

A.8.2 Tenderer shall ensure the System/Equipment does not process or store data outside of Hong Kong.

A.8.3 Tenderer shall ensure the System/Equipment is governed by the laws of Hong Kong.

A.9 System Hardening

A.9.1 Tenderer shall ensure the System/Equipment, where using the Microsoft Windows Operating System, hardens all its components and functionality according to "[Guidelines for Windows Server Hardening](#)" [Reference document (a), which is available for viewing after signing a non-disclosure agreement with hospital].

A.9.2 Tenderer shall ensure the System/Equipment where using the non-Windows solutions are secured according to "[Guidelines for Host Security Hardening](#)" [Reference document (d), which is available for viewing after signing a non-disclosure agreement with hospital].

A.9.3 Tenderer shall ensure the System/Equipment avoids the presence of hard-coded authentication credentials.

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A.9.4 Tenderer shall ensure the PC connecting System/Equipment which meet following security requirements

- (a) Disable default Administrator account, and create another super user account for use instead which should not be granted to end-users
- (b) Enable password-protected screen saver
- (c) File sharing access must not be granted to “Everyone”, and should be permitted based on pre-defined access rights if and when needed
- (d) Install endpoint protection software (e.g. MDE) with the latest definition
- (e) Install the latest security patch
- (f) Enable personal firewall for blocking incoming network connections, and disabling vulnerable network services such as LLMNR and NBT-NS
- (g) Install with encryption software for enabling removable media encryption
- (h) Encrypt files and folders containing confidential data, which should be stored in centralized file server instead of local hard disk drive
- (i) Confidential files should only be copied into removable storage devices supporting mandatory encryption
- (j) Enable full disk encryption and power-up password protection for Notebooks

A.10 Data Security

A.10.1 Tenderer shall ensure sensitive data downloaded from the System/Equipment to end-user devices is protected by a reasonable level of encryption.

Note: Sensitive data refers to data including but not limited to identifiable patient information.

A.10.2 Tenderer shall ensure sensitive data stored within the System/Equipment is preferably encrypted.

A.10.3 Tenderer shall ensure sensitive data stored in backup storage is encrypted.

A.10.4 Tenderer shall ensure all important data (knowledge, System/Equipment configuration parameters) stored in the System/Equipment is safeguarded and preserved through an effective backup mechanism.

A.10.5 Tenderer must ensure that sensitive data is NOT exported for any purpose unless prior authorization has been obtained from HA. Failure to comply with this requirement may result in illegal activities.

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A.10.6 Unless prior authorization has been obtained from HA, it is prohibited to copy or move data from the System/Equipment to the HA network using portable media (i.e. USB Drive or CD).

A.10.7 Tenderer shall ensure sensitive or personal data is not logged as much as possible; if there is operational need to log such data, ensure it is encrypted or secured with restricted access control.

A.11 Application Security

A.11.1 Tenderer shall ensure the System/Equipment employs prevalent authentication and authorisation mechanisms at reasonable safety level.

A.11.2 Tenderer shall ensure the System/Equipment supports role-based access control. For example, general user shall be restricted from system administration and setting function, which shall only be performed by authorized users.

A.11.3 Tenderer shall ensure the System/Equipment applies network level encryption.

A.11.4 Tenderer shall ensure the System/Equipment provides comprehensive version control and configuration management mechanisms.

A.11.5 Tenderer shall ensure the System/Equipment conforms to “Guideline for Application Security” [Reference document (g), which is available for viewing after signing a non-disclosure agreement with hospital].

A.12 Malicious Code Protection

A.12.1 Tenderer shall ensure the System/Equipment is protected with the installation of a reputable Anti-Virus program in all servers, PC and Workstation components.

A.12.2 Tenderer shall ensure the System/Equipment is protected with regular updates of the latest virus definitions.

Note: It is highly preferred that Tenderer shall use the same product as HA to have virus definition update automatically.

A.12.3 Tenderer shall be responsible for the on-going support and for keeping the virus definitions and related software up-to-date in all Servers, PCs and workstations.

A.12.4 Tenderer shall ensure virus definitions are updated within 24 hours from the date of release.

A.12.5 Tenderer shall be responsible for the regular scanning of all Servers and PCs in the System/Equipment every three months to ensure that they are not infected by virus, worms and spyware including the on-going support of scheduling and verifying the results of the virus scan.

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A.13 Vulnerability / Patch Management

- A.13.1** Tenderer shall maintain ongoing System/Equipment support, including the installation of the latest security patches for the Operating Systems and related software in all System servers, PCs and workstations.
- A.13.2** Tenderer shall ensure critically affected security patches are updated as soon as practically possible; for non-critical ones, within twelve months from the date of release.

A.14 Restricted External Access

- A.14.1** Tenderer shall ensure that there are no non-HA (external) network connections to the System/Equipment unless supported by prior authorization and knowledge of HA.
- A.14.2** Tenderer shall ensure that the System/Equipment does not automatically establish any wireless connections without prior authorisation and knowledge of HA.
- A.14.3** Tenderer shall ensure that the System/Equipment does not establish any wired connections without prior authorisation and knowledge of HA.

A.15 HA Network Connectivity

- A.15.1** Tenderer shall be responsible, where operational reasons exist, for a System/Equipment residing within HA premises to connect to the HA network for information exchange with HA IT systems, for implementing such network connection in accordance with HA requirements and to ensure all security requirements are strictly adhered to (e.g. network segregation by firewall to ensure security attacks due to the System/Equipment would not directly impact HA).
- A.15.2** Tenderer shall ensure any network connection for a System/Equipment to the HA network is endorsed by HA and implemented and operated according to HA policies, procedures and guidelines.
- A.15.3** Tenderer shall ensure connectivity of the System/Equipment to the HA network adheres to the network diagram as depicted in **Part B**.

A.16 Maintenance Support

- A.16.1** Tenderer shall ensure that when maintenance is performed on the System/Equipment or when accessing the System/Equipment in any remote manner that the tools and software have been confirmed to be free of malicious code.
- A.16.2** Tenderer shall ensure that where maintenance on the System/Equipment needs to be performed, that HA is provided with a level of assurance that the vendor has undertaken proactive actions to ensure their connecting media or device (USB stick, portable media, laptops, iPads, etc.) which was obtained prior authorization from HA. It has been scanned

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for malicious code before and after every time that portable media is used to apply changes/updates to the System/Equipment.

- A.16.3** Tenderer shall bring with them a mobile computer (i.e. laptop) which was obtained prior authorization from HA. It contains the latest version of anti-virus software, complete with up-to-date virus signatures to confirm onsite within HA premises that their media to be connected (i.e. USB) is free of malicious code.
- A.16.4** Tenderer shall ensure portable media (USB stick, CD/DVD, etc.) which was obtained prior authorization from HA. It is scanned (in addition to clause A.16.3) on a HA PC to ensure that the media is not infected by virus, worms and spyware before being used to apply changes/updates to the System/Equipment.
- A.16.5** Tenderer shall ensure the vendor provides HA a completed attestation of compliance to confirm the media or device to be connected to the System/Equipment has been scanned for viruses and found to be free of malicious code.
- A.16.6** Tenderer shall perform technical support on-site unless appropriate remote support arrangement is endorsed.
- A.16.7** Tenderer shall erase the sensitive data in the storage devices of the System/Equipment before taking away the equipment for repairing or disposal.
- A.16.8** Tenderer shall sign and fully comply with a non-disclosure confidentiality agreement during on-site and remote support.
- A.16.9** Tenderer should use different portable media (i.e. USB sticks), which have been scanned for malicious code, for each item of medical equipment they need to apply an update to.
- A.16.10** Tenderer shall where not able to use different individual portable media (i.e. USB sticks) for applying changes/updates to multiple items of medical equipment (see clause A.16.10), repeat Clauses A.16.3 and A.16.4 before proceeding to attach/apply the portable media to the second and subsequent items of medical equipment.

A.17 Decommissioning Support

- A.17.1** Tenderer shall ensure that upon decommissioning of the System/Equipment, data exports and data definitions (sometimes known as data dictionary) are provided for all clinical data, and other data as appropriate, in a data structure and format as required by Hospital Authority.
- A.17.2** Tenderer shall provide assistance, as required, for the successful migration of any data to a new replacement System/Equipment(s) as adopted by Hospital Authority.

A.18 Security Incident Reporting and Compliance

- A.18.1** Tenderer shall ensure the System/Equipment provides health-checking and audit logging capabilities.

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A.18.2 Tenderer shall immediately report to the Hospital management and the HA ITS Call Centre any security incident relating to the System/Equipment.

A.18.3 Tenderer shall monitor its security compliance and comply with HA's regular review process with respect to the requirements stipulated in this document. **Part D** provides a sample of a "Vendor System Network Security Compliance Report" which should be used.

A.19 Connectivity of Vendor Managed Network to HA

A.19.1 For Medical Systems, HA will install External Network data ports next to the equipment for connection with the HA Network, or HA will install External Network Wireless LAN for the equipment that supports Wi-Fi for connection with the HA Network.

(Note: Tenderer shall confirm with HA if External Network data ports can be provided)

A.19.2 The External Network data ports are based on the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standards and support 10BASE-T at 10 Mbit/s (IEEE 802.3i), 100BASE-TX Fast Ethernet at 100 Mbit/s (IEEE 802.3u) and 1000BASE-T Ethernet at 1 Gbit/s (IEEE 802.3ab) connections.

A.19.3 The External Network is an Internet Protocol (IPv4) routable network. It supports the following communication protocols, including Internet Protocol (IP), Address Resolution Protocol (ARP), Internet Control Message Protocol (ICMP), Transmission Control Protocol (TCP) and User Datagram Protocol (UDP). The IP address will be assigned by HA.

A.19.4 In case the tenderer cannot use HA-provided External Network data ports, the tenderer shall set up the network and implement the cabling system according to the "Guidelines for Cabling System and Network Setup in External Network" [Reference Document (k) , which is available for viewing after signing a non-disclosure agreement with hospital].

A.19.5 Other than the provision by HA IT&HI as specified in the tender document, if the tenderer considered the HA IT&HI provision not sufficient/applicable to its proprietary Medical Systems, the tenderer may propose additional installation (in such case the additional installation works shall be carried out by the tenderer according to the "Guidelines for Cabling System and Network Setup in External Network" at its own cost [Reference Document (k)]). HA will not bear any additional charges, and the tenderer shall bear all such related costs which shall have been included in the tender price submitted by the tenderer.

A.19.6 Tenderer shall put their servers in Hospital Data Center as far as possible.

A.19.7 Tenderer shall provide the network diagram to illustrate the network architecture if the tenderer follows A19.4. **Part B.1** illustrates the architecture of External Network for Medical Systems.

A.19.8 Tenderer shall ensure the System/Equipment connecting to the External Network Wireless LAN comply with the following requirements and specifications:

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- (a) Tenderer shall comply with the HA Wi-Fi infrastructure and standard guidelines
- (b) The end devices provided by the tenderer shall support IEEE 802.11a/g/n/ac/ax. For the end devices which support IEEE 802.11ax, they shall be compatible with IEEE 802.11a/g/n/ac
- (c) The end devices provided by the tenderer shall support 2.4GHz channel 1-13 and/or 5GHz channel under U-NII-1, U-NII-2A, U-NII-2C and U-NII-3
- (d) The end devices provided by the tenderer shall support WPA2 with AES encryption and PSK authentication
- (e) The end devices provided by the tenderer shall support DHCP/static IP configuration
- (f) The end devices provided by the tenderer shall support roaming across access points without session drop
- (g) Tenderer shall provide MAC addresses of the end devices for registration and PSK authentication in order to access Wi-Fi network
- (h) Tenderer shall arrange a Wi-Fi connectivity test with users and Hospital/HA IT&HI before the production rollout
- (i) Only 1 common SSID will be provided by HA for all non-IT systems
- (j) Non-IT systems shall use IP addresses as assigned by HA
- (k) IP routable network will be provided for Wi-Fi and wired equipment

A.19.9 For Non-Medical Systems such as Operational Technology (OT), the tenderer shall comply with the following requirements and specifications:

- (a) Tenderer shall set up the network and implement the cabling system according to the “Guidelines for Cabling System and Network Setup in External Network” [Reference Document (k) , which is available for viewing after signing a non-disclosure agreement with hospital].
- (b) Refer to the “Guidelines for Cabling System and Network Setup in External Network” [Reference Document (k), tenderer shall install at least one Layer 2 switch or with resilient when HA requires at the tenderer’s cabinet and shall cater for different auto network failover and recovery scenarios according to the network diagrams illustrated in **Part C.1 and C.2**. If Layer 3 switch installation is required, the tenderer shall contact HA IT&HI in advance for consideration.
- (c) Tenderer shall provide the network diagram to illustrate the network architecture. **Part B.2** illustrates the architecture of External Network for Non-Medical Systems.
- (d) HA shall arrange HA Authorized Cabling Contractor to install the backbone cablings and HA Equipment Vendor to install the Gigabit Interface Converters (GBICS) at HA switch in Building Closets for the network connection to the tenderer’s switch.

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- (e) HA will not bear any installation and maintenance related charges (except for backbone cabling, i.e. B.4 in **Part B.2**), and the tenderer shall bear all such related costs which shall have been included in the tender price submitted by the tenderer

A.20 Clinical Data Exchange

A.20.1 Tenderer shall ensure seamless electronic data exchange with Hospital Authority corporate systems, complying with Health Level Seven (HL7) version 2.3.1 and above, including support for the HL7 FHIR (Fast Healthcare Interoperability Resources) standard. The data transfer protocols should include MLLP with native HL7, SOAP, or RESTful-based web services with HL7XML, as well as FHIR API interfaces. Additionally, the Clinical Information System (CIS) must have the capability to receive events from and publish events to hospital systems in a timely manner to ensure real-time or near real-time data availability and synchronization. Furthermore, the file server storing clinical report files to be downloaded by the Hospital Authority system must support the SFTP protocol.

A.20.2 Tenderer shall ensure the implementation of electronic data exchange with Hospital Authority corporate systems complies Hospital Authority HL7 Guidelines.

A.20.3 Tenderer shall ensure any electronic message exchange with the Hospital Authority includes reference keys supplied by Hospital Authority corporate systems such as:

- (a) HKID
- (b) Name
- (c) Date of birth
- (d) Sex
- (e) HA case number
- (f) HA system unique patient key

Note: Electronic message exchange is important to ensure high integrity associated with patient identification and automatic mapping to patient records within the Hospital Authority.

A.20.4 Tenderer shall ensure the System/Equipment maintains the existing exchange of patient data with Hospital Authority corporate systems and provides exchange for other data including but not limited to:

- (a) Admit, discharge & transfer, and patient demographics
- (b) Allergy, Adverse Drug Reaction and Alert information
- (c) Clinical order, observations and results
- (d) Multimedia and imagery data

A.20.5 Tenderer shall ensure the System/Equipment automatically updates patient's demographic data upon reception of ADT message.

A.20.6 Tenderer shall ensure ADT information exchanged is in compliance with the latest Hospital Authority HL7 Implementation Guidance.

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A.20.7 Tenderer shall ensure audit logging is provided for all ADT (Admit, Discharge and Transfer) interactions.

A.20.8 Tenderer shall ensure the System/Equipment adopts the preferred Hospital Authority date format.

- (a) For the display of date in frontend screen: DD-MMM-YYYY (e.g. 01-JAN-2014)
- (b) For the display of date-time in frontend screen: DD-MMM-YYYY hh:mm:ss in either 12hr/24hr mode (e.g. 01-Jan-2014 15:30:45)
- (c) For the transfer of date information to HA system: YYYYMMDD (e.g. 20140101)
- (d) For the transfer of date-time information to HA system: YYYYMMDDhhmmss in 24hr mode (e.g. 20140101153045).

Note: This enables user friendliness and system interoperability to be achieved.

A.20.9 Tenderer shall ensure the System/Equipment sends update or delete messages, if necessary, to perform corresponding actions with Hospital Authority corporate systems, with proper authorization mechanism from supervisor and audit trail.

A.20.10 Tenderer shall ensure the System/Equipment provides appropriate feedback to users to indicate the successfulness of message exchange with Hospital Authority corporate systems. (e.g. dashboard system, system alert to users).

A.21 Public Cloud Service

A.21.1 Tenderer shall ensure the System/Equipment, where using public cloud service (e.g. Software as a Service/SaaS), conforms to “Cloud Security Standard” [Reference document (I), which is available for viewing after signing a non-disclosure agreement with hospital].



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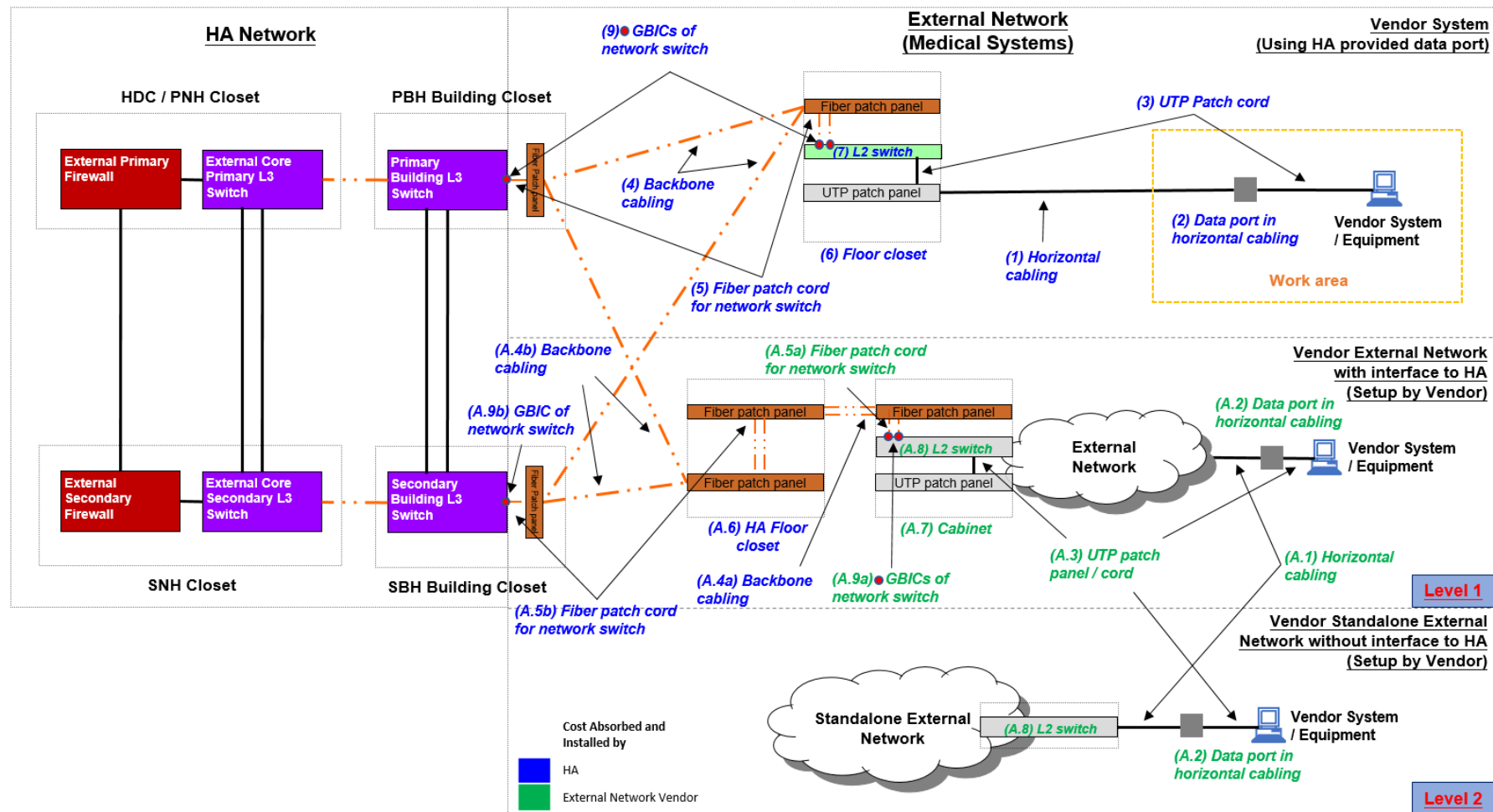
Hospital Authority Head Office

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B. External Network Architecture

1) Below diagram illustrates the External Network Architecture for Medical Systems





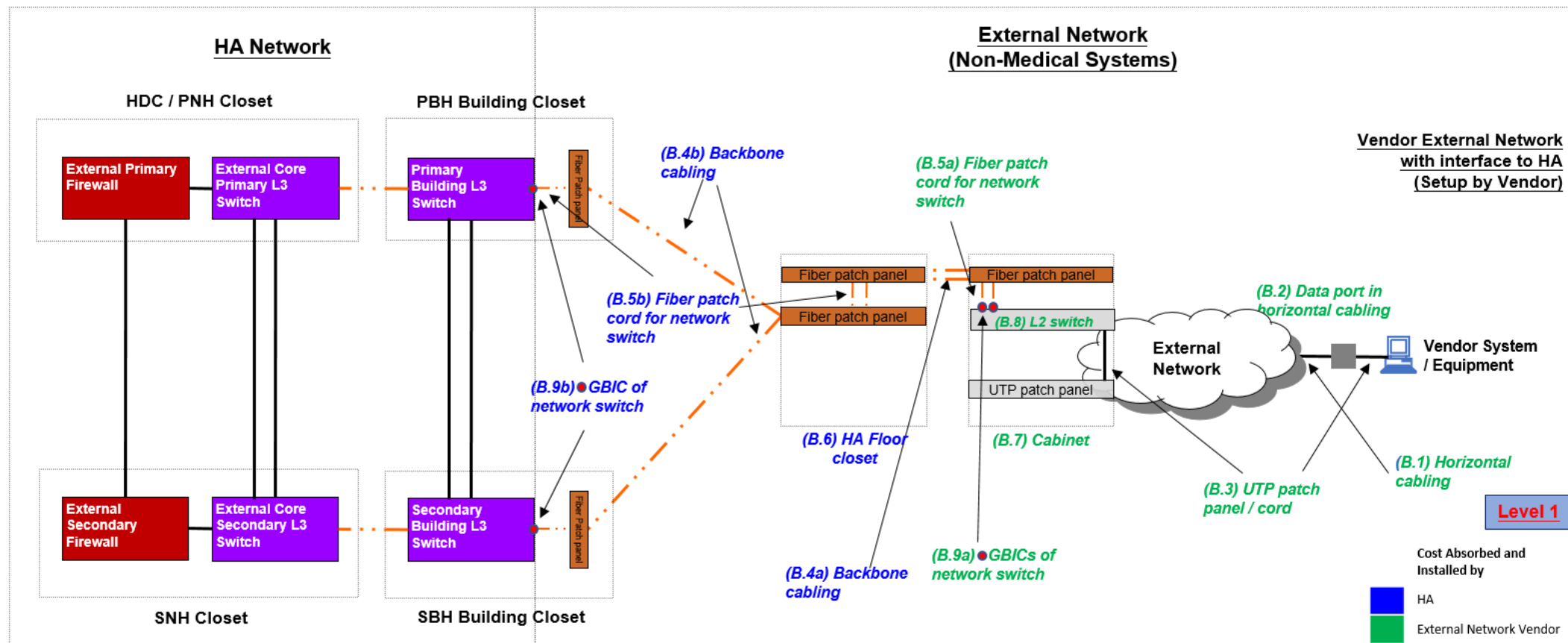
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2) Below diagram illustrates the External Network Architecture for Non-Medical Systems

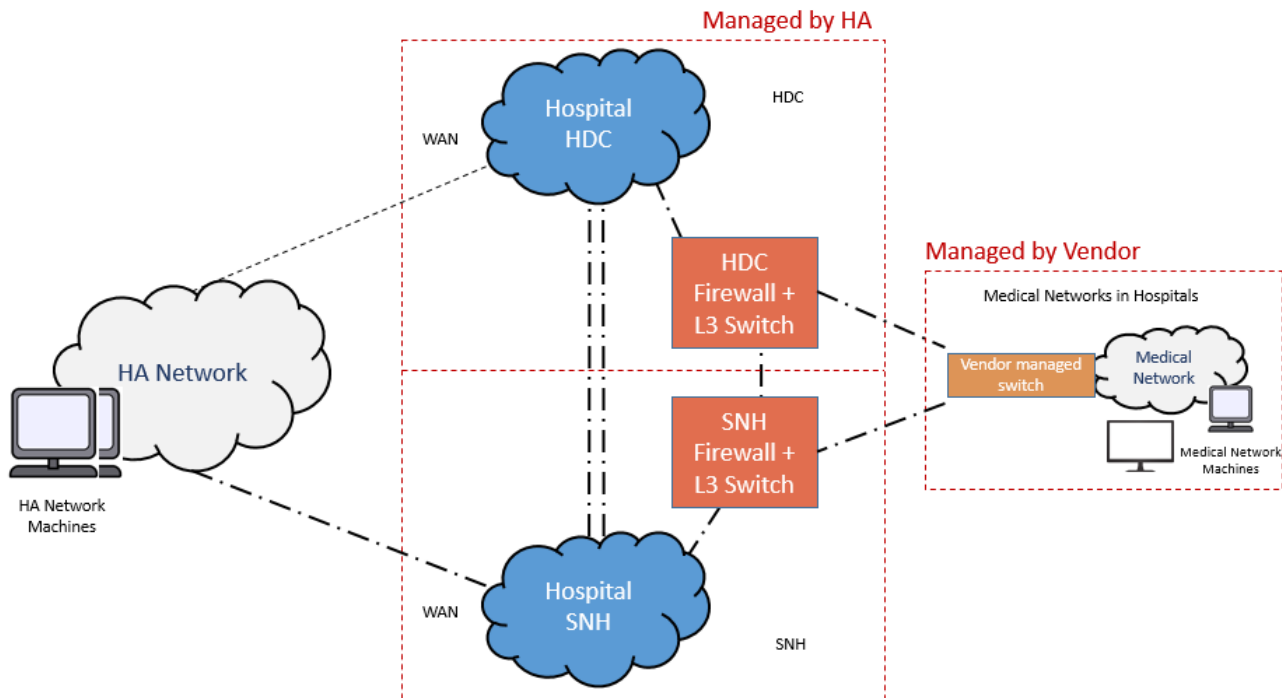


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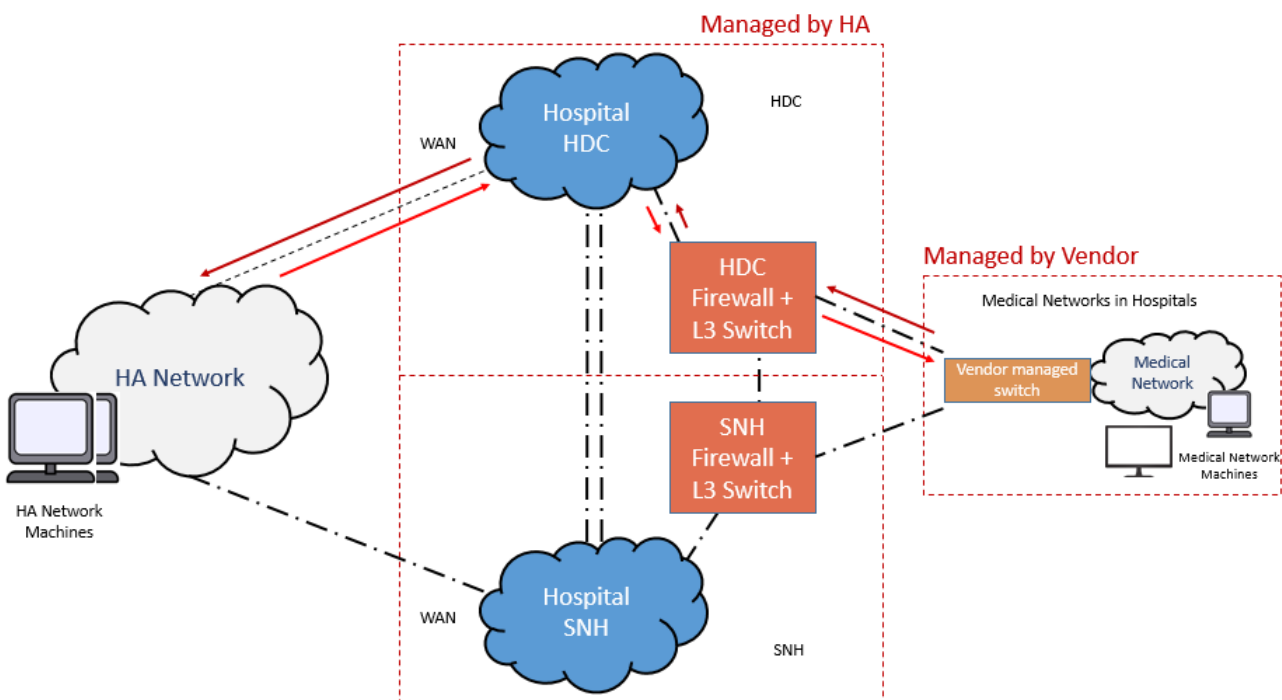
C. Failure and Recovery Scenarios in Hospitals for Vendor Managed Network Switches

C.1 Model A (Single Vendor Managed Layer 2 Switch)

C.1.1 Network Diagram

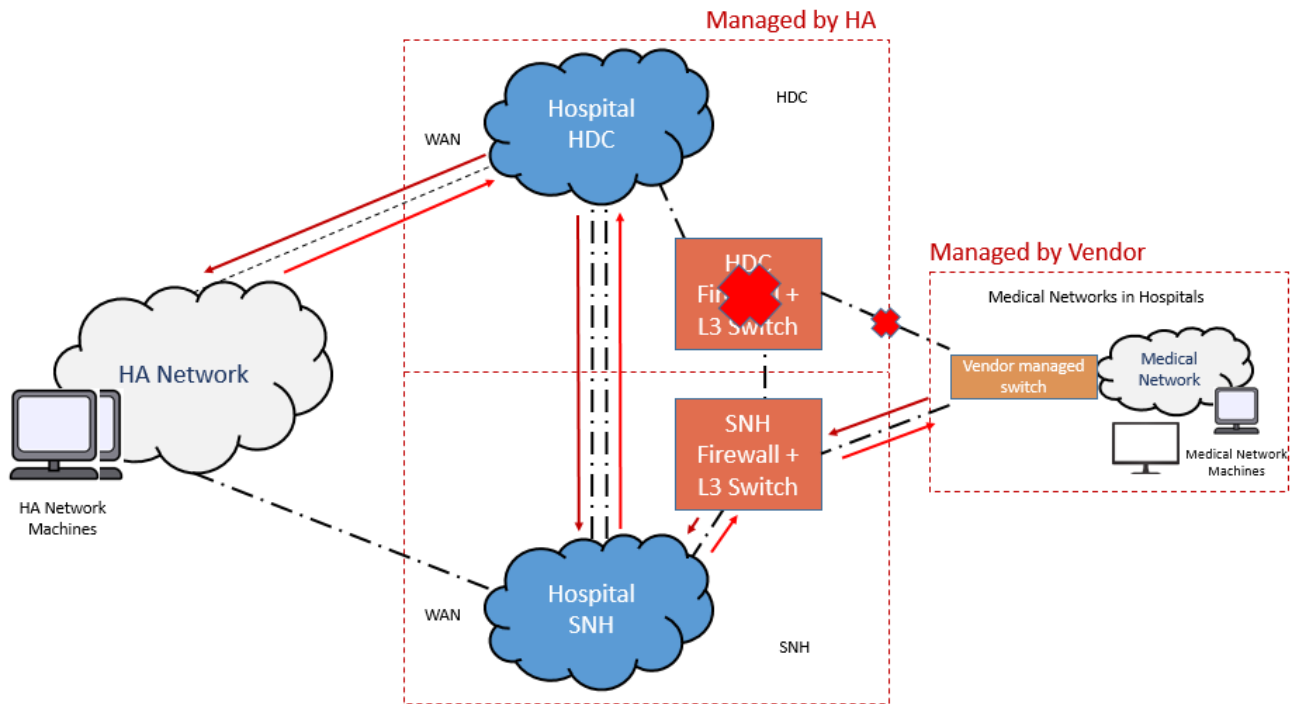


C.1.2 Normal Network Path



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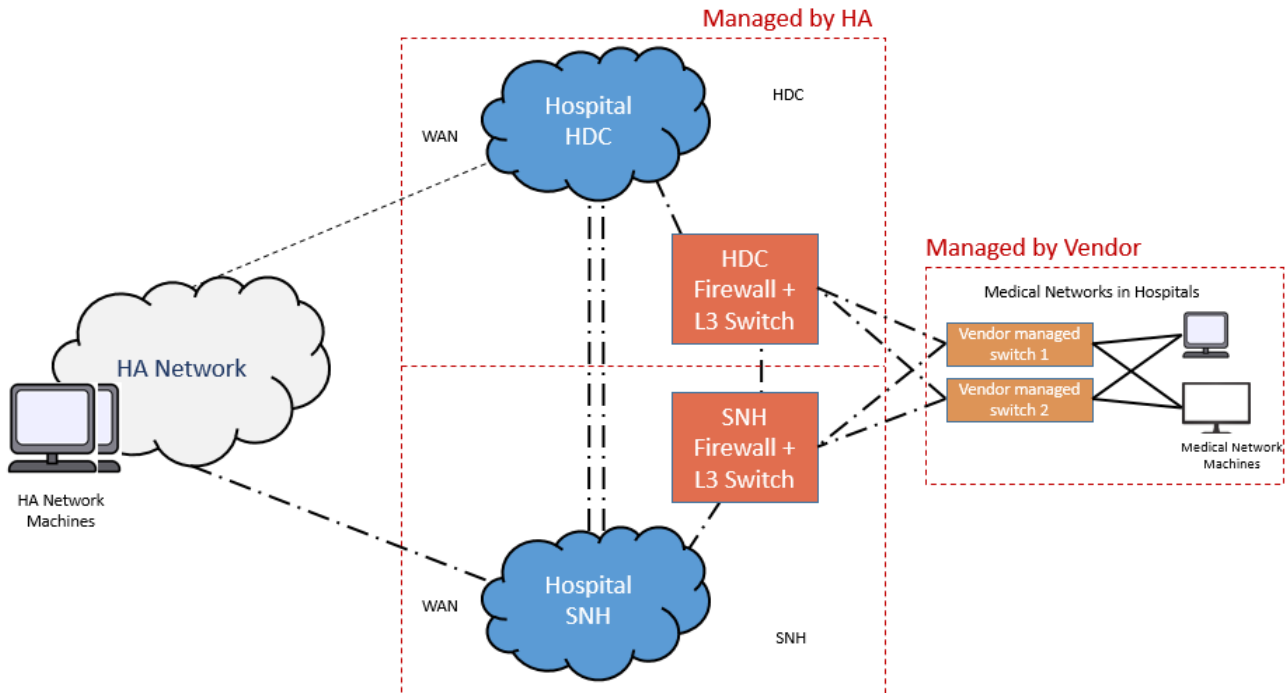
C.1.3 Failure Scenario



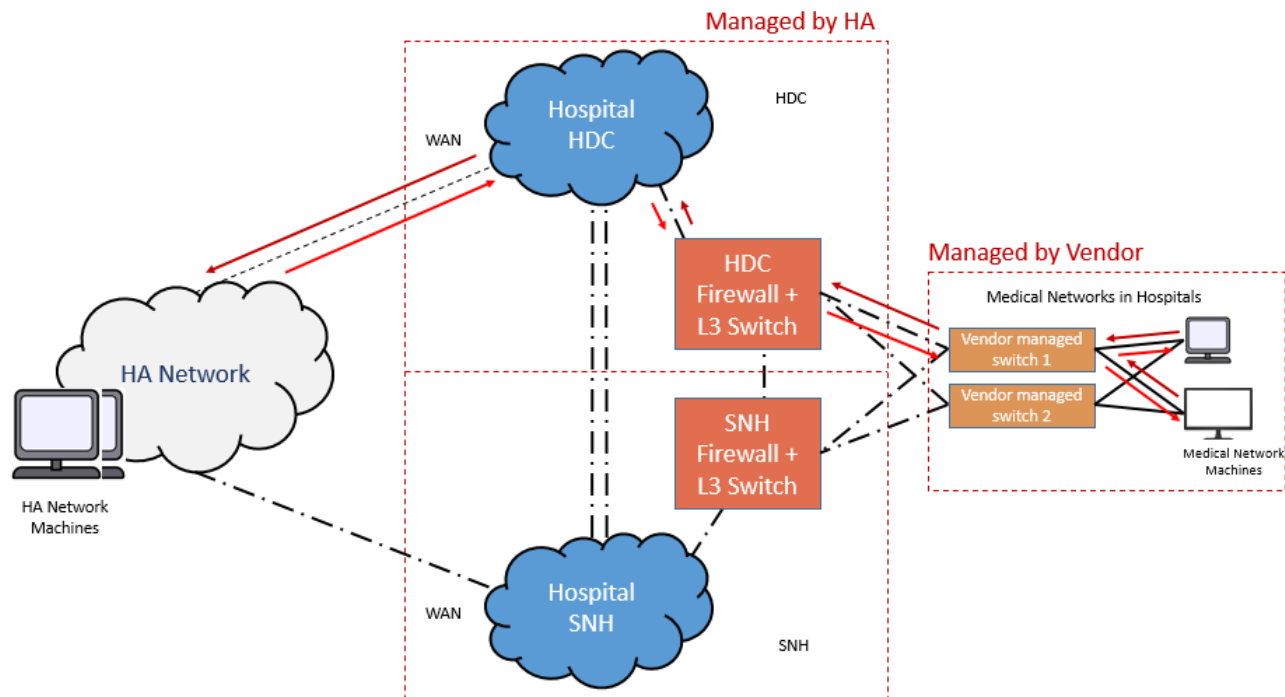
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C.2 Model B (Resilient Vendor Managed Layer 2 Switches)

C.2.1 Network Diagram

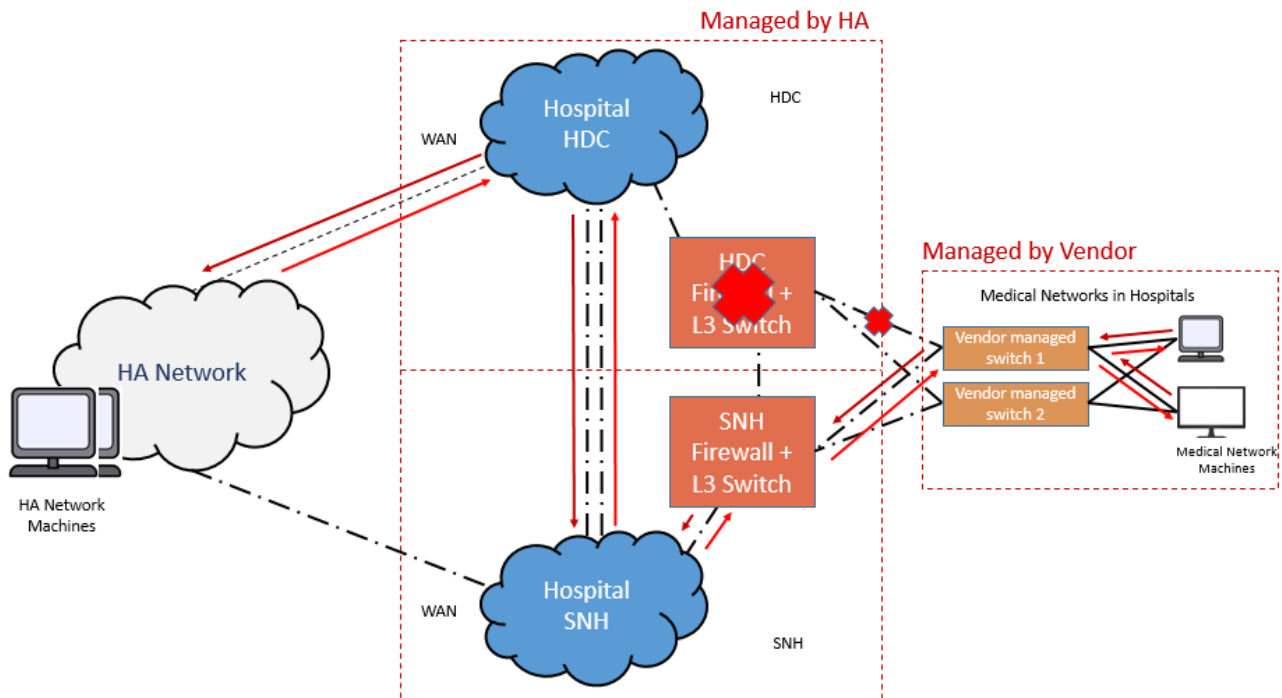


C.2.2 Normal Network Path

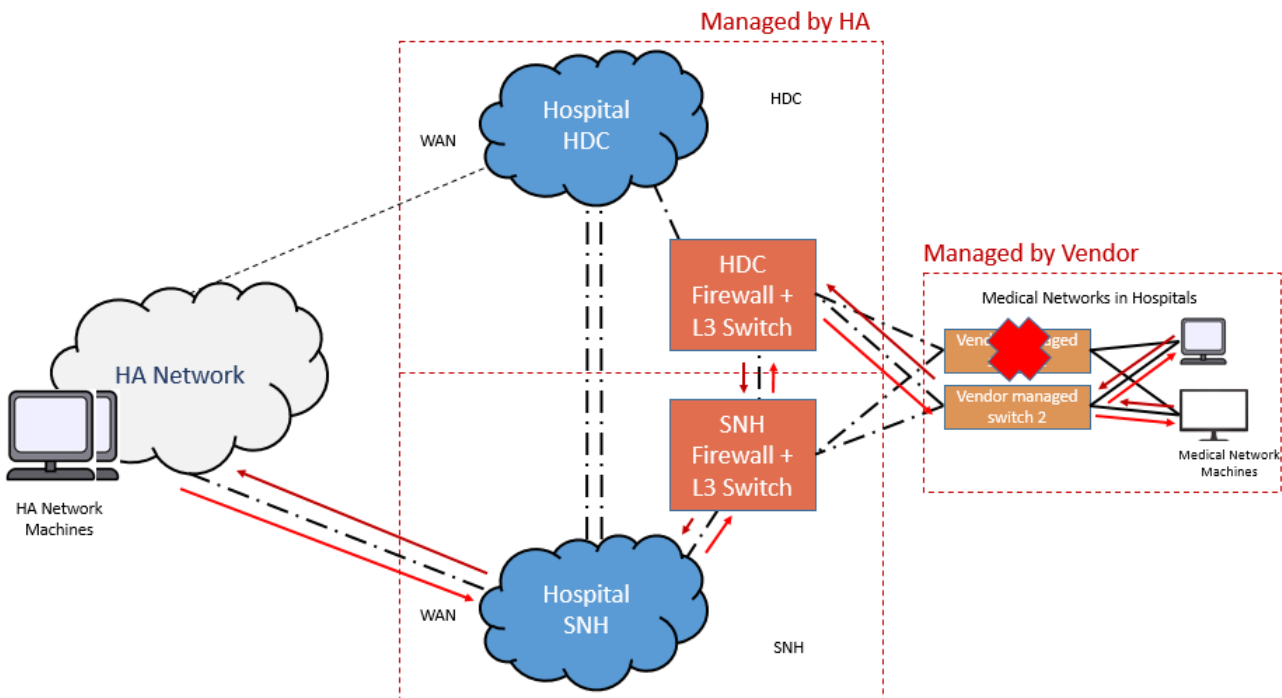


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C.2.3 Failure Scenario B1



C.2.4 Failure Scenario B2



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D. Vendor System Security Compliance Report (Sample)

Hospital: _____ Name of Systems: _____

Installation _____ IP Subnet: _____

Location: _____

Security Requirements for Vendor System/Equipment Installed in HA

Items for Verification with Vendor		Comply (Y/N/NA)	Remark (if "N" or "NA")
A. Data Security (Review in regular basis)			
A1	Confidential data downloaded from the System/Equipment to end-user devices should be encrypted		
A2	Confidential data transferring between the System/Equipment and other HA IT systems should "preferably" be encrypted		
A3	Confidential data stored within the System/Equipment should "preferably" be encrypted		
A4	Confidential data stored in backup storage should be encrypted		
A5	Confidential data must not be exported for any usage unless prior authorisation has been obtained from HA.		
A6	Is the confidential data in System/Equipment and backup being protected from unauthorized access / leakage, including physical security controls? Please specify the controls in "Remark"		
B. Application Security (Review in regular basis)			
B1	The application should support role-based access control		
B2	The application should employ prevalent authentication mechanism at reasonable safety level		
B3	The application should apply network level encryption		
B4	The application should provide health-checking information		
B5	The application should keep audit logs		
B6	Conformance to HA's Guidelines for Application Security		
C. Network Security (Review in regular basis)			
C1	The System/Equipment should not have any network connection to external parties and should not have any unauthorized network connections		

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Items for Verification with Vendor		Comply (Y/N/NA)	Remark (if "N" or "NA")
C2	The System/Equipment network should connect to the network port provided by HA		
C3	The System/Equipment network should use IP addresses as assigned by HA		
C4	Only the authorised network traffic is permitted between the System/Equipment network and HA network		
C5	Formal change request and endorsement process for defining and implementing the network firewall policies		
D. Server Security (Review in regular basis)			
D1	Vendor should implement the server security as described in the Guidelines for Windows Server Hardening and the Guidelines for Host Security Hardening		
D2	Vendor should install into the servers an anti-virus program running with the latest virus definitions		
D3	Vendor should install the latest security patches in the servers		
D4	Vendor should perform a regular scanning in the servers		
E. Client / Desktop Security (Review in regular basis)			
E1	Vendor should implement the security controls at the PCs of the System/Equipment as described in the Guidelines for Security Requirements for HA PCs and Notebooks		
F. Security Incident Reporting (On-going exercise)			
F1	Vendor should immediately report security incidents to Cluster/Hospital management		
G. Vendor Maintenance (Review in regular basis)			
G1	Vendor should erase the data in storage devices before taking away the equipment for repair		
G2	Vendor should perform technical support on-site unless appropriate remote support arrangement is endorsed		
G3	Vendor support staff should sign the non-disclosure confidentiality agreement		
G4	When equipment is required to be taken away for offsite repair, are there ways to remove / erase / protect the confidential data in the equipment from leakage? Please specify the controls in "Remark"		

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Items for Verification with Vendor		Comply (Y/N/NA)	Remark (if "N" or "NA")
H. Privacy Control (Review in regular basis)			
H1	Are there any user authentication controls present in the System/Equipment?		
H2	Is unique user ID being assigned to every user?		
H3	Does the System/Equipment allow setting of complex password such as upper / lower case, alpha, numeric and special characters?		
H4	Does the System/Equipment provide audit trails of user accesses? Please specify the controls in "Remark" .		
H5	Is there any means to synchronize System/Equipment time with a trustworthy time server such as HA time server for accurate system record?		
H6	Perform user account review annually and disable inactive user immediately.		

Assumptions

1. in-direct offline storage should not be used

Full Name of Vendor Staff: _____ Vendor Company: _____

Position of Vendor Staff _____ Company Chop: _____

Signature of Vendor Staff: _____ Date: _____

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Information Technology & Health Informatics Division

Guidelines for Connecting External Network in HA

1 Purpose

The purpose of this document is to provide guidelines for setting up a secure network connecting External Network (formerly MNI) with the HA Network.

2 References

- (a) Technical Service Request (Firewall)
<https://tsr-ias-prd.cldpaasp1.ha.org.hk/>
- (b) HA Remote Resource Change Request Form
<http://it.home/doc/HAHO-ITD-FM-N02-005.aspx>
- (c) HA Remote Resource Change Request Online Form for HA Staff Only
<https://eform.home/networksrv/secure/SSLVPN-App.asp>
- (d) Host Security Hardening Guide
<http://it.home/doc/HAHO-ITD-GL-T02-001.aspx>
- (e) Linux Security Hardening Policy Guide
<http://it.home/doc/HAHO-ITD-GL-T02-002.aspx>
- (f) Windows Server Hardening Guide
<http://it.home/doc/HAHO-ITD-GL-T03-010-v01.aspx> for Windows Server
- (g) Security Guidelines Remote Client PC (External Business Partner)
[http://itip-corp-is1/SAC/Document/Best_Practices/Hardening/RemotePC/Security_Guidelines_Remotel_Client_PC_\(Ext_Bus_Part\).doc](http://itip-corp-is1/SAC/Document/Best_Practices/Hardening/RemotePC/Security_Guidelines_Remotel_Client_PC_(Ext_Bus_Part).doc)
- (h) Terms and Conditions on Network Security
[HAHO-ITD-PD-ISP-007 IT Security Requirements for Quotation-Tender Procurement of non-IT Systems](#)
- (i) IT Security Requirements for Quotation/ Tender Procurement of non-IT Systems
<https://it.home/doc/HAHO-ITD-PD-ISP-007.aspx>
- (j) Guidelines for Cabling System and Network Setup in External Network
<https://it.home/doc/HAHO-ITD-GL-N05-001.aspx>

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3 Background

Today, many External Network Systems installed in hospitals (e.g. Picture Achieving and Communication System, Patient Monitoring System etc.) contain IT components such as computer networks, servers and personal computers as integral parts of the systems. Many of these External Network Systems need to retrieve or exchange data with corporate IT systems for operational purposes. A similar situation also occurs in many administrative, telecommunications and departmental systems installed in hospitals (e.g. Public Branch Exchange System, Queue Display and Management System etc.).

In order to support the information exchange, these External Network Systems need to connect to the HA network and access corporate IT servers and data. This poses a serious security threat to HA, as confidential data residing in the HA Network may be compromised, and computer viruses may be spread from the External Network to PCs within HA. Therefore, systems administrators of these External Network Systems, including cluster/hospital ITs, hospital end-users and/or vendors, are required to take special precautions to strengthen the security controls of the External Network.

4 Security Requirements

- (a) If there exists a need to exchange information with HA corporate IT Systems, the External Network Systems must connect to the HA Network according to the configuration below for security and performance reasons. Systems administrators should consult the network team of HA HOIT&HI for detailed network design before implementation.
- (b) Tenderers shall refer to paragraph A.19 of ["IT Security Requirements for Quotation/ Tender Procurement of non-IT Systems"](#) for the Connectivity of Vendor Managed Network to HA.
- (c) In case Tenderers do not use HA-provided External Network data ports, Tenderers shall set up the network and implement the cabling system according to ["Guidelines for Cabling System and Network Setup in External Network"](#) which is available for viewing after signing a non-disclosure agreement with the hospital.
- (d) Tenderers shall put their servers in Hospital Data Center as far as possible.
- (e) The network firewall installed at the Hospital Data Centre (HDC) will be maintained and supported by HA HOIT&HI. It is configured to allow **"only"** authorized devices in the external networks to communicate with the HA Network. Only HTTP, HTTPS and application traffic

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are allowed between HA Network and External Network.

- (f) The network traffic permitted between the External Network and the HA Network is strictly defined through a formal change management process. System administrators are required to submit a [Technical Service Request \(Firewall\)](#) for any change to the traffic rules.
- (g) The servers in the HA Network have already applied system hardening measures to strengthen protection against hacking and virus attacks. System administrators must also apply hardening to all Unix/Linux Hosts or Windows Servers in their systems. Please refer to [Host Security Hardening Guide](#), [Linux Security Guide](#) and [Windows Server Hardening Guide](#) for details.
- (h) All Windows PCs within the External Network must apply the latest system patches and the latest anti-virus definitions to protect the PCs from vulnerabilities and viruses that could be exploited by the attackers. Also, all PCs in the External Network must use domain names instead of IP addresses for accessing network services and resources.
- (i) Anti-virus definitions and system patches updates can be downloaded via HA's Anti-Virus Parent Server, and Microsoft's Windows Updates web site, respectively. HA's Internet account is usually not required when accessing Microsoft's Windows Update web site. System administrators are required to complete the [Technical Service Request \(Firewall\)](#) indicating the following:
- (i) Apply the latest Anti-Virus Signature
HA's Anti-Virus Parent Server to be used.
- (ii) Apply the latest system patches
IP subnet of the PCs to access HA's Internet Proxy Server (proxy.ha.org.hk).
- (j) Most of these External Network Systems are supported and maintained by the respective vendors. Some vendors may prefer to provide support to these systems remotely. The remote access mechanism preferred is via the HA Remote Access facility. Vendors are required to submit the [HA Remote Resource Change Request Form](#) via cluster/hospital ITs for registration. The PCs or notebooks that vendors use for remote access must follow the [Security Guidelines Remote Client PC \(External Business Partner\)](#).

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5 Planning and Implementation

For procurement of External Network Systems, hospital end-users or cluster/hospital ITs should notify NMS in advance for planning and design purposes. NMS will provide the relevant [Terms and Conditions on network security](#) for incorporation into the tender document. Upon conclusion of the tender, NMS will work with the vendors to prepare the detailed network design and cost estimation, and will perform the configuration of the HDC Firewall accordingly.

6 Further Information

Further information and details can be obtained by contacting:

- Mr Will NG, System Analyst (Network Management), at 3542 6027
- Mr Jackson LAM, Systems Manager (Network Management), at 3969 3123
- Mr C K HUNG, Senior Systems Manager (Network Management), at 2300 6602.

HOUSE RULES OF BUILD KING – HYUNDAI JV
FOR CONSTRUCTION OF SUPERSTRUCTURE AND ASSOCIATED WORKS FOR MAIN WORKS
PACKAGE 2 FOR EXPANSION OF UNITED CHRISTIAN HOSPITAL

1. Content

<u>Section Number</u>	<u>Description</u>
1)	Content
2)	Definition
3)	Quality Management
4)	Health and Safety Management
5)	Environmental Management
6)	Security and Site Management

2. General

2.1 Definition

In this House Rules, all words and expressions shall have the same meaning as assigned to then under this “House Rules” unless otherwise provided herein:

- (a) “Build King - Hyundai JV” means the Contractor, together with his servants, agents, employees and other representatives. Build King - Hyundai JV is acting as Main Contractor of the captioned project.
- (b) “Specialist Contractor” means any Contractor engaged by the Employer to carry out Specialist Works directly connected with or ancillary to but not forming part of the Works.
- (c) “Specialist Works” means any work separately identified in the Contract and connected with or ancillary to the Works which may from time to time be carried out on the Site by a Specialist Contractor.

- 2.2 In the event that the Specialist Contractor failed to comply the house rules set out herein, the Main Contractor will issue warning letter to it. After the Specialist Contractor received 3 warning letters, it shall not be allowed enter into the Site.

3. Quality Management

3.1 Quality Management System

- a) Build King - Hyundai JV will adopt Build King's (Lead participant) quality management system established in accordance with ISO 9001:2015 requirement to manage the design and construction of the Works. Here after called as Build King - Hyundai JV's Quality Management Plan for this project;
- b) Pursuant to Build King - Hyundai JV's quality management system, the project team shall prepare and issue a project-specific quality plan that will set out the plans, procedures, project specific quality requirements and standard forms to be adopted in the project to manage the design and construction of the Works (the “Build King – Hyundai JV Quality Plan”);
- c) All Sub-contractors' Works and Specialist Works shall comply with the relevant requirements stipulated in the Build King - Hyundai JV's Quality Plan;

3.2 Specialist Contractor's Programme and Progress

- (a) The Specialist Contractor shall execute his work in accordance with the programme to be provided by the Main Contractor, and maybe revised from time to time, and in accordance with the progress of the Main Works.
- (b) The Specialist Contractor shall closely co-ordinate and liaise with the Main Contractor, his authorised representatives and other Sub-contractors, if appropriate, to ensure proper sequencing, co-ordination and preparation of the Specialist Works with due regard to the Contract requirement, good construction practice and particular site situation and arrangement. Such responsibility shall include attendance to all meetings by Specialist Contractor as the Main Contractor may require.
- (c) All works shall be carried out in proper and workmanlike manner.

3.3 Care of the Specialist Works

- (a) Save for the indemnity under the Main Contractor's insurance policies, the Main Contractor shall be responsible for care of the Specialist Works and of any part thereof or of any Constructional Plant, temporary buildings and materials of things whatsoever on the Site or delivered to or placed on the Site in connection with or for the purpose of the Specialist Works.
- (b) Specialist Contractor shall fully indemnify the Main Contractor from and against any damage, loss or injury occurring to the Main Contract Works, Constructional Plant, temporary buildings and materials and things whatsoever to the extent that such damage, loss or injury is caused by an act of neglect omission or default on the part of the Specialist Contractor, his employees, Subcontractors or agents in the course of their employment.

4. Health and Safety Management**4.1 Health and Safety Management System**

Build King - Hyundai JV will adopt Build King's (Lead participant) health and safety management system which is established in accordance with ISO 45001:2018 standards and F&IU (Safety Management) Regulation. Here after called as Build King - Hyundai JV's Health and Safety Management System for this project.

Pursuant to Build King - Hyundai JV's health and safety management system, the project team shall prepare and issue a Project-specific Safety Plan that sets out the plans, procedures, project specific safety requirements and standard forms to be adopted in the project.

The Specialist Contractor upon entering to the Site will be given a copy of the Project-specific Safety Plan and Building King – Hyundai JV's Safety Practice Handbook which contains guidance to employees to work safely before they commence works.

The Specialist Contractor shall accept and agree to implement and comply with the requirements stipulated in these documents and those of the relevant legislations and codes of practice in force during the course of the construction.

4.2 Safety on Site

It is a requirement of Build King - Hyundai JV that each Sub-contractor and Specialist Contractor shall implement a safety management system that shall comply with the following minimum specific requirements:-

(a) Safety Organisation

- (i) Provide to Build King - Hyundai JV an up-to-date safety organisation chart of the Specialist Contractor. The chart shall include the names and telephone numbers of the safety officer (if applicable), safety supervisor(s), safety representative.
- (ii) Appoint a safety representative of the Specialist Contractor to take overall responsibility for health and safety matters.
- (iii) Provide at least 1 safety supervisor to be present full time on site whose duties shall be solely health and safety matters.
- (iv) Provide a safety officer where the number of workers employed on the works or in connection with the Specialist Contract exceeds 100.

(b) Safety Trainings

- (i) Arrange workers of the Specialist Contractor to attend trainings required by regulations, such as, Mandatory Basic Safety Training ("Green Card"), Safety Training Course for Certified Workers of Confined Spaces Operation and / or Gas Welding Safety Training.
- (ii) Arrange workers of the Specialist Contractor to attend trainings provided by Build King - Hyundai JV, including site-specific induction training before commencing works, daily briefings and task-specific trainings.
- (iii) Conduct specific safety trainings to Specialist Contractor's own workers.
- (iv) Conduct tool box talks on a weekly basis to the Specialist Contractor's own workers without Build King - Hyundai JV's supervision.
- (v) Provide comprehensive monthly training reports to Build King - Hyundai JV attaching the relevant training records.

(c) Safety Inspections

- (i) Ensure attendance of safety representative and safety officer/safety supervisor in site safety walks arranged by Build King - Hyundai JV.
- (ii) Rectify any safety infringement identified during the site safety walks within the agreed timeframe with Build King - Hyundai JV.
- (iii) Provide a rectification report relating to each the site safety walk to Build King - Hyundai JV attaching photos to indicate rectification completed.
- (iv) Arrange site team to carry out self-safety inspection on its own work activities and provide an inspection report to Build King - Hyundai JV as and when instructed by Build King - Hyundai JV.
- (v) Rectify any safety issues identified by Build King - Hyundai JV at safety spot checks and provide evidence of rectification to Build King - Hyundai JV within the timeframe required by Build King - Hyundai JV.

- (d) Site Safety Committee
 - (i) Appoint a representative of the Specialist Contractor to attend the site safety committee meeting arranged by Build King - Hyundai JV.
 - (ii) Follow up actions as assigned by the site safety committee within the timeframe required.
 - (iii) Report to Build King - Hyundai JV safety team for the completion of follow up actions.
- (e) Job Hazard Analysis
 - (i) Prepare and submit for approval a risk assessment of the activities associated with the Specialist Works with reference to the Labour Department's requirements and codes of practices.
 - (ii) Prepare and submit for approval trade-specific safety work procedures for activities classified as high-risk from risk assessment.
 - (iii) Implement the use of personal protective equipment required in risk assessments.
 - (iv) Conduct specific safety trainings to workers identified in risk assessments.
- (f) Accident, Incident and Dangerous Occurrence
 - (i) Report to Build King - Hyundai JV's safety team of any accident, incident and dangerous occurrence regardless of its severity via project emergency contact numbers immediately and in any event within 24 hours after occurrence.
 - (ii) Provide all information of the accident, incident and Dangerous Occurrence to Build King - Hyundai JV, such information shall include injured party's safety training records, personal protective equipment issue records, witness statements, photographs and other evidence to indicate how and why the incident occurred.
 - (iii) Assist Build King - Hyundai JV in the event of any claims arising from any incident or accident. The Specialist Contractor shall make available any workers, foremen, managers or the like that Build King - Hyundai JV may so request to assist in investigation of the incident. Should the incident / accident result in any legal proceeding, then all costs and liability of incurred by Build King - Hyundai JV shall be debt due from the Specialist Contractor.
- (g) Construction Plant and Equipment
 - (i) Ensure all tools, plant, equipment, gear and temporary facilities and all other items used in carrying out the works are in a safe, sound and good condition and are capable of performing the functions for which they are intended, and where required by legislations or by codes of practice, are licensed and/or have been issued with the necessary permits for use.
 - (ii) Ensure all lifting gears including slings, shackles and similar equipment provided by the Specialist Contractor are colour coded for identifying lifting gears which require re-inspection or disposal.
 - (iii) Receptacles with full containment on four sides to prevent the falling out of materials shall be used for the lifting and transportation of reinforcement links, stirrups, short pieces of splice or reinforcement U-bars, couplers and the like.

The safe working load shall be marked on the receptacle after being tested by competent examiner. The colour coding system for lifting gear shall also apply to these receptacles.

- (iv) The Specialist Contractor's construction vehicles and plant used on Site shall be equipped with audible signals on reversing-movements if audible signals are causing nuisance to nearby residents particularly at night.
- (v) The Specialist Contractor's portable and hand-held tools and temporary site lighting shall be operated at a voltage of 110V.

All the Specialist Contractor's hand-held electrical tools and portable equipment shall be examined by the Main Contractor electrician before they are used on Site. Each inspected tool shall be distinguished by an ID plate and registered by Site Mechanics of Build King - Hyundai JV.

(h) Safety Records

- (i) Maintain all records in relation to health and safety including records of competent persons employed by the Specialist Contractor, examination and test certificates required by legislation and safety training.
- (ii) Provide safety records to Build King - Hyundai JV upon request.

(i) Others

- (i) The Specialist Contractor shall observe and comply with the requirements in all enactment, ordinances and regulations in relation to the employment of qualified personnel, including but not limited to competent persons and certified workers in the execution of the Specialist Works.
- (ii) The Specialist Contractor's attention is specifically drawn to Annex 1 which gives as guidance to the Specialist Contractor a list of enactment, ordinances and regulations in relation to the employment of qualified personnel. This list is not exhaustive and the Main Contractor shall not be held responsible for any representations, errors, omissions or mistakes therein. The Specialist Contractor shall not be relieved of his duties, obligations and liabilities whatsoever under any of the enactment, ordinances or regulations, whether or not included in Annex 1.

5. Environmental Management

5.1 Environmental Management System

Build King - Hyundai JV shall prepare and issue an Environmental Management Plan and / or Waste Management Plan that will set out the environmental management system to be adopted in the Project. The Specialist Contractor shall comply fully with the requirements of the said Plans which are relevant to its scope of works.

It is deemed that the Specialist Contractor upon signing the acknowledgment of this House Rules has made himself fully aware of the requirements of Build King - Hyundai JV 's environmental management system including the Environmental Management Plan and / or Waste Management Plan and accepts to comply fully with the requirements of those Plans without any additional cost or claim.

The Specialist Contractor shall at all times be able to provide sufficient and satisfactory evidence to demonstrate full compliance with any particular environmental management requirement and shall provide such records upon request.

5.2 Environmental Representative

Within fourteen days of signing the acknowledgement of the House Rules, the Specialist Contractor shall nominate a suitably qualified and experienced representative to be the Specialist Contractor's authorised contact person with adequate authority and responsibility for ensuring implementation of all project related environmental requirements (the "Environmental Representative").

5.3 Environmental Training

Before commencing work at the site, the Specialist Contractor shall arrange their workers to attend project-specific environmental induction training to be arranged by Build King - Hyundai JV.

5.4 Environmental Inspection

The Environmental Representative of the Specialist Contractor shall participate in weekly environmental walks and follow up on any actions arising from the inspections. He/she shall also attend all inspections when invited by Build King - Hyundai JV including joint inspections with Government officers and Employer's representatives.

5.5 Environmental Rules and Regulations

(a) Air Pollution Control

(i) General Requirements

- The Specialist Contractor shall not use compressed air jet for cleaning or clearing dust.
- Every stock of more than 20 bags of cement shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.

(ii) Control Requirements of Individual Activities

- Any stockpile of dusty materials shall be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides or sprayed with water so as to maintain the entire surface wet.

- All dusty materials (except cement) shall be sprayed with water immediately prior to any loading, unloading or transfer so as to maintain the dusty materials wet.
- Immediately before leaving a construction site, every vehicle shall be washed to remove any dusty materials from its body and wheels. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting.
- Unless the process is accompanied by the operation of an effective dust extraction and filtering device, water shall be continuously sprayed on the surface where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation that causes dust emission is carried out.
- Any debris shall be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the 3 sides. Before debris is dumped into a debris chute, it shall be sprayed with water so that it remains wet when it is dumped.
- The working area of any excavation or earth moving operation shall be sprayed with water immediately before, during and immediately after the operation so as to maintain the entire surface wet.
- For concrete production using bagged cement. The de-bagging, batching and mixing process shall be carried out in an area sheltered on the top and the 3 sides.

(iii) Control Requirements of Notifiable Works

- Demolition of a Building
 - The Specialist Contractor shall spray the work area with water.
 - The Specialist Contractor shall enclose the wall of the building by impervious dust screens or sheeting to a height of at least 1 m higher than the highest level of the structure to be demolished.
 - The Specialist Contractor shall clear any dusty materials from the surface of roads or streets after a stockpile is removed.
- Construction of Superstructure
 - Where scaffolding is erected around the perimeter of a building under construction, the Specialist Contractor shall provide dust sheeting or netting to enclose the scaffolding up to the highest level.
 - The Specialist Contractor shall totally enclose the material hoist by impervious sheeting.

(iv) Ultra Low Sulphur Diesel (ULSD)

The Specialist Contractor shall use ULSD for all diesel-operated construction plants.

(v) Emission Control for Non-road Mobile Machinery (NRMM)

The Specialist Contractor warrants that it has duly obtained all necessary approvals and/or exemptions required in the Air Pollution Control (Non-road Mobile Machinery)(Emission) Regulation (the 'Regulation') under the Air Pollution Control Ordinance, Cap 311 in respect of any machinery brought to the Site which constitutes a regulated machine under the Regulation and undertakes to comply with the Regulation at all times throughout the Specialist Contract.

(b) Noise Control

(i) The Specialist Contractor shall attach Noise Emission Label onto all handheld percussive breakers and air compressors before use.

(ii) Construction Noise Permit ("CNP")

- General Works

- The Specialist Contractor shall not conduct any construction works between 7pm and 7am on weekdays or any time on holidays (including Sunday) without a valid CNP in place.

(iii) Quality Powered Mechanical Equipment ("QPME")

The Specialist Contractor shall use QPME registered in Environmental Protection Department.

(c) Waste Disposal

(i) Chemical Waste

The Specialist Contractor shall dispose of chemical waste at the Main Contractor's designated collection points. No mixing of chemical waste with other construction waste is allowed.

(ii) Construction Waste

- Open burning of construction waste is prohibited.
- Any construction waste shall be sorted into inert and non-inert portion and disposed of at the Main Contractor's designated collection points on site.
- Overloading is not allowed.

(d) Energy management

(i) The Specialist Contractor shall use energy efficient equipment as far as possible and avoid using model with excessive capacity.

(ii) The Specialist Contractor shall switch off the equipment when idle.

(iii) The Specialist Contractor shall properly maintain the equipment to improve their energy efficiency.

6. Security and Site Management**6.1 Security Management****a) No Illegal Employment of Employee and Worker**

It shall be the absolute and sole responsibility of the Specialist Contractor to ensure that no illegal employees and workers shall work and be present on Site. The Specialist Contractor undertakes to indemnify and keep indemnified Build King - Hyundai JV of any loss and damage suffered as a result of the former's failure to comply with this sub-paragraph (b).

Specialist Contractor as required to comply all requirements shown in Annex 2 "Requirements to avoid employment of illegal workers".

b) Construction Workers' Registration Card

The Specialist Contractor shall ensure all construction workers engaged by it are registered under carry valid Construction Worker Registration Card under the Construction Workers Registration Ordinance, Cap 583 of the Laws of the Hong Kong Special Administrative Region. All workers shall carry with them at all times whilst working on site the Construction Worker Registration Card.

c) Staff's Site Working Pass

All site staff of the Specialist Contractor shall apply for Site Working Passes from Build King - Hyundai JV.

d) Site Entrance Registration

Site representatives of the Specialist Contractor shall accompany all new staff and workers to Build King - Hyundai JV's Site Administration Office to complete the site entrance Handkey System registration process before they are allowed entry to the site.

e) Identification Documents

Build King - Hyundai JV shall be entitled to and will inspect identification documents of all the staff and workers of the Specialist Contractor, such as, Construction Worker Registration Card or Site Working Pass and permit to work in confined spaces or under heat etc. Staff and workers who cannot produce their respective identification documents shall be required to leave the Site forthwith. Entrance to the Site shall not be granted until they can produce identification documents.

f) Approval for Removal of Materials from Site

The Specialist Contractor shall apply advanced written approval from Build King - Hyundai JV and present such written approval to the security gate when removing any equipment, materials, tool, and machinery from the Site. Build King - Hyundai JV's security officers shall have the right to check the Specialist Contractor's vehicles when leaving the Site.

g) No Gambling at Site

No gambling is allowed at the Site.

h) No Accommodation at Site

No person is permitted to live at the Site.

6.2 Site Managementa) Removal of rubbish

- i) At upper floors of any tower, all surplus materials / rubbish generated from the Specialist Works shall be removed to the refuse chute of that floor by the Specialist Contractor. The Specialist Contractor shall ensure or cut the surplus materials / rubbish to the size which can be handled by the refuse chute.
- ii) At ground floor and basement floors, the Specialist Contractor shall clear away all surplus materials/rubbish resulting from the Specialist works and remove to the designated dump within the Site daily as directed by Build King - Hyundai JV.

b) Site Office / Storage Set Up

The Specialist Contractor shall, at its own cost (unless agreed otherwise), use metal or non-inflammable material to erect their site office and/or storage yards in the area(s) designated by Build King - Hyundai JV. The Specialist Contractor shall relocate or remove such facilities from time to time as directed by Build King - Hyundai JV.

c) Protection of the Specialist Works

The Specialist Contractor is responsible for protecting their Specialist works completed and / or partially completed. The Specialist Contractor is also responsible for maintenance of their constructional plant, site office, furniture and materials delivered to and kept on Site by the Specialist Contractor.

d) Nuisance

The Specialist Contractor shall comply with all regulations and Build King - Hyundai JV 's directions for the prevention of nuisance arising from vibration, smoke, dust, accumulation of rubbish, mosquito breeding and etc.

e) No Smoking at Site

Smoking is not allowed at all areas of the Site and UCH (United Christian Hospital).

f) On-site Representatives

The Specialist Contractor shall provide sufficient number of competent on-site representatives at all time with full authority to receive and properly carry out as directed by Build King - Hyundai JV.

g) No Unauthorized Parking

Without prior approval from Build King - Hyundai JV, the Specialist Contractor is not allowed to park any vehicle on Site.

If the Specialist Contractor's vehicle, despite having obtain prior approval to park, obstruct access of the Site, Build King - Hyundai JV shall be entitled to haul the

vehicle. The Specialist Contractor shall be liable for all costs incurred and consequences.

h) Use of the Site

The Specialist Contractor shall not use or permit others to use the Site for any purpose other than for execution of the Specialist Works.

i) Advertising

Without consent from Build King - Hyundai JV, Specialist Contractor shall not be allowed to display any advertisements on Site.

j) Insurance Terms

Build King - Hyundai JV is responsible for Contractors' All Risks Insurance (the 'CAR' Policy) and Third Party Liability Insurance whilst the Specialist Contractor is responsible for taking out Employees' Compensation Insurance at its own costs, effect insurance in the joint name of the Employer, Build King - Hyundai JV (as Principle Contractor), Specialist Contractor and his sub-contractors of all tiers and suppliers against all liabilities of the insured under the Specialist Contract. The Specialist Contractor shall observe and comply with the terms and conditions set out in the policies and be co-operative in the event of claims arising out of any of the said insurance policies. The Specialist Contractor shall indemnify the Employer and Build King - Hyundai JV and keep them indemnified for any non-payment by the Insurers due to the Specialist Contractor's default and/or non-observance and/or failure to cooperate and/or breach of the terms and conditions of the Policies.

Responsibility of the Specialist Contractor under the Contractors' All Risks Insurance

- i) The Specialist Contractor shall, upon request and before entering the Site, be given the opportunity to review the said insurance policies.
- ii) The Specialist Contractor's materials used and/or forming part of the permanent works on Site for the Specialist Works shall be covered by the CAR Policy provided that they are stored in accordance with Build King - Hyundai JV 's directions. If the Specialist Contractor does not follow the storage method recommended by Build King - Hyundai JV which results in a claim being declined, the Specialist Contractor shall be liable for all loss and damage suffered by Build King - Hyundai JV.
- iii) For any claims from the Specialist Contractor, Build King - Hyundai JV shall allocate the amount of compensation according to the adjusted loss approved and paid by the Insurance Company. The applicable and prorated policy excess(es) or deductible(s) shall be wholly borne by the Specialist Contractor in respect of the Specialist Works and/or third party liability.
- iv) In case of an accident and/or a claim or possible claim, the Specialist Contractor is obliged to report to Build King - Hyundai JV the incident in detail with an estimate of loss and damage immediately upon the occurrence of the accident and/or any event led to a claim or possible claim and in any event within 3 days after the occurrence of an incident. The Specialist Contractor shall comply with the following:
 - Take all reasonable and practicable steps to minimise the extent of loss
 - Retain all damaged properties
 - Take photos of the scene of an accident and the damaged properties

- Keep relevant records of the damaged properties, the name and contact details of any eye-witness
- Do not admit liability, pay or make any offer to pay compensation in a case relating to a third party

Specialist Contractor Responsibility for its own plant, machinery and tools

- v) The Specialist Contractor is responsible for its own plant, machinery and tools and shall take out proper and adequate insurance coverage. All premium and/or any applicable excesses shall be at the Specialist Contractor's own costs and Build King - Hyundai JV shall not be responsible for any loss or damage of those items.

Responsibility of the Specialist Contractor in the event of personal injury cases

- vi) In case any Specialist Contractor's staff and/or workers sustains injury by accident or occupational disease during and in the course of employment and is granted sick leave by a registered medical practitioner as defined under the Employees' Compensation Ordinance, Cap 282, the Specialist Contractor is responsible for paying any interim payment (please see the said Ordinance for details of interim payment payable). Build King - Hyundai JV may pay the injured worker on behalf of the Specialist Contractor first and debit note of the same amount shall be issued to the relevant Specialist Contractor. However, if the accident is due to the fault or negligence of the Specialist Contractor or his worker, Build King - Hyundai JV shall reserve its right to recover all the expenses or compensation incurred in relation to the accident. Any questions in relation to the above can be raised to the Build King - Hyundai JV 's representative.
- vii) The Specialist Contractor shall bear the additional premium for extending any insurance coverage if the extension required is due to its own default.
- viii) The Specialist Contractor shall be responsible for all personal injury claims arising out of and/or otherwise in connection with the Specialist Works not covered by the Employee Compensation Insurance.
- ix) The Specialist Contractor represents and warrants that all its staff and workers are fit to work. For the safety of the staff and workers and all other parties working on site, all employees of the Specialist Contractor shall declare before performing their job whether they have any pre-existing medical condition or permanent incapacity. The Specialist Contractor shall be solely responsible for reminding its workers of the requirements in this sub paragraph (ix) and is obliged to report to Build King - Hyundai JV immediately of any pre-existing medical condition or permanent incapacity that comes to its knowledge. Should the Specialist Contractor fail to do so, Build King - Hyundai JV shall not entertain any claim.
- x) The Specialist Contractor should follow Build King - Hyundai JV's safety procedure shown in Section 4 "Health and Safety" of these House Rules when reporting a case of worker's injury.
- xi) To file a reportable personal injury case, the Specialist Contractor should provide the following documents within 1 month from the date of accident:
- Documentary evidence showing the contractual relationship amongst Sub-contractors of all tiers
 - Copies of salary records and MPF records of the month and the 12 months preceding the date of the accident
 - Copy of employment contract of the injured worker
 - Other documents that may be required

k) Material & Equipment Delivery and Storage

- i) Specialist Contractor shall submit corresponding method statement, material & equipment delivery route / hoisting details to the Main Contractor for approval prior to the commencement of the material delivery.
- ii) Specialist Contractor shall notify and obtain approval from the Main Contractor on week prior to delivery / relocate of materials.
- iii) Specialist Contractor shall submit a form “機械/貨物出入閘申請書” as in Annex 3 to the site administrator for every incoming vehicle.
- iv) Specialist Contractor shall submit formal application to the Main Contractor and obtain approval before material storage on-site. His submission shall include the following:-
 - (i) Area required
 - (ii) Type of material
 - (iii) Method of storage
 - (iv) Protection & security arrangement
 - (v) Material weight

Annex 1 to Site Safety and Accident Prevention Scheme

Enactment	Areas of Concern	Date of Enforcement	Competent Person (CP)
F&IU Ordinance (Cap. 59)	Workers with relevant certificates	Sep-00	Green Card
F&IU (Lifting Appliances and Lifting Gear) Regulations (Cap. 59J)	Use of lifting appliances and gear	May-97	Qualified Operator
F&IU (Abrasive Wheels) Regulations (Cap. 59L)	Use of abrasive wheels	Jun-97	Competent Person
F&IU (Noise at Work) Regulation (Cap. 59T)	Noise at work	Apr-99	Competent Person
F&IU (Safety Officers and Safety Supervisors) Regulations (Cap. 59Z)	Employment of safety officers and supervisors	May-97	Safety Officer
F&IU (Suspended Working Platforms) Regulation (Cap. 59AC)	Use of suspended working platforms	May-97	Competent Person
F&IU (Asbestos) Regulation (Cap. 59AD)	Asbestos	Sep-97	Competent Person
F&IU (Confined Spaces) Regulation (Cap. 59AE)	Working in confined spaces	Jun-00	Competent Person Certified Worker
F&IU (Safety Management) Regulation (Cap. 59AF)		Jun-00	Registered Safety Auditor
F&IU (Loadshifting Machinery) Regulation (Cap. 59AG)		Apr-00	Operator
Construction Sites (Safety) Regulations (Cap. 59I)	First Aid	Jun-97	First Aider
Construction Sites (Safety) Regulations (Cap. 59I)	Hoist	Sep-98 1995	Competent Person Competent examiner
Construction Sites (Safety) Regulations (Cap. 59I)	Scaffolding	Oct-99	Competent examiner Competent Person
Electricity (Registration) Regulations (Cap. 406D)		Jun-97	Registered electrical workers
Electricity Supply Lines (Protection) Regulation (Cap. 406H)		Jun-00	Competent Person

Annex 2 - Requirements to avoid employment of illegal workers

1. The Specialist Contractor shall not employ any person who is not lawfully employable as defined in the Immigration Ordinance (Cap. 115) in connection with the performance of the Specialist Works or otherwise on the Site.
2. The Specialist Contractor shall prior to entering into a contract of employment to employ any person or to placing any such person on its payroll in connection with the performance of the Specialist Works or otherwise on the Site ensure the inspection of :-
 - (a) the identity card held by such a person;
 - (b) the official passport held by such a person; or
 - (c) where such a person is not the holder of an identity card and is not required to be registered (Cap. 177) :-
 - i a valid travel document;
 - ii a Vietnamese refugee card;
 - iii a certificate of exemption; or
 - iv any other approval document held by him.
3. The Specialist Contractor shall in the case of any of its employees on the Site from time to time who are holders of Vietnamese refugee cards ensure such employees are required to produce for inspection the Vietnamese refugee cards held by them on every occasion wages are paid to ensure that the said employees are lawfully employable.
4. The Specialist Contractor shall keep at all times on site an up-to-date and complete record of the full name of each of its employees and sub-contractors on the Site as shown in his identity card or other document held by each of its employees and sub-contractors on the Site by virtue of which they are lawfully employable and shall produce this for inspection on demand by the Main Contractor.
5. The Specialist Contractor shall take all practical steps to determine prior to entering in a contract of employment with any person in connection with the performance of the Specialist Works or otherwise on the Site that such person is lawfully employable and that it is reasonable to conclude that such person is lawfully employable.
6. The Specialist Contractor shall take all practical steps to prevent any person who is not lawfully employable from being on the site and if the Specialist Contractor should become aware of any such persons being on the Site whether under the Specialist Contractor direct employ or not he shall make this known to the Main Contractor.
7. The Specialist Contractor shall take all practicable and reasonable precautions to prevent unauthorized persons from entering onto the Site.
8. The Specialist Contractor shall forthwith inform the Main Contractor if any suspicious person or persons are seen on the Site and shall assist the Main Contractor in making any appropriate report to the Police in connection with such person or persons.
9. The Specialist Contractor shall comply in all respects with the Code of Practice dated 8th November 1990 of the Hong Kong Construction Association expressed to be complied with by the Main Contractor setting out the measures that should be adopted to prevent illegal immigrants from being employed on Construction Sites except where it is confirmed in the Specialist Contract that certain of the measures shall be carried out by the Main Contractor.
10. The Specialist Contractor shall comply at all times with the instructions of the Main Contractor to prevent the employment of any person who is not lawfully employable in connection with the performance of the Specialist works or any such person from being on the Site in compliance with the Immigration Ordinance (Cap. 115).
11. The Specialist Contractor shall not employ any person below the age of seventeen years except persons trained by an approved authority.

Annex 3 - 機械 / 貨物出入閘申請書

編號：_____

機械 / 貨物出入閘申請書

公司名稱：_____ 車牌號碼：_____

司機名稱：_____ 身份證號碼：_____

進入地盤原因：_____

1) 入物料詳情：_____

2) 出物料詳情：_____

分判商負責人簽署及蓋章

簽署：_____ 日期：_____ 時間：_____

地盤經理簽署及蓋章

簽署：_____ 日期：_____ 時間：_____

入閘時間：_____ 日期：_____

(入閘)保安員簽署：_____

出閘時間：_____ 日期：_____

(入閘)保安員簽署：_____

Infection Control Compliance Checklist (for Other Workers# in HA)

Please “tick” the appropriate box. If “No” is selected, please elaborate in “Remarks” and course of action.

Infection Control Checklist		Yes	No	N/A	Remarks
1.	Other workers should receive basic infection control training, refresher or right-on-time training as requested by the hospital / clinic. Training records should be kept by their supervisors and produced upon request.	☐	☐	☐	
2.	Other workers should follow HA Response Level for health advice and enhanced infection control measures.	☐	☐	☐	
3.	Other workers are not allowed to work in the high-risk patient areas unless with mutual consent in special circumstances (such as emergency situations requiring contractors’ assistance)	☐	☐	☐	
4.	Other workers should maintain good personal hygiene (e.g. wash their hands before eating or serving food, after touching eyes, nose, mouth, and after using the toilet etc.)	☐	☐	☐	
5.	Other workers should follow HA guidelines and practice hand hygiene during their work, including before and after contacting the patient, after contacting the contaminated environment / equipment / wastes, and before entry and exit the patient care areas / wards, and when hands are visibly soiled.	☐	☐	☐	
6.	Other workers should keep their uniform / working clothes clean and neat.	☐	☐	☐	
7.	Other workers should follow standard precautions at all times and apply the transmission-based precautions (i.e. contact, droplet, or airborne precautions) according to the precaution signs or as instructed by the supervisors / hospital staff.	☐	☐	☐	
8.	Other workers who are required to use personal protective equipment (PPE) should be trained on how and when to use the PPE, including surgical mask, N95 respirator, eye protection, disposable gloves and gown.	☐	☐	☐	
9.	Other workers should maintain good environmental hygiene. Equipment/ tools should be properly cleaned and / or disinfected after use.	☐	☐	☐	
10.	Other workers should report any symptoms of fever, chills, unexplained muscle aches, sore throat, running nose, cough, chest infection, shortness of breath, diarrhea, vomiting and rashes to their supervisors before commencing duty, and seek medical attention immediately.	☐	☐	☐	
11.	Supervisors should keep record of sickness and other infectious diseases of their workers (e.g. chickenpox, hand-foot-mouth disease, etc.) and report to hospital infection control team promptly for any necessary actions.	☐	☐	☐	
12.	Supervisor should record the duty rosters and work locations of other workers and document incident reporting with proper time logs and produce without delay upon request by HA hospital.	☐	☐	☐	

“Other workers” means Contractors / Sub-contractors / Term Contractors and their employees as well as staff from Government departments working in HA

Person Authorized to Sign EOI

Name of Supplier : _____	Name : _____	Authorized Signature : _____
Tenderer’s Chop : _____	Position Held : _____	E-mail Address : _____
Date : _____	Tel. No. : _____	Fax No. : _____

 HOSPITAL AUTHORITY 九龍東醫院聯網 KOWLOON EAST CLUSTER	Kowloon East Cluster KEC Guideline on Infection Control Risk Assessment on Construction and Renovation Work in Hospital	Document No.	KEC-ICC-GL-ICT-004-v01
		Issue Date	26/09/2025
		Review Date	25/09/2028
		Approved by	Kitty FUNG Dr, KEC/UCH
		Page	1 of 11

KEC Guideline on Infection Control Risk Assessment on Construction and Renovation Work in Hospital

Version	Effective Date
1.0	26/09/2025
1.0	26 September 2025

Document Number	KEC-ICC-GL-ICT-004-v01
Author	Kitty FUNG Dr, KEC/UCH ICO / UCH CON(Path)
Custodian	ICT
Approved/ Endorsed By	ICC
Approval Date	26/09/2025
Distribution List	All KEC staff

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Record of Changes to Document 修訂紀錄

Section number 項目編號	*Amendment *修訂	Reason 修訂原因

*Notes:

- Please mention the **change of author**, if any.
- All changes in the current version should be indicated in ***bold italics***.

*註:

- 作者如有任何更改，請於修訂部分提出。
- 當前版本如有任何更改，請以***粗體及斜體***標示。

Record of Review (with no changes) 檢討紀錄 (內容沒有更改)

Version 版本	Details 詳情
	The document has been reviewed on _____. The next review date is [Review Date(DMS)]. 此文件已於_____檢討，下次檢討日期為[Review Date(DMS)]。

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Purpose

The purpose of this assessment is to standardize the management of all construction and renovation activities to prevent transmission of infection to patient that may cause by micro-organisms from dust and debris released during construction and renovation.

STEP 1

Construction Activity Type

Construction activity type is defined by the amount of dust generated, the duration of the activity and any impact on the Central Air Conditioning systems. **Using the following table, identify the type of Construction Project Type (A-D)**

Type A	Inspection and non-Invasive Activities - removal of ceiling tiles for visual inspection limited to 1 tile per 50 square feet - painting (but not sanding) - wallcovering, electrical trim work, minor plumbing, and activities which do not generate dust or require cutting of walls or access to ceilings other than for visual inspection
Type B	Small scale short duration activities which create minimal dust - installation of telephone and computer cabling - access to chase spaces - cutting of walls or ceiling where dust migration can be controlled
Type C	Work that produces a moderate to high level of dust / demolition / removal of any fixed building components or assemblies - Sanding of walls for painting or wall covering - Remove of floor coverings, ceiling tiles and case work - New wall construction - Minor duct work or electrical work above ceilings - Major cabling activity - Any activity which cannot be finished within a single work shift
Type D	Major demolition and construction projects - Activities which need consecutive work shifts - Requires heavy demolition or removal of a complete cabling system - New construction

[illegible]

STEP 2

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Determine Risk Category for the Area or Adjacent Areas to the Renovation and Construction site

The risk category is defined by the project location.

Using the following table, identify the risk category. If more than one area will be affected, select the higher risk category.

Low Risk	Medium Risk	High Risk	Highest Risk
- Office areas - Non clinical areas	- Endoscopy /Lithotripsy - Nuclear Medicine / Radiology - MRI - Psychiatric Unit - Outpatient areas - Allied Health Departments (Physiotherapy / Occupational Therapy / P&O / Podiatry) - Custodial	- A&E Dept - Laboratories - Pharmacy -General Wards unless others specified - Haemodialysis Unit - Laboratory - Labor and delivery - Newborn nursery - Day surgery	- Wards for immunocompromised patients (Haematology / Transplantation / Oncology) - Burns Unit - ICU / HDU / CCU / PICU / NICU/ SCBU areas - CSSD / TSSU - Operation Theaters - Bronchoscopy Centre - Cardiac catheterization - Negative pressure isolation room

STEP 3

Match the Risk Category (low, medium, high, highest) with the planned **Construction Project Type** (A, B, C, D) to determine the **Class of Barrier Precautions** required (1, 2, 3, 4).

Patient Risk Group	CONSTRUCTION PROJECT TYPE			
	Type A	Type B	Type C	Type D
LOW	1	2	2	3 or 4
MEDIUM	1	2	3	4
HIGH	1	2	3 or 4	4
HIGHEST	2	3 or 4	3 or 4	4

STEP 4

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Determine the class of barrier precautions.		
CLASS	During Construction Project	Upon Completion of Project
1	1. Execute work by methods to minimize raising dust from construction operations. 2. Immediately replace a ceiling tile displaced for visual inspection.	1. Clean work area upon completion of task.
2	1. Use barriers to prevent dust and debris from escaping* 2. Seal adjacent unused doors with masking tape* 3. Block off and seal air vents* 4. Place walk-off mats at entrance and exit of work area* , replace or clean regularly 5. Water mist work surfaces to control dust while cutting 6. Remove or isolate HVAC system in areas where work is being performed	1. Contain construction waste in tightly covered containers before transport in designated route 2. Wet mop and wipe horizontal surfaces with disinfectant before leaving 3. Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area 4. Remove isolation of HVAC system in areas where work is being performed
3	1. Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins* 2. Put up an interim plastic dust barrier just after entry with not less than 2 foot overlapping flaps and be sealed at fully ceiling height* 3. Alteration / isolation of the air handling system* 4. Place walk-off mats at entrance and the interim plastic dust barrier*, replace or clean regularly 5. Water mist work surfaces to control dust while cutting 6. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units 7. And others as specified by hospital management or ICT	1. Contain construction waste in tightly covered containers and use designated route and lift for transport at the time of agreement in covered transport receptacles or carts. Tape covering 2. Wet mop the lift and transplant route every after used or as more as needed 3. Wet mop area and wipe horizontal surfaces with disinfectant (hydrochlorite solution, 1000ppm) or 70% alcohol for metal surface, before leaving 4. Vacuum work area with HEPA filtered vacuums 5. Do not remove barriers from work area until thoroughly cleaned 6. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction 7. Remove isolation of HVAC system in areas where work is being performed
4	Class 3 plus 1. Seal holes, pipes, conduits, and punctures appropriately* 2. Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner (including shoes) before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave the work site* 3. All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area	Same as Class 3
● Complete all critical items before work begins		

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General measures

- | | |
|----|---|
| 1. | Educate both the construction team and health-care staff in immunocompromised patient-care areas regarding the airborne infection risks associated with construction projects, dispersal of fungal spores during such activities, and methods to control the dissemination of fungal spores |
| 2. | Post signs to identify construction areas and potential hazards |
| 3. | Relocate high-risk patients as needed, especially if the construction is in or adjacent to a protective environment area |
| 4. | Establish alternative traffic patterns for staff, patients, visitors, and construction workers |
| 5. | If construction activity involves drilling and vibration, plans should require vacuuming of affected areas and flushing debris from water systems before reoccupancy |

Preventive and control measures of Legionnaire's Disease in hospitals

- | | |
|----|--|
| 1. | In new hospitals, mapping of water distribution system should be available. |
| 2. | Any alternation of the water distribution system should be documented and the mapping should be updated accordingly. |
| 3. | During renovation work, especially for high risk areas, mapping of the water distribution system to identify dead legs and stagnant points should be done and infrequently used showers, water outlest and dead legs in the water supply system should be removed. |
| 4. | For reserved wards in high risk areas, where regular flushing has not been performed, purging and disinfection of the water system should be carried out immediately prior to taking in patients. The same recommendation applies in other areas and should be done as far as practicable. |
| 5. | If the hot water storage device or the hot water system of high risk areas has been taken out of service for longer than 1 week, the hot water storage device should be brought up to 60°C or above for 1 hour before use. |

References

- | | |
|----|---|
| 1. | Guideline for Environmental Infection Control in Health-Care Facilities, 2003. Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). |
| 2. | APIC State-of the Art Report: The role of infection control during construction in health care facilities. AJIC 2000; 28(2). |
| 3. | Guideline Title: Construction, renovation and Maintenance, 2007. Bayside health Melbourne, Australia. |
| 4. | Guideline on Prevention and Control of Nosocomial Legionnaires' Disease, 2012.HA Central Committee on Infectious Disease and Emergency Responses (CCIDER). |

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Following is the process steps that aim to guide the hospital management, health care professional and contractor in identifying the potential risk before starting construction or renovation project, and to plan, design and monitor the processes.

Commissioning

Commissioning Office

Include 'Construction & Renovation Risk Office: Assessment' into Tendering Specification
Consult Infection Control Nurse (ICN) for 'Risk Assessment'



Planning (Form 1)

Commissioning Office &
ICN:

Determine 'Barrier Precaution Class' by matching 'Risk Area Category' with 'Construction Activity Type'



Implementation (Form 1)

Contractor:
Facility Team:
ICN:

Execute the determined barrier precautions
Perform initial assessment
Conduct final checking before project begins



Construction Form
1.pdf



Evaluation (Form 2)

Contractor:
Facility Team:
ICN:

- Perform daily review
- Conduct continuous review
- Audit periodically



Construction Form
2.pdf

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Kowloon East Cluster		Hospital			
Form 1: Infection Control Risk Assessment for Construction and Renovation Activity					
Assessment Ref. No.	/ (year)	Project Start Date			
Estimated Duration		Expected Completion Date			
Location of Project					
Project Coordinator		Tel. No.			
Contractor		Tel. No.			
Site Supervisor		Tel. No.			
Risk Category Matching (refer page 2 for details and tick ☒ as appropriate)					
Patient Risk Group	CONSTRUCTION PROJECT TYPE				
	TYPE A Inspection, non-invasive (not generate dust)	TYPE B Small scale short duration (minimal dust)	TYPE C Demolition, removal of fixture (high level of dust)	TYPE D Major demolition & construction (consecutive work shifts)	
	Low	☐ 1	☐ 2	☐ 2	☐ 3 or ☐ 4
	Medium	☐ 1	☐ 2	☐ 3	☐ 4
	High	☐ 1	☐ 2	☐ 3 or ☐ 4	☐ 4
Highest	☐ 2	☐ 3 or ☐ 4	☐ 3 or ☐ 4	☐ 4	
Class	Barrier Precautions to be taken by Contractor	Action confirmed date		Action confirmed date	
☐ Class 1	1. Execute work by methods to minimize raising dust from construction operations.		1. Clean work area upon completion of task.		
	2. Immediately replace a ceiling tile displaced for visual inspection.				
☐ Class 2	1. Use barriers to prevent dust and debris from escaping*		1. Contain construction waste in tightly covered containers before transport in designated route		
	2. Seal adjacent unused doors with masking tape*		2. Wet mop and wipe horizontal surfaces with disinfectant before leaving		
	3. Block off and seal air vents*		3. Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area		
	4. Place walk-off mats at entrance and exit of work area*		4. Remove isolation of HVAC system in areas where work is being performed		
	5. Water mist work surfaces to control dust while cutting				
	6. Remove or isolate HVAC system in areas where work is being performed				
☐ Class 3 ☐ Class 4	1. Obtain infection control permission before construction begins		1. Contain construction waste in tightly covered containers and use designated route and lift for transport at the time of agreement in covered transport receptacles or carts. Tape covering		



Kowloon East Cluster

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Form 2: Environment Monitoring Compliance Checklist

Assessment Ref. No.	/ (year)	Project Start Date	
Estimated Duration		Expected Completion Date	
Location of Project			
Project Coordinator		Tel. No.	
Contractor		Tel. No.	
Site Supervisor		Tel. No.	

1. CONSTRUCTION BARRIER

	YES	NO	NA
• Dust tight barricades sealed, no penetration	☐	☐	☐
• Walk off mats	☐	☐	☐
• Doors close and seal properly ☐ ☐	☐	☐	☐
• All access doors are closed to public	☐	☐	☐
• Signs posted cautioning to keep door closed ☐	☐	☐	☐

COMMENTS _____

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2. ADJACENT AREAS WITH STAFF/PATIENT ACCESS

	YES	NO	NA
• Ceiling areas intact and dry	☐	☐	☐
• Floor areas clean, no dust tracked	☐	☐	☐
• Walls intact and dry	☐	☐	☐
• Horizontal surfaces dust free	☐	☐	☐
• No signs of pest infestation	☐	☐	☐

COMMENTS _____

3. TRAFFIC FLOW

	YES	NO	NA
• Waste covered and contained prior to removal	☐	☐	☐
• Route and timing of waste removal as per agreement	☐	☐	☐

COMMENTS _____

Review by Contractor / Facility Team / ICN _____

Date: _____ Sig. _____

**Supply and Installation of Scanning Systems, Magnetic Resonance Imaging, Full Body (with Radiotherapy Package for Simulation) for
Expansion of United Christian Hospital, Kowloon East Cluster, Hospital Authority**

Name	Job Title	Phone Contact	Email Contact	Relevant Experience (Years)	Received Relevant Equipment Training (Yes / No)	Trained or Appointed by Equipment Manufacturer (Yes / No)	Equipment types/models that the staff is trained/ assigned to service under the contract	Certificate of relevant equipment training is attached? (Yes / No)

Person Authorized to Sign EOI

Name of Supplier : _____ Name : _____ Authorized Signature : _____

Company's Chop : _____ Position Held : _____ E-mail Address : _____

Date : _____ Telephone No. : _____ Facsimile No. : _____