HENSALL

FINAL ISSUE, ALL INFORMATION RECEIVED

OPERATION & MAINTENANCE MANUAL

Elmwood Leisure Centre

Decarbonisation and refurbishment: air source heat pumps, LTHW plant, air handling units, air conditioning and domestic water services Mechanical Services

Volume 6 of 9: As-built drawings and certificates

Documents 11.23 to 11.90 and 7.1 to 7.12

Revision	Issue date	Practical completion	Job reference
A	**9th of October 2026**	**2nd of June 2026**	**HEN0203**

Prepared for Hensall Mechanical Services Ltd · Westgate Leisure Services Ltd (for the London Borough of Elmwood; operated by FitLife Active)

Compiled by OnTrack O&M

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SECTION 11

11

As-built drawings

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11.23

HEN0203-HEN-00-01-DR-M-5202 rev AF01 First Floor Above Ground Drainage Layout Sheet 2 of 4

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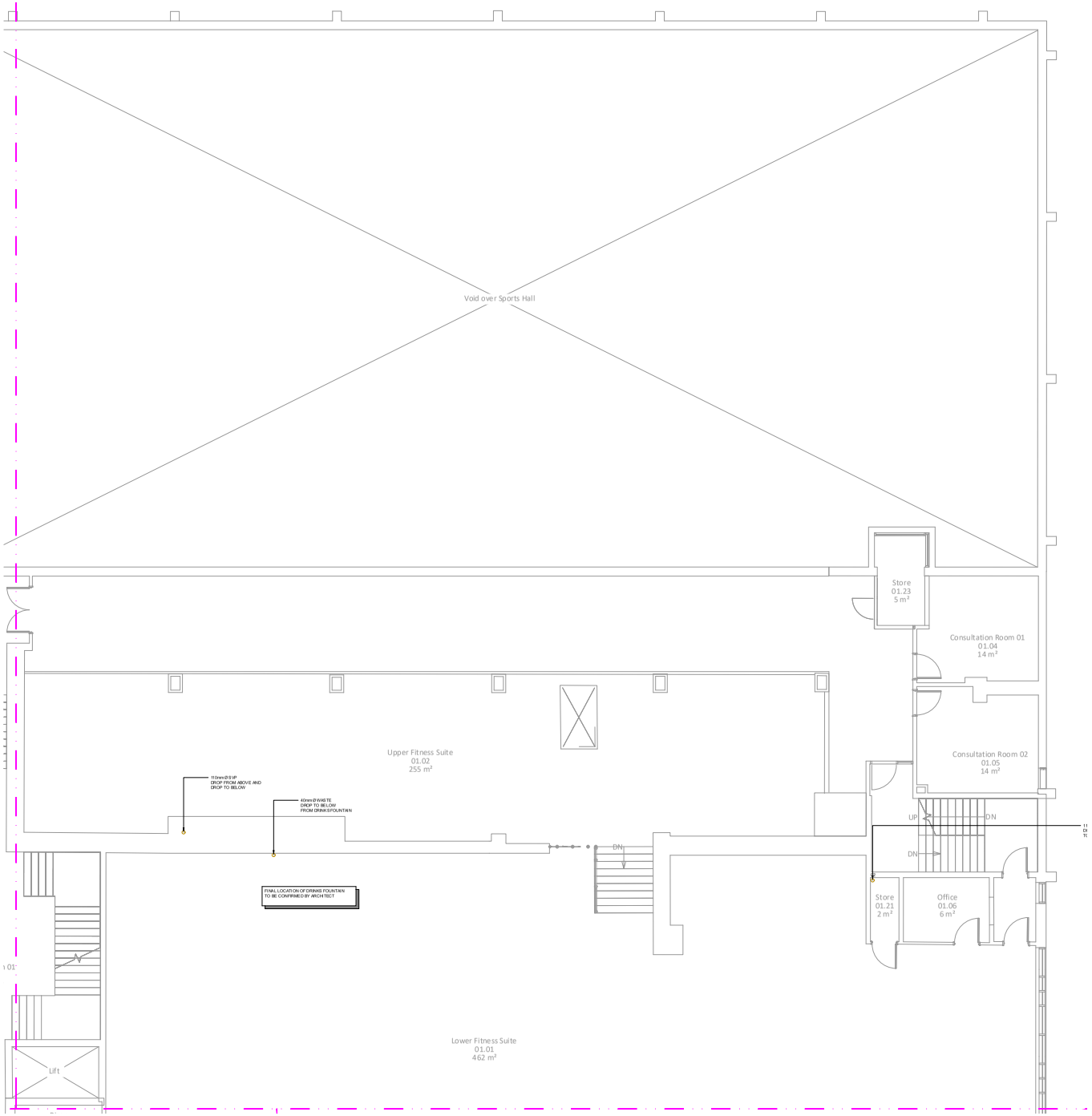
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2. ALL HORIZONTAL PIPEWORK SHALL BE INSTALLED WITH A MINIMUM OF 1:40 GRADIENT.
3. ALL HORIZONTAL VENT PIPEWORK SHALL BE INSTALLED WITH A MINIMUM OF 1:100 GRADIENT
4. RODDING EYES SHALL BE PROVIDED AT THE END OF EACH RUN AND AT EACH CHANGE OF DIRECTION.
5. RODDING EYES SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS.
6. CONNECTIONS TO BELOW GROUND DRAINAGE POP-UPS SHALL BE COMPLETE WITH 110mmø RODDING ACCESS AT 1200mm A.F.F.L.
7. HEP.O TRAP TO BE INSTALLED BY PLUMBING CONTRACTOR.
8. ALL BELOW GROUND DRAINAGE TO BE INSTALLED BY OTHERS.
9. ALL WEATHERING TO BE DONE BY OTHERS.

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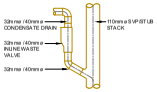
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- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE — RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

SVP	-	110mm ø
WC	-	110mm ø
WHB	-	32m ø
SINK	-	40mm ø
CL	-	40mm ø
FC	-	40mm ø
FG	-	110mm ø
DW	-	40mm ø

ABBREVIATIONS

SVP	-	SOIL AND VENT PIPE
SS	-	SUB STACK
VP	-	VENT PIPE
AVP	-	AIR VENT PIPE
WHB	-	WASH HAND BASIN
WC	-	TOILET
CL	-	CLEANERS SINK
RE	-	RODDING EYE
FG	-	FLOOR GULLY
AAV	-	AUTOMATIC AIR VENT
DW	-	DISHWASHER
WM	-	WASHING MACHINE
GW	-	GLASS WASHER



TYPICAL CONDENSATE TRAP ARRANGEMENT

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	2504.26	MPO	DB
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ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
ABOVE GROUND DRAINAGE LAYOUT
SHEET 2 OF 4

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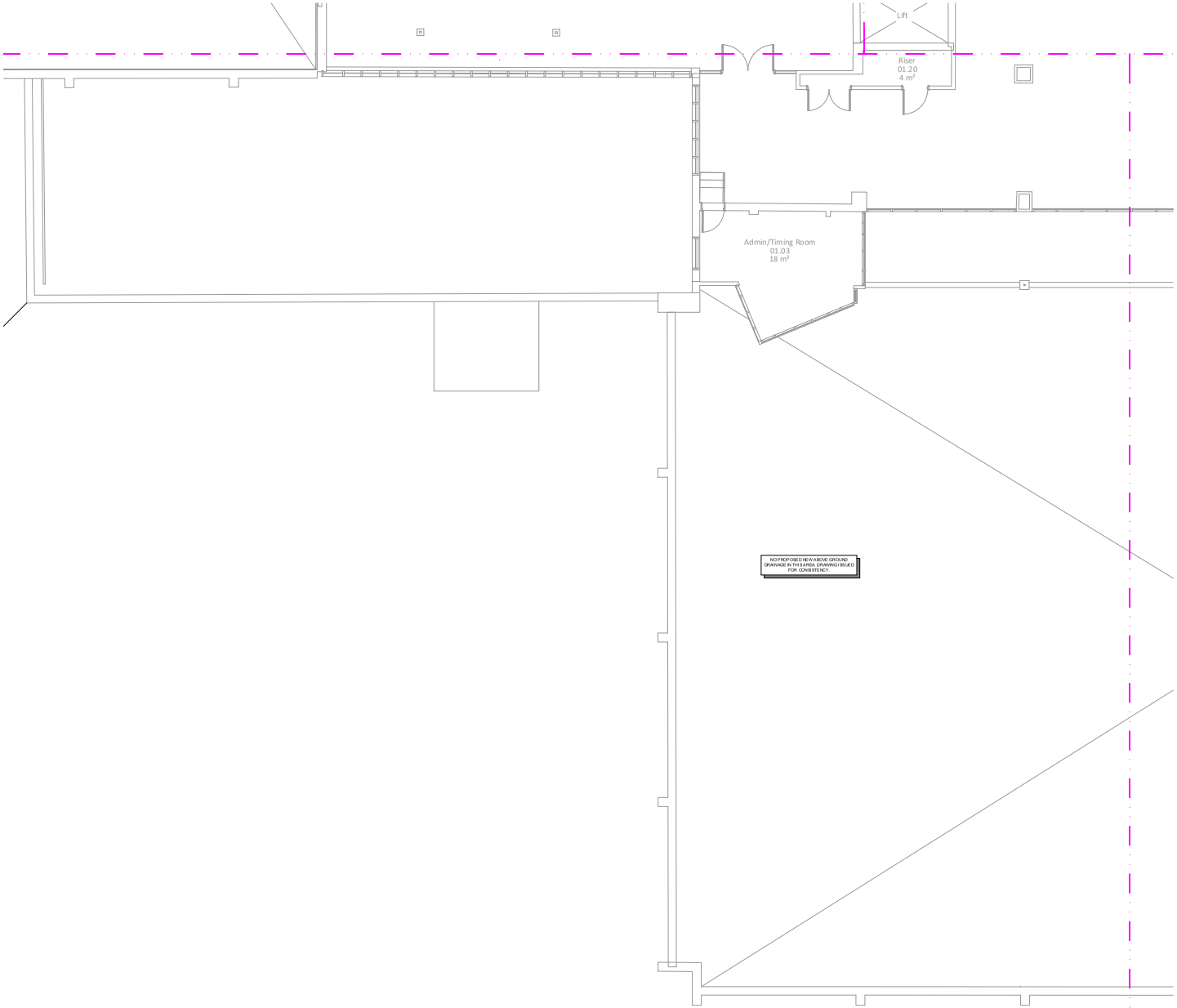
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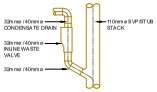
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- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE — RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

SVP	-	110mmø
WC	-	110mmø
WHB	-	32mmø
SINK	-	40mmø
CL	-	40mmø
FC	-	40mmø
FG	-	110mmø
DW	-	40mmø

ABBREVIATIONS

SVP	-	SOIL AND VENT PIPE
SS	-	SUB STACK
VP	-	VENT PIPE
WHB	-	WASH HAND BASIN
WC	-	TOILET
CL	-	CLEANERS SINK
RE	-	RODDING EYE
FG	-	FLOOR GULLY
AAV	-	AUTOMATIC AIR VENT
DW	-	DISHWASHER
WM	-	WASHING MACHINE
GW	-	GLASS WASHER



TYPICAL CONDENSATE STACK CONNECTION

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SHEET 3 OF 4

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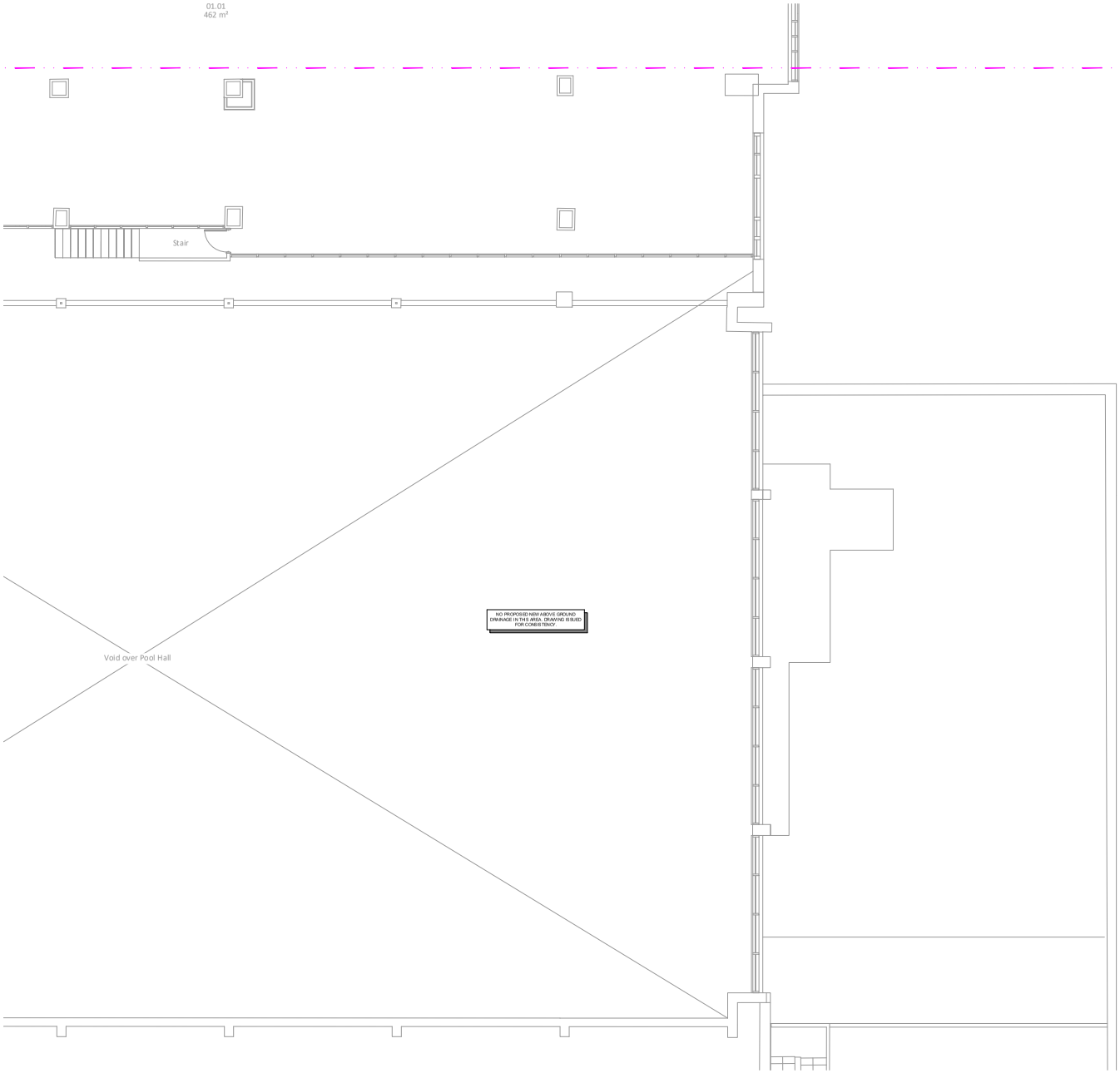
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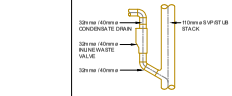
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- DRAINAGE CONNECTION
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DRAINAGE CONNECTION SIZES :

SVP	-	110mmø
WC	-	110mmø
WHB	-	32mmø
SINK	-	40mmø
CL	-	40mmø
FC	-	40mmø
FG	-	110mmø
DW	-	40mmø

ABBREVIATIONS

SVP	-	SOIL AND VENT PIPE
SS	-	SUB STACK
VP	-	VENT PIPE
SVP	-	SOIL VENT PIPE
WHB	-	WASH HAND BASIN
WC	-	TOILET
CL	-	CLEANERS SINK
RE	-	RODDING EYE
FG	-	FLOOR GULLY
AAV	-	AUTOMATIC AIR VENT
DW	-	DISHWASHER
WM	-	WASHING MACHINE
GW	-	GLASS WASHER



TYPICAL CONDENSATE STACK CONNECTION

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11.26

HEN0203-HEN-00-01-DR-M-5301 rev AF01 First Floor Domestic Water Services Layout Sheet 1 of 4

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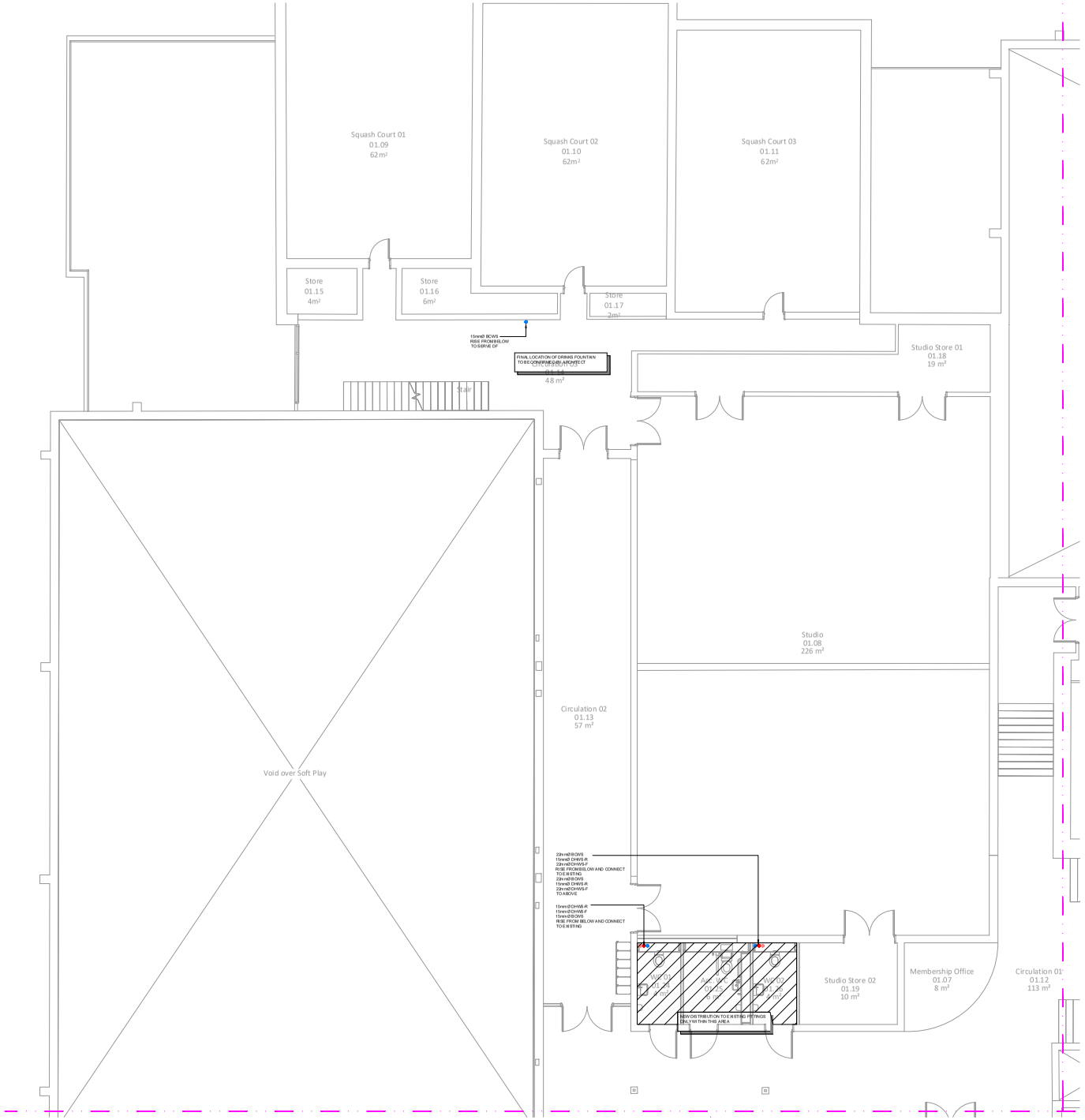
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Pages	1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

DOMESTIC SERVICES NOTES

1. ANY EXPOSED PIPEWORK SHALL BE CHROME EXCEPT IN CLEANERS STORES.
2. ALL FINAL CONNECTIONS SHALL BE 19m mØ UNLESS OTHERWISE NOTED.
3. ALL PIPEWORK SHALL BE INSULATED THROUGHOUT EXCEPT WHERE SPORED.
4. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
5. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
6. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 500m m.
7. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
8. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
9. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVE SHALL NOT EXCEED 1500mm.
10. ALL TMVs SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- OATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- SHOWER MIXING VALVE
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	2504.26	MP'O	DB
C01	CONSTRUCTION ISSUE	@ 03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
DOMESTIC WATER SERVICES LAYOUT
SHEET 1 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	IJS	DDP

DRAWING N°	REV
HEN0203-HEN-00-01-DR-M-5301	AF01

11.27

HEN0203-HEN-00-01-DR-M-5302 rev AF01 First Floor Domestic Water Services Layout Sheet 2 of 4

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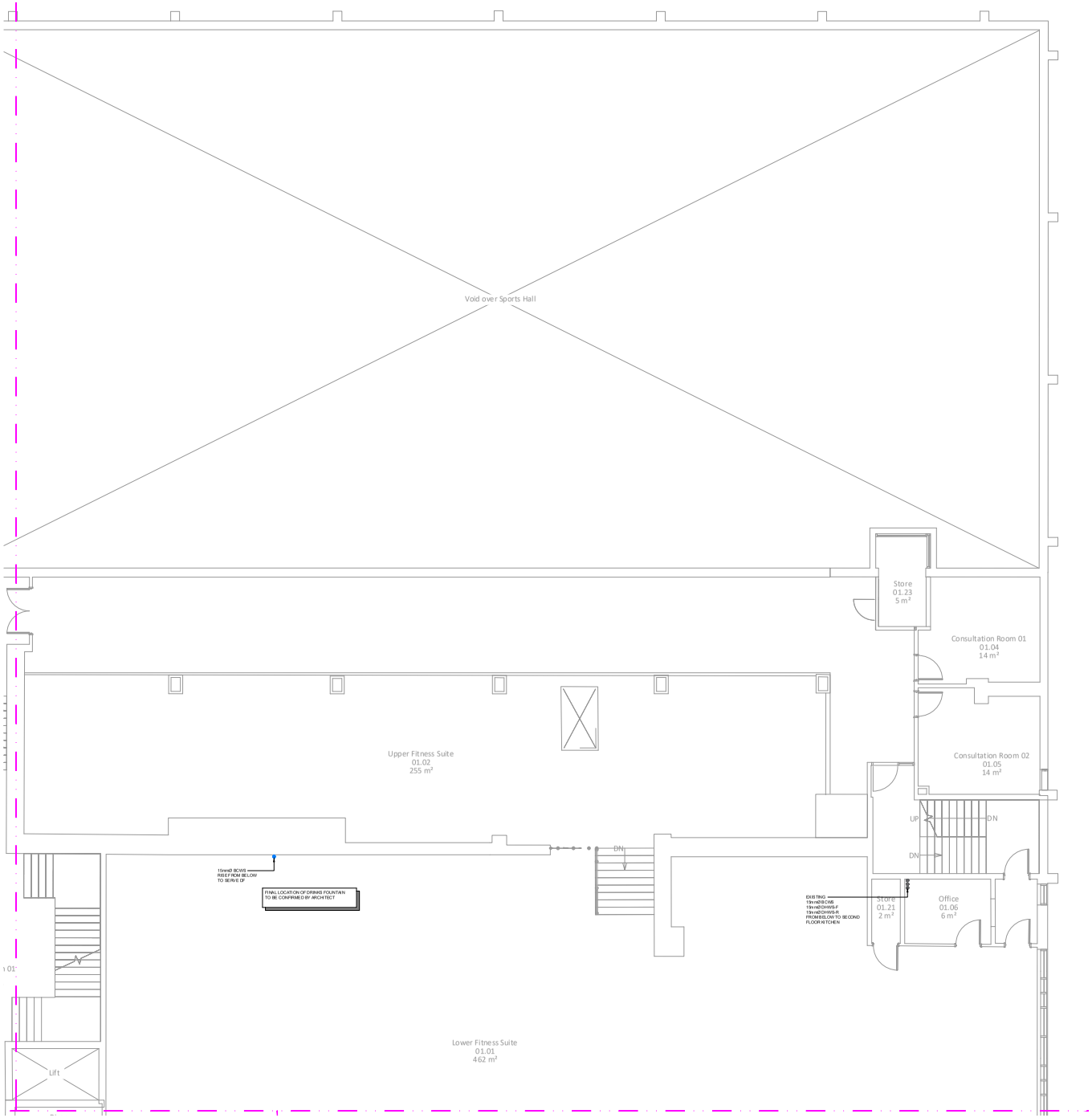
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Source file	HEN0203-HEN-00-01-DR-M-5302 AF01.pdf
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

DOMESTIC SERVICES NOTES

1. ANY EXPOSED PIPEWORK SHALL BE CHROME EXCEPT IN CLEANERS STORES.
2. ALL FINAL CONNECTIONS SHALL BE 15mmØ UNLESS OTHERWISE NOTED.
3. ALL PIPEWORK SHALL BE INSULATED THROUGHOUT EXCEPT WHERE EXPOSED.
4. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
5. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
6. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 500mm.
7. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
8. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
9. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVE SHALL NOT EXCEED 1500mm.
10. ALL TMV's SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- OATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- SHOWER MIXING VALVE
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	29.04.25	MP'O	DB
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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
DOMESTIC WATER SERVICES LAYOUT
SHEET 2 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	IJS	DDP

DRAWING N° HEN0203-HEN-00-01-DR-M-5302

REV AF01

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HEN0203-HEN-00-01-DR-M-5303 rev AF01 First Floor Domestic Water Services Layout Sheet 3 of 4

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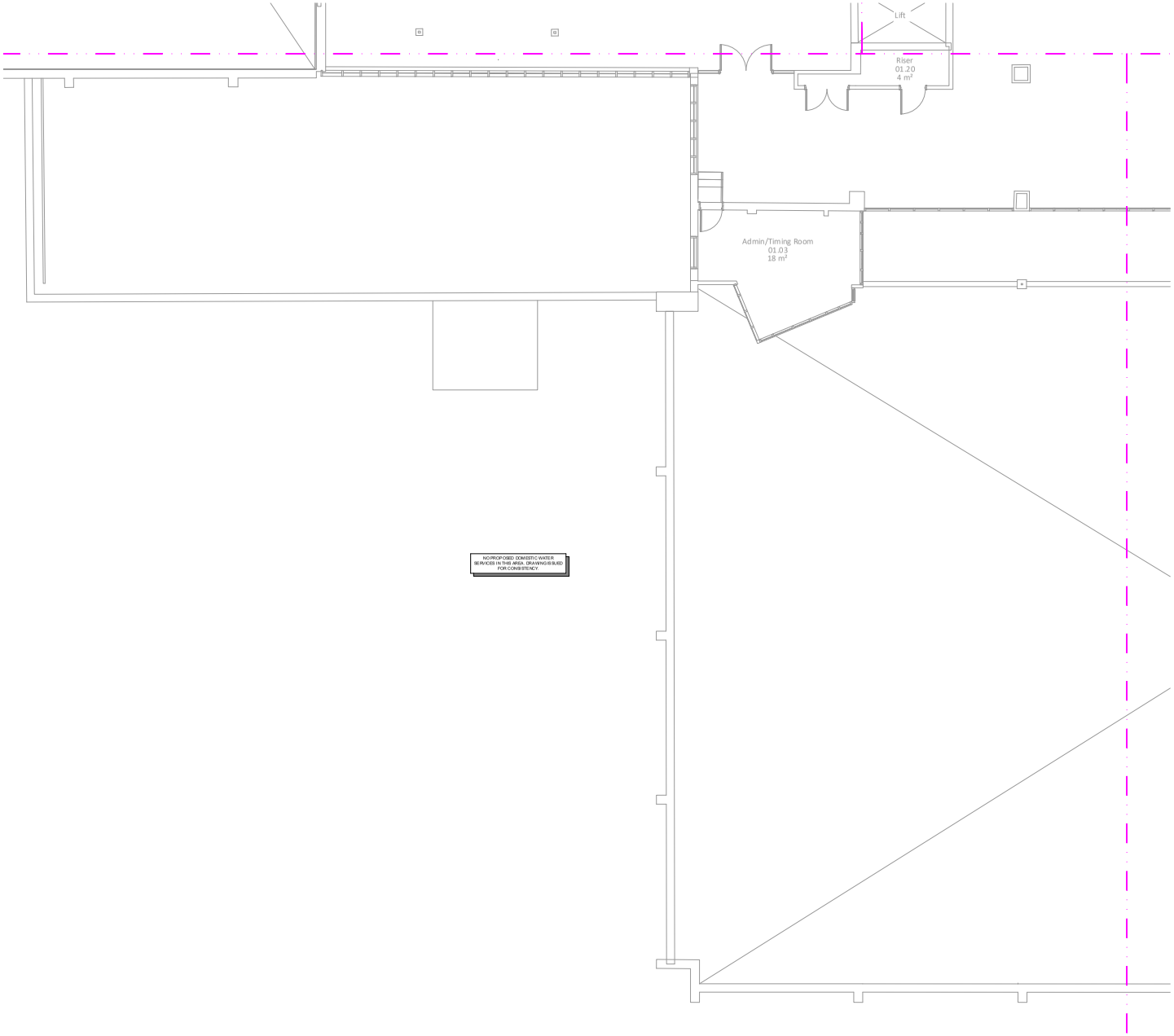
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4. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
5. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
6. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 500m m.
7. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
8. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
9. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVE SHALL NOT EXCEED 1500mm.
10. ALL TMVs SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- CATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- SHOWER MIXING VALVE
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	29.04.25	MP'O	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
DOMESTIC WATER SERVICES LAYOUT
SHEET 3 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	IJS	DDP

DRAWING N°	REV
HEN0203-HEN-00-01-DR-M-5303	AF01

11.29

HEN0203-HEN-00-01-DR-M-5304 rev AF01 First Floor Domestic Water Services Layout Sheet 4 of 4

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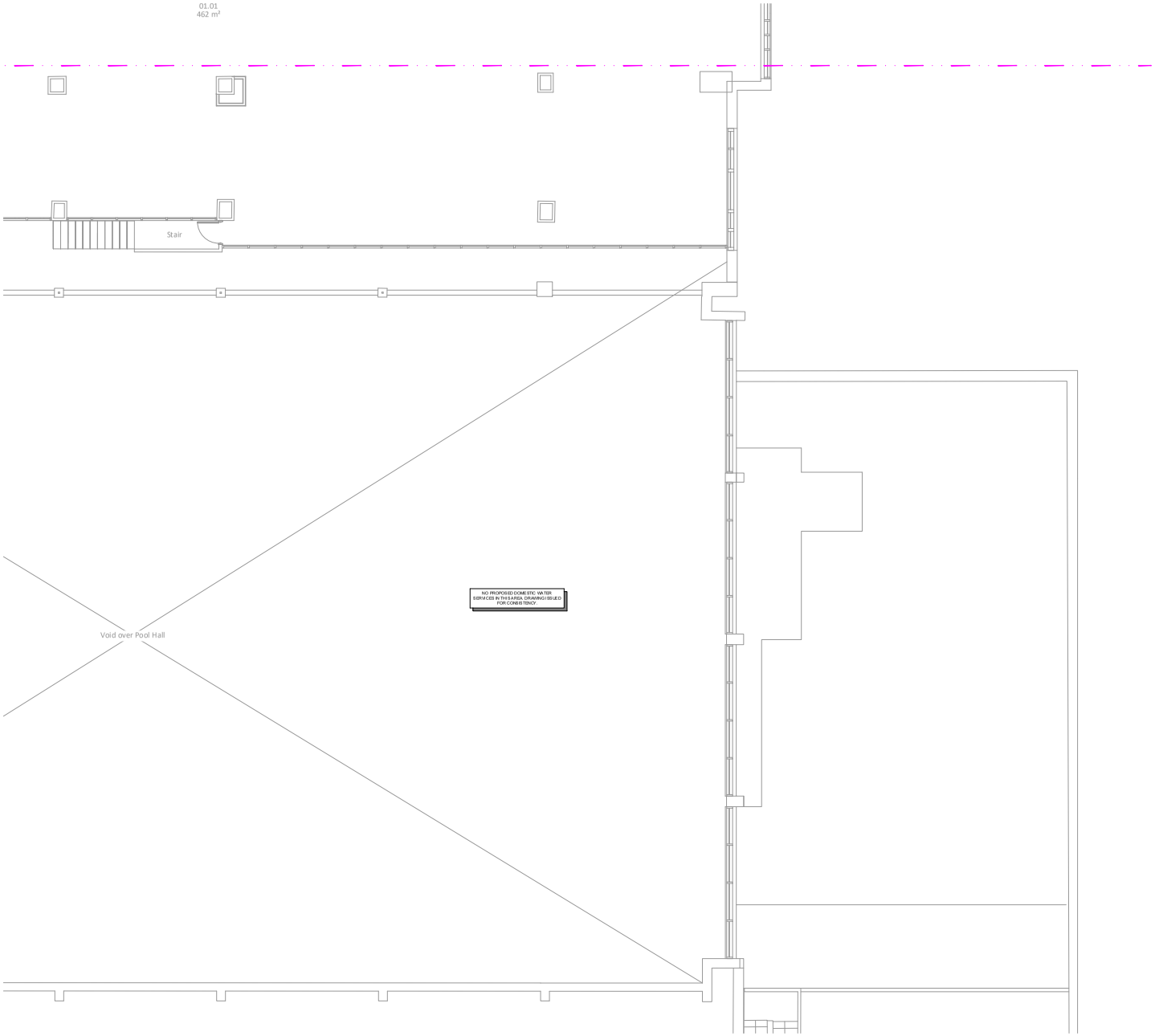
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1. ANY EXPOSED PIPEWORK SHALL BE CHROME EXCEPT IN CLEANERS STORES.
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4. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
5. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
6. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 300m m.
7. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
8. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
9. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVE SHALL NOT EXCEED 1500mm.
10. ALL TMVs SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- CATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- SHOWER MIXING VALVE
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

REV	DESCRIPTION	DATE	DRAWN	CHECK
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C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
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ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
DOMESTIC WATER SERVICES LAYOUT
SHEET 4 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	IJS	DDP

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11.30

HEN0203-HEN-00-01-DR-M-5601 rev AF01 First Floor Heating and Cooling Services Layout Sheet 1 of 4

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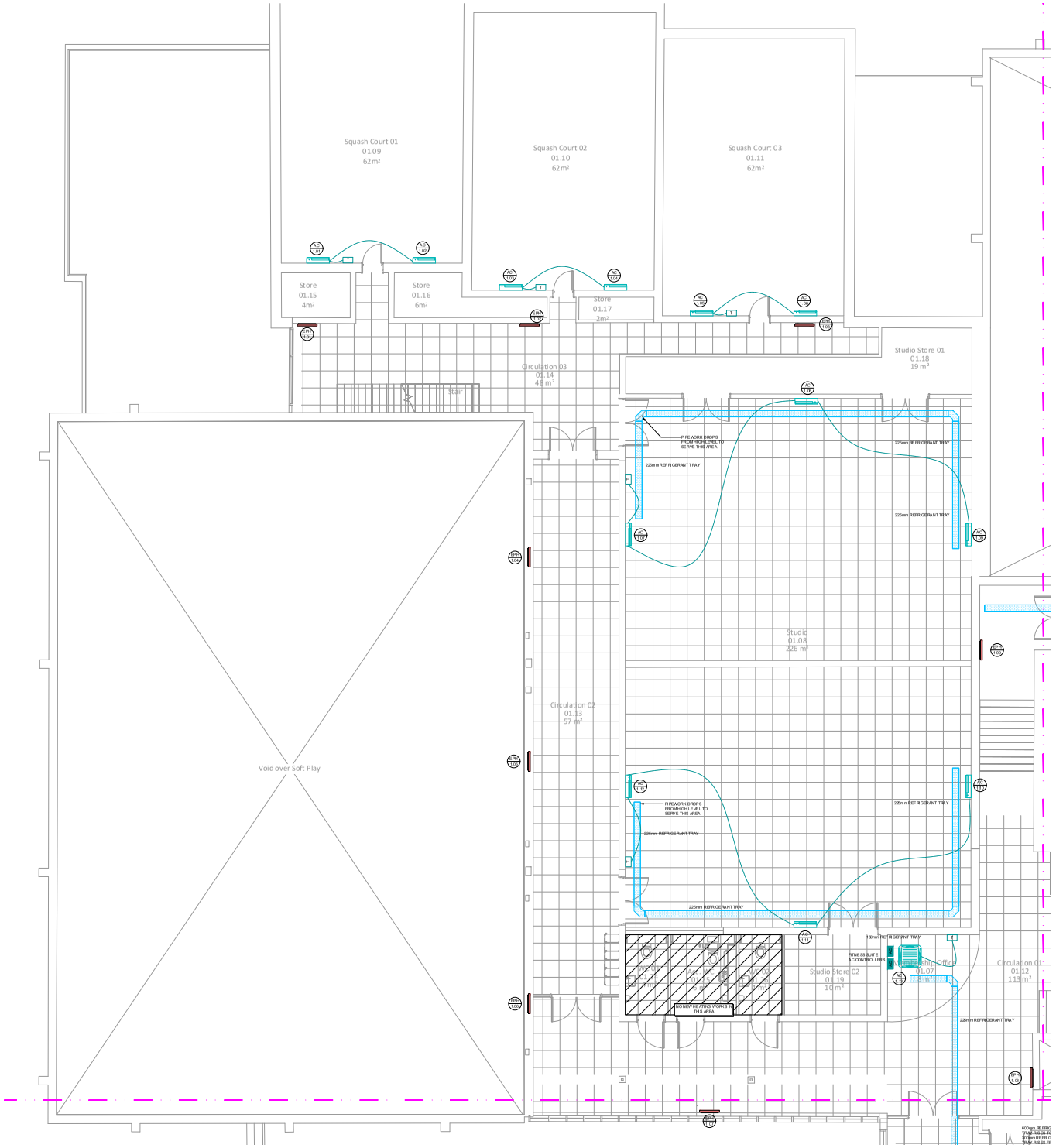
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAYOUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- T — LOCAL WALL MOUNTED CONTROLLER
- WC — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	**MW**	**DB**

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
HEATING AND COOLING SERVICES
SHEET 1 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-01-DR-M-5601	AF01

11.31

HEN0203-HEN-00-01-DR-M-5602 rev AF01 First Floor Heating and Cooling Services Layout Sheet 2 of 4

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HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAYOUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- T — LOCAL WALL MOUNTED CONTROLLER
- WC — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

Void over Sports Hall

Upper Fitness Suite
01.02
255 m²

Lower Fitness Suite
01.05
462 m²

Store
01.23
5 m²

Consultation Room 01
01.04
14 m²

Consultation Room 02
01.05
14 m²

Office
01.06
6 m²

Plant
01.21
2 m²

Lift

UNITS CONTROLLED ON RETURN AIR TEMPERATURE

225mm REFRIGERANT TRAY

200mm REFRIGERANT TRAY DROPP ROM ABOVE

450mm REFRIGERANT TRAY

100mm REFRIGERANT TRAY

150mm LTHW FLOW AND RETURN RISES FROM BELOW AND TO ABOVE

UP

DN

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

AS FITTED

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
HEATING AND COOLING SERVICES
SHEET 2 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
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HEN0203-HEN-00-01-DR-M-5603 rev AF01 First Floor Heating and Cooling Services Layout Sheet 3 of 4

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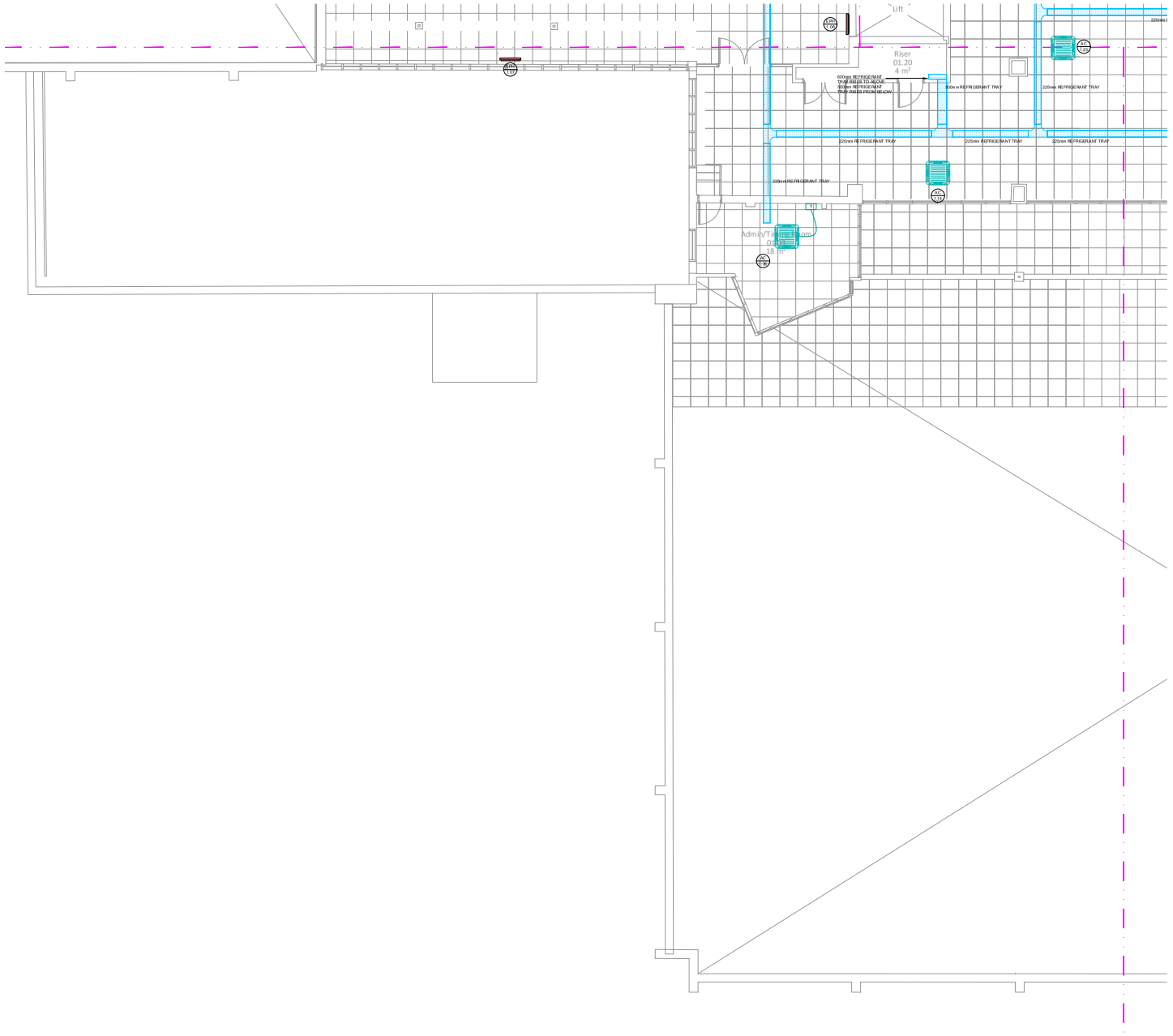
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3. ALL PENETRATIONS THROUGH WALL SHALL BE FILLED TO SUIT THE ACOUSTIC PERFORMANCE AND / OR THE FIRE REQUIREMENTS AS DETAILED ON THE ARCHITECTS DRAWINGS.
4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAY OUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- T — LOCAL WALL MOUNTED CONTROLLER
- WC — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
HEATING AND COOLING SERVICES
SHEET 3 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-01-DR-M-5603	AF01

11.33

HEN0203-HEN-00-01-DR-M-5604 rev AF01 First Floor Heating and Cooling Services Layout Sheet 4 of 4

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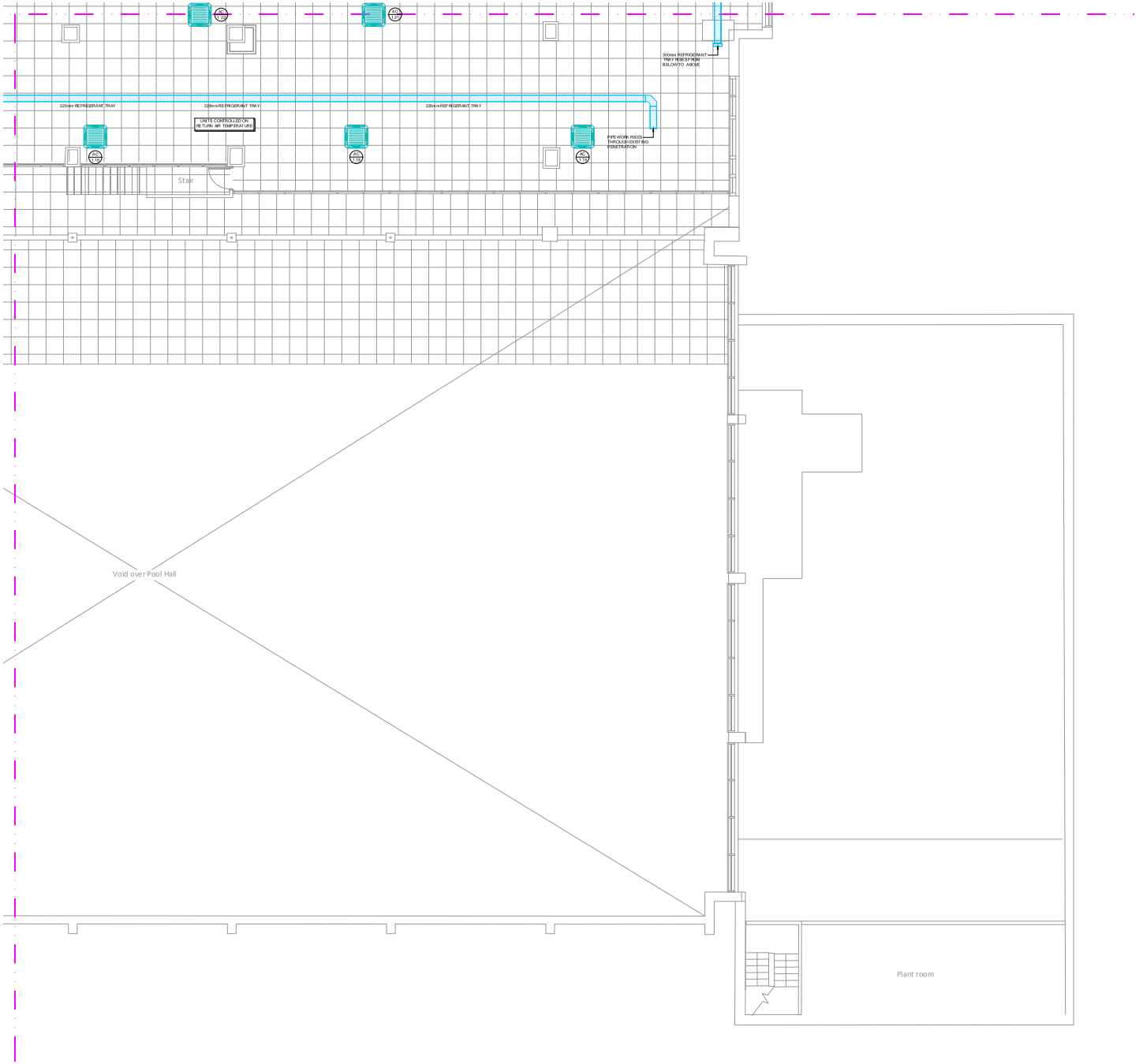
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Asset	0001M5604
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-01-DR-M-5604 AF01.pdf
Pages	1

KEY PLAN



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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAYOUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- T — LOCAL WALL MOUNTED CONTROLLER
- WC — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
HEATING AND COOLING SERVICES
SHEET 4 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-01-DR-M-5604	AF01

11.34

HEN0203-HEN-00-01-DR-M-5701 rev AF01 First Floor Ventilation Services Layout Sheet 1 of 4

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Asset	0001M5701
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

VENTILATION NOTES

1. ALL EXPOSED DUCTWORK SHALL NOT BE INSULATED.
2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
4. ALL VCD's AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500mm LONG.

LEGEND

- EXTRACT DUCT WORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCT WORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- SIDE WALL GRILL
- DOOR TRANSFER GRILLE (DTG)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- AIR SOCK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VCD — VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE (e.g. EF 1.01)
- MATCHLINE

ABBREVIATIONS

ATT	-	ATTENUATOR
CTA	-	CROSS TALK ATTENUATOR
EG	-	EXTRACT GRILLE
EV	-	EXTRACT VALVE
FD	-	FIRE DAMPER
HRU	-	HEAT RECOVERY UNIT
SG	-	SUPPLY GRILLE
SV	-	SUPPLY VALVE
VCD	-	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.03.26	MP'O	DB
C01	CONSTRUCTION ISSUE	26.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
VENTILATION SERVICES LAYOUT
SHEET 1 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING No	REV
HEN0203-HEN-00-01-DR-M-5701	AF01

11.35

HEN0203-HEN-00-01-DR-M-5702 rev AF01 First Floor Ventilation Services Layout Sheet 2 of 4

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

VENTILATION NOTES

1. ALL EXPOSED DUCTWORK SHALL NOT BE INSULATED.
2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
4. ALL VCD's AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500mm LONG.

LEGEND

- EXTRACT DUCT WORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCT WORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- SIDE WALL GRILL
- DOOR TRANSFER GRILLE (DTG)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- AIR SOCK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VCD VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE
- MATCHLINE

ABBREVIATIONS

ATT -	ATTENUATOR
CTA -	CROSS TALK ATTENUATOR
EG -	EXTRACT GRILLE
EV -	EXTRACT VALVE
FD -	FIRE DAMPER
HRU -	HEAT RECOVERY UNIT
SG -	SUPPLY GRILLE
SV -	SUPPLY VALVE
VCD -	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.03.26	MPO	DB
C02	FIRE DAMPERS ADDED	19.08.25	MW	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
VENTILATION SERVICES LAYOUT
SHEET 2 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N° HEN0203-HEN-00-01-DR-M-5702

REV AF01

11.36

HEN0203-HEN-00-01-DR-M-5703 rev AF01 First Floor Ventilation Services Layout Sheet 3 of 4

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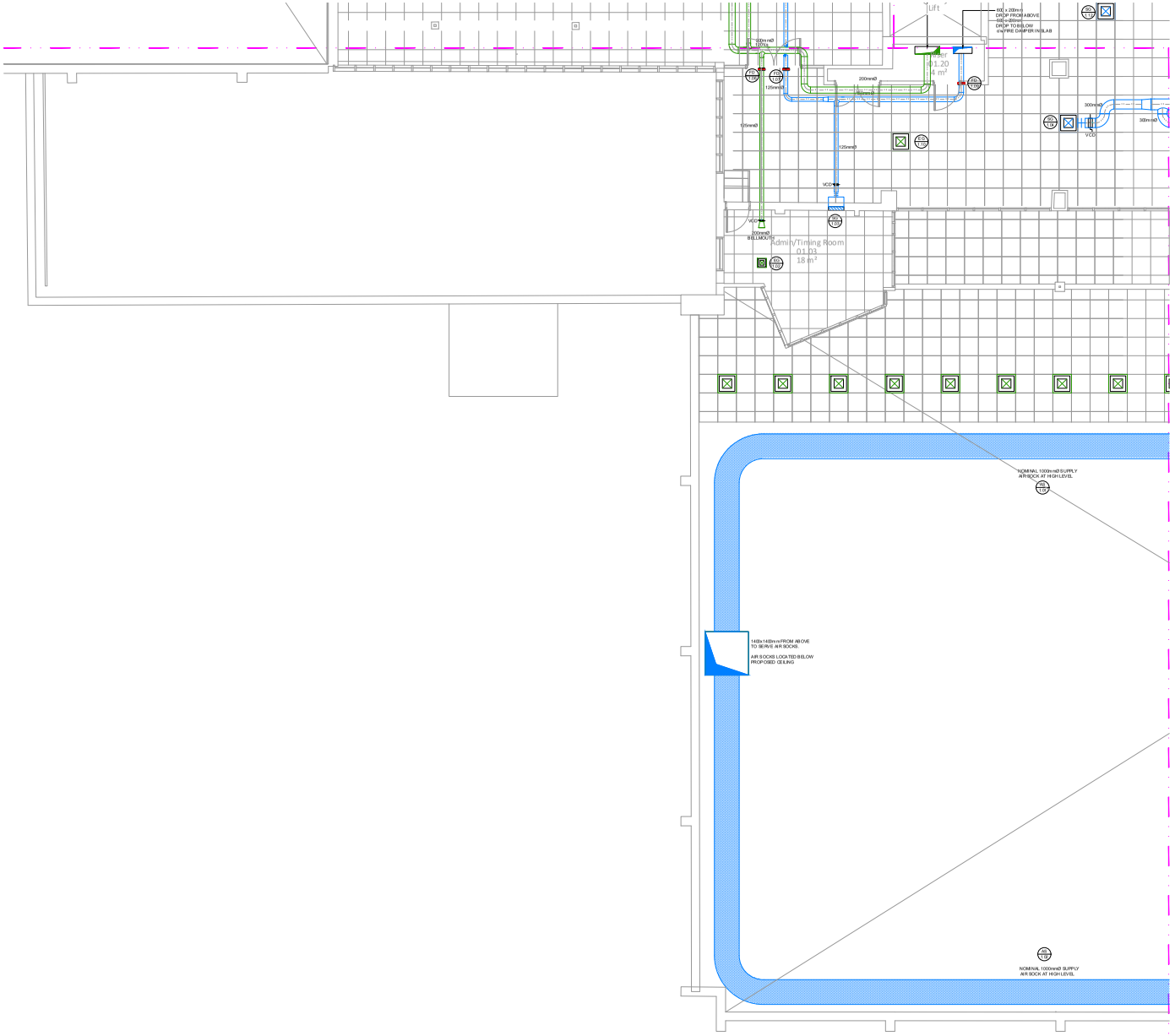
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

VENTILATION NOTES

1. ALL EXPOSED DUCTWORK SHALL NOT BE INSULATED.
2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
4. ALL VCD's AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500m m LONG.

LEGEND

- EXTRACT DUCT WORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCT WORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT AN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR F AN
- PLENUM BOX
- EXTRACT LOUVRE
- SIDE WALL GRILL
- DOOR TRANSFER GRILLE (DTG)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- AIR SOCK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VOLUME CONTROL DAMPER (VCD)
- EQUIPMENT REFERENCE (AHU 1.01)
- MATCHLINE

ABBREVIATIONS

ATT	-	ATTENUATOR
CTA	-	CROSS TALK ATTENUATOR
EG	-	EXTRACT GRILLE
EV	-	EXTRACT VALVE
FD	-	FIRE DAMPER
HRU	-	HEAT RECOVERY UNIT
SG	-	SUPPLY GRILLE
SV	-	SUPPLY VALVE
VCD	-	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.03.26	MP'O	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
VENTILATION SERVICES LAYOUT
SHEET 3 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
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11.37

HEN0203-HEN-00-01-DR-M-5704 rev AF01 First Floor Ventilation Services Layout Sheet 4 of 4

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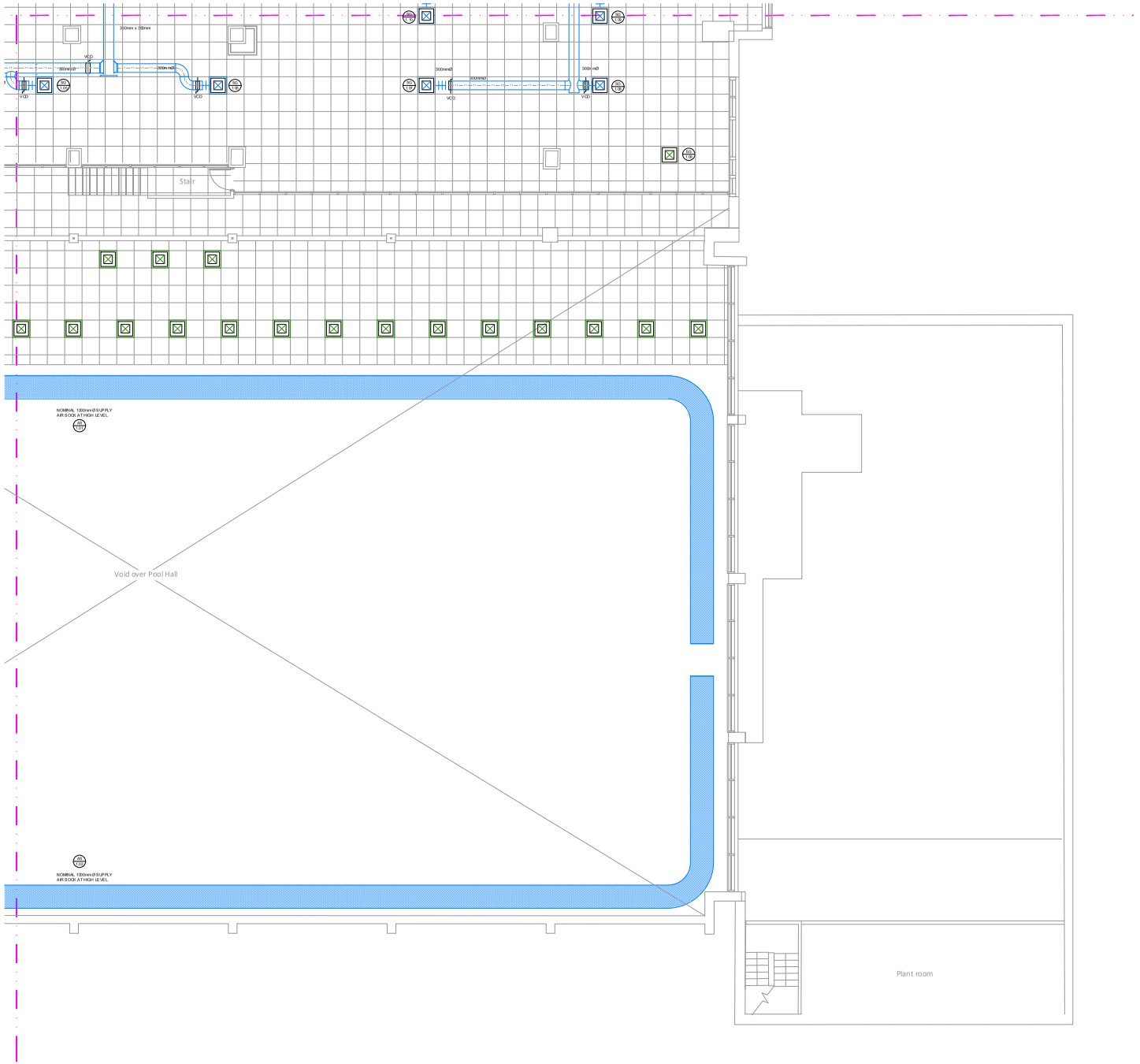
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VENTILATION NOTES

1. ALL EXPOSED DUCTWORK SHALL NOT BE INSULATED.
2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
4. ALL VCD's AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500mm LONG.

LEGEND

- EXTRACT DUCT WORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCT WORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- SIDE WALL GRILL
- DOOR TRANSFER GRILLE
- DTG FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- AIR SOCK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VCD VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE
- MATCHLINE

ABBREVIATIONS

ATT	-	ATTENUATOR
CTA	-	CROSS TALK ATTENUATOR
EG	-	EXTRACT GRILLE
EV	-	EXTRACT VALVE
FD	-	FIRE DAMPER
HRU	-	HEAT RECOVERY UNIT
SG	-	SUPPLY GRILLE
SV	-	SUPPLY VALVE
VCD	-	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.03.25	MP'O	DB
C01	CONSTRUCTION ISSUE	@ 03.25	MW	DB
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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
FIRST FLOOR
VENTILATION SERVICES LAYOUT
SHEET 4 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-01-DR-M-5704	AF01

11.38

HEN0203-HEN-00-02-DR-M-5201 rev AF01 Second Floor Above Ground Drainage Layout Sheet 1 of 4

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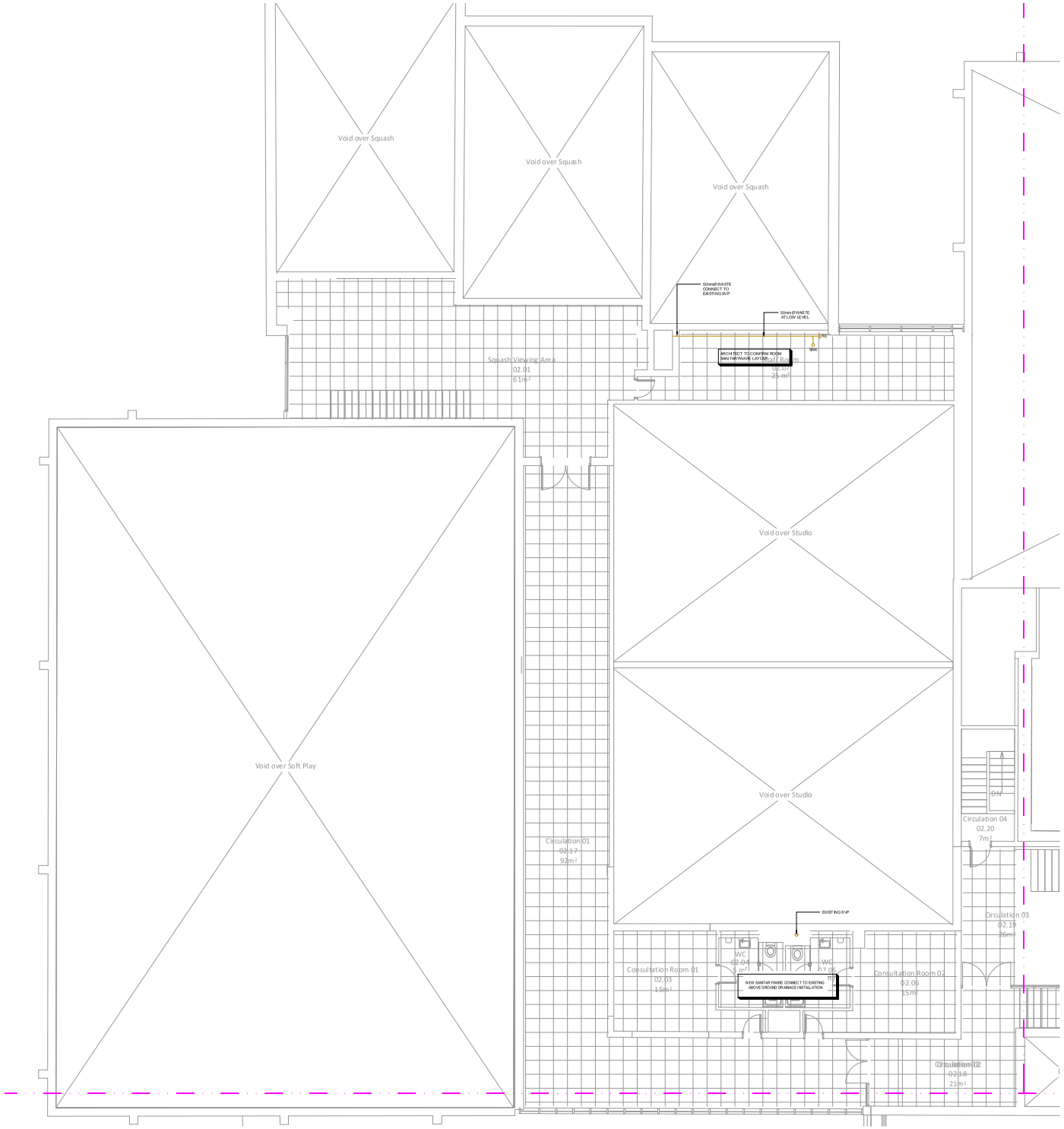
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Asset	0002M5201
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-02-DR-M-5201 AF01.pdf
Pages	1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

ABOVE GROUND DRAINAGE :

1. ALL PIPEWORK SHALL BE INSTALLED IN PVC-U EXCEPT HOT WATER DISCHARGE WHICH SHALL BE IN COPPER.
2. ALL HORIZONTAL PIPEWORKS SHALL BE INSTALLED WITH A MINIMUM OF 1:40 GRADIENT.
3. ALL HORIZONTAL VENT PIPEWORKS SHALL BE INSTALLED WITH A MINIMUM OF 1:100 GRADIENT.
4. RODDING EYES SHALL BE PROVIDED AT THE END OF EACH RUN AND AT EACH CHANGE OF DIRECTION.
5. RODDING EYES SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS.
6. CONNECTIONS TO BELOW GROUND DRAINAGE POP-UPS SHALL BE COMPLETE WITH 110mmø RODDING ACCESS AT 1200m n AFFL.
7. HEPO TRAP TO BE INSTALLED BY PLUMBING CONTRACTOR.
8. ALL BELOW GROUND DRAINAGE TO BE INSTALLED BY OTHERS.
9. ALL WEATHERING TO BE DONE BY OTHERS.

LEGEND

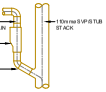
- SOIL AND VENT PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE — RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

SVP	-	110mm ø
WC	-	110mm ø
WHB	-	32mm ø
SINK	-	40mm ø
CL	-	40mm ø
FC	-	40mm ø
FG	-	110mm ø
DW	-	40mm ø

ABBREVIATIONS.

SVP	-	SOIL AND VENT PIPE
BS	-	SUB STACK
WP	-	WASTE PIPE
WHB	-	WASH HAND BASIN
WC	-	TOILET
CL	-	CLEANERS SINK
RE	-	RODDING EYE
FG	-	FLOOR GULLY
AAV	-	AUTOMATIC AIR VENT
DW	-	DISHWASHER
WM	-	WASHING MACHINE
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TYPICAL CONDENSATE TRACK CONNECTION

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	25.04.25	MP'O	DB
C01	CONSTRUCTION ISSUE	29.09.25	MW	DB
P01	PRELIMINARY ISSUE	26.03.25	MW	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
ABOVE GROUND DRAINAGE LAYOUT
SHEET 1 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DDP

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5201	AF01

11.39

HEN0203-HEN-00-02-DR-M-5202 rev AF01 Second Floor Above Ground Drainage Layout Sheet 2 of 4

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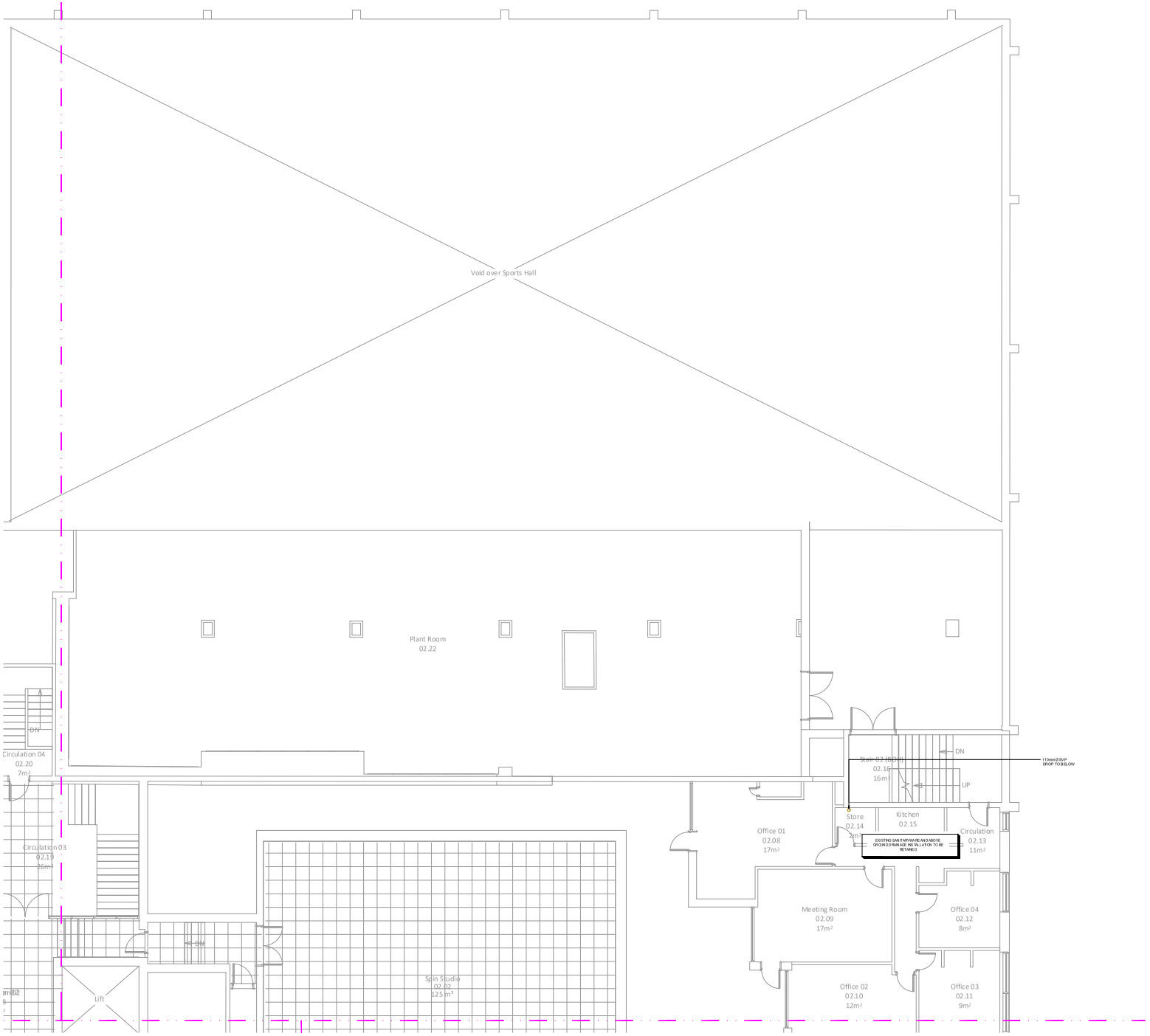
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Asset	0002M5202
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-02-DR-M-5202 AF01.pdf
Pages	1

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ABOVE GROUND DRAINAGE

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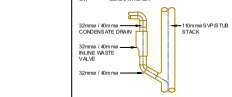
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- PIPEWORK AT LOW LEVEL
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- RE — RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

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WM	-	WASHING MACHINE
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TYPICAL CONDENSATE BLOCK DIAGRAM ONLY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	26.06.26	MP'O	DB
C01	CONSTRUCTION ISSUE	29.09.25	MW	DB
P01	PRELIMINARY ISSUE	26.03.25	MW	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
ABOVE GROUND DRAINAGE LAYOUT
SHEET 2 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DDP

DRAWING NO

HEN0203-HEN-00-02-DR-M-5202

REV

AF01

11.40

HEN0203-HEN-00-02-DR-M-5203 rev AF01 Second Floor Above Ground Drainage Layout Sheet 3 of 4

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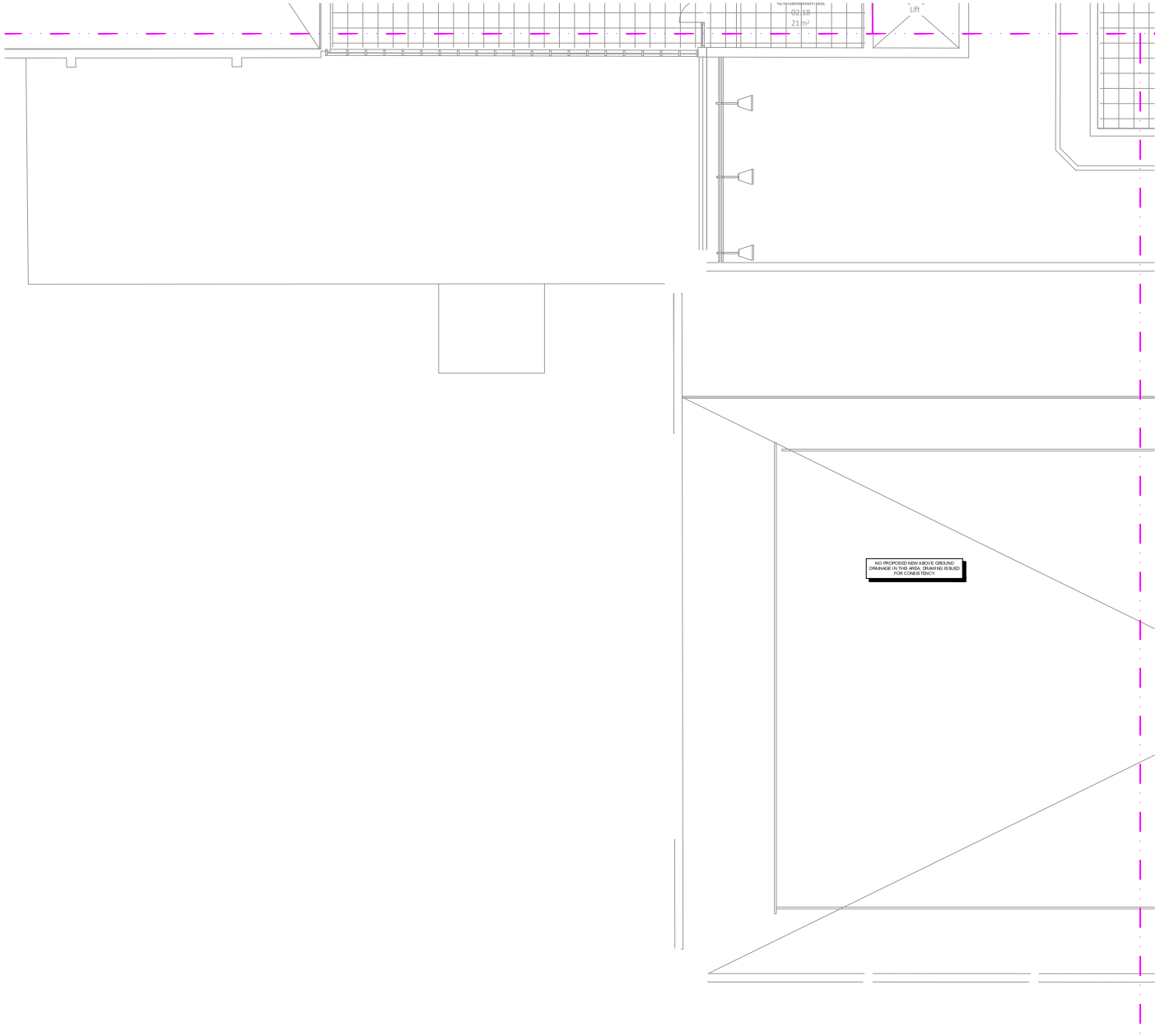
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Asset	0002M5203
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-02-DR-M-5203 AF01.pdf
Pages	1

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LEGEND

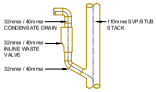
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- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE — RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

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SINK	-	40mm ø
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FC	-	40mm ø
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TYPICAL CONDENSATE BLOCK DIAGRAM

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	26.06.25	MP'O	DB
C01	CONSTRUCTION ISSUE	29.09.25	M.W.	DB
P01	PRELIMINARY ISSUE	26.03.25	M.W.	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
ABOVE GROUND DRAINAGE LAYOUT
SHEET 3 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DDP

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5203	AF01

11.41

HEN0203-HEN-00-02-DR-M-5204 rev AF01 Second Floor Above Ground Drainage Layout Sheet 4 of 4

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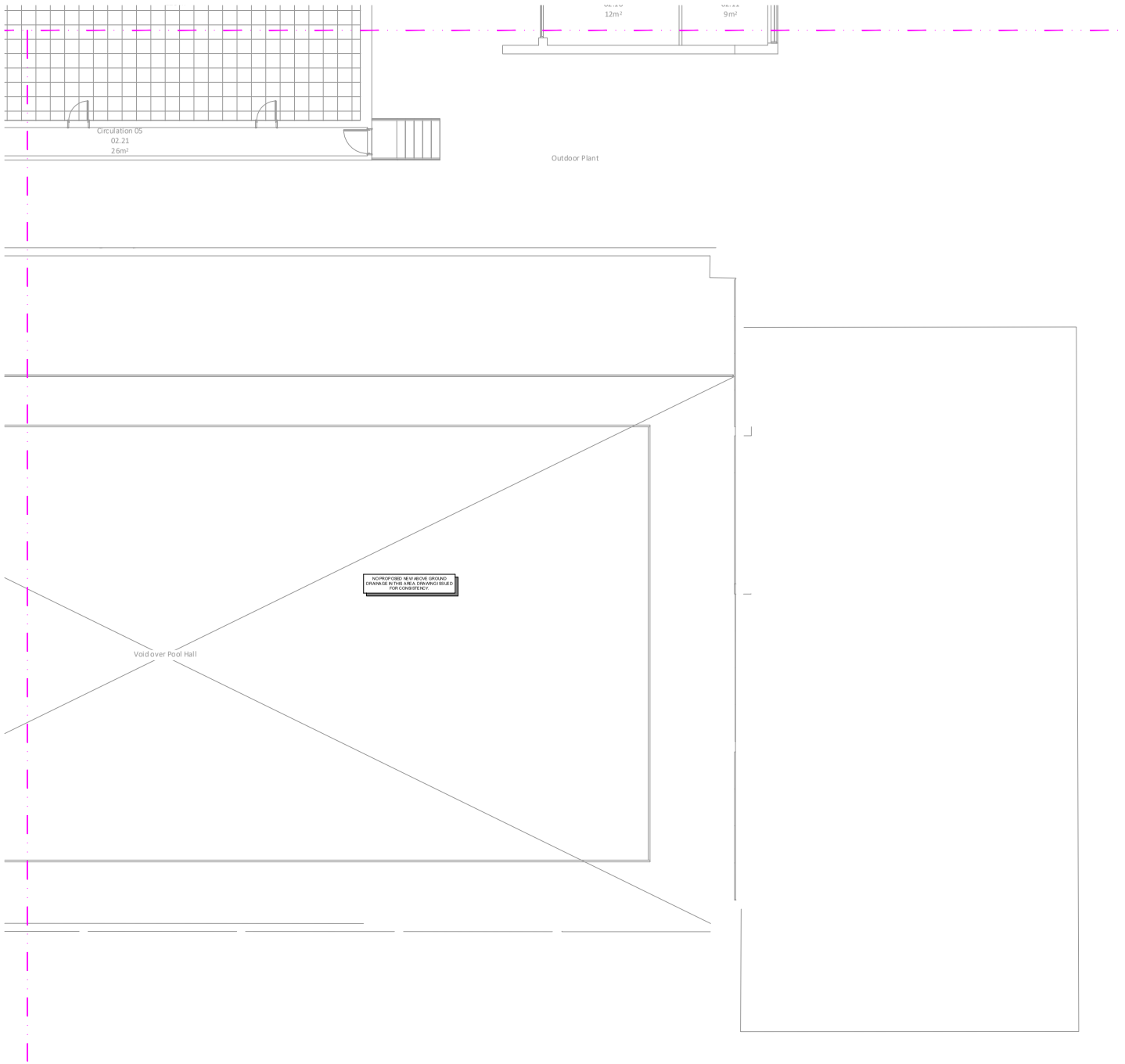
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Asset	0002M5204
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-02-DR-M-5204 AF01.pdf
Pages	1

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LEGEND

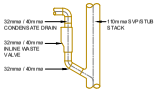
- SOIL AND VENT PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE — RODDING EYE
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- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

SVP	-	110mm ø
WC	-	110mm ø
WHB	-	32mm ø
SINK	-	40mm ø
CL	-	40mm ø
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FG	-	110mm ø
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ABBREVIATIONS

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FG	-	FLOOR GULLY
AAV	-	AUTOMATIC AIR VENT
DW	-	DISHWASHER
WM	-	WASHING MACHINE
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TYPICAL CONDENSATE BACK-CONNECTION

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	26.06.25	MP'O	DB
C01	CONSTRUCTION ISSUE	29.09.25	MW	DB
P01	PRELIMINARY ISSUE	26.03.25	MW	DB

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
ABOVE GROUND DRAINAGE LAYOUT
SHEET 4 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DDP

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5204	AF01

11.42

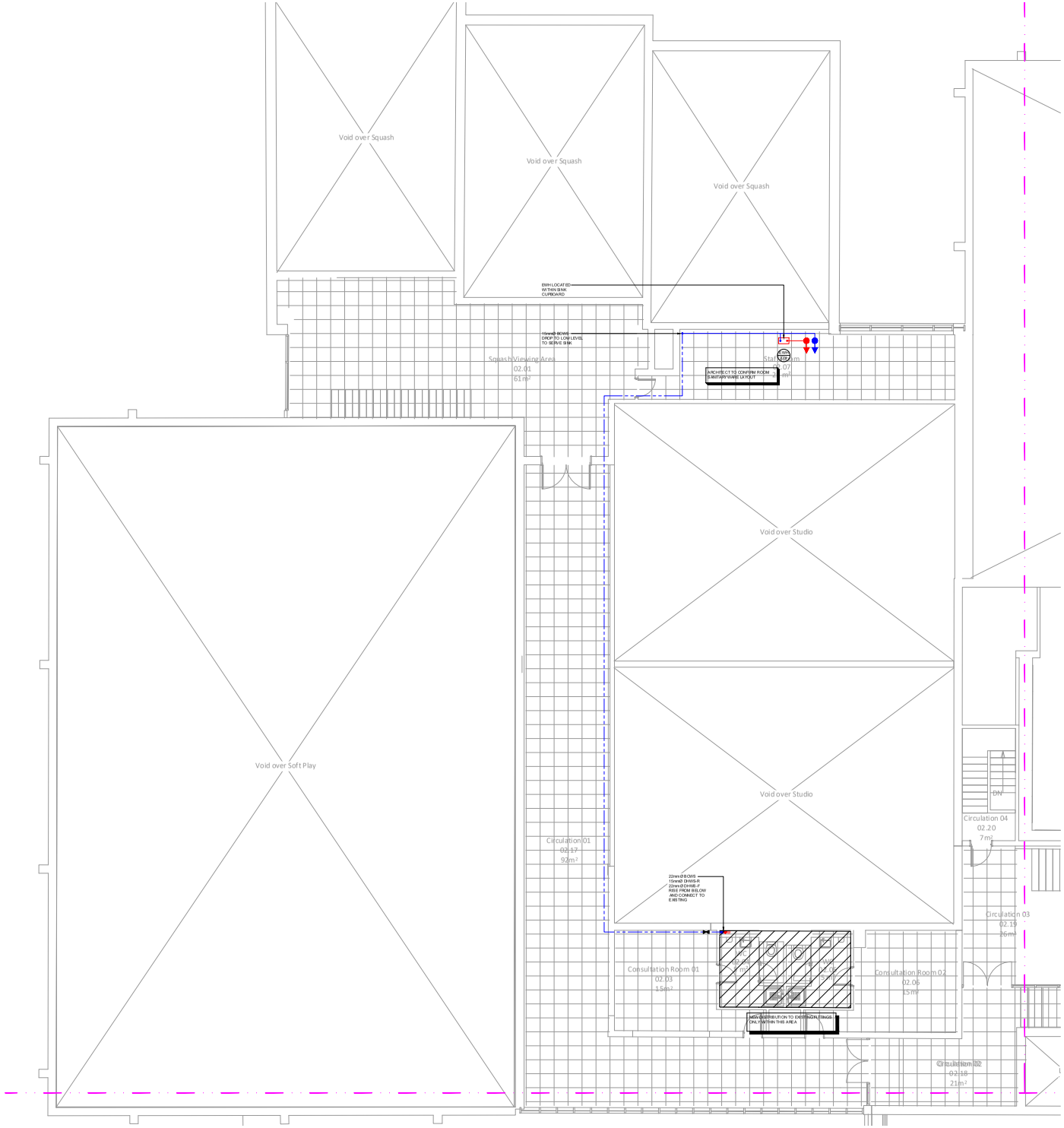
HEN0203-HEN-00-02-DR-M-5301 rev AF01 Second Floor Domestic Water Services Layout Sheet 1 of 4

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Asset	0002M5301
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

DOMESTIC SERVICES NOTES

1. ANY EXPOSED PIPEWORK SHALL BE CHROME EXCEPT IN CLEANERS STORES.
2. ALL FINAL CONNECTIONS SHALL BE 15mmØ UNLESS OTHERWISE NOTED.
3. ALL PIPEWORK SHALL BE INSULATED THROUGHOUT EXCEPT WHERE EXPOSED.
4. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
5. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-OF IX ISOLATING VALVES.
6. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 500mm.
7. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
8. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
9. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVE SHALL NOT EXCEED 1500m/s.
10. ALL TMV's SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- CATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- SHOWER MIXING VALVE
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	28.04.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	10.03.25	MW	DB

AS FITTED

CLIENT
HENSALL

PROJECT
ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
SECOND FLOOR
DOMESTIC WATER SERVICES LAYOUT
SHEET 1 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DDP

DRAWING N°	REV
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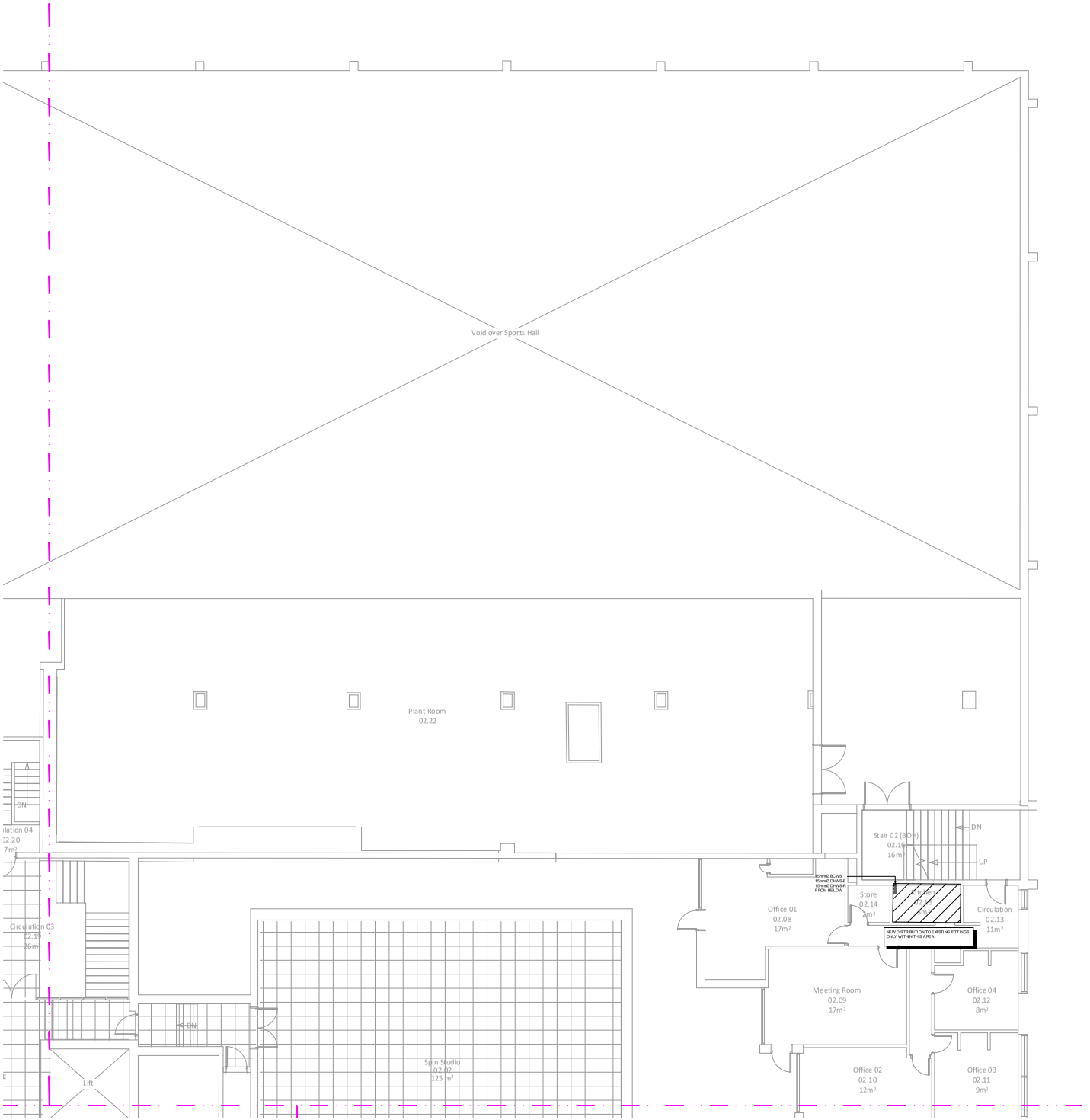
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1. ANY EXPOSED PIPEWORK SHALL BE CHROME EXCEPT IN CLEANERS STORES.
2. ALL FINAL CONNECTIONS SHALL BE 15mmØ UNLESS OTHERWISE NOTED.
3. ALL PIPEWORK SHALL BE INSULATED THROUGHOUT EXCEPT WHERE EXPOSED.
4. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
5. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
6. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 500mm.
7. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
8. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
9. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVE SHALL NOT EXCEED 1500mm.
10. ALL TMV's SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- CATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- SHOWER MIXING VALVE
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	28.04.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	10.03.25	MW	DB

AS FITTED

CLIENT
HENSALL

PROJECT
ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
SECOND FLOOR
DOMESTIC WATER SERVICES LAYOUT
SHEET 2 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DDP

DRAWING N° HEN0203-HEN-00-02-DR-M-5302

REV AF01

11.44

HEN0203-HEN-00-02-DR-M-5303 rev AF01 Second Floor Domestic Water Services Layout Sheet 3 of 4

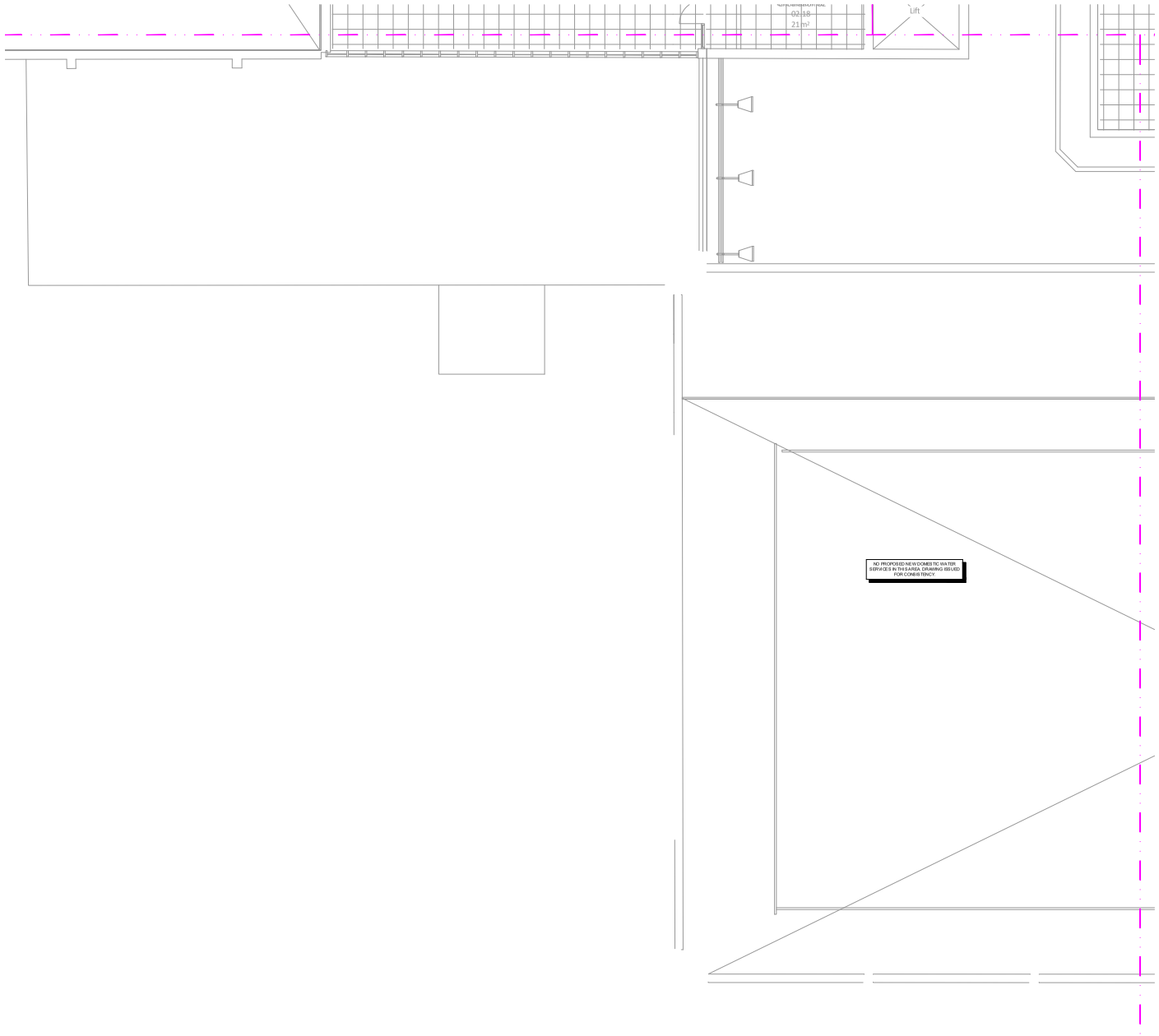
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Asset	0002M5303
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Source file	HEN0203-HEN-00-02-DR-M-5303 AF01.pdf
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KEY PLAN

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

DOMESTIC SERVICES NOTES

1. ANY EXPOSED PIPEWORK SHALL BE CHROME EXCEPT IN CLEANERS STORES.
2. ALL FINAL CONNECTIONS SHALL BE 15mmØ UNLESS OTHERWISE NOTED.
3. ALL PIPEWORK SHALL BE INSULATED THROUGHOUT EXCEPT WHERE EXPOSED.
4. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
5. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
6. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 500mm.
7. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
8. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
9. MIXED FLOW PIPEWORK FROM THETHERMOSTATIC MIXING VALVES SHALL NOT EXCEED 1500m/s.
10. ALL TMV's SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- CATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- SHOWER MIXING VALVE
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	29/04/26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
DOMESTIC WATER SERVICES LAYOUT
SHEET 3 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DDP

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5303	AF01

11.45

HEN0203-HEN-00-02-DR-M-5304 rev AF01 Second Floor Domestic Water Services Layout Sheet 4 of 4

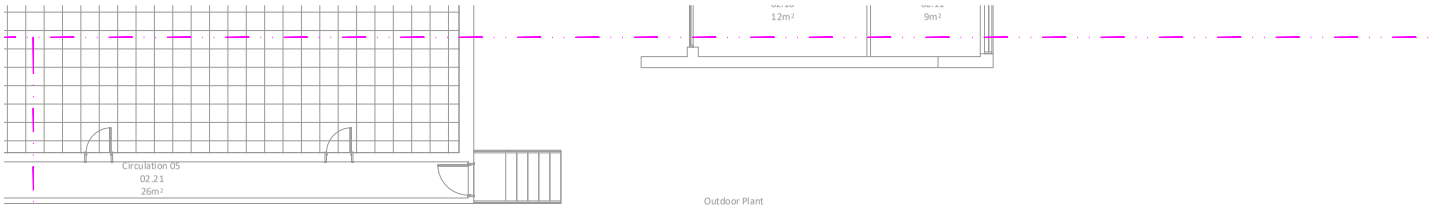
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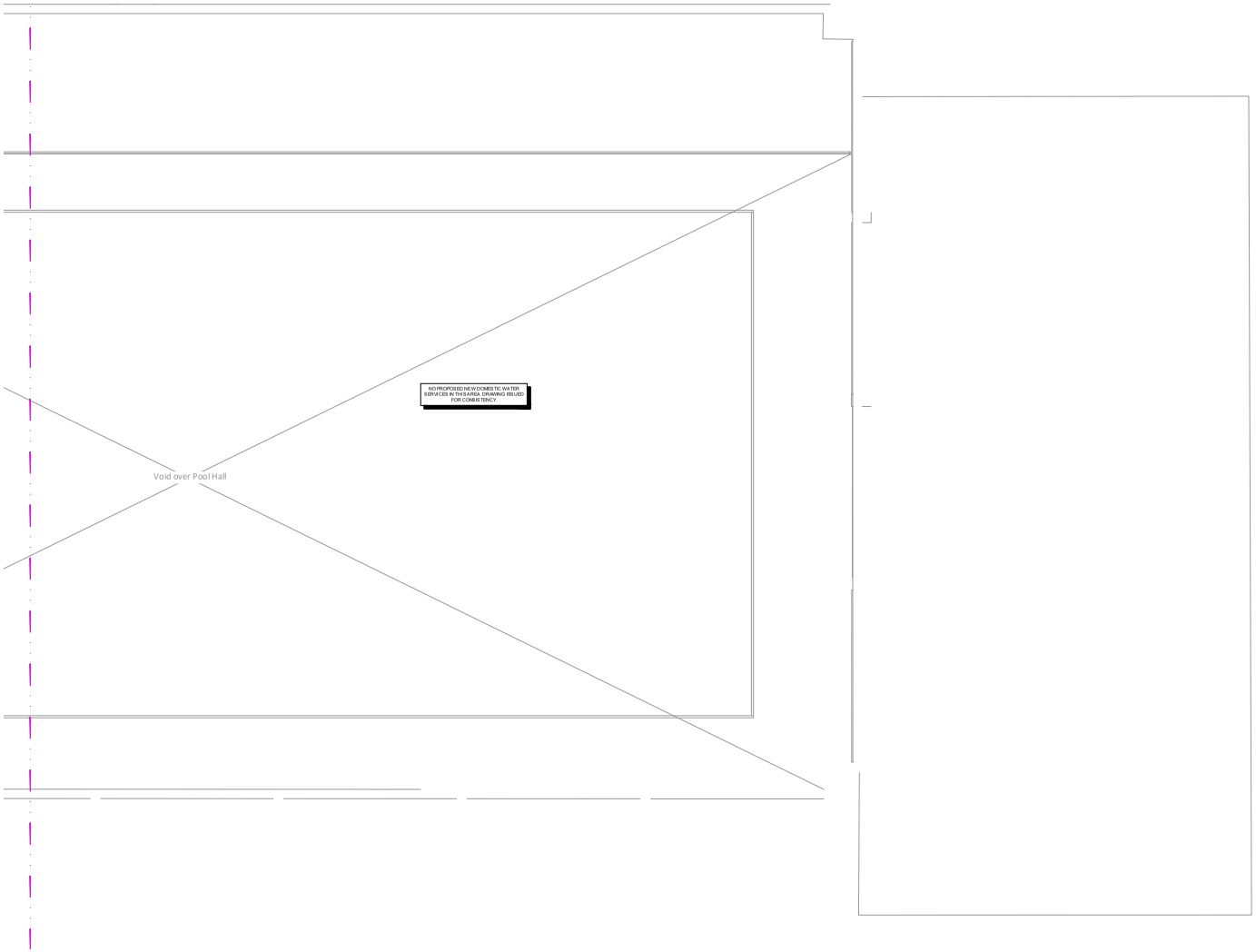
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Asset	0002M5304
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Source file	HEN0203-HEN-00-02-DR-M-5304 AF01.pdf
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3. ALL PENETRATIONS THROUGH WALL SHALL BE FILLED TO SUIT THE ACOUSTIC PERFORMANCE AND / OR THE FIRE REQUIREMENTS AS DETAILED ON THE ARCHITECTS DRAWINGS.
4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

DOMESTIC SERVICES NOTES

1. ANY EXPOSED PIPEWORK SHALL BE CHROME EXCEPT IN CLEANERS STORES.
2. ALL FINAL CONNECTIONS SHALL BE 15mm Ø UNLESS OTHERWISE NOTED.
3. ALL PIPEWORK SHALL BE INSULATED THROUGHOUT EXCEPT WHERE EXPOSED.
4. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
5. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
6. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 500mm.
7. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
8. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
9. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVES SHALL NOT EXCEED 1000mm.
10. ALL TMVs SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- CATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- SHOWER MIXING VALVE
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	29.04.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
DOMESTIC WATER SERVICES LAYOUT
SHEET 4 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DDP

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5304	AF01

11.46

HEN0203-HEN-00-02-DR-M-5601 rev AF01 Second Floor Heating and Cooling Services Layout Sheet 1 of 4

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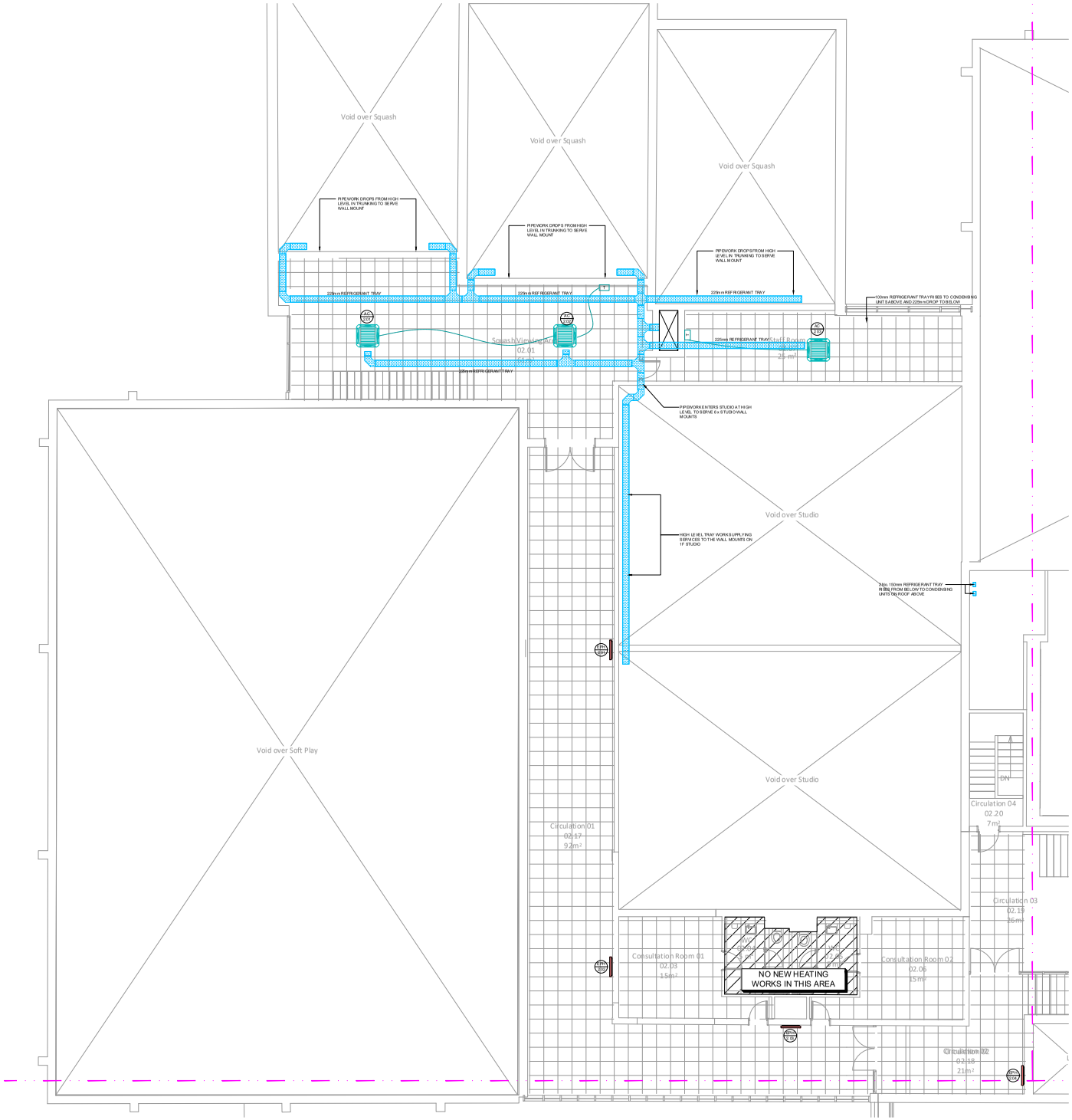
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Asset	0002M5601
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-02-DR-M-5601 AF01.pdf
Pages	1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAYOUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- AC — LOCAL WALL MOUNTED CONTROLLER
- CENT — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	19.03.25	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	**MW**	**DB**

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
HEATING AND COOLING SERVICES
SHEET 1 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5601	AF01

11.47

HEN0203-HEN-00-02-DR-M-5602 rev AF01 Second Floor Heating and Cooling Services Layout Sheet 2 of 4

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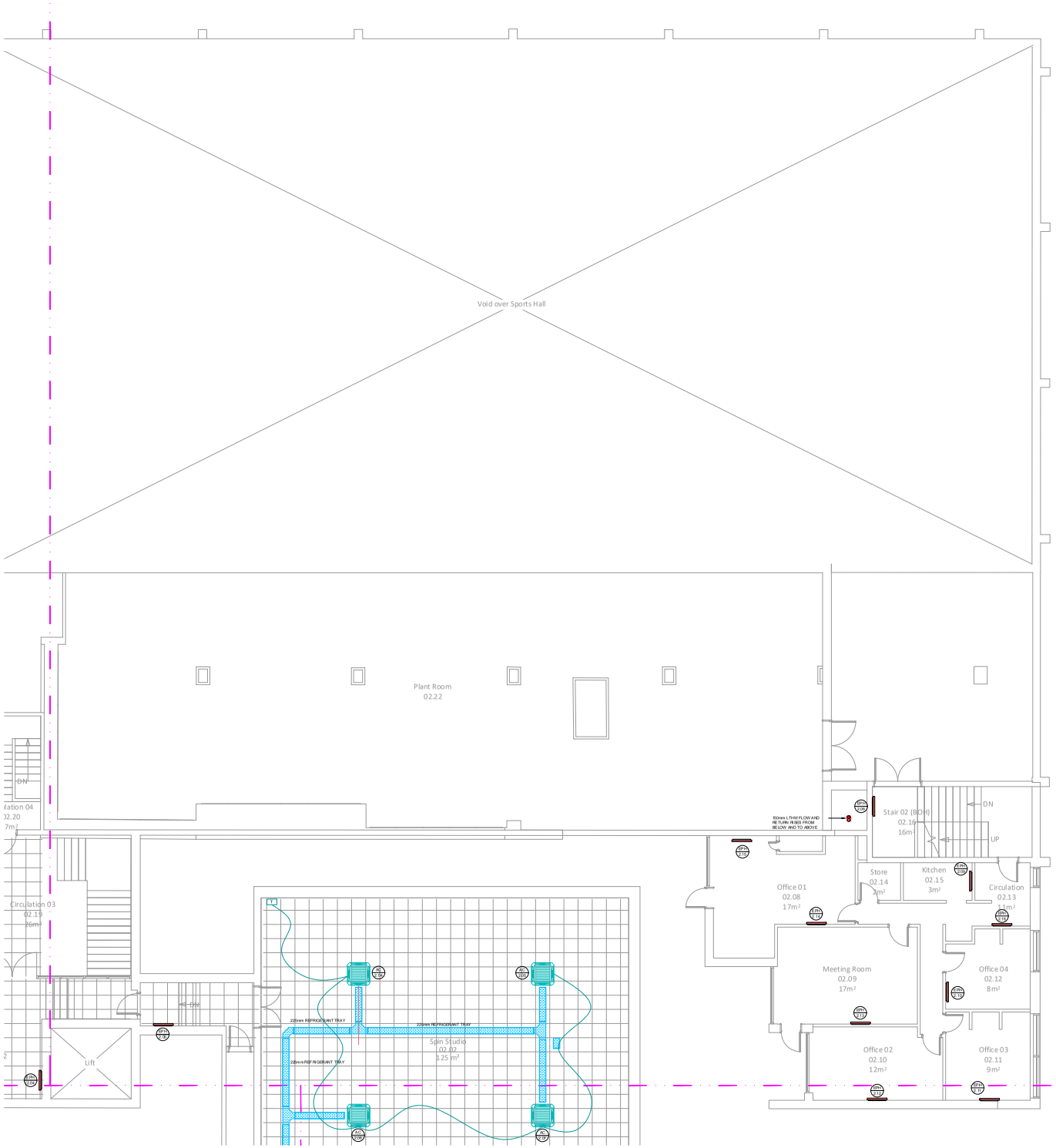
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Source file	HEN0203-HEN-00-02-DR-M-5602 AF01.pdf
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KEY PLAN



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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAYOUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- AC — LOCAL WALL MOUNTED CONTROLLER
- CWC — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	19.03.26	MFO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
HEATING AND COOLING SERVICES
SHEET 2 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5602	AF01

11.48

HEN0203-HEN-00-02-DR-M-5603 rev AF01 Second Floor Heating and Cooling Services Layout Sheet 3 of 4

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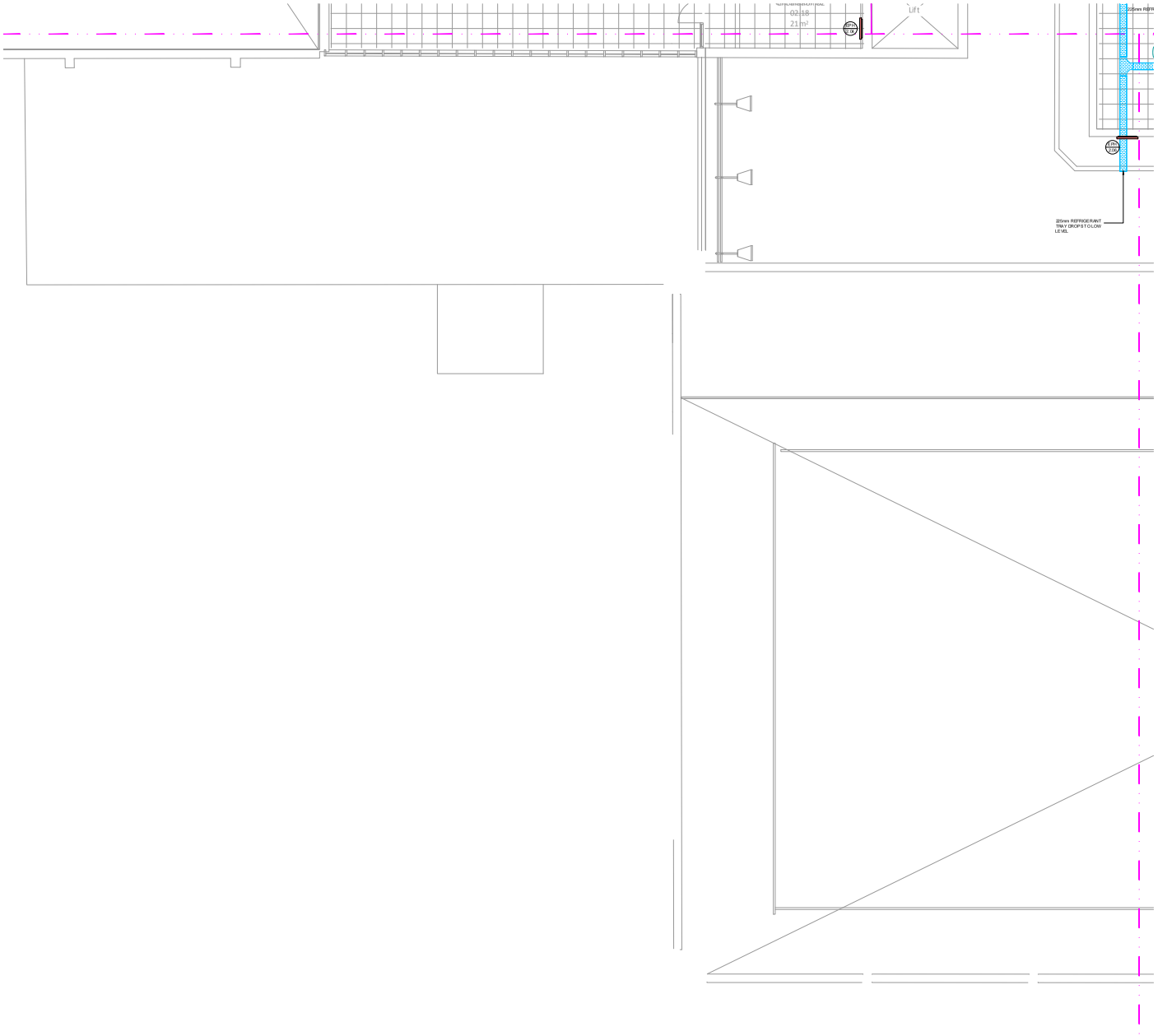
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAY OUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- AC — LOCAL WALL MOUNTED CONTROLLER
- ACC — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	19.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	**MW**	**DB**

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
HEATING AND COOLING SERVICES
SHEET 3 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
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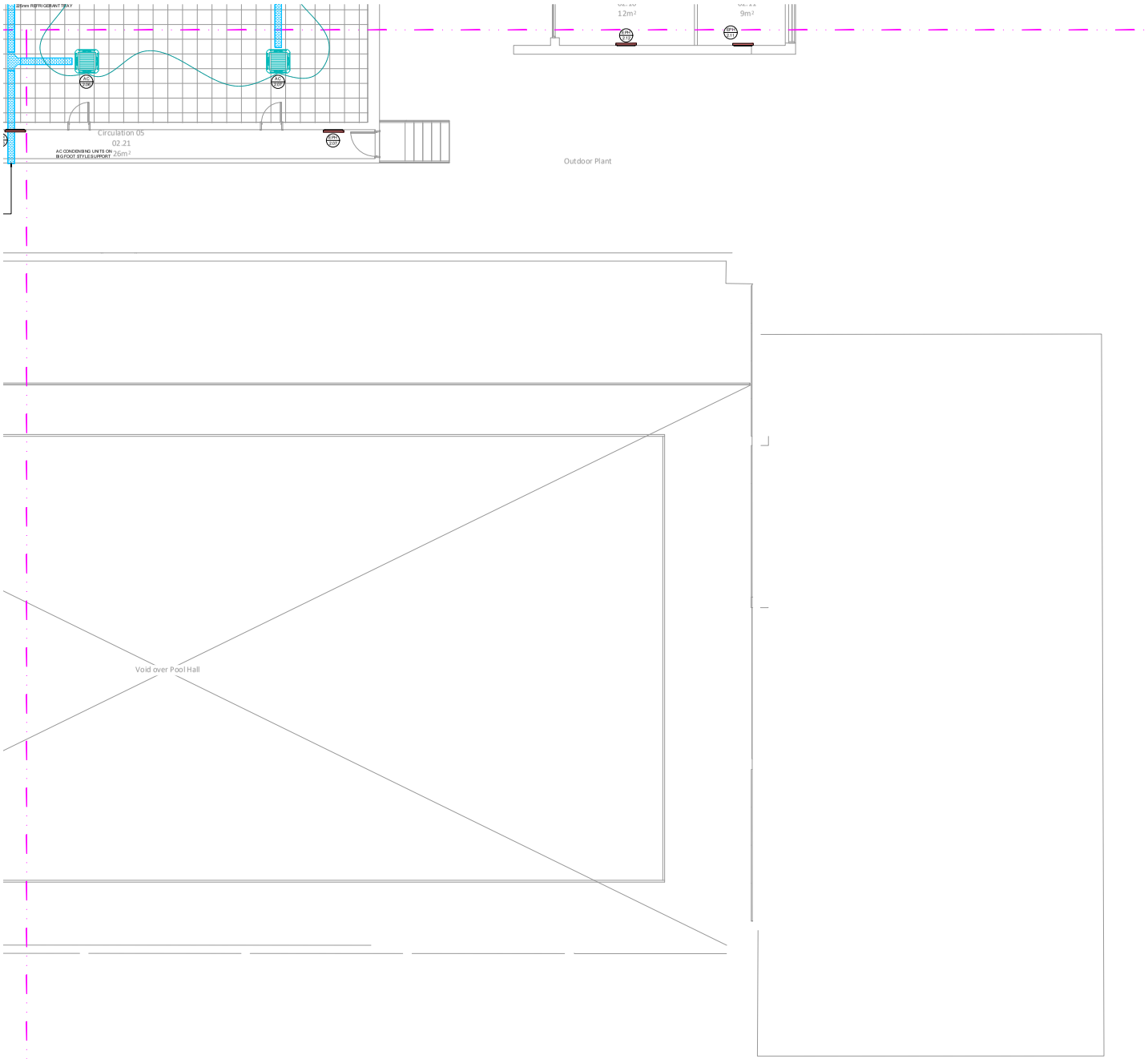
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAYOUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- AC — LOCAL WALL MOUNTED CONTROLLER
- ACC — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	19.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	**MW**	**DB**

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
HEATING AND COOLING SERVICES
SHEET 4 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5604	AF01

11.50

HEN0203-HEN-00-02-DR-M-5701 rev AF01 Second Floor Ventilation Services Layout Sheet 1 of 4

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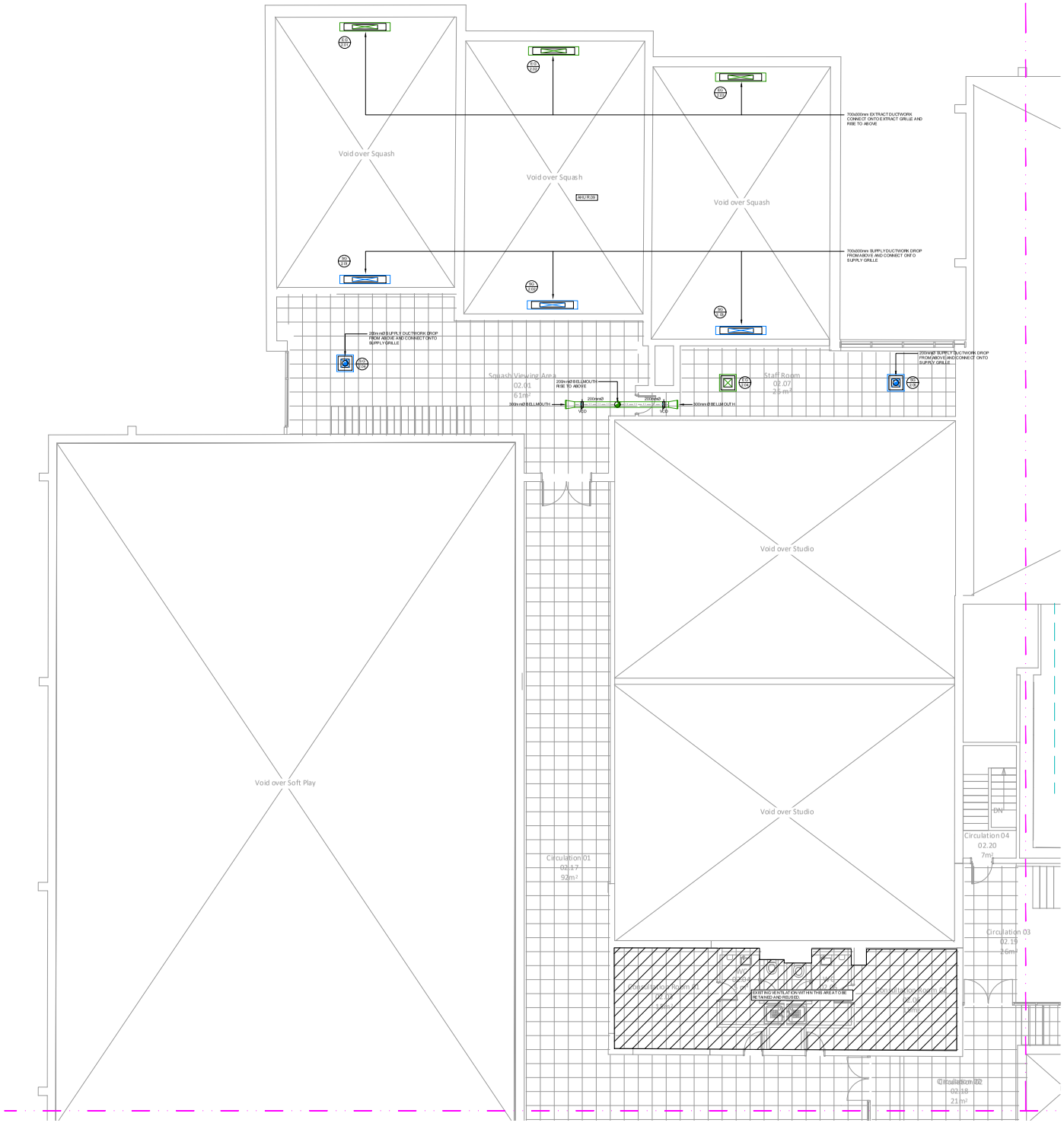
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Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-02-DR-M-5701 AF01.pdf
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

VENTILATION NOTES

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2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED.
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
4. ALL VCD's AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500mm LONG.

LEGEND

- EXTRACT DUCTWORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCTWORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- DOOR TRANSFER GRILLE (DT.G)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- RECTANGULAR DUCTWORK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE (XX / XX.X)
- MATCHLINE

ABBREVIATIONS

ATT	-	ATTENUATOR
CTA	-	CROSS TALK ATTENUATOR
EG	-	EXTRACT GRILLE
EV	-	EXTRACT VALVE
FD	-	FIRE DAMPER
HRU	-	HEAT RECOVERY UNIT
SG	-	SUPPLY GRILLE
SV	-	SUPPLY VALVE
VCD	-	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	29.04.26	MPO	DB
C02	EQUASH COURT DUCTWORK AMENDED	12.05.25	MW	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
VENTILATION SERVICES LAYOUT
SHEET 1 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5701	AF01

11.51

HEN0203-HEN-00-02-DR-M-5702 rev AF01 Second Floor Ventilation Services Layout Sheet 2 of 4

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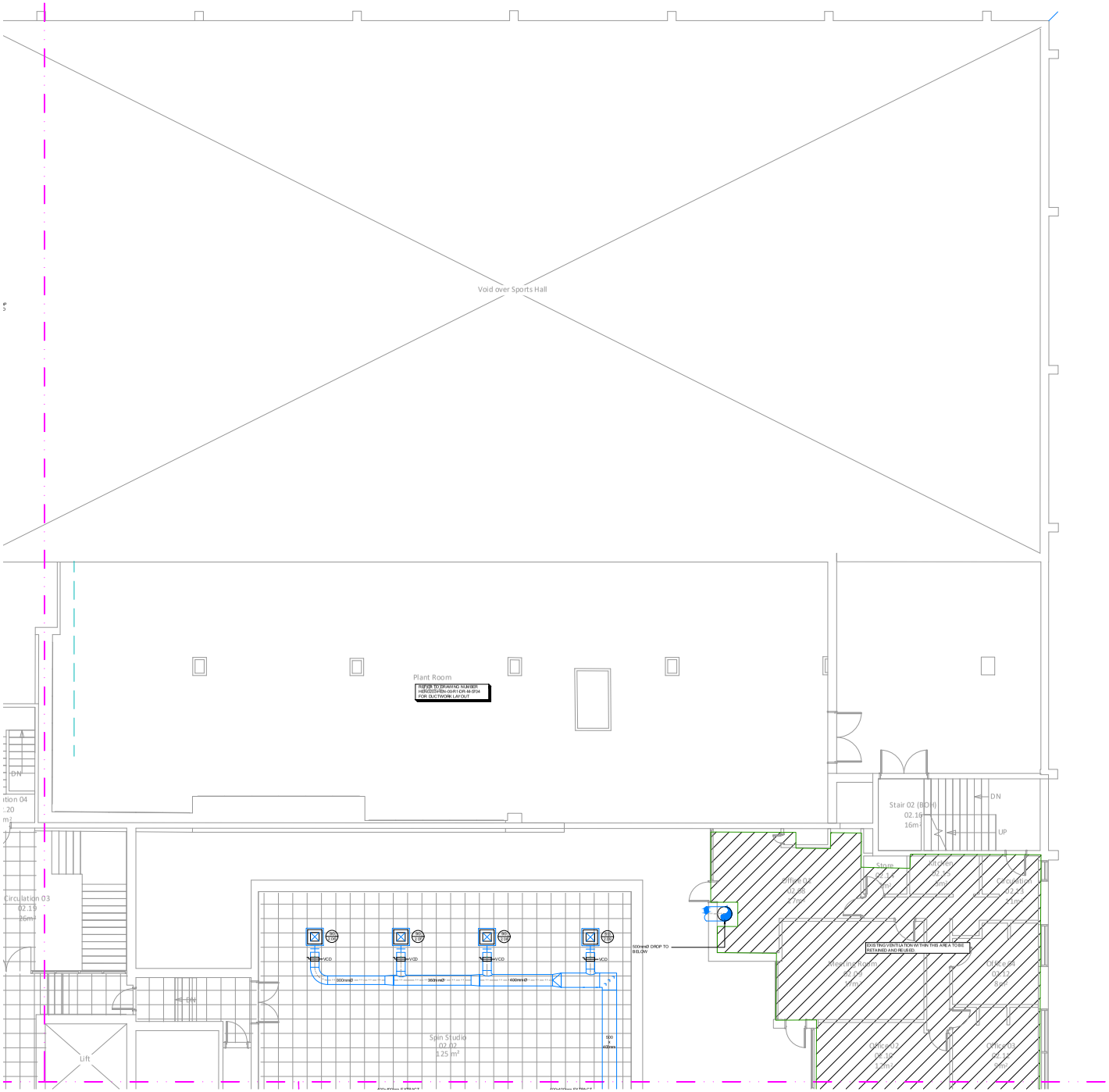
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VENTILATION NOTES

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2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED.
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW/144 AND DW/172.
4. ALL VCD's AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500mm LONG.

LEGEND

- EXTRACT DUCTWORK
- SUPPLY DUCTWORK
- FRESH AIR / INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCTWORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- DOOR TRANSFER GRILLE (DT G)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- RECTANGULAR DUCTWORK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE (XX / XXX)
- MATCHLINE

ABBREVIATIONS

ATT	-	ATTENUATOR
CTA	-	CROSS TALK ATTENUATOR
EG	-	EXTRACT GRILLE
EV	-	EXTRACT VALVE
FD	-	FIRE DAMPER
HRU	-	HEAT RECOVERY UNIT
SG	-	SUPPLY GRILLE
SV	-	SUPPLY VALVE
VCD	-	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	2804.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
VENTILATION SERVICES LAYOUT
SHEET 2 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-02-DR-M-5702	AF01

11.52

HEN0203-HEN-00-02-DR-M-5703 rev AF01 Second Floor Ventilation Services Layout Sheet 3 of 4

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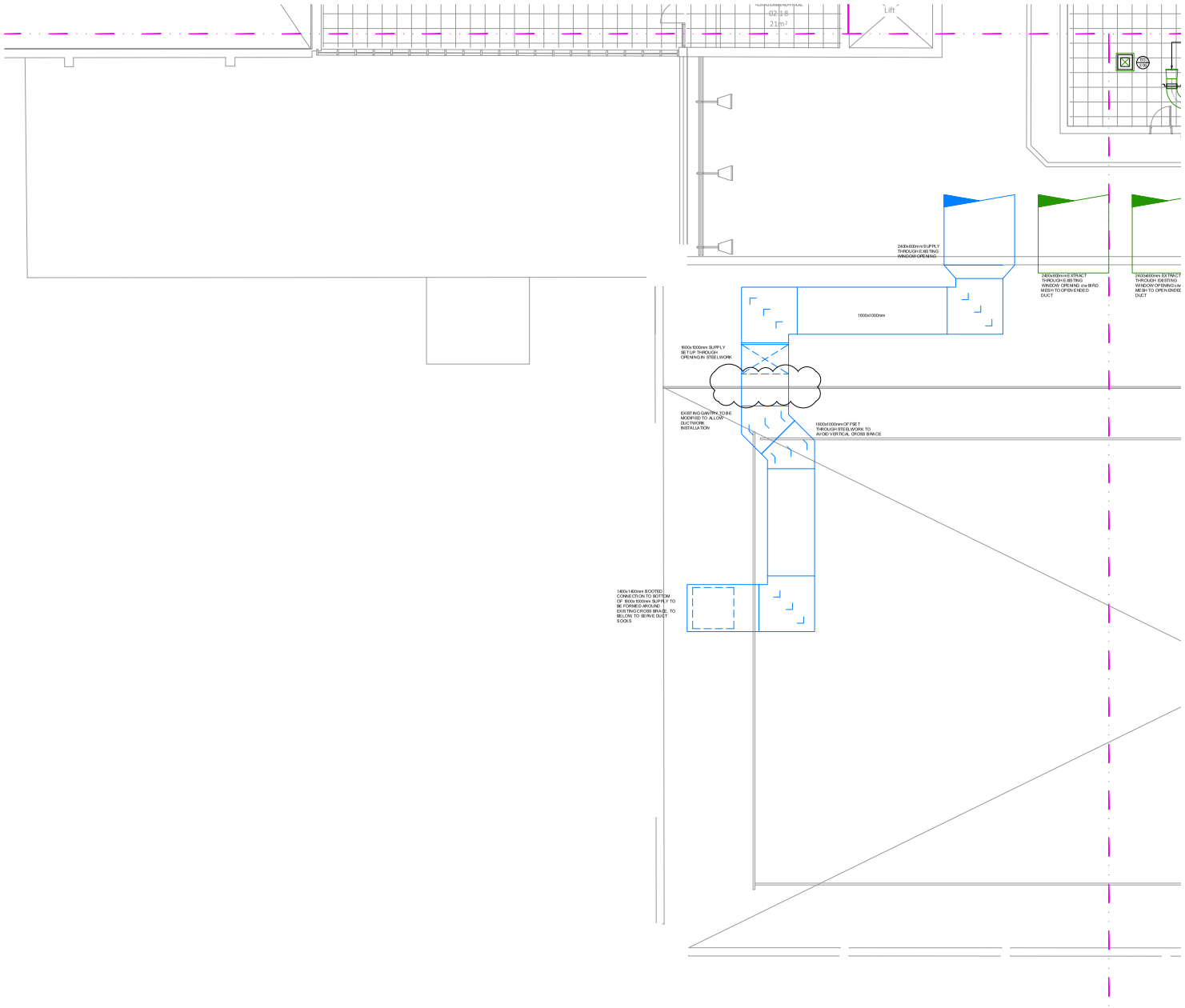
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Pages	1

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VENTILATION NOTES

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3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
4. ALL VCD'S AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500mm LONG.

LEGEND

- EXTRACT DUCTWORK
- SUPPLY DUCT WORK
- FRESH AIR INTAKE DUCT WORK
- EXHAUST DUCT WORK
- FLEXIBLE DUCTWORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- DOOR TRANSFER GRILLE (DTG)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- RECTANGULAR DUCTWORK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE (AA / XX)
- MATCHLINE

ABBREVIATIONS

ATT	-	ATTENUATOR
CTA	-	CROSS TALK ATTENUATOR
EG	-	EXTRACT GRILLE
EV	-	EXTRACT VALVE
FD	-	FIRE DAMPER
HRU	-	HEAT RECOVERY UNIT
SG	-	SUPPLY GRILLE
SV	-	SUPPLY VALVE
VCD	-	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
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C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
VENTILATION SERVICES LAYOUT
SHEET 3 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
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HEN0203-HEN-00-02-DR-M-5704 rev AF01 Second Floor Ventilation Services Layout Sheet 4 of 4

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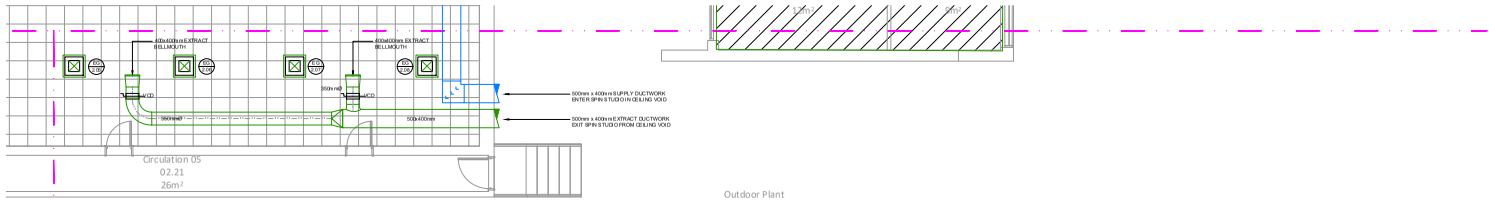
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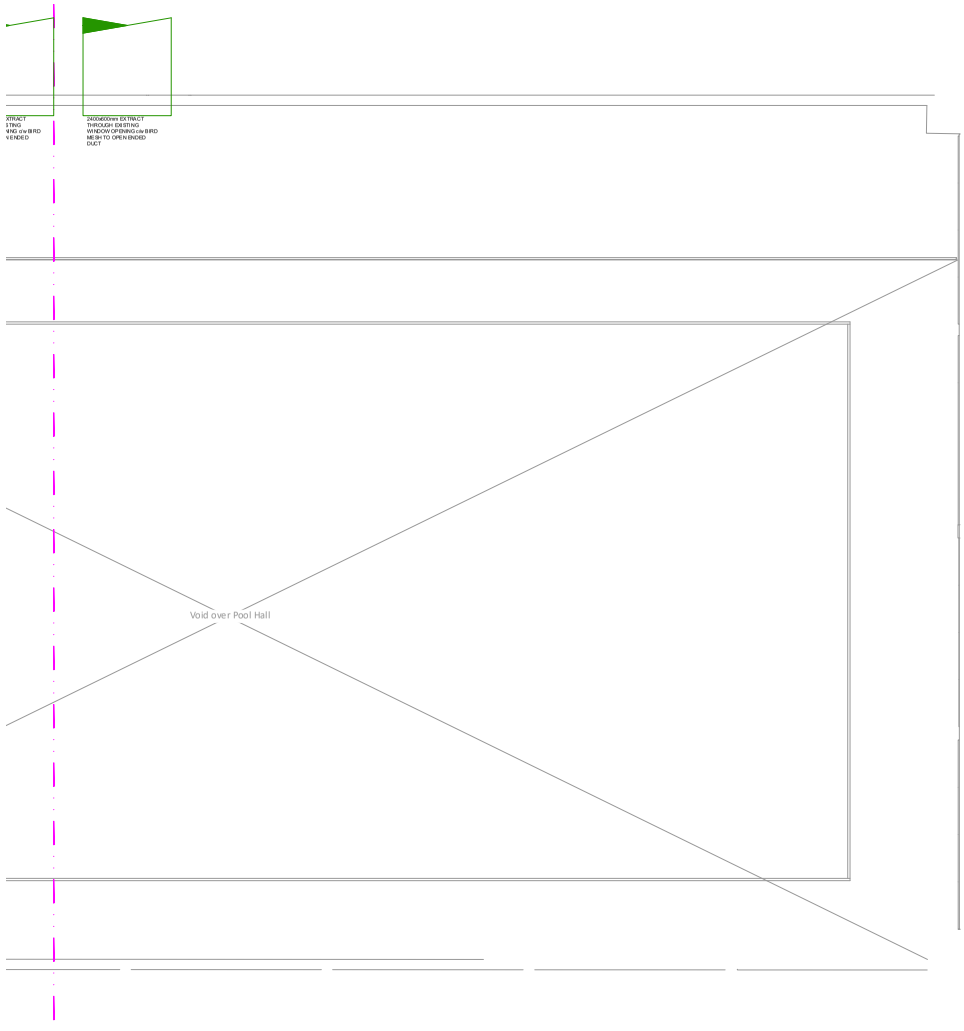
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VENTILATION NOTES

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LEGEND

- EXTRACT DUCTWORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCTWORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- DOOR TRANSFER GRILLE (DT.G)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- RECTANGULAR DUCTWORK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE (AX 00.X)
- MATCHLINE

ABBREVIATIONS

ATT	-	ATTENUATOR
CTA	-	CROSS TALK ATTENUATOR
EG	-	EXTRACT GRILLE
EV	-	EXTRACT VALVE
FD	-	FIRE DAMPER
HRU	-	HEAT RECOVERY UNIT
SG	-	SUPPLY GRILLE
SV	-	SUPPLY VALVE
VCD	-	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	29.04.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

AS FITTED

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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
SECOND FLOOR
VENTILATION SERVICES LAYOUT
SHEET 4 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
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11.54

HEN0203-HEN-00-B1-DR-M-5901 rev AF01 Upper Basement Combined Services Layout Sheet 1 of 1

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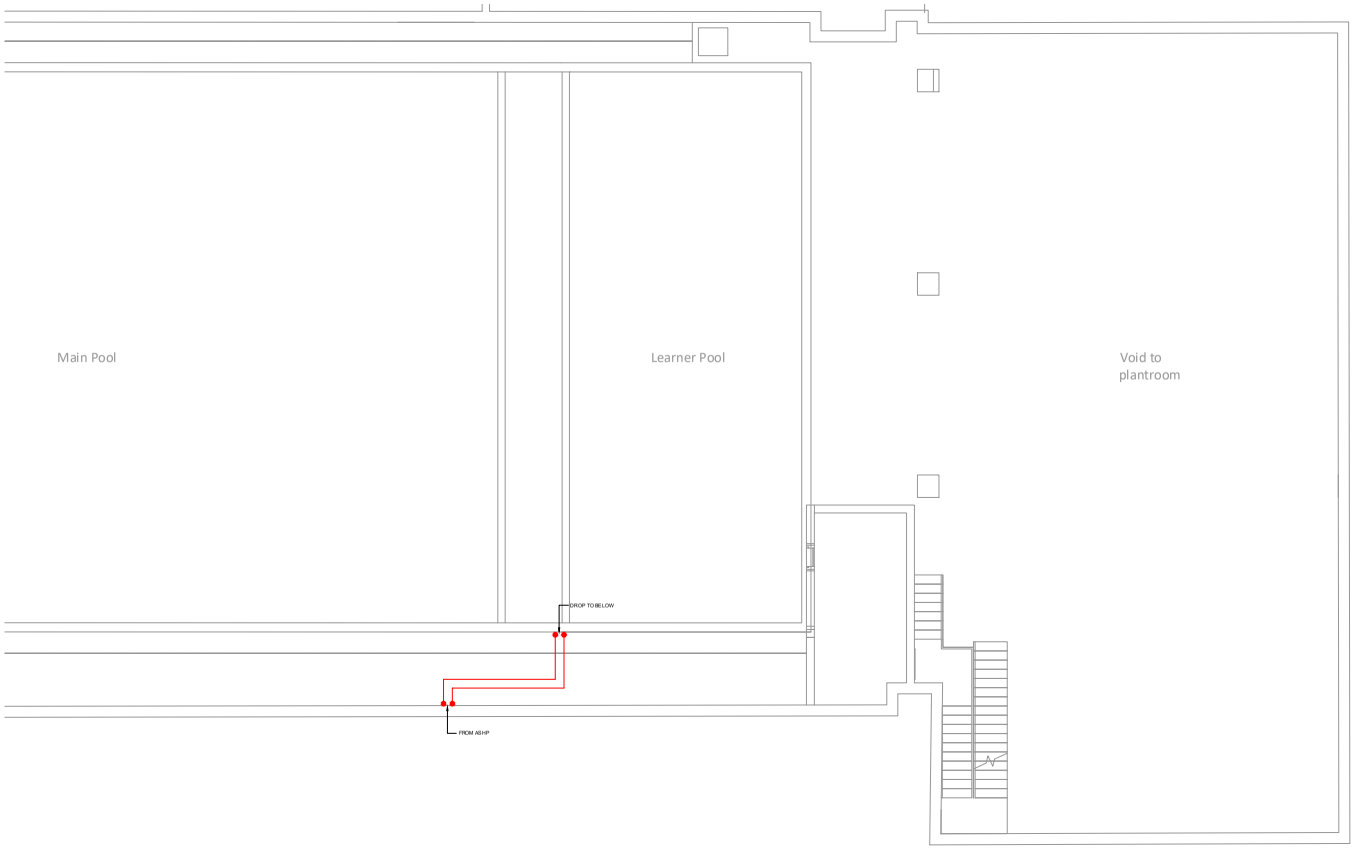
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

DOMESTIC SERVICES NOTES

1. ANY EXPOSED PIPEWORK SHALL BE CHROME EXCEPT IN CLEANERS STORES.
2. ALL FINAL CONNECTIONS SHALL BE 15nB UNLESS OTHERWISE NOTED.
3. ALL PIPEWORK SHALL BE INSULATED THROUGHOUT EXCEPT WHERE SPORED.
4. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
5. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
6. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 300m m.
7. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
8. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
9. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVE SHALL NOT EXCEED 1500mm.
10. ALL TMV's SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- TCWS PIPEWORK
- GATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

REV	DESCRIPTION	DATE	DRAWN	CHECK
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C01	CONSTRUCTION ISSUE	26/09/25	MPO	DB
P01	PRELIMINARY ISSUE	04.04.25	MPO	DB

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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
UPPER BASEMENT
COMBINED SERVICES
SHEET 1 OF 1

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	IJS	DDP

DRAWING N°	REV
HEN0203-HEN-00-B1-DR-M-5901	AF01

11.55

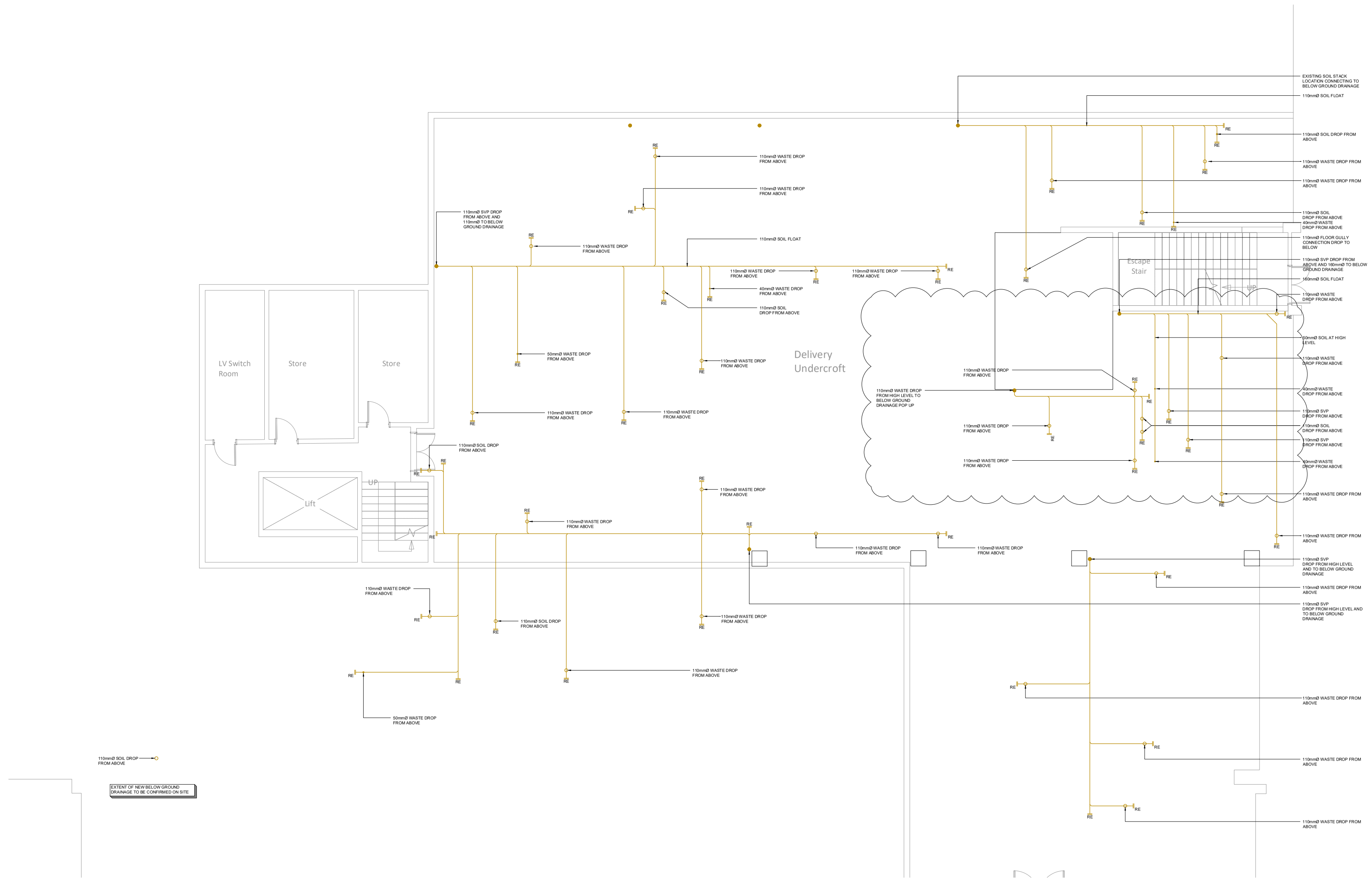
HEN0203-HEN-00-B2-DR-M-5201 rev AF01 Mechanical Services Lower Basement Above Ground Drainage Layout Sheet 1 of 2

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Asset	00B2M5201
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ABOVE GROUND DRAINAGE :

1. ALL PIPEWORK SHALL BE INSTALLED IN PVC-U EXCEPT HOT WATER DISCHARGE WHICH SHALL BE IN COPPER.
2. ALL HORIZONTAL PIPEWORK SHALL BE INSTALLED WITH A MINIMUM OF 1:40 GRADIENT.
3. ALL HORIZONTAL VENT PIPEWORK SHALL BE INSTALLED WITH A. MINIMUM OF 1:100 GRADIENT.
4. RODDING EYES SHALL BE PROVIDED AT THE END OF EACH RUN AND AT EACH CHANGE OF DIRECTION.
5. RODDING EYES SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS.
6. CONNECTIONS TO BELOW GROUND DRAINAGE POP-UPS SHALL BE COMPLETE WITH 110mmø RODDING ACCESS AT 1200mm AFFL.
7. HEPVO TRAP TO BE INSTALLED BY PLUMBING CONTRACTOR.
8. ALL BELOW GROUND DRAINAGE TO BE INSTALLED BY OTHERS.
9. ALL WEATHERING TO BE DONE BY OTHERS.

LEGEND

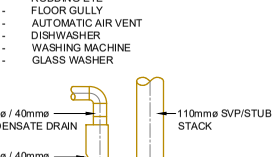
- SOIL AND VENT PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE — RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP 14 — SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

SVP - 110mmø
WC - 110mmø
WHB - 32mmø
SINK - 40mmø
CL - 40mmø
FC - 40mmø
FG - 110mmø
DW - 40mmø

ABBREVIATIONS:

SVP - SOIL AND VENT PIPE
SS - SUB STACK
VP - VENT PIPE
WP - WASTE PIPE
WHB - WASH HAND BASIN
WC - TOILET
CL - CLEANERS SINK
RE - RODDING EYE
FG - FLOOR GULLY
AAV - AUTOMATIC AIR VENT
DW - DISHWASHER
WM - WASHING MACHINE
GW - GLASS WASHER



TYPICAL CONDENSATE STACK CONNECTION

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	28.04.26	MPO	DB
C01	CONSTRUCTION ISSUE	29.09.25	MW	DB
P02	PRELIMINARY ISSUE	16.09.25	MPO	DB
P01	PRELIMINARY ISSUE	25.04.25	MPO	DB

AS FITTED

CLIENT
HENSALL

PROJECT
ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
LOWER BASEMENT
ABOVE GROUND DRAINAGE LAYOUT
SHEET 1 OF 2

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	SEPT '24	IJS	DDP

DRAWING N°	REV
HEN0203-HEN-00-B2-DR-M-5201	AF01

11.56

HEN0203-HEN-00-B2-DR-M-5202 rev AF01 Mechanical Services Lower Basement Above Ground Drainage Layout Sheet 2 of 2

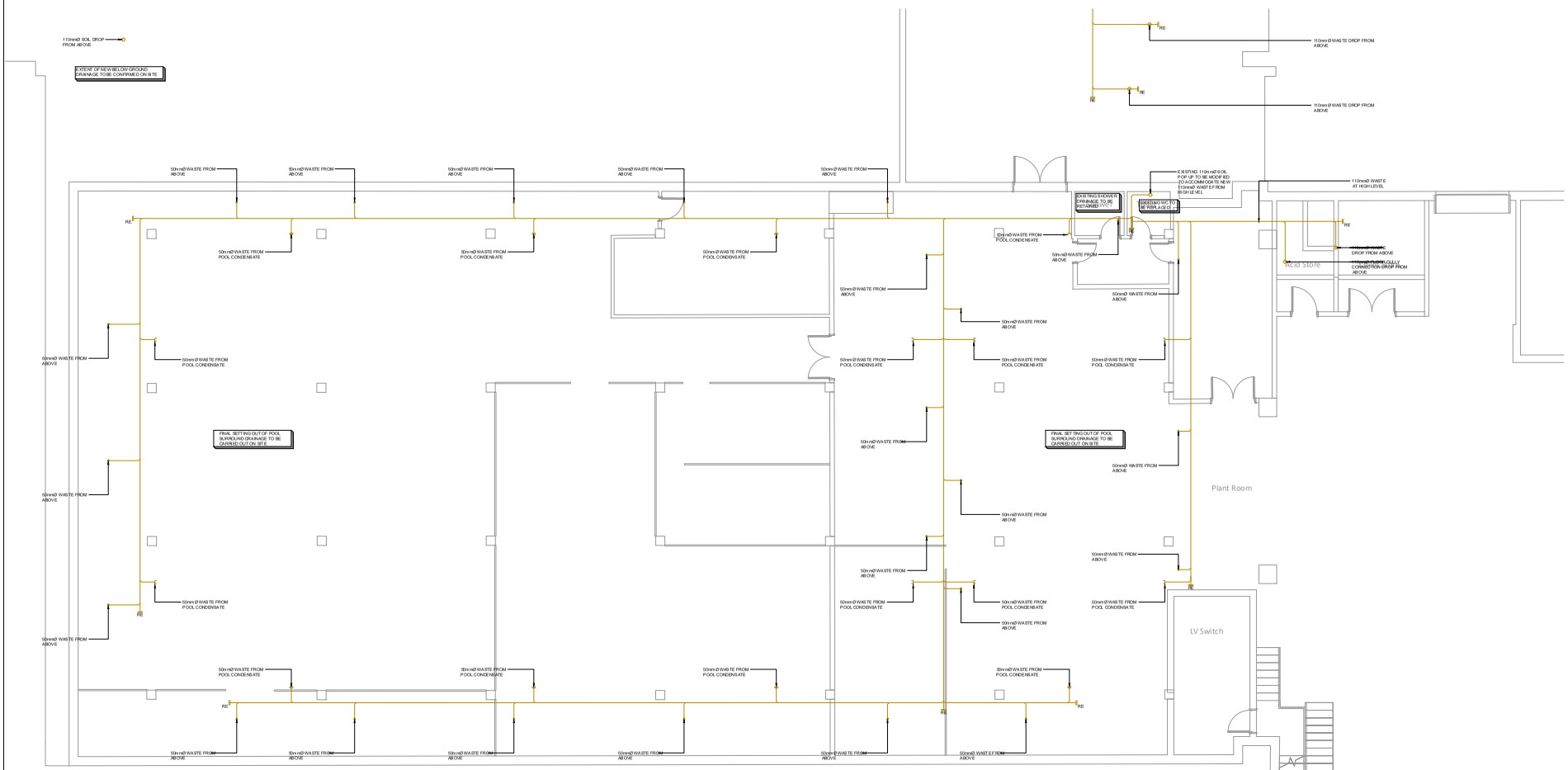
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Asset	00B2M5202
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-B2-DR-M-5202 AF01.pdf
Pages	1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

ABOVE GROUND DRAINAGE :

1. ALL PIPEWORK SHALL BE INSTALLED IN PVC-U EXCEPT HOT WATER DISCHARGE WHICH SHALL BE IN COPPER.
2. ALL HORIZONTAL PIPEWORK SHALL BE INSTALLED WITH A MINIMUM OF 1:40 GRADIENT.
3. ALL HORIZONTAL VENT PIPEWORK SHALL BE INSTALLED WITH A MINIMUM OF 1:100 GRADIENT.
4. RODDING EYES SHALL BE PROVIDED AT THE END OF EACH RUN AND AT EACH CHANGE OF DIRECTION.
5. RODDING EYES SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS.
6. CONNECTIONS TO BELOW GROUND DRAINAGE POP-UPS SHALL BE COMPLETE WITH 110mmø RODDING ACCESS AT 1200mm APFL.
7. HEPVO TRAP TO BE INSTALLED BY PLUMBING CONTRACTOR.
8. ALL BELOW GROUND DRAINAGE TO BE INSTALLED BY OTHERS.
9. ALL WEATHERING TO BE DONE BY OTHERS.

LEGEND

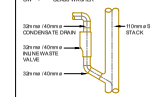
- SOIL AND VENT PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- A1/P1 SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

SVP	-	110mm ø
WC	-	110mm ø
WHB	-	32m ms
SINK	-	40mms
CL	-	40mms
FC	-	40mms
FG	-	110mm ø
DW	-	40mms

ABBREVIATIONS

S-VP	-	SOIL AND VENT PIPE
SS	-	SUB STACK
VP	-	VENT PIPE
WP	-	WASTE PIPE
WHB	-	WASH HAND BASIN
WC	-	TOILET
CL	-	CLEANERS SINK
RE	-	RODDING EYE
FG	-	FLOOR GULLY
AAV	-	AUTOMATIC AIR VENT
DW	-	DISHWASHER
WM	-	WASHING MACHINE
GW	-	GLASS WASHER



TYPICAL CONDENSATE STACK CONNECTION

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	23.04.26	MPO	DB
C01	CONSTRUCTION ISSUE	26.09.25	MW	DB
P02	POOL AREA DRAINAGE CLARIFIED	05.06.25	MPO	DB
P01	PRELIMINARY ISSUE	25.04.25	MPO	DB

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CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
LOWER BASEMENT
ABOVE GROUND DRAINAGE LAYOUT
SHEET 2 OF 2

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	IJS	DDP

DRAWING N°	REV
HEN0203-HEN-00-B2-DR-M-5202	AF01

11.57

HEN0203-HEN-00-B2-DR-M-5901 rev AF01 Lower Basement Combined Servies Layout Sheet 1 of 2

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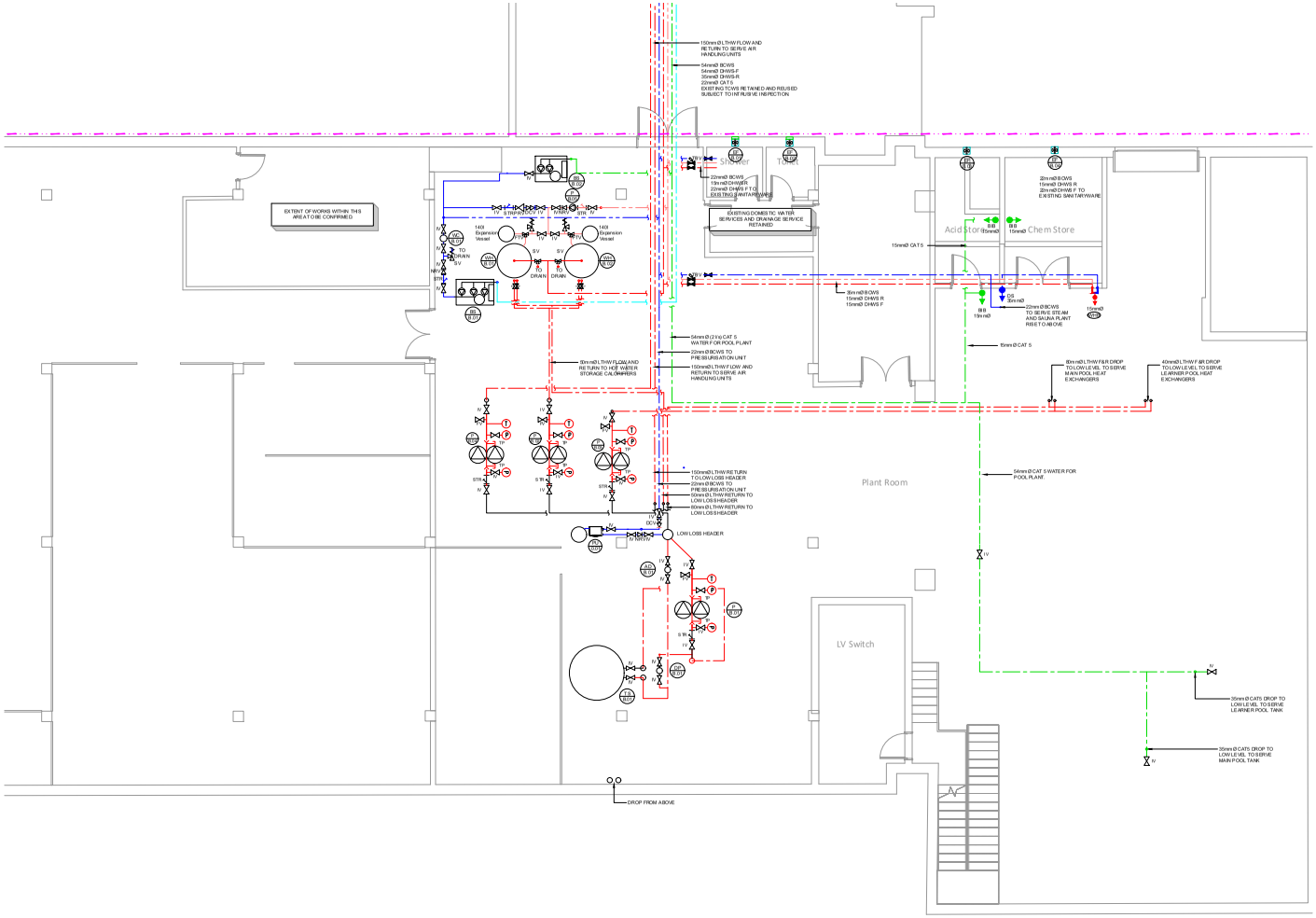
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Asset	00B2M5901
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-B2-DR-M-5901 AF01.pdf
Pages	1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

PIPED SERVICES NOTES

1. ALL PIPEWORK SHALL BE INSULATED THROUGHOUT EXCEPT WHERE EXPOSED
2. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
3. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
4. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 300m m.
5. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
6. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
7. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVE SHALL NOT EXCEED 1500mm.
8. ALL TMVs SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- TCWS PIPEWORK
- CATS PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

VALVES

- TWO PORT VALVE
- THREE PORT VALVE - ELEVATION
- THREE PORT VALVE - PLAN
- FOUR PORT VALVE
- FOUR PORT VALVE - PLAN
- ANGLE VALVE - ELEVATION
- ANGLE VALVE - PLAN
- ISOLATING VALVE
- STOP COCK
- LOCK SHIELD VALVE
- REGULATING VALVE
- DOUBLE REGULATING VALVE
- ORIFICE VALVE
- PRESSURE REGULATING VALVE
- NON-RETURN VALVE
- DOUBLE REGULATING VALVE WITH ORIFICE PLATE
- SAFETY (RELIEF) VALVE - STRAIGHT
- SAFETY (RELIEF) VALVE - ANGLE
- BALLOFIX VALVE
- BALL VALVE
- WEIGHT OPERATED VALVE
- ANTI-VAC VALVE
- DRAIN COCK WITH HOSE BIB
- FLOW THROUGH VALVE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	19.03.26	MPO	DB
C02	UPDATED TO LATEST FTL INFORMATION	03.02.26	MPO	DB
C01	CONSTRUCTION ISSUE	09.09.25	MPO	DB
P01	PRELIMINARY ISSUE	04.04.25	MPO	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
LOWER BASEMEMENT
COMBINED SERVICES LAYOUT
SHEET 1 OF 2

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	IJS	DDP

DRAWING N°	REV
HEN0203-HEN-00-B2-DR-M-5901	AF01

11.58

HEN0203-HEN-00-B2-DR-M-5902 rev AF01 Lower Basement Combined Servies Layout Sheet 2 of 2

The following page is the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-00B2M5902-DWG
Asset	00B2M5902
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Source file	HEN0203-HEN-00-B2-DR-M-5902 AF01.pdf
Pages	1

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PIPED SERVICES NOTES

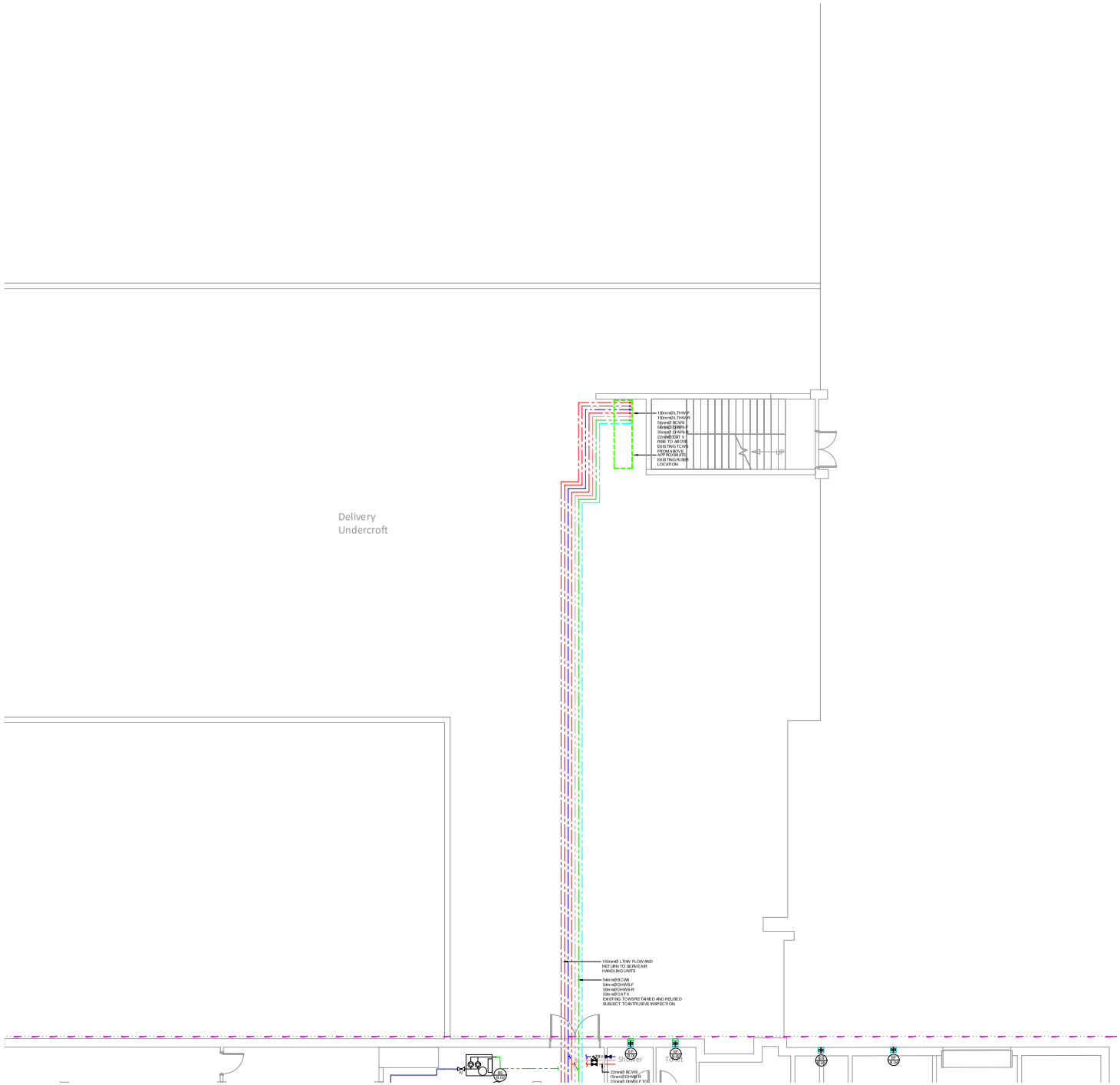
1. ALL PIPEWORK SHALL BE INSULATED THROUGHOUT EXCEPT WHERE EXPOSED.
2. DRAIN COCKS TO BE INSTALLED AT THE END OF ALL LOW LEVEL RUNS.
3. ALL FINAL CONNECTIONS SHALL BE COMPLETE WITH BALL-O-FIX ISOLATING VALVES.
4. FLEXIBLE CONNECTIONS TO OUTLETS SHALL NOT EXCEED 300mm.
5. ALL THERMOSTATIC MIXING VALVES SHALL BE INSTALLED IN EASILY ACCESSIBLE LOCATIONS.
6. ALL OUTLETS SHALL BE SET TO WORK WITH MATCHING HOT AND COLD WATER OUTLET PRESSURES.
7. MIXED FLOW PIPEWORK FROM THE THERMOSTATIC MIXING VALVE SHALL NOT EXCEED 1500mm.
8. ALL TMVs SHALL BE TMV3.

LEGEND

- BCWS PIPEWORK
- DHWS FLOW PIPEWORK
- DHWS RETURN PIPEWORK
- TCWS PIPEWORK
- CATS PIPE WORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- EXISTING RISER LOCATION
- DRAWING MATCH LINE

VALVES

- TWO PORT VALVE
- THREE PORT VALVE - ELEVATION
- THREE PORT VALVE - PLAN
- FOUR PORT VALVE
- FOUR PORT VALVE - PLAN
- ANGLE VALVE - ELEVATION
- ANGLE VALVE - PLAN
- ISOLATING VALVE
- STOP COCK
- LOCK SHIELD VALVE
- REGULATING VALVE
- DOUBLE REGULATING VALVE
- ORIFICE VALVE
- PRESSURE REGULATING VALVE
- NON-RETURN VALVE
- DOUBLE REGULATING VALVE WITH ORIFICE PLATE
- SAFETY (RELIEF) VALVE - STRAIGHT
- SAFETY (RELIEF) VALVE - ANGLE
- BALLOFIX VALVE
- BALL VALVE
- WEIGHT OPERATED VALVE
- ANTI-VAC VALVE
- DRAIN COCK WITH HOSE BIB
- FLOW THROUGH VALVE



REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	19.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	29.09.25	MPO	DB
P01	PRELIMINARY ISSUE	04.04.25	MPO	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
LOWER BASEMENT
COMBINED SERVICES LAYOUT
SHEET 2 OF 2

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	IJS	DDP

DRAWING No	REV
HEN0203-HEN-00-B2-DR-M-5902	AF01

11.59

HEN0203-HEN-00-R1-DR-M-5201 rev AF01 Roof Level Combined Services Layout Sheet 1

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Reference	HEN0203-00R1M5201-DWG
Asset	00R1M5201
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

ABOVE GROUND DRAINAGE:

1. ALL PIPEWORK SHALL BE INSTALLED IN PVC-U EXCEPT HOT WATER DISCHARGE WHICH SHALL BE IN COPPER.
2. ALL HORIZONTAL PIPEWORK SHALL BE INSTALLED WITH A MINIMUM OF 1:40 GRADIENT.
3. ALL HORIZONTAL VENT PIPEWORK SHALL BE INSTALLED WITH A MINIMUM OF 1:100 GRADIENT.
4. RODDING EYES SHALL BE PROVIDED AT THE END OF EACH RUN AND AT EACH CHANGE OF DIRECTION.
5. RODDING EYES SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS.
6. CONNECTIONS TO BELOW GROUND DRAINAGE POP-UPS SHALL BE COMPLETE WITH 110mm ø RODDING ACCESS AT 1200mm AFFL.
7. HEPVO TRAP TO BE INSTALLED BY PLUMBING CONTRACTOR.
8. ALL BELOW GROUND DRAINAGE TO BE INSTALLED BY OTHERS.
9. ALL WEATHERING TO BE DONE BY OTHERS.

LEGEND

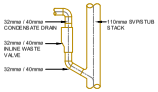
- SOIL AND VENT PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE — RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

SVP	-	110m ma
WC	-	110m ma
WHB	-	32mma
SINK	-	40mm ø
CL	-	40mm ø
FC	-	40mm ø
FG	-	110m ma
DW	-	40mm ø

ABBREVIATIONS:

SVP	-	SOIL AND VENT PIPE
SR	-	RUBBISH CHUTE
SP	-	SOIL PIPE
WP	-	WASTE PIPE
WHB	-	WASH HAND BASIN
WC	-	TOILET
CL	-	CLEANERS SINK
RE	-	RODDING EYE
FG	-	FLOOR GULLY
AAV	-	AUTOMATIC AIR VENT
DW	-	DISHWASHER
WM	-	WASHING MACHINE
GW	-	GLASS WASHER



TYPICAL CONDENSATE
STACK CONNECTION

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	26.04.25	MPO	DB
P01	ISSUED FOR COMMENT	23.02.24	MW	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

COMBINED SERVICES
ROOF LEVEL
ABOVE GROUND DRAINAGE LAYOUT
SHEET 1 OF 3

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-R1-DR-M-5201	AF01

11.60

HEN0203-HEN-00-R1-DR-M-5202 rev AF01 Roof Level Combined Services Layout Sheet 2

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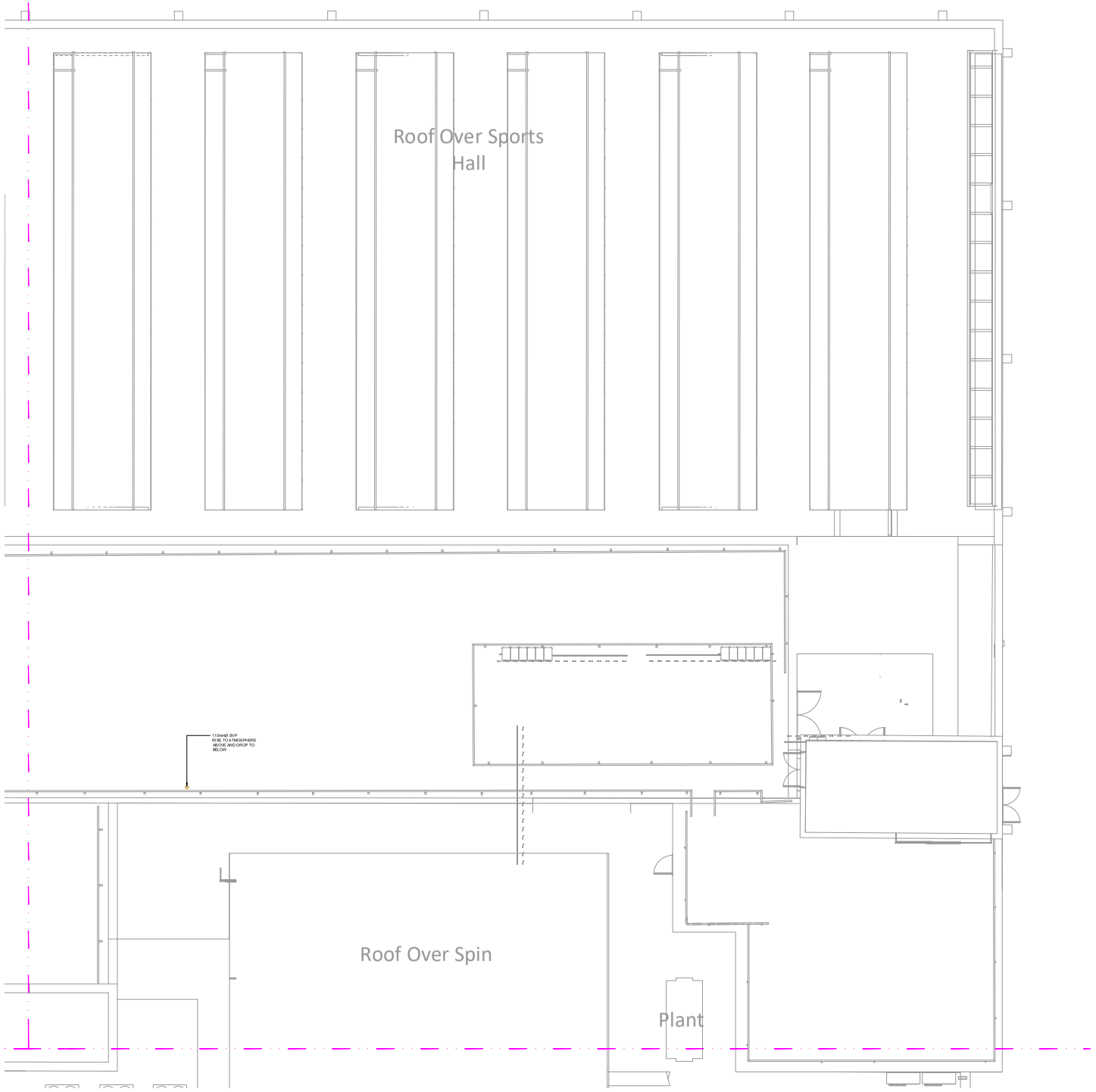
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Asset	00R1M5202
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-R1-DR-M-5202 AF01.pdf
Pages	1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

ABOVE GROUND DRAINAGE

1. ALL PIPEWORK SHALL BE INSTALLED IN PVC-U EXCEPT HOT WATER DISCHARGE WHICH SHALL BE IN COPPER.
2. ALL HORIZONTAL PIPEWORK SHALL BE INSTALLED WITH A MINIMUM OF 1:40 GRADIENT.
3. ALL HORIZONTAL VENT PIPEWORK SHALL BE INSTALLED WITH A MINIMUM OF 1:100 GRADIENT.
4. RODDING EYES SHALL BE PROVIDED AT THE END OF EACH RUN AND AT EACH CHANGE OF DIRECTION.
5. RODDING EYES SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS.
6. CONNECTIONS TO BELOW GROUND DRAINAGE POP UPS SHALL BE COMPLETE WITH 110mm RODDING ACCESS AT 1200mm AFFL.
7. HEPVO TRAP TO BE INSTALLED BY PLUMBING CONTRACTOR.
8. ALL BELOW GROUND DRAINAGE TO BE INSTALLED BY OTHERS.
9. ALL WEATHERING TO BE DONE BY OTHERS.

LEGEND

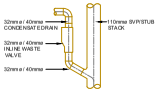
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- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE — RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES

SVP	-	110mmø
WC	-	110mmø
WHB	-	32mm ø
SINK	-	40m mø
CL	-	40m mø
FC	-	40m mø
FG	-	110mmø
DW	-	40m mø

ABBREVIATIONS

SVP	-	SOIL AND VENT PIPE
SB	-	SLIP BACK
ST	-	STUB STACK
WP	-	WASTE PIPE
WHB	-	WASH HAND BASIN
WC	-	TOILET
CL	-	CLEANERS SINK
RE	-	RODDING EYE
FG	-	FLOOR GULLY
AAV	-	AUTOMATIC AIR VENT
DW	-	DISHWASHER
WM	-	WASHING MACHINE
GW	-	GLASS WASHER



TYPICAL CONDENSATE STACK CONNECTION

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	26/04/26	MPO	DB
P01	AS FITTED ISSUE	02/09/24	MW	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

COMBINED SERVICES
ROOF LEVEL
ABOVE GROUND DRAINAGE LAYOUT
SHEET 2 OF 3

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-R1-DR-M-5202	AF01

11.61

HEN0203-HEN-00-R1-DR-M-5203 rev AF01 Roof Level Combined Services Layout Sheet 3

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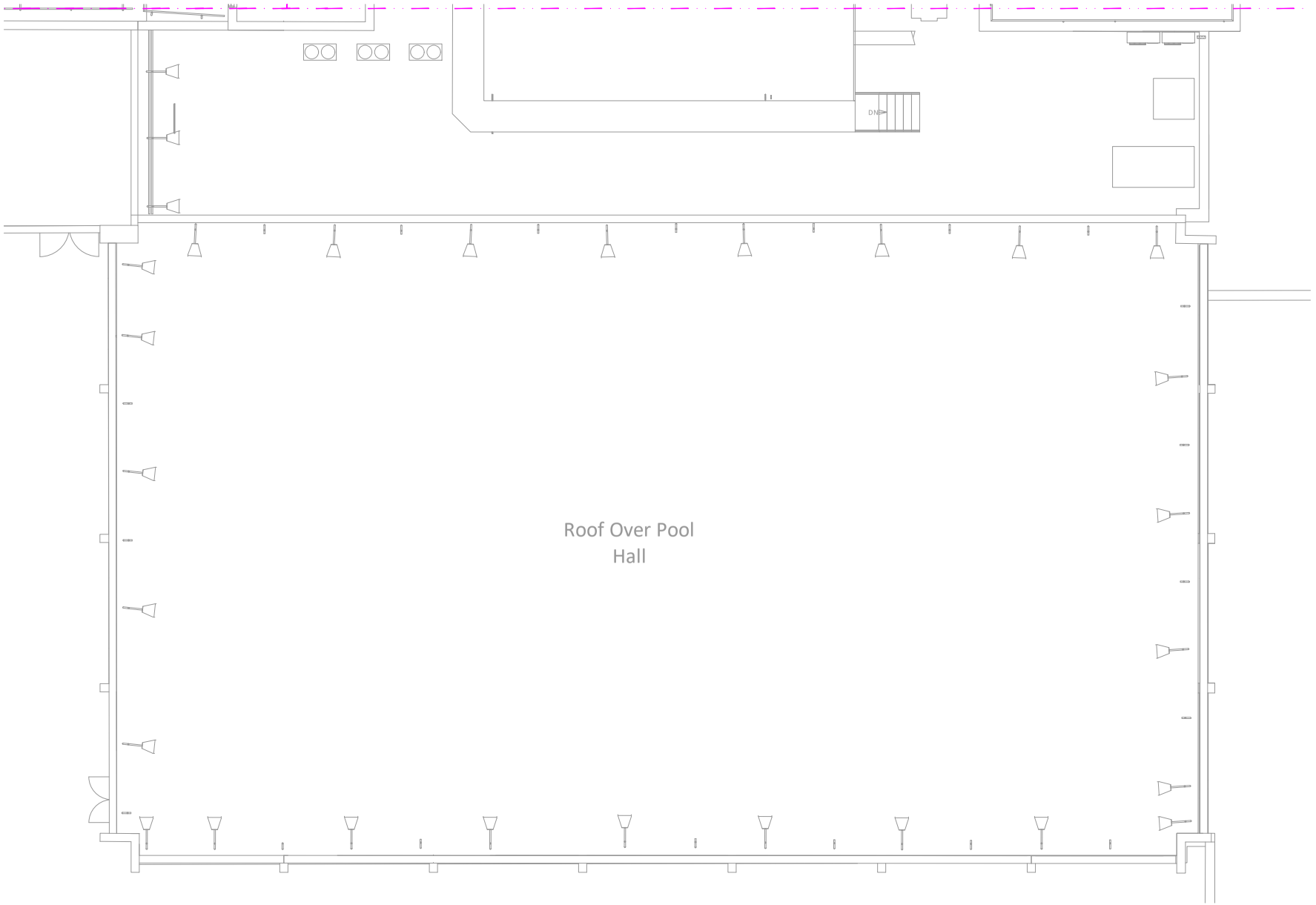
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Asset	00R1M5203
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-R1-DR-M-5203 AF01.pdf
Pages	1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

ABOVE GROUND DRAINAGE

1. ALL PIPEWORK SHALL BE INSTALLED IN PVC-U EXCEPT HOT WATER DISCHARGE WHICH SHALL BE IN COPPER.
2. ALL HORIZONTAL PIPEWORK SHALL BE INSTALLED WIT H A MINIMUM OF 1:40 GRADIENT.
3. ALL HORIZONTAL VENT PIPEWORK SHALL BE INST ALLED WITH A MINIMUM OF 1: 100 GRADIENT.
4. RODDING EYES SHALL BE PROVIDED AT THE END OF EACH RUN AND AT EACH CHANGE OF DIRECTION.
5. RODDING EYES SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS.
6. CONNECTIONS TO BELOW GROUND DRAINAGE POP-UPS SHALL BE COMPLETE WITH 110mm ø RODDING ACCESS AT 1200mm AFF L
7. HEPVO TRAP TO BE INSTALLED BY PLUMBING CONTRACTOR.
8. ALL BELOW GROUND DRAINAGE TO BE INSTALLED BY OTHERS.
9. ALL WEATHERING TO BE DONE BY OTHERS.

LEGEND

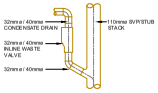
- SOIL AND VENT PIPEWORK
- PIPEWORK IN CEILING VOID
- PIPEWORK AT HIGH LEVEL
- PIPEWORK AT LOW LEVEL
- FLOOR DRAIN
- RE — RODDING EYE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION TO APPLIANCE
- DRAINAGE CONNECTION TO SVP
- DRAINAGE CONNECTION
- SVP SCHEDULE NUMBER
- DRAWING MATCH LINE

DRAINAGE CONNECTION SIZES :

SVP	-	110mmø
WC	-	110mmø
WHB	-	32mmø
SINK	-	40mmø
CL	-	40mmø
FC	-	40mmø
FG	-	110mmø
DW	-	40mmø

ABBREVIATIONS:

SVP	-	SOIL AND VENT PIPE
SP	-	SUB S TACK
BP	-	BOSS PIPE
WP	-	WASTE PIPE
WHB	-	WASH HAND B ASIN
WC	-	T OILET
CL	-	CLEANE RS SINK
RE	-	RODDING EYE
FG	-	FLOOR GULLY
AAV	-	AUTOMATIC AIR VENT
DW	-	DISHWASHER
WM	-	WASHING MACHINE
GW	-	GLASS WASHER



TYPICAL CONDENSATE STACK CONNECTION

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	28/04/25	MPO	DB
AR1	AS FITTED ISSUE	02/05/24	MW	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

COMBINED SERVICES
ROOF LEVEL
ABOVE GROUND DRAINAGE LAYOUT
SHEET 3 OF 3

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-R1-DR-M-5203	AF01

11.62

HEN0203-HEN-00-R1-DR-M-5601 rev AF01 Roof Level Heating and Cooling Services Layout Sheet 1 of 3

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAYOUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- AC — LOCAL WALL MOUNTED CONTROLLER
- UNIT — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	10.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	10.03.25	MW	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
ROOF LEVEL
HEATING AND COOLING SERVICES LAYOUT
SHEET 1 OF 3

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-R1-DR-M-5601	AF01

11.63

HEN0203-HEN-00-R1-DR-M-5602 rev AF01 Roof Level Heating and Cooling Services Layout Sheet 2 of 3

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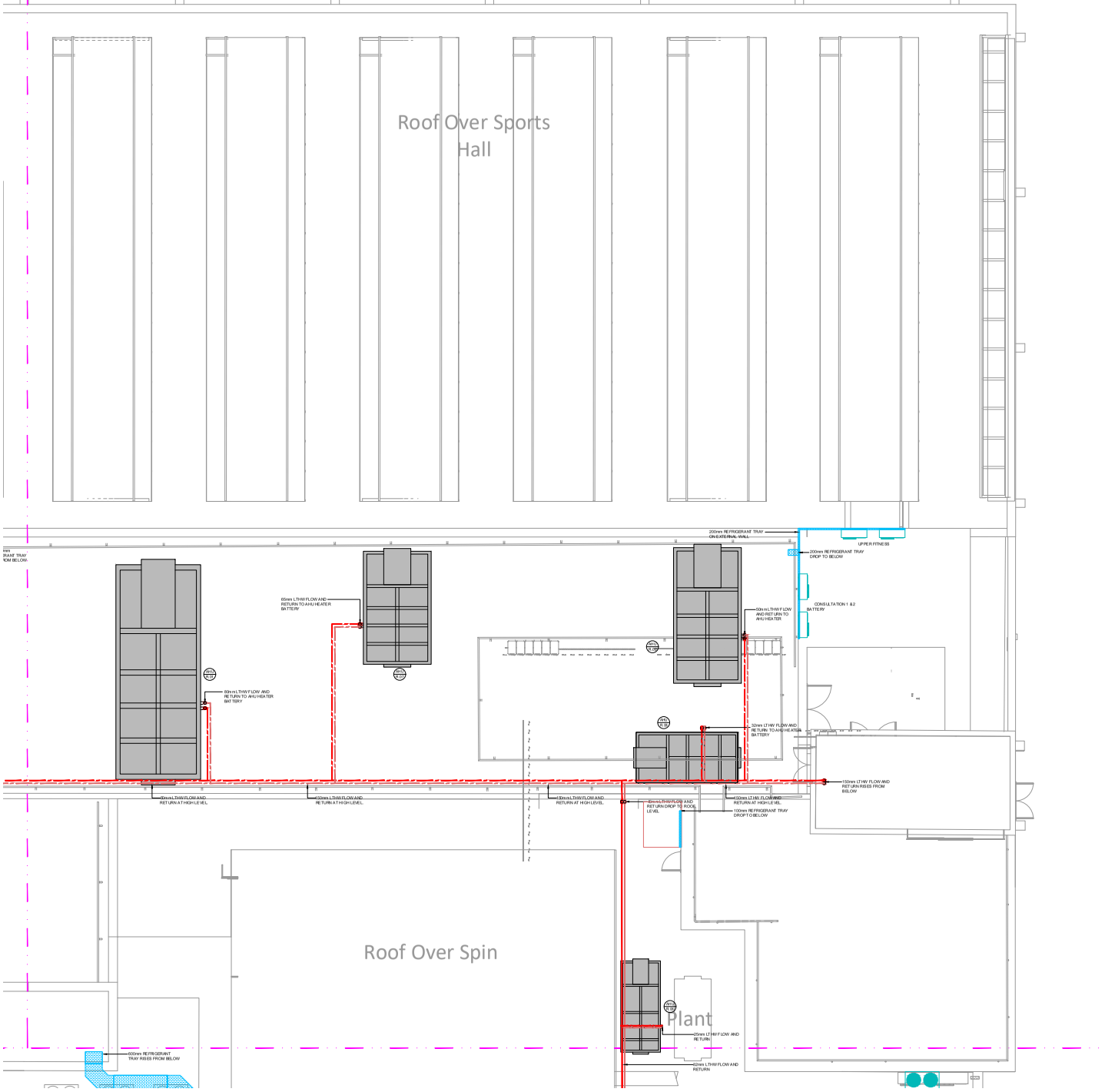
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Asset	00R1M5602
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-R1-DR-M-5602 AF01.pdf
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAYOUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCE SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- AC — LOCAL WALL MOUNTED CONTROLLER
- ACC — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	19.03.26	MFO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
ROOF LEVEL
HEATING AND COOLING SERVICES LAYOUT
SHEET 2 OF 3

SCALE @ A0	DATE	DRAWN	CHECKED
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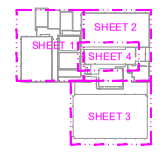
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HEN0203-HEN-00-R1-DR-M-5603 rev AF01 Roof Level Heating and Cooling Services Layout Sheet 3 of 3

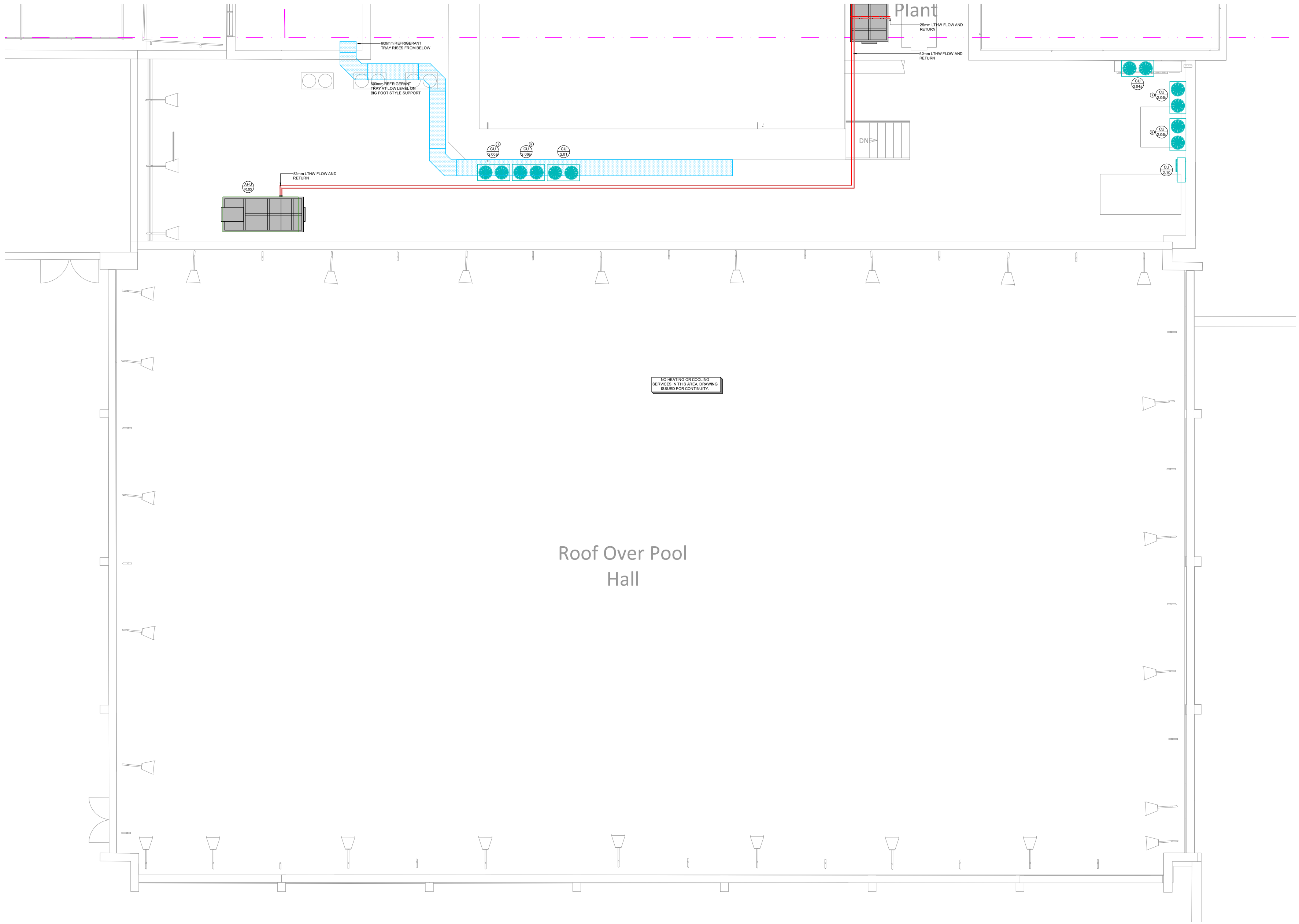
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HEATING SERVICES NOTES

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2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINTS WITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO NE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS 1710:2014. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
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COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
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LEGEND

- AIR CONDITIONING WALL MOUNTED INSIDE UNIT
- AIR CONDITIONING CASSETTE UNIT
- WALL MOUNTED AIR CONDITIONING OUTSIDE UNIT
- AIR CONDITIONING OUTSIDE UNIT
- AC — LOCAL WALL MOUNTED CONTROLLER
- AC — CENTRAL WALL MOUNTED CONTROLLER
- ELECTRIC PANEL HEATER
- CEILING MOUNTED ELECTRIC PANEL HEATER
- REFRIGERANT TRAY

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	19.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	19.03.25	MW	DB

AS FITTED

CLIENT
HENSALL

PROJECT
ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
ROOF LEVEL
HEATING AND COOLING SERVICES LAYOUT
SHEET 3 OF 3

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	JAN '24	MW	DB

DRAWING Nº	REV
HEN0203-HEN-00-R1-DR-M-5603	AF01

11.65

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

VENTILATION NOTES

1. ALL EXPOSED DUCTWORK SHALL NOT BE INSULATED.
2. ALL DUCT WORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172
4. ALL VCD's AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCT WORK
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500m m LONG.

LEGEND

- EXTRACT DUCT WORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCT WORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- DOOR TRANSFER GRILLE
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- RECTANGULAR DUCTWORK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT V ALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE
- MATCHLINE

ABBREVIATIONS

ATT - ATTENUATOR
CTA - CROSS TALK ATTENUATOR
EG - EXTRACT GRILLE
EV - EXTRACT V ALVE
FD - FIRE DAMPER
HRU - HEAT RECOVERY UNIT
SG - SUPPLY GRILLE
SV - SUPPLY VALVE
VCD - VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.05.24	MP'O	DB
C01	CONSTRUCTION ISSUE	26.03.24	MW	DB
P01	PRELIMINARY ISSUE	25.03.24	MW	DB

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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
ROOF LEVEL
VENTILATION SERVICES LAYOUT
SHEET 1 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N° HEN0203-HEN-00-R1-DR-M-5701

REV AF01

11.66

HEN0203-HEN-00-R1-DR-M-5702 rev AF01 Roof Level Ventilation Services Layout Sheet 2 of 3

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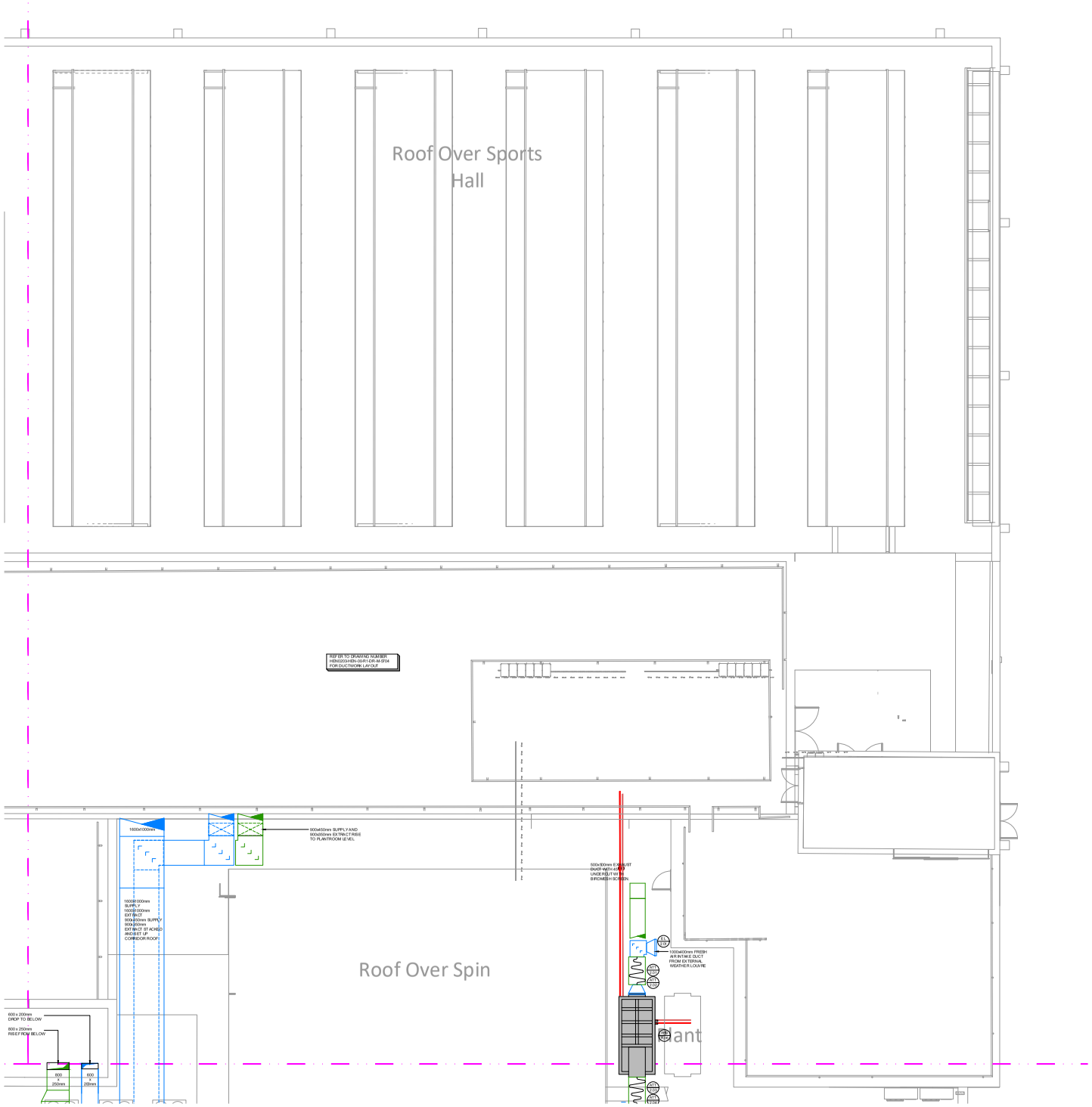
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Asset	00R1M5702
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VENTILATION NOTES

1. ALL EXPOSED DUCTWORK SHALL NOT BE INSULATED.
2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED.
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
4. ALL VCDs AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500mm LONG.

LEGEND

- EXTRACT DUCTWORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCTWORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- DOOR TRANSFER GRILLE (DTG)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- RECTANGULAR DUCTWORK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VCD — VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE (AHU / EF)
- MATCHLINE

ABBREVIATIONS

ATT - ATTENUATOR
CTA - CROSS TALK ATTENUATOR
EG - EXTRACT GRILLE
EV - EXTRACT VALVE
FD - FIRE DAMPER
HRU - HEAT RECOVERY UNIT
SG - SUPPLY GRILLE
SV - SUPPLY VALVE
VCD - VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	15.08.24	MP'O	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	25.03.25	MW	DB

AS FITTED

CLIENT: HENSALL

PROJECT: ELMWOOD LEISURE CENTRE

DRAWING TITLE:
MECHANICAL SERVICES
ROOF LEVEL
VENTILATION SERVICES LAYOUT
SHEET 2 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N°: HEN0203-HEN-00-R1-DR-M-5702

REV: AF01

11.67

HEN0203-HEN-00-R1-DR-M-5703 rev AF01 Roof Level Ventilation Services Layout Sheet 3 of 3

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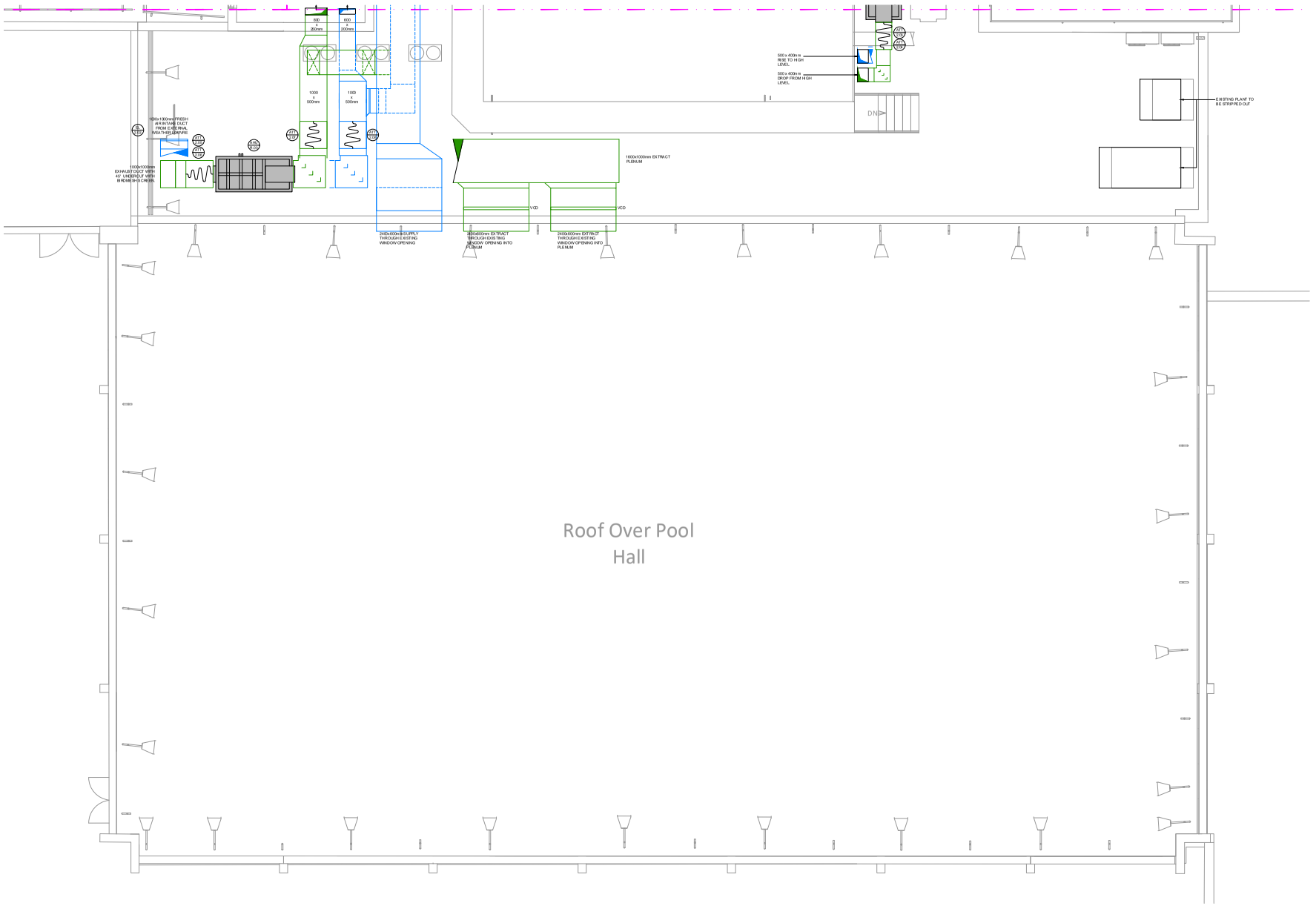
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Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-R1-DR-M-5703 AF01.pdf
Pages	1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

VENTILATION NOTES

1. ALL EXPOSED DUCTWORK SHALL NOT BE INSULATED.
2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED.
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
4. ALL VCD's AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 600mm LONG.

LEGEND

- EXTRACT DUCTWORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCTWORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- DOOR TRANSFER GRILLE (DTG)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- RECTANGULAR DUCTWORK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VCD — VOLUME CONTROL DAMPER
- AD / VCD — EQUIPMENT REFERENCE
- MATCHLINE

ABBREVIATIONS

ATT	-	ATTENUATOR
CTA	-	CROSS TALK ATTENUATOR
EG	-	EXTRACT GRILLE
EV	-	EXTRACT VALVE
FD	-	FIRE DAMPER
HRU	-	HEAT RECOVERY UNIT
SG	-	SUPPLY GRILLE
SV	-	SUPPLY VALVE
VCD	-	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	13.08.25	MP'O	DB
C01	CONSTRUCTION ISSUE	28.03.25	MW	DB
P01	PRELIMINARY ISSUE	25.03.25	MW	DB

AS FITTED

CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
ROOF LEVEL
VENTILATION SERVICES LAYOUT
SHEET 3 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-R1-DR-M-5703	AF01

11.68

HEN0203-HEN-00-R1-DR-M-5704 rev AF01 Roof Level Ventilation Services Layout Sheet 4 of 4

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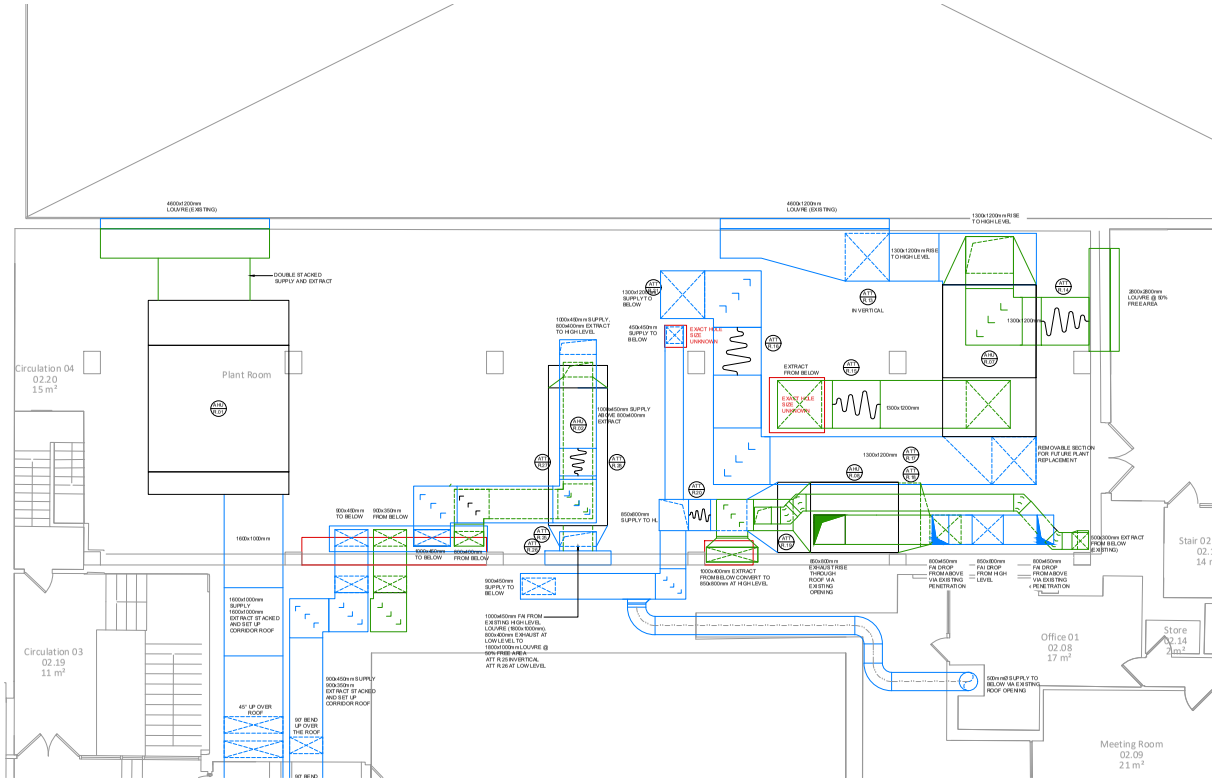
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Asset	00R1M5704
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

VENTILATION NOTES

1. ALL EXPOSED DUCTWORK SHALL NOT BE INSULATED
2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED.
3. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH HDM144 AND DW172.
4. ALL VCDs AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
5. FLEXIBLE DUCTWORK SHALL NOT EXCEED 500mm LONG.

LEGEND

- EXTRACT DUCTWORK
- SUPPLY DUCTWORK
- FRESH AIR INTAKE DUCTWORK
- EXHAUST DUCTWORK
- FLEXIBLE DUCTWORK
- ATTENUATOR
- CROSS TALK ATTENUATOR
- CEILING MOUNTED EXTRACT FAN
- WALL MOUNTED EXTRACT FAN
- COOKER CANOPY EXTRACT FAN
- INLINE EXTRACTOR FAN
- INLINE TWIN EXTRACTOR FAN
- PLENUM BOX
- EXTRACT LOUVRE
- DOOR TRANSFER GRILLE (DTG)
- FIRE DAMPER
- MOTORISED SMOKE AND FIRE DAMPER
- CIRCULAR DUCTWORK
- RECTANGULAR DUCTWORK
- BELLMOUTH
- EXTRACT GRILLE
- EXTRACT VALVE
- SUPPLY GRILLE
- SUPPLY VALVE
- VCD VOLUME CONTROL DAMPER
- EQUIPMENT REFERENCE
- MATCHLINE

ABBREVIATIONS

ATT	-	ATTENUATOR
CTA	-	CROSS TALK ATTENUATOR
EG	-	EXTRACT GRILLE
EV	-	EXTRACT VALVE
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HRU	-	HEAT RECOVERY UNIT
SG	-	SUPPLY GRILLE
SV	-	SUPPLY VALVE
VCD	-	VOLUME CONTROL DAMPER

REV	DESCRIPTION	DATE	DRAWN	CHECK
AP01	AS FIT TED	10.03.26	MPO	DB
C01	CONSTRUCTION ISSUE	07.07.25	MW	DB
P01	PRELIMINARY ISSUE	10.06.25	MW	DB

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CLIENT

HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

MECHANICAL SERVICES
ROOF LEVEL
VENTILATION SERVICES LAYOUT
SHEET 4 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-R1-DR-M-5704	AF01

11.69

HEN0203-HEN-00-R1-DR-N-0001 rev AF01 Roof Level Coordinated Roof Layout Sheet 1

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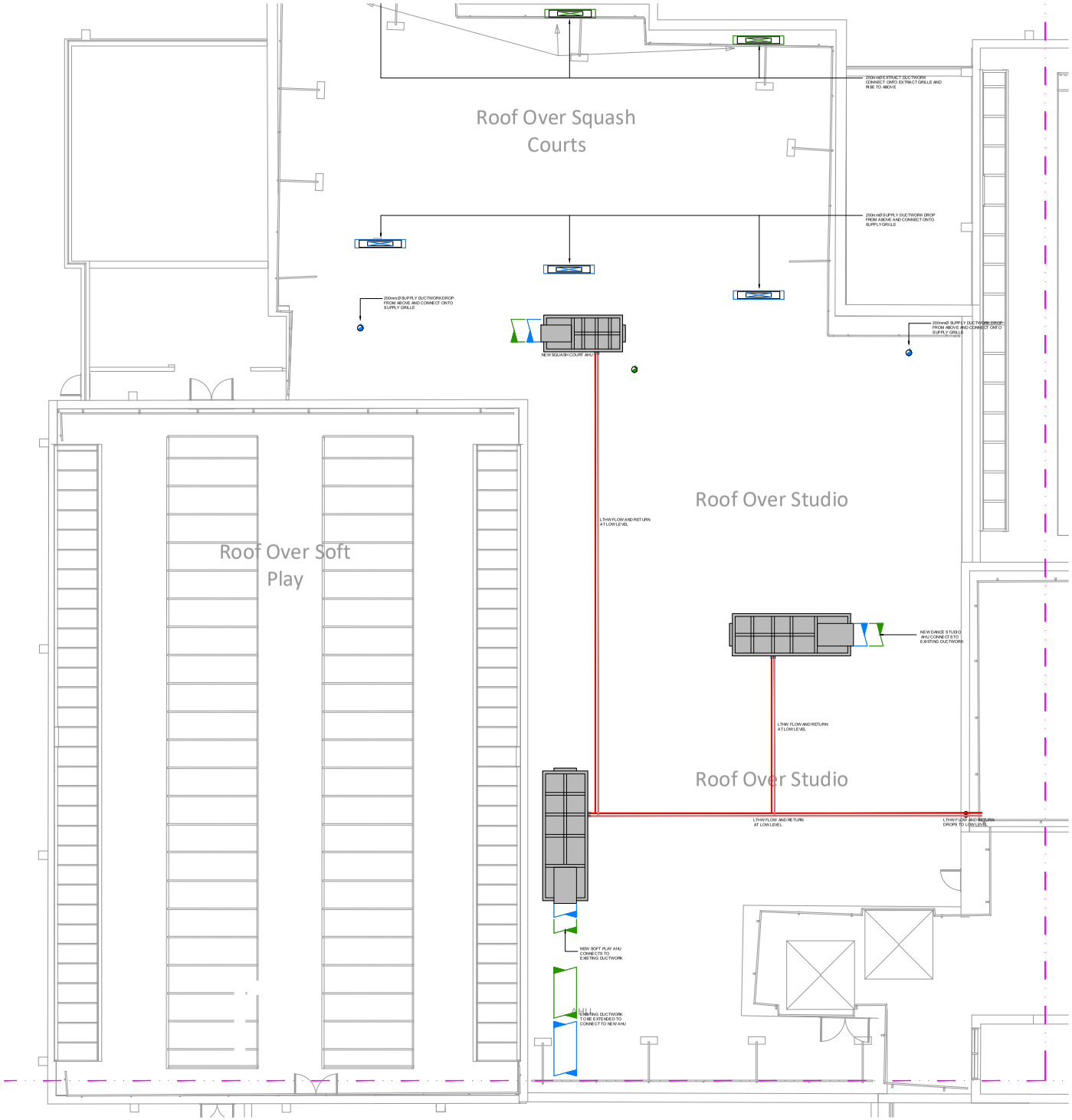
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Provided by	Hensall Mechanical Services Ltd
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	26.04.26	MPO	DB
P01	ISSUED FOR COMMENT	23.02.24	MW	DB

AS FITTED

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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

COMBINED SERVICES
ROOF LEVEL
CO-ORDINATED ROOF LAYOUT
SHEET 1 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-R1-DR-N-0001	AF01

11.70

HEN0203-HEN-00-R1-DR-N-0002 rev AF01 Roof Level Coordinated Roof Layout Sheet 2

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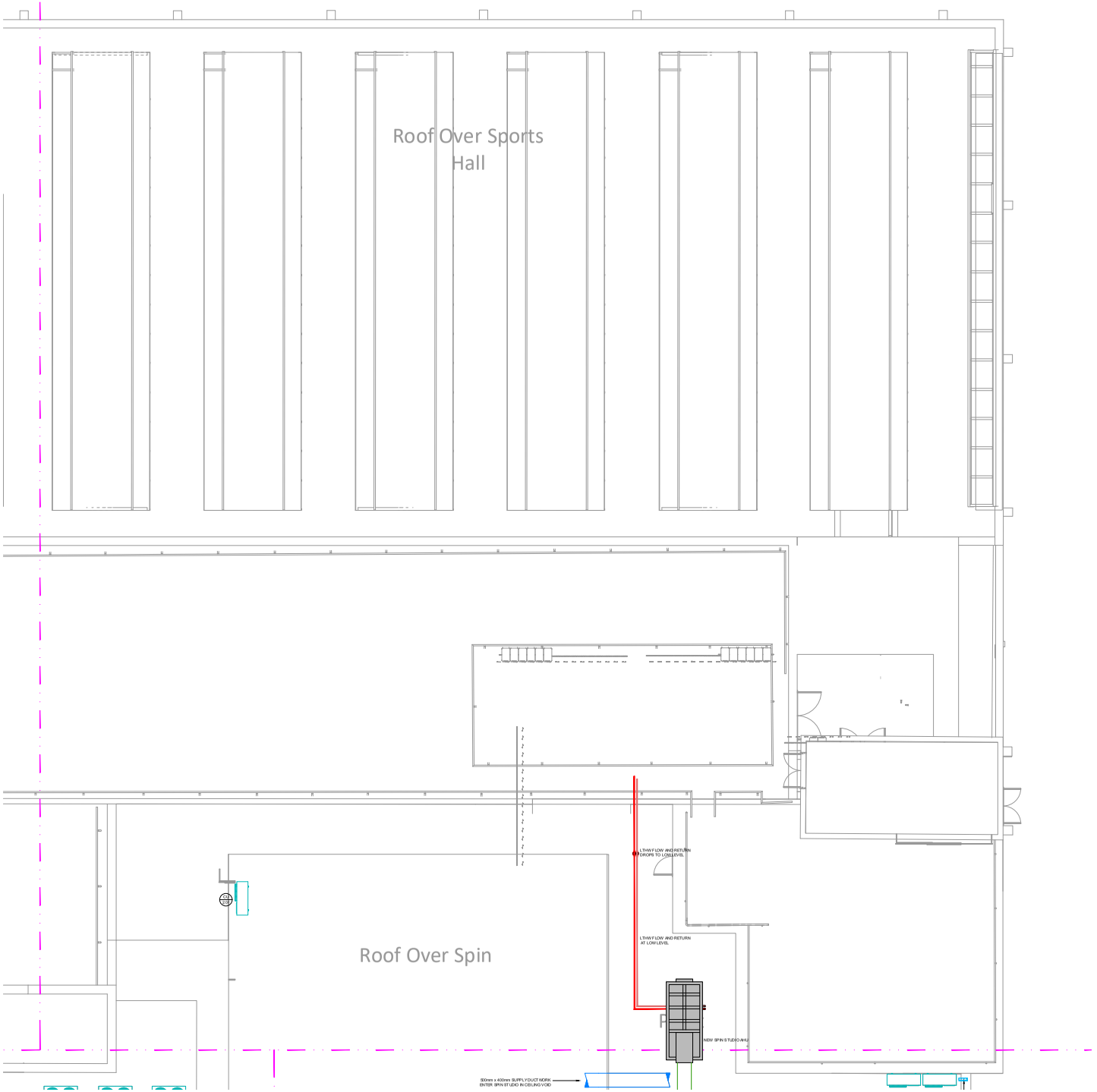
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Source file	HEN0203-HEN-00-R1-DR-N-0002 AF01.pdf
Pages	1

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REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	26.04.26	MPO	DB
P01	ISSUED FOR COMMENT	23.02.24	MW	DB

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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

COMBINED SERVICES
ROOF LEVEL
CO-ORDINATED ROOF LAYOUT
SHEET 2 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-R1-DR-N-0002	AF01

11.71

HEN0203-HEN-00-R1-DR-N-0003 rev AF01 Roof Level Coordinated Roof Layout Sheet 3

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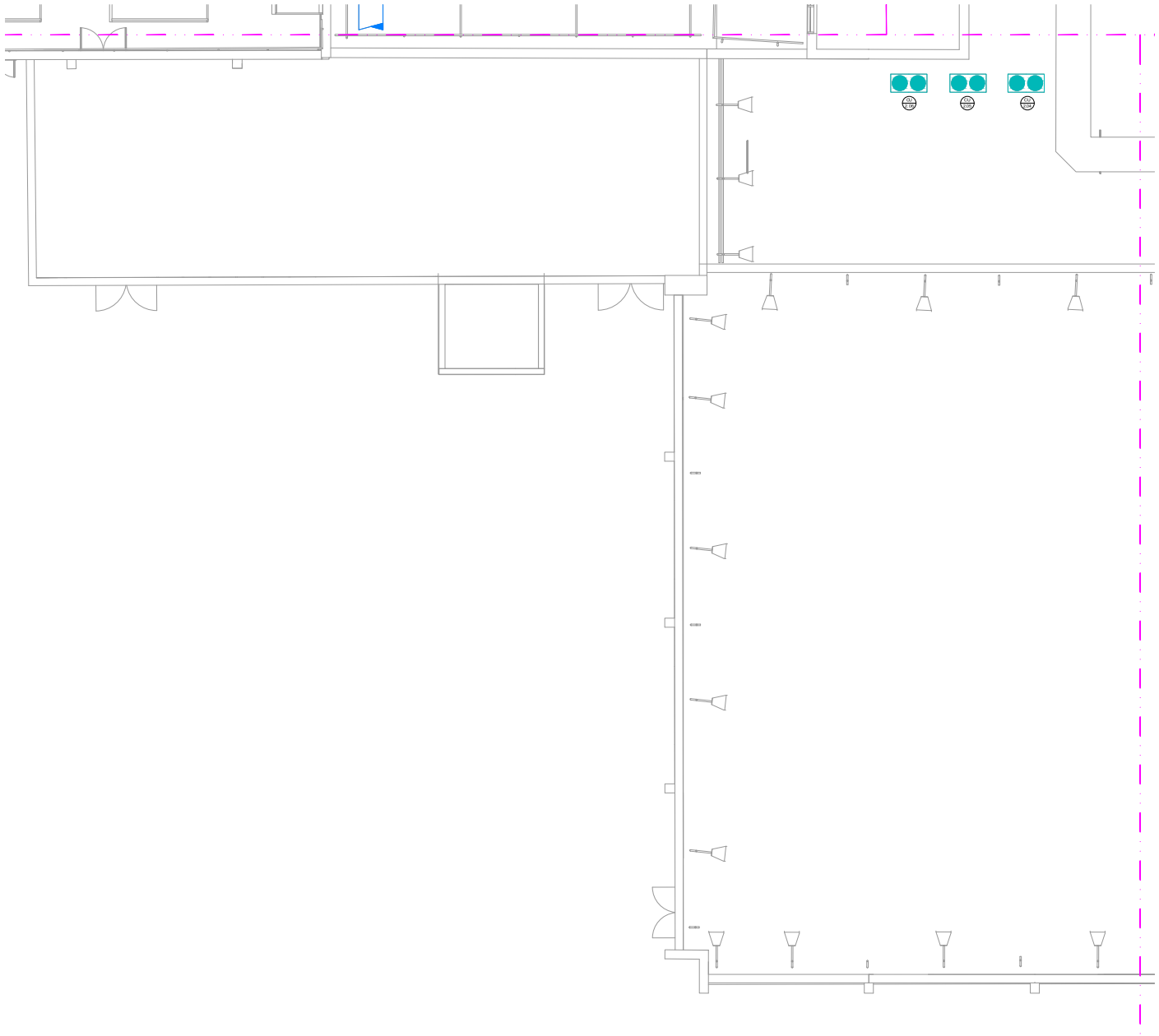
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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	26/04/26	MP/O	DB
P01	ISSUED FOR COMMENT	23/02/24	MW	DB

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PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

COMBINED SERVICES
ROOF LEVEL
CO-ORDINATED ROOF LAYOUT
SHEET 3 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
1:50	FEB '24	MW	DB

DRAWING N°	REV
HEN0203-HEN-00-R1-DR-N-0003	AF01

11.72

HEN0203-HEN-00-R1-DR-N-0004 rev AF01 Roof Level Coordinated Roof Layout Sheet 4

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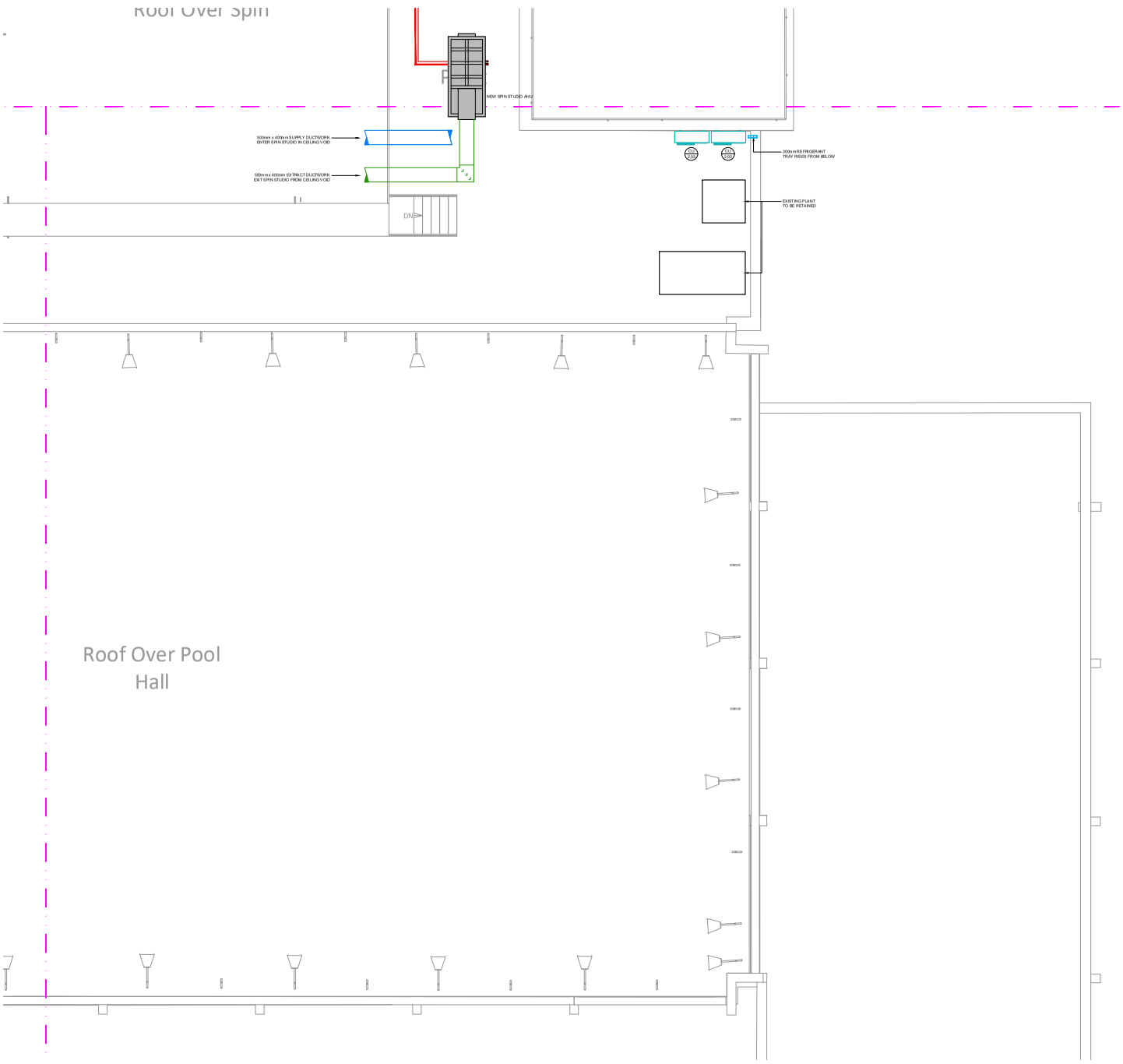
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REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	26.04.26	MPO	DB
P01	ISSUED FOR COMMENT	23.02.24	MW	DB

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HENSALL

PROJECT

ELMWOOD LEISURE CENTRE

DRAWING TITLE

COMBINED SERVICES
ROOF LEVEL
CO-ORDINATED ROOF LAYOUT
SHEET 4 OF 4

SCALE @ A0	DATE	DRAWN	CHECKED
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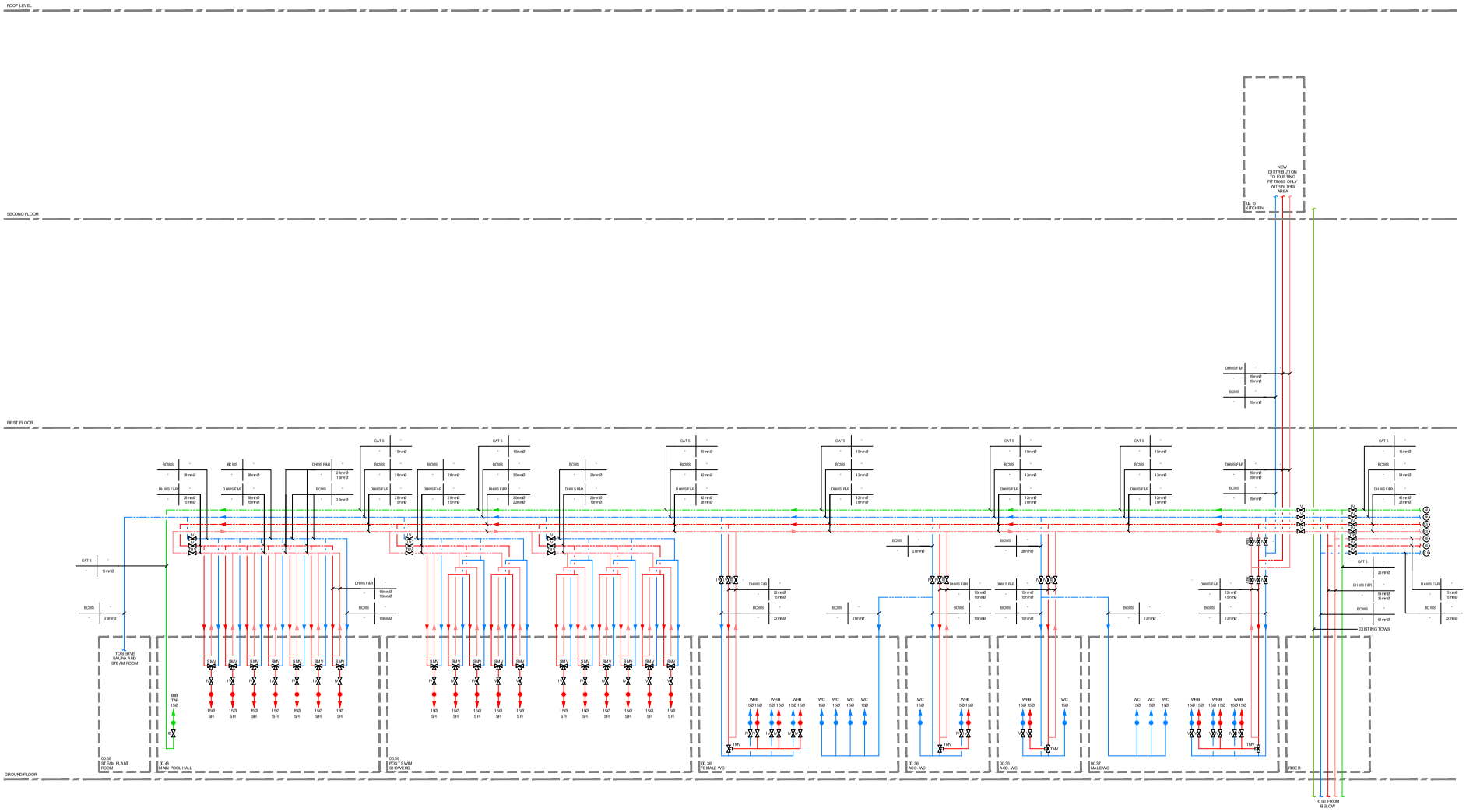
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11.73

HEN0203-HEN-00-ZZ-DR-M-5301 rev AF01 Domestic Services Schematic Sheet 1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

LEGEND:

CIRCUIT / SIZE	
IV	ISOLATION VALVE
TMV	THERMOSTATIC MIXING VALVE
	CAT S WATER SERVICE
	HOT WATER SERVICE FLOW
	HOT WATER SERVICE RETURN
	BOOSTED COLD WATER SERVICE
MCWS	MAINS COLD WATER SERVICE
BCWS	BOOSTED COLD WATER SERVICE
DHWS F&R	DOMESTIC HOT WATER SERVICE FLOW AND RETURN
WC	TOILET
WHB	WASH HAND BASIN
SH	SHOWER
WD	WASH DOWN
DF	DRINKING FOUNTAIN
DW	DISH WASHER
STM	STEAMER
IM	ICE MACHINE
SMV	SHOWER MIXER VALVE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	28.06.26	MPO	DB
P01	ISSUED FOR COMMENT	16.05.25	MPO	DB

AS FITTED

CLIENT
HENSALL

PROJECT
ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
DOMESTIC SERVICES SCHEMATIC
SHEET 1 OF 3

SCALE @ A0	DATE	DRAWN	CHECKED
N.T.S.	APR '25	MPO	DB

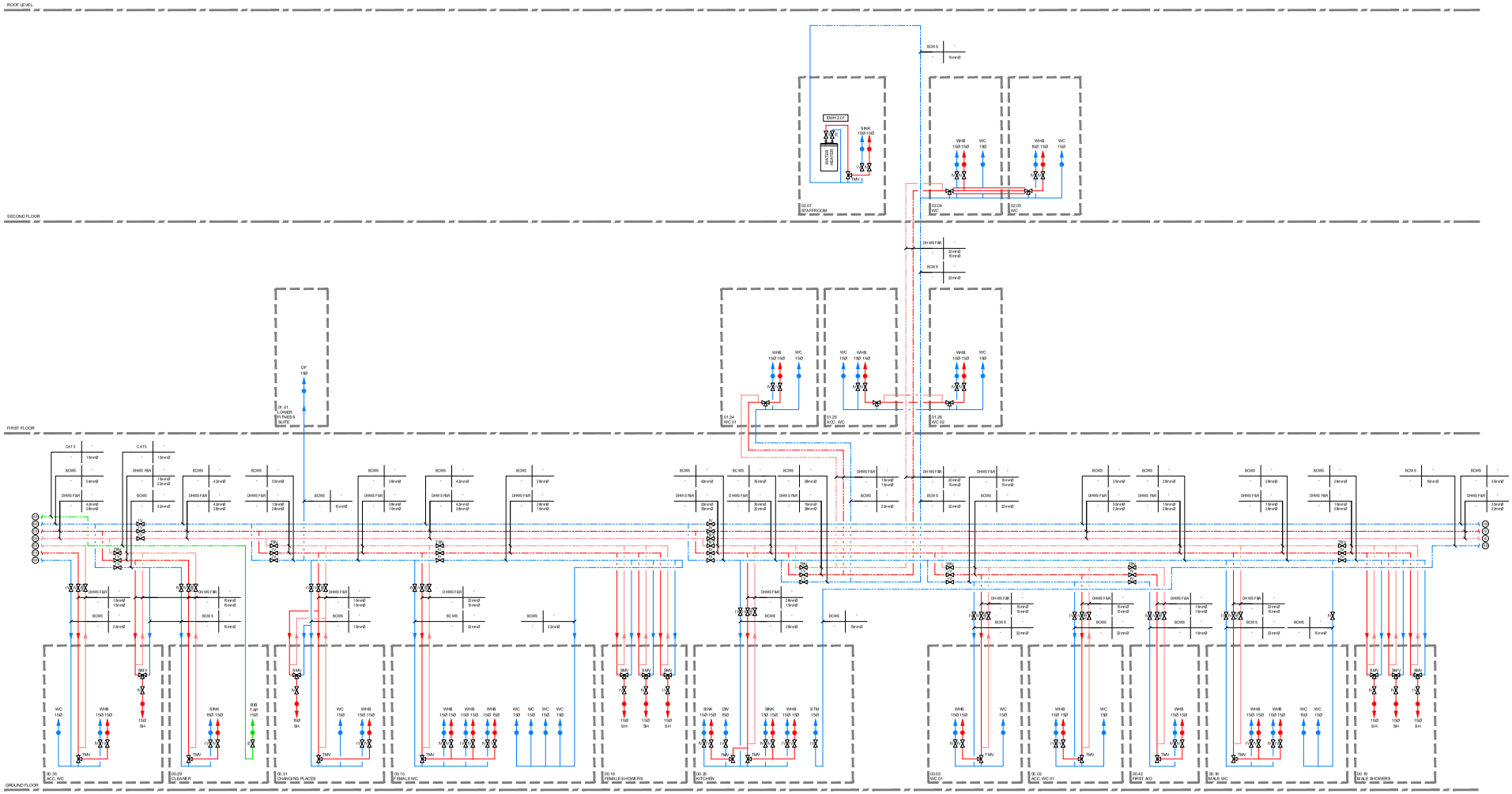
DRAWING N°	REV
HEN0203-HEN-00-ZZ-DR-M-5301	AF01

11.74

HEN0203-HEN-00-ZZ-DR-M-5302 rev AF01 Domestic Services Schematic Sheet 2

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

LEGEND

CIRCUIT / SIZE	
IV	ISOLATION VALVE
TMV	THERMOSTATIC MIXING VALVE
CWS	CAT S WATER SERVICE
HWF	HOT WATER SERVICE FLOW
HWR	HOT WATER SERVICE RETURN
BCWS	BOOSTED COLD WATER SERVICE
MCWS	MAINS COLD WATER SERVICE
BOWS	BOOSTED COLD WATER SERVICE
DHWS F&R	DOMESTIC HOT WATER SERVICE FLOW AND RETURN
WC	TOILET
WHB	WASH HAND BASIN
SH	SHOWER
WD	WASH DOWN
DF	DRINKING FOUNTAIN
DW	DISH WASHER
STM	STEAMER
IM	ICE MACHINE
SMV	SHOWER MIXER VALVE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	28.06.25	MPO	DB
P01	ISSUED FOR COMMENT	16.05.25	MPO	DB

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PROJECT
ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
DOMESTIC SERVICES SCHEMATIC
SHEET 2 OF 3

SCALE @ A0	DATE	DRAWN	CHECKED
N.T.S.	APR '25	MPO	DB

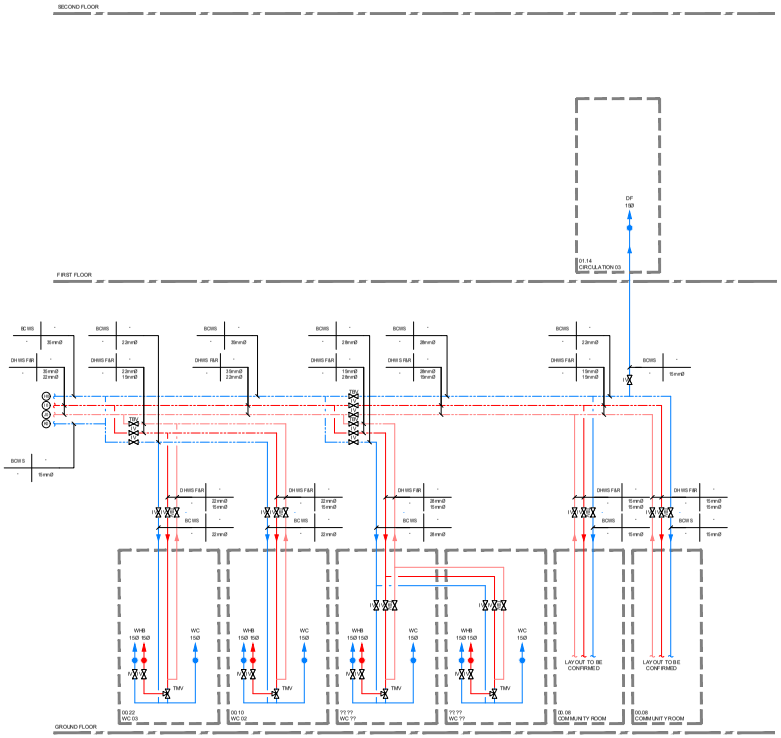
DRAWING N° HEN0203-HEN-00-ZZ-DR-M-5302
REV AF01

11.75

HEN0203-HEN-00-ZZ-DR-M-5303 rev AF01 Domestic Services Schematic Sheet 3

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

LEGEND:

CIRCUIT	
SIZE	
ISV	ISOLATION VALVE
TMV	THERMOSTATIC MIXING VALVE
	CAT S WATER SERVICE
	HOT WATER SERVICE FLOW
	HOT WATER SERVICE RETURN
	BOOSTED COLD WATER SERVICE
MCWS	MAINS COLD WATER SERVICE
BCWS	BOOSTED COLD WATER SERVICE
DHWS F&R	DOMESTIC HOT WATER SERVICE FLOW AND RETURN
WC	TOILET
WHB	WASH HAND BASIN
SH	SHOWER
WD	WASH DOWN
DF	DRINKING FOUNTAIN
DW	DISH WASHER
STM	STEAMER
IM	ICE MACHINE
SMV	SHOWER MIXER VALVE

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	28.06.25	MPO	DB
P01	ISSUED FOR COMMENT	16.05.25	MPO	DB

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HENSALL

PROJECT
ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
DOMESTIC SERVICES SCHEMATIC
SHEET 3 OF 3

SCALE @ A0	DATE	DRAWN	CHECKED
N.T.S.	APR '25	MPO	DB

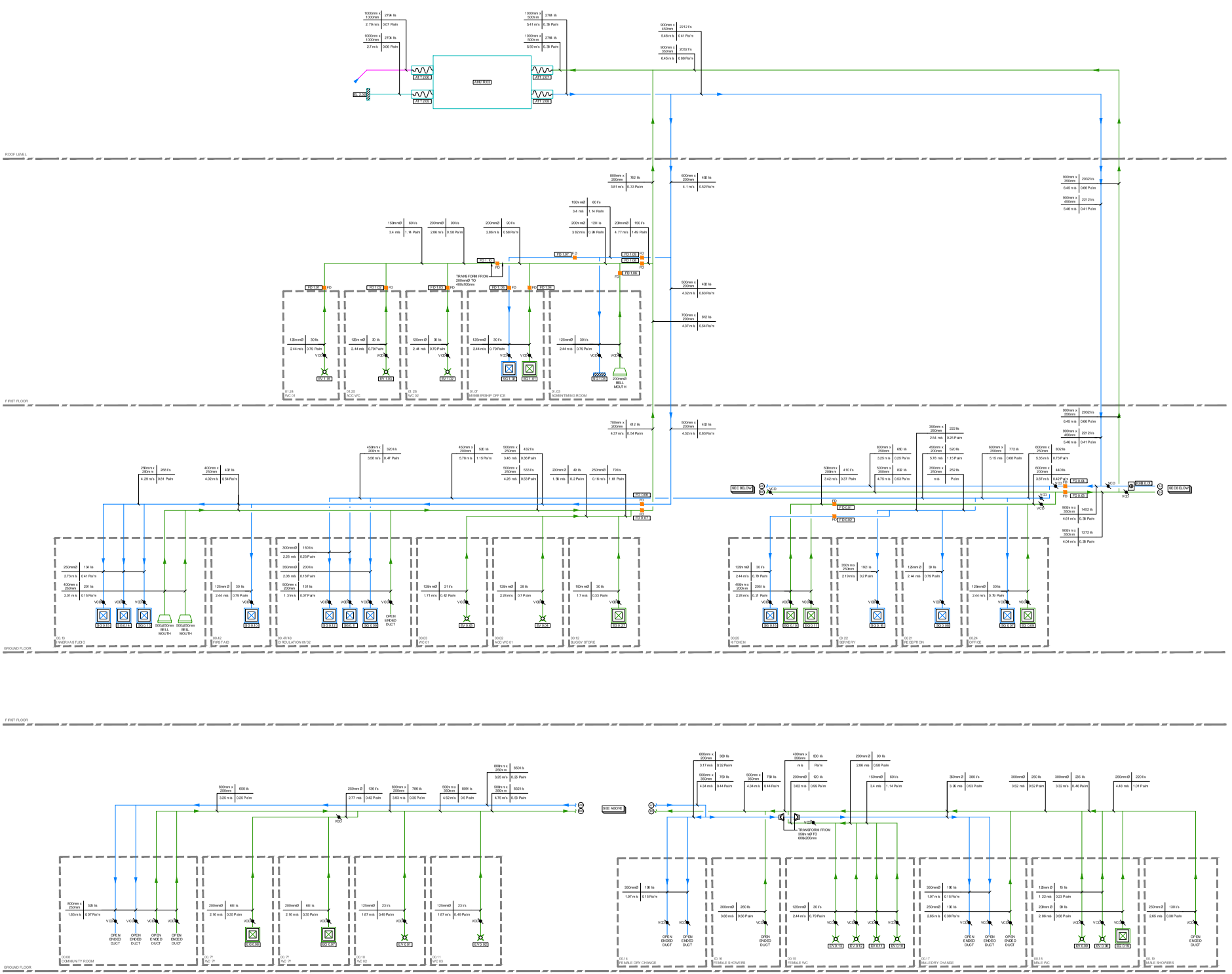
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HEN0203-HEN-00-ZZ-DR-M-5303	AF01

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HEN0203-HEN-00-ZZ-DR-M-5701 rev AF01 Ventilation Schematic Sheet 1

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

VENTILATION SERVICES NOTES

1. ALL EXTRACT ONLY SYSTEM DUCTWORK SHALL NOT BE INSULATED
2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED
3. ALL EXTERNAL EXPOSED DUCTWORK SHALL BE INSULATED AND FINISHED WITH AN ALUMINIUM CLAD OR ISOGENPAK.
4. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
5. ALL VCDs AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
6. FLEXIBLE DUCTWORK SHALL NOT EXCEED 1000mm LONG.
7. INTERNAL INSULATION TO BE MINERAL WOOL, AND EXTERNAL TO BE PHENOLIC.

VENTILATION SERVICES LEGEND

- INTAKE AIR DUCT WORK
- EXHAUST DUCTWORK
- SUPPLY DUCT WORK
- EXTRACT DUCTWORK
- FD — FIRE DAMPER
- SFD — SMOKE FIRE DAMPER
- VCD — VOLUME CONTROL DAMPER
- MD — MOTORISED DAMPER
- EXTRACT GRILLE
- SUPPLY GRILLE
- EGG CRATE GRILLE
- EXTRACT VALVE
- ATTENUATOR
- DUCT MOUNTED HEATER BATTERY
- FAN

VENTILATION SERVICES ABBREVIATION

ATT	ATTENUATOR
EG	EXTRACT GRILLE
EL	EXTERNAL LOUVRE
EV	EXTRACT VALVE
SFD	SMOKE FIRE DAMPER
FD	FIRE DAMPER
HRU	HEAT RECOVERY UNIT
SG	SUPPLY GRILLE
VCD	VOLUME CONTROL DAMPER
AHU	AIR HANDLING UNIT
EB	EXTRACT BILLMOUTH

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	25.04.25	MPO	DB
P02	ISSUED FOR COMMENT	19.05.25	MPO	DB
P01	ISSUED FOR COMMENT	15.05.25	MPO	DB

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PROJECT
ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
VENTILATION SCHEMATIC
SHEET 1 OF 5

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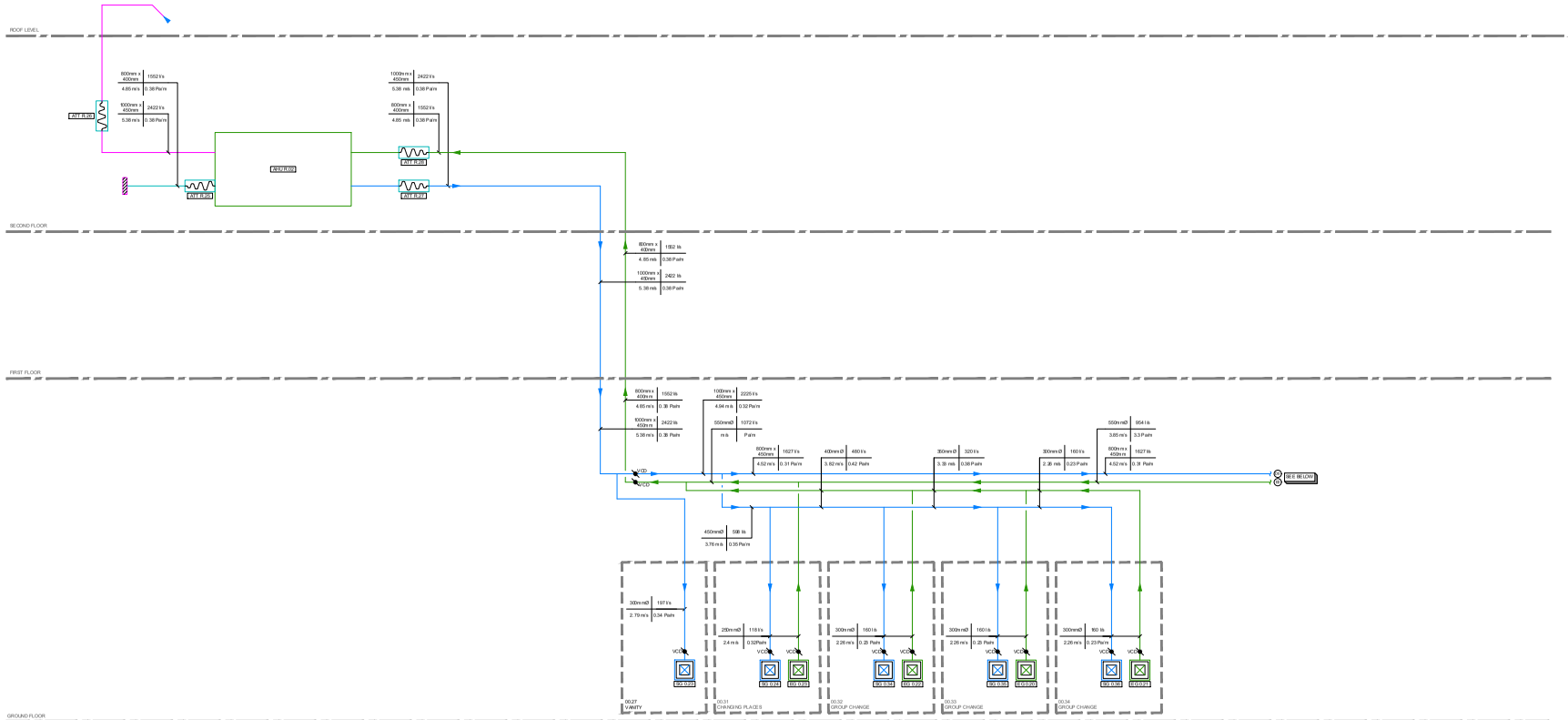
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AF01

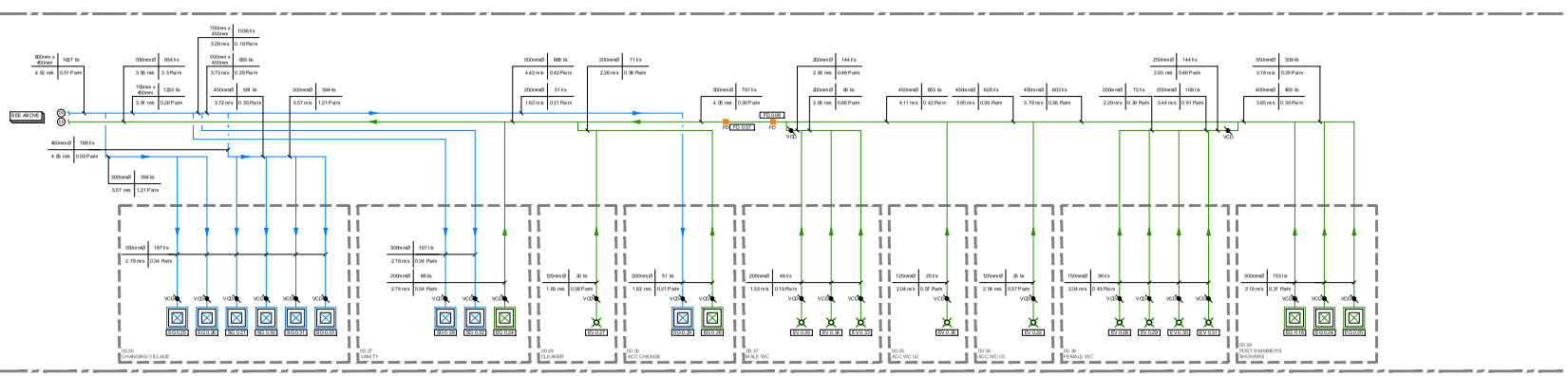
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HEN0203-HEN-00-ZZ-DR-M-5702 rev AF01 Ventilation Schematic Sheet 2

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4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

VENTILATION SERVICES NOTES

1. ALL EXTRACT ONLY SYSTEM DUCTWORK SHALL NOT BE INSULATED.
2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED.
3. ALL EXTERNAL EXPOSED DUCTWORK SHALL BE INSULATED AND FINISHED WITH AN ALUMINIUM CLAD OR ISOGENPAK.
4. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW172.
5. ALL VCDs AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
6. FLEXIBLE DUCTWORK SHALL NOT EXCEED 1000mm LONG.
7. INTERNAL INSULATION TO BE MINERAL WOOL, AND EXTERNAL TO BE PHENOLIC.

VENTILATION SERVICES LEGEND

- INTAKE AIR DUCT WORK
- EXHAUST DUCTWORK
- SUPPLY DUCT WORK
- EXTRACT DUCTWORK
- FD — FIRE DAMPER
- SFD — SMOKE FIRE DAMPER
- VCD — VOLUME CONTROL DAMPER
- MD — MOTORISED DAMPER
- EXTRACT GRILLE
- SUPPLY GRILLE
- EGG CRATE GRILLE
- EXTRACT VALVE
- ATTENUATOR
- DUCT MOUNTED HEATER BATTERY
- FAN

VENTILATION SERVICES ABBREVIATION

ATT	ATTENUATOR
EG	EXTRACT GRILLE
EL	EXTERNAL LOUVRE
EV	EXTRACT VALVE
SFD	SMOKE FIRE DAMPER
FD	FIRE DAMPER
HRU	HEAT RECOVERY UNIT
SG	SUPPLY GRILLE
VCD	VOLUME CONTROL DAMPER
AHU	AIR HANDLING UNIT
EB	EXTRACT BELLMOUTH

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	25.04.25	MPO	DB
P02	ISSUED FOR COMMENT	19.06.25	MPO	DB
P01	ISSUED FOR COMMENT	15.05.25	MPO	DB

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ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
VENTILATION SCHEMATIC
SHEET 2 OF 5

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DRAWING Nº	REV
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11.78

HEN0203-HEN-00-ZZ-DR-M-5703 rev AF01 Ventilation Schematic Sheet 3

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VENTILATION SERVICES NOTES

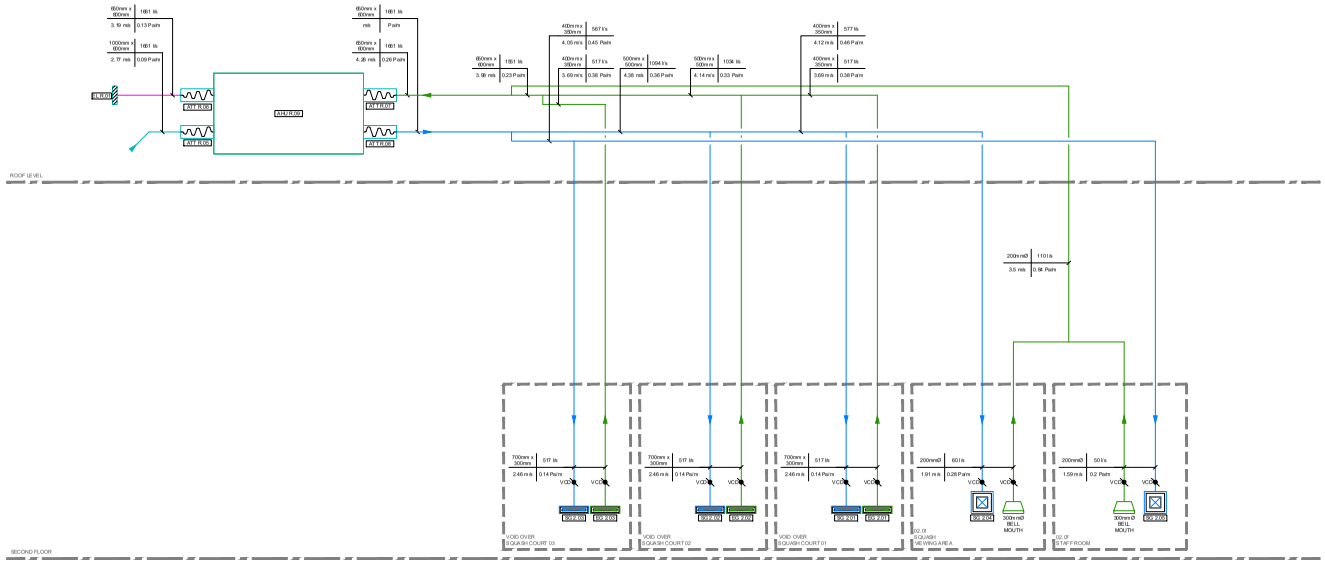
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3. ALL EXTERNAL EXPOSED DUCTWORK SHALL BE INSULATED AND FINISHED WITH AN ALUMINIUM CLAD OR ISOGENPAK.
4. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW/E.
5. ALL VCDs AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
6. FLEXIBLE DUCTWORK SHALL NOT EXCEED 1000mm LONG.
7. INTERNAL INSULATION TO BE MINERAL WOOL, AND EXTERNAL TO BE PHENOLIC.

VENTILATION SERVICES LEGEND

- INTAKE AIR DUCT WORK
- EXHAUST DUCTWORK
- SUPPLY DUCT WORK
- EXTRACT DUCTWORK
- FD — FIRE DAMPER
- SFD — SMOKE FIRE DAMPER
- VCD — VOLUME CONTROL DAMPER
- MD — MOTORISED DAMPER
- EXTRACT GRILLE
- SUPPLY GRILLE
- EGG CRATE GRILLE
- EXTRACT VALVE
- ATTENUATOR
- DUCT MOUNTED HEATER BATTERY
- FAN

VENTILATION SERVICES ABBREVIATION

ATT	ATTENUATOR
EG	EXTRACT GRILLE
EL	EXTERNAL LOUVRE
EV	EXTRACT VALVE
SFD	SMOKE FIRE DAMPER
FD	FIRE DAMPER
HRU	HEAT RECOVERY UNIT
SG	SUPPLY GRILLE
VCD	VOLUME CONTROL DAMPER
AHU	AIR HANDLING UNIT
BB	EXTRACT BELLMOUTH



REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	25.04.25	MPO	DB
P02	ISSUED FOR COMMENT	18.06.25	MPO	DB
P01	ISSUED FOR COMMENT	15.05.25	MPO	DB

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ELMWOOD LEISURE CENTRE

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MECHANICAL SERVICES
VENTILATION SCHEMATIC
SHEET 3 OF 5

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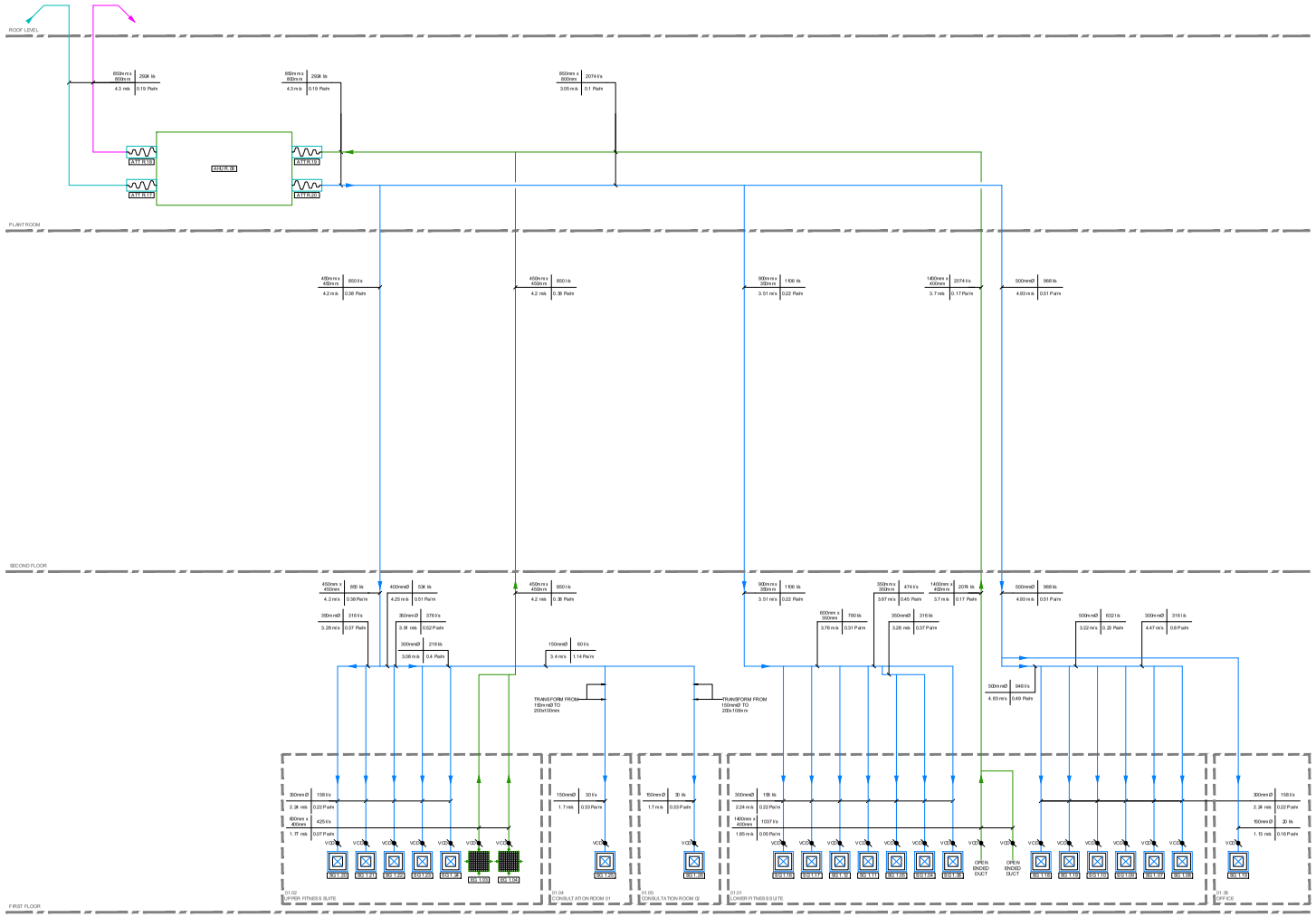
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HEN0203-HEN-00-ZZ-DR-M-5704 rev AF01 Ventilation Schematic Sheet 4

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VENTILATION SERVICES NOTES

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2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED.
3. ALL EXTERNAL EXPOSED DUCTWORK SHALL BE INSULATED AND FINISHED WITH AN ALUMINIUM CLAD OR ISOGENPAK.
4. ACCESS HATCHES SHALL BE PROVIDED IN ACCORDANCE WITH DW144 AND DW/E.
5. ALL VCDs AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
6. FLEXIBLE DUCTWORK SHALL NOT EXCEED 1000mm LONG.
7. INTERNAL INSULATION TO BE MINERAL WOOL, AND EXTERNAL TO BE PHENOLIC.

VENTILATION SERVICES LEGEND

- INTAKE AIR DUCT WORK
- EXHAUST DUCTWORK
- SUPPLY DUCT WORK
- EXTRACT DUCTWORK
- FD — FIRE DAMPER
- SFD — SMOKE FIRE DAMPER
- VCD — VOLUME CONTROL DAMPER
- MD — MOTORISED DAMPER
- EXTRACT GRILLE
- SUPPLY GRILLE
- EGG CRATE GRILLE
- EXTRACT VALVE
- ATTENUATOR
- DUCT MOUNTED HEATER BATTERY
- FAN

VENTILATION SERVICES ABBREVIATION

ATT	ATTENUATOR
EG	EXTRACT GRILLE
EL	EXTERNAL LOUVRE
EV	EXTRACT VALVE
SFD	SMOKE FIRE DAMPER
FD	FIRE DAMPER
HRU	HEAT RECOVERY UNIT
SG	SUPPLY GRILLE
VCD	VOLUME CONTROL DAMPER
AHU	AIR HANDLING UNIT
EB	EXTRACT BELLMOUTH

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	25.04.25	MPO	DB
P02	ISSUED FOR COMMENT	16.06.25	MPO	DB
P01	ISSUED FOR COMMENT	15.05.25	MPO	DB

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PROJECT: ELMWOOD LEISURE CENTRE

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MECHANICAL SERVICES
VENTILATION SCHEMATIC
SHEET 4 OF 5

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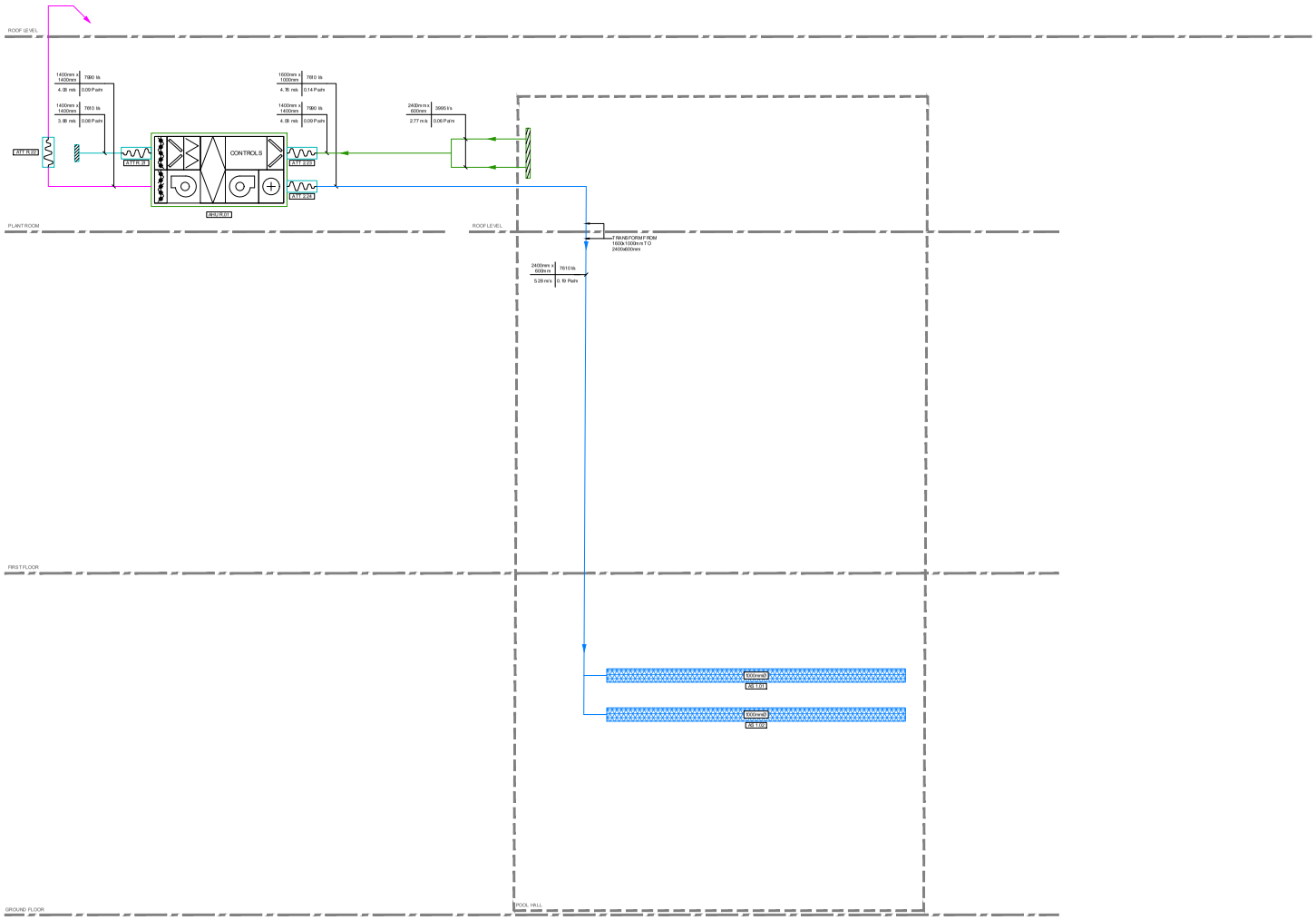
REV: AF01

11.80

HEN0203-HEN-00-ZZ-DR-M-5705 rev AF01 Ventilation Schematic Sheet 5

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VENTILATION SERVICES NOTES

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2. ALL DUCTWORK WITHIN RISERS OR CEILING VOIDS SHALL BE INSULATED.
3. ALL EXTERNAL EXPOSED DUCTWORK SHALL BE INSULATED AND FINISHED WITH AN ALUMINIUM CLAD OR ISOGENPAK.
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5. ALL VCDs AND FIRE DAMPERS SHALL BE ACCESSIBLE VIA ACCESS HATCHES IN THE DUCTWORK.
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VENTILATION SERVICES LEGEND

- INTAKE AIR DUCT WORK
- EXHAUST DUCTWORK
- SUPPLY DUCT WORK
- EXTRACT DUCTWORK
- FD — FIRE DAMPER
- SFD — SMOKE FIRE DAMPER
- VCD — VOLUME CONTROL DAMPER
- MD — MOTORISED DAMPER
- EXTRACT GRILLE
- SUPPLY GRILLE
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- EXTRACT VALVE
- ATTENUATOR
- DUCT MOUNTED HEATER BATTERY
- FAN

VENTILATION SERVICES ABBREVIATION

ATT	ATTENUATOR
EG	EXTRACT GRILLE
EL	EXTERNAL LOUVRE
EV	EXTRACT VALVE
SFD	SMOKE FIRE DAMPER
FD	FIRE DAMPER
HRU	HEAT RECOVERY UNIT
SG	SUPPLY GRILLE
VCD	VOLUME CONTROL DAMPER
AHU	AIR HANDLING UNIT
EB	EXTRACT BELLMOUTH

REV	DESCRIPTION	DATE	DRAWN	CHECK
AF01	AS FITTED	25.04.25	MPO	DB
P02	ISSUED FOR COMMENT	16.05.25	MPO	DB
P01	ISSUED FOR COMMENT	15.05.25	MPO	DB

AS FITTED

CLIENT
HENSALL

PROJECT
ELMWOOD LEISURE CENTRE

DRAWING TITLE
MECHANICAL SERVICES
VENTILATION SCHEMATIC
SHEET 5 OF 5

SCALE @ A0	DATE	DRAWN	CHECKED
N.T.S.	APR '25	MPO	DB

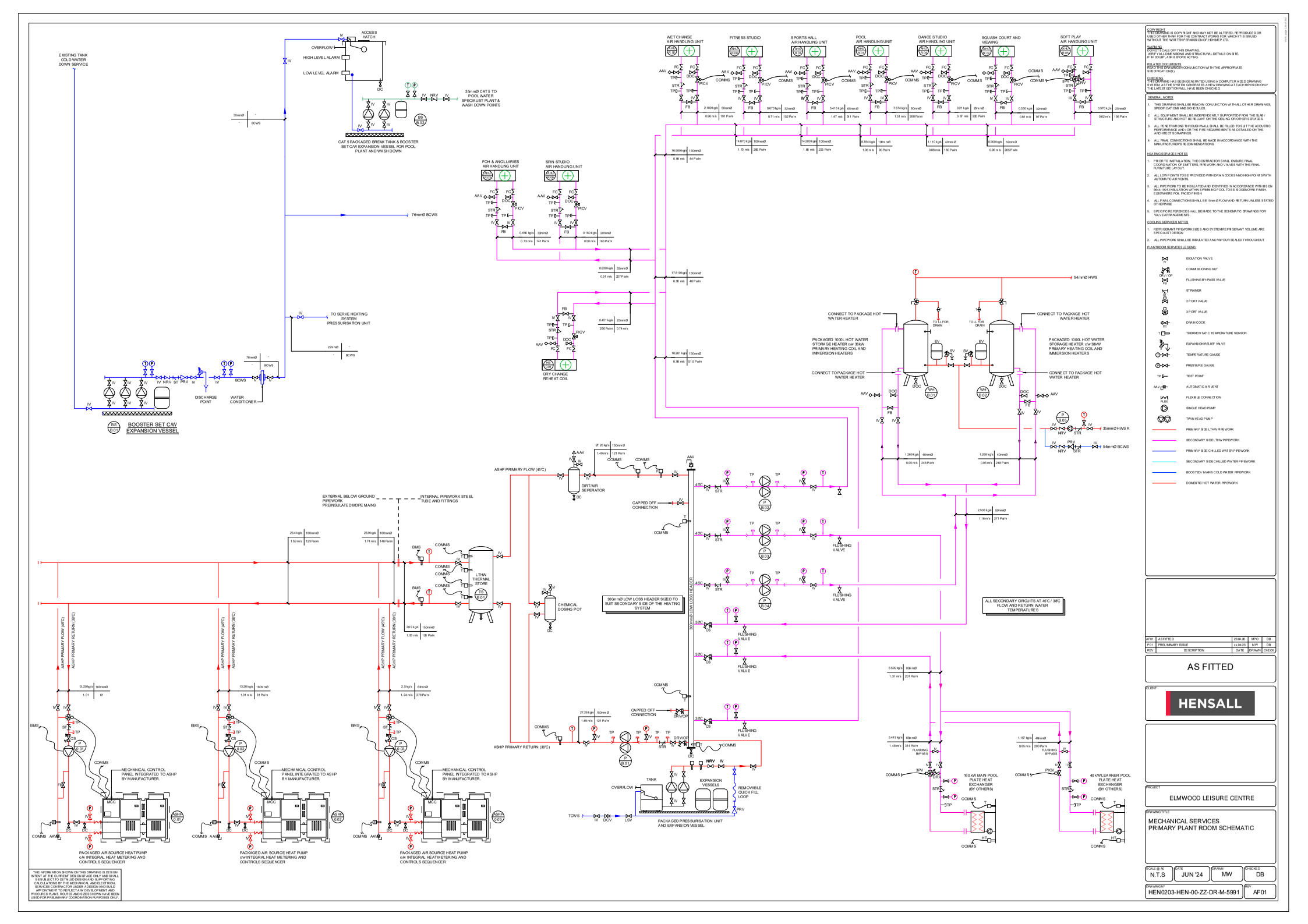
DRAWING No	REV
HEN0203-HEN-00-ZZ-DR-M-5705	AF01

11.81

HEN0203-HEN-00-ZZ-DR-M-5991 rev AF01 Primary Plant Room Schematic

The following page is the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-00ZZM5991-DWG
Asset	00ZZM5991
Provided by	Hensall Mechanical Services Ltd
Source file	HEN0203-HEN-00-ZZ-DR-M-5991 AF01.pdf
Pages	1



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WARNING
DO NOT SCALE OFF THIS DRAWING.
VERIFY ALL DIMENSIONS AND STRUCTURAL DETAILS ON SITE.
IF IN DOUBT, ASK BEFORE ACTING.

RELATED DOCUMENTS
READ THIS DRAWING IN CONJUNCTION WITH THE APPROPRIATE SPECIFICATION(S).

QUERYING
THIS DRAWING HAS BEEN GENERATED USING A COMPUTER AIDED DRAWING SYSTEM. AS THE SYSTEM GENERATES A NEW DRAWING AT EACH REVISION ONLY THE LATEST EDITION WILL HAVE BEEN CHECKED.

GENERAL NOTES

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SPECIFICATIONS AND SCHEDULES.
2. ALL EQUIPMENT SHALL BE INDEPENDENTLY SUPPORTED FROM THE SLAB / STRUCTURE AND NOT BE RELIANT ON THE CEILING OR OTHER SERVICES.
3. ALL PENETRATIONS THROUGH WALL SHALL BE FILLED TO SUIT THE ACOUSTIC PERFORMANCE AND / OR THE FIRE REQUIREMENTS AS DETAILED ON THE ARCHITECTS DRAWINGS.
4. ALL FINAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

HEATING SERVICES NOTES

1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL ENSURE FINAL COORDINATION OF EMITTERS, PIPEWORK AND VALVES WITH THE FINAL FURNITURE LAYOUT.
2. ALL LOW POINTS TO BE PROVIDED WITH DRAIN COCKS AND HIGH POINT SWITH AUTOMATIC AIR VENTS.
3. ALL PIPEWORK TO BE INSULATED AND IDENTIFIED IN ACCORDANCE WITH BS EN 6644:1991. INSULATION WITHIN SWIMMING POOL TO BE ISOGENOPAK FINISH, ELSEWHERE FOIL FACED FINISH.
4. ALL FINAL CONNECTIONS SHALL BE 15mm Ø FLOW AND RETURN UNLESS STATED OTHERWISE.
5. SPECIFIC REFERENCES SHALL BE MADE TO THE SCHEMATIC DRAWINGS FOR VALVE ARRANGEMENTS.

COOLING SERVICES NOTES

1. REFRIGERANT PIPEWORK SIZES AND SYSTEM REFRIGERANT VOLUME ARE SPECIALIST DESIGN.
2. ALL PIPEWORK SHALL BE INSULATED AND VAPOUR SEALED THROUGHOUT.

PLANTROOM SERVICES LEGEND

- ISOLATION VALVE
- COMMISSIONING SET
- DRV / DP — FLUSHING BY-PASS VALVE
- STRAINER
- 2 PORT VALVE
- 3 PORT VALVE
- DRAIN COCK
- THERMOSTATIC TEMPERATURE SENSOR
- EXPANSION RELIEF VALVE
- TEMPERATURE GAUGE
- PRESSURE GAUGE
- TEST POINT
- AUTOMATIC AIR VENT
- FLEXIBLE CONNECTION
- SINGLE HEAD PUMP
- TWIN HEAD PUMP
- PRIMARY SIDE LTHW PIPEWORK
- SECONDARY SIDE LTHW PIPEWORK
- PRIMARY SIDE CHILLED WATER PIPEWORK
- SECONDARY SIDE CHILLED WATER PIPEWORK
- BOOSTED / MAINS COLD WATER PIPEWORK
- DOMESTIC HOT WATER PIPEWORK

REV	DESCRIPTION	DATE	DRAWN	CHECK
AP01	AS FITTED	26.06.25	MPO	DB
P01	PRELIMINARY ISSUE	xx.04.25	MW	DB

AS FITTED

CLIENT: HENSALL

PROJECT: ELMWOOD LEISURE CENTRE

DRAWING TITLE: MECHANICAL SERVICES PRIMARY PLANT ROOM SCHEMATIC

SCALE @ A0	DATE	DRAWN	CHECKED
N.T.S	JUN '24	MW	DB

DRAWING NO: HEN0203-HEN-00-ZZ-DR-M-5991 — REV: AF01

THE INFORMATION SHOWN ON THIS DRAWING IS DESIGN INTENT AT THE CURRENT DESIGN STAGE ONLY AND SHALL BE SUBJECT TO DETAILED DESIGN AND SUPPORTING CALCULATIONS BY THE MECHANICAL AND ELECTRICAL SERVICES CONTRACTOR UNDER A DESIGN AND BUILD APPOINTMENT TO REFLECT ANY DEVELOPMENT AND PROCURED PLANT. ROUTES AND SIZES SHOWN HAVE BEEN USED FOR PRELIMINARY COORDINATION PURPOSES ONLY.

11.82

BMS panel wiring diagram AHU2 rev 2FA

The following 11 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`BMS panel wiring diagram AHU2 rev 2FA.pdf`
Pages	11

WIRING NOTES:

1. MINIMUM POWER WIRING 2.5mm
2. MINIMUM CONTROL WIRING 1.0mm
3. POWER CABLES TO BE FITTED WITH CORD END TERMINALS, OR LUGS, DEPENDING ON SIZE, AND TYPE OF CONNECTION.
4. CONTROL CABLES TO BE FITTED WITH CORD END TERMINALS, PIN, OR FORK, CONFIGURATION, DEPENDING ON TYPE OF CONNECTION.
5. ALL CABLES UP TO 11mm TO BE COLOUR CODED AS FOLLOWS:–
   400 VOLTS L1.L2.L3. – BROWN, BLACK, GREY
   230 VOLTS NEUTRAL – BLUE
   LOW VOLTAGE A.C. – WHITE
   EXTRA LOW VOLTAGE D.C. – VIOLET
   EXTERNALLY SUPPLIED (I.E INTERLOCKS & VFC) – ORANGE
6. ALL CABLES ABOVE 6mm TO BE BLACK WITH COLOUR CODED PHASE IDENTIFICATION.
7. ALL CONTROL CABLES TO BE IDENTIFIED AT EACH END BY THE USE OF COLOUR CODED FERRULES.
8. FINAL CABLE No.
9. WHEN A CABLE CONNECTS TO AN OUTGOING TERMINAL THE CABLE IDENTIFICATION NUMBER IS THE SAME AS THE TERMINAL NUMBER.
11. FINAL TERMINAL No. POWER/230VAC –
    FINAL TERMINAL No. CONTROL/24VAC –
    FINAL TERMINAL No. SIGNAL –

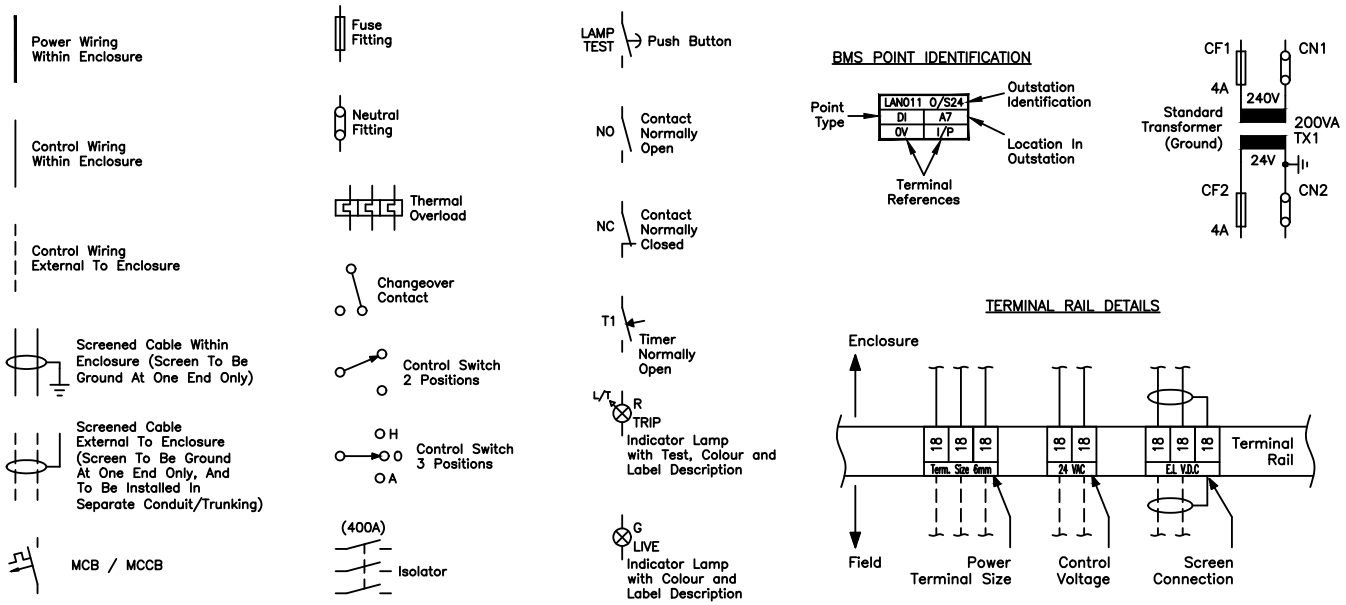
EQUIPMENT NOTES:

1. ALL STARTERS TO BE OF TELEMECANIQUE MANUFACTURE.
2. MAIN SUPPLY ISOLATORS TO BE OF SOCOMEC MANUFACTURE.
3. FUSE SWITCHES TO BE OF SOCOMEC MANUFACTURE.
4. MCB'S AND MCCB'S TO BE OF KLOCKNER MOELLER MANUFACTURE.
5. ALL OUTGOING TERMINALS TO BE OF TELEMECANIQUE MANUFACTURE.
6. ALL PILOT LIGHTS TO BE OF TMA MANUFACTURE.
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11. PANEL COLOUR RAL7032 C/W GALVANISED STEEL BACK PLATE.

FIELD WIRING NOTES:

1. NETWORK CABLE TO BE BELDEN 9501/9502 OR EQUIVALENT
2. SENSOR CABLE TO BE BELDON 9501 OR EQUIVALENT

Sheet No	Description
01	SUPPLY DISTRIBUTION
02	SUPPLY FAN
03	EXTRACT FAN
04	SPARE SHEET
05	SPARE SHEET
06	ISMA AAC20–LCD – TOP CONNECTIONS
07	ISMA AAC20–LCD – BOTTOM CONNECTIONS
08	ISMA 4U–4A
09	SPARE SHEET
10	GA1



Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

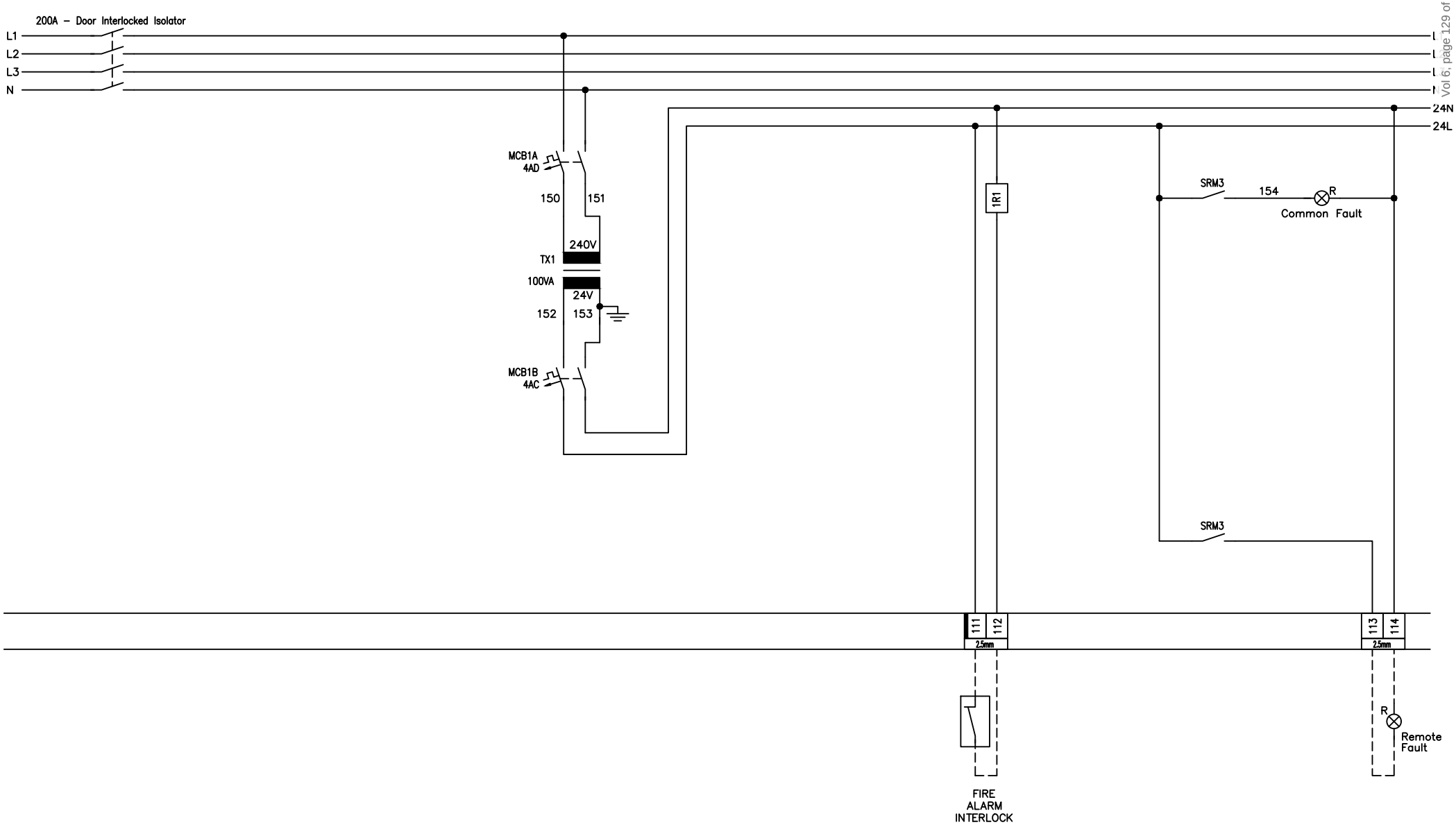
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Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

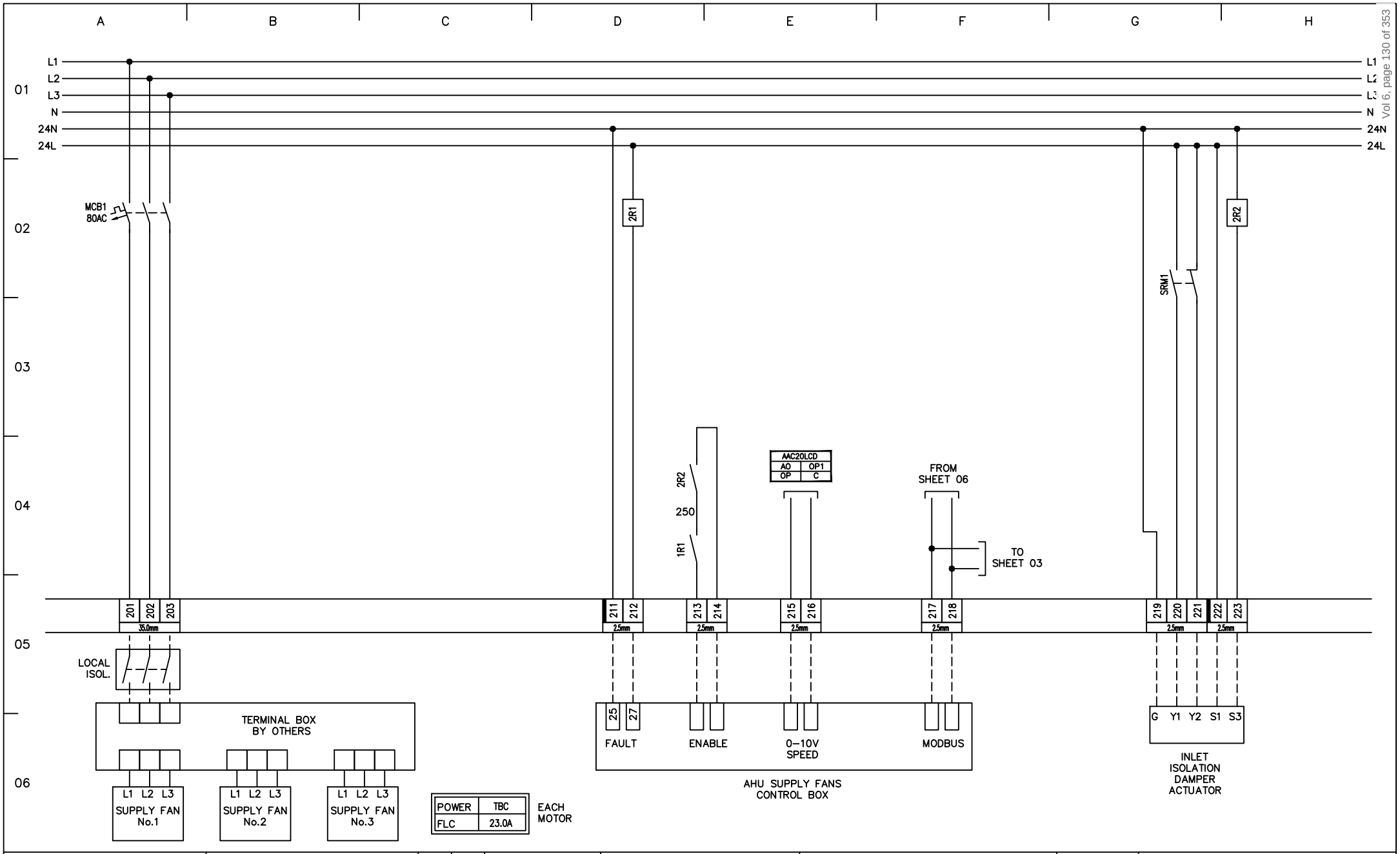
Sheet: INDEX of 10
Drg: NWP00414 – AHU1
Issue: 2FA – FOR APPROVAL

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Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue / Date / Modifications 1FA 28.05.25 FOR APPROVAL 2FA 01.07.25 POWER ADDED	Site ELMWOOD LEISURE CENTRE	Title AHU1 BMS CONTROL PANEL Client HENSALL MECHANICAL LTD	Drawn PW Date 28/05/25 Engr CB Chkd	Sheet 01 of 10 Drg NWP00414 – AHU1 Issue 2FA – FOR APPROVAL	

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Concord
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CDC HOUSE,
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HAGLEY
STOURBRIDGE
DY9 9JH

Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Site: WALNUTS LEISURE CENTRE

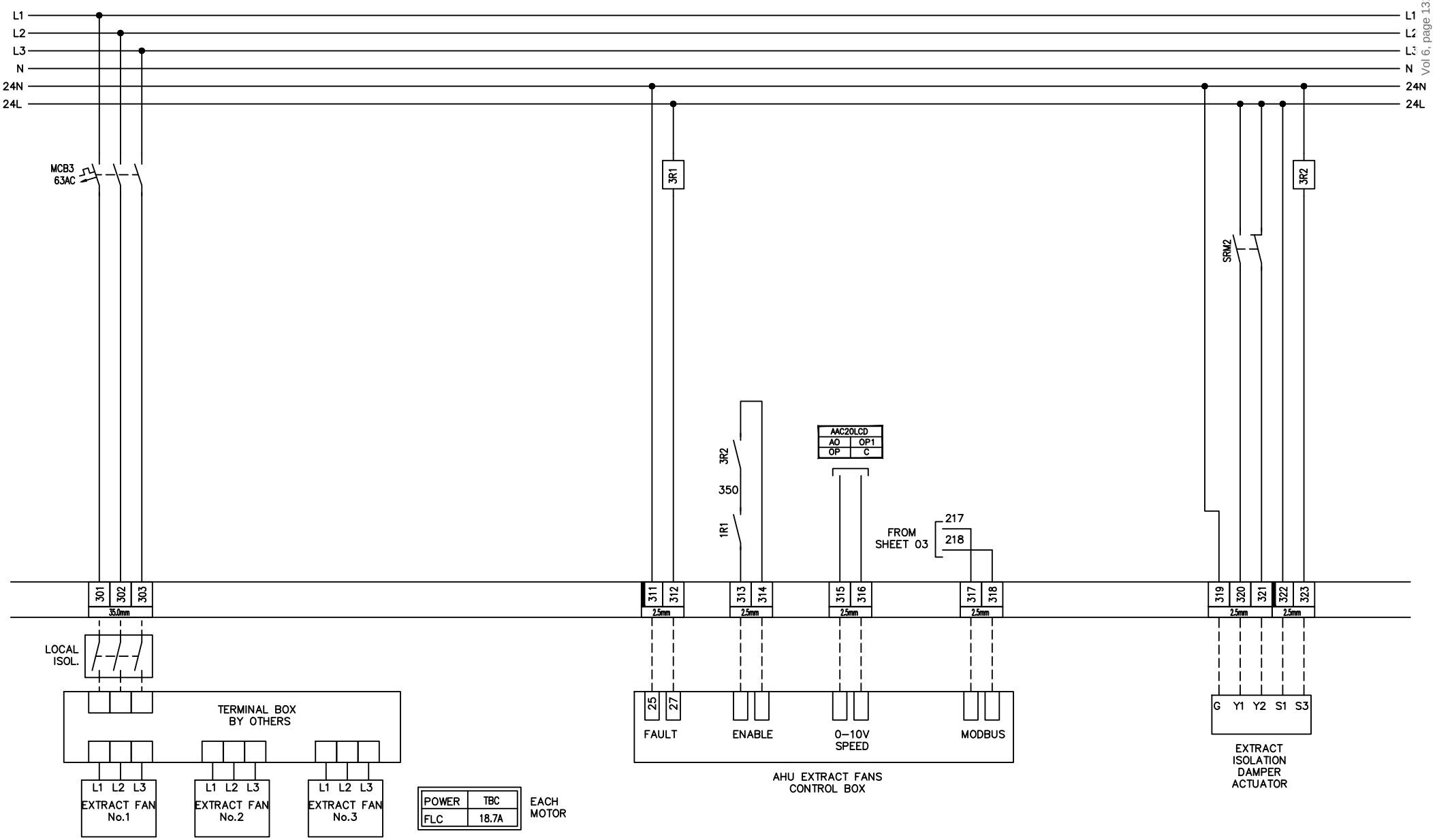
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Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 02 of 10
Drg: NWP00414 – AHU1
Issue: 2FA – FOR APPROVAL

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Concord
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CDC HOUSE,
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DY9 9JH

Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Site: WALNUTS LEISURE CENTRE

Title: AHU1 BMS CONTROL PANEL

Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 04 of 10
Drg: NWP00414 – AHU1
Issue: 2FA – FOR APPROVAL

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A B C D E F G H

01

L1
L2
L3
N
24N
24L

02

03

SPARE SHEET

04

05

06

Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue / Date / Modifications: 1FA 28.05.25 FOR APPROVAL 2FA 01.07.25 POWER ADDED	Site: WALNUTS LEISURE CENTRE	Title: AHU1 BMS CONTROL PANEL Client: HENSALL MECHANICAL LTD	Drawn PW Date 28/05/25 Engr CB Chkd	Sheet 04 of 10 Drg NWP00414 – AHU1 Issue 2FA – FOR APPROVAL	

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A B C D E F G H

01

L1
L2
L3
N
24N
24L

02

03

SPARE SHEET

04

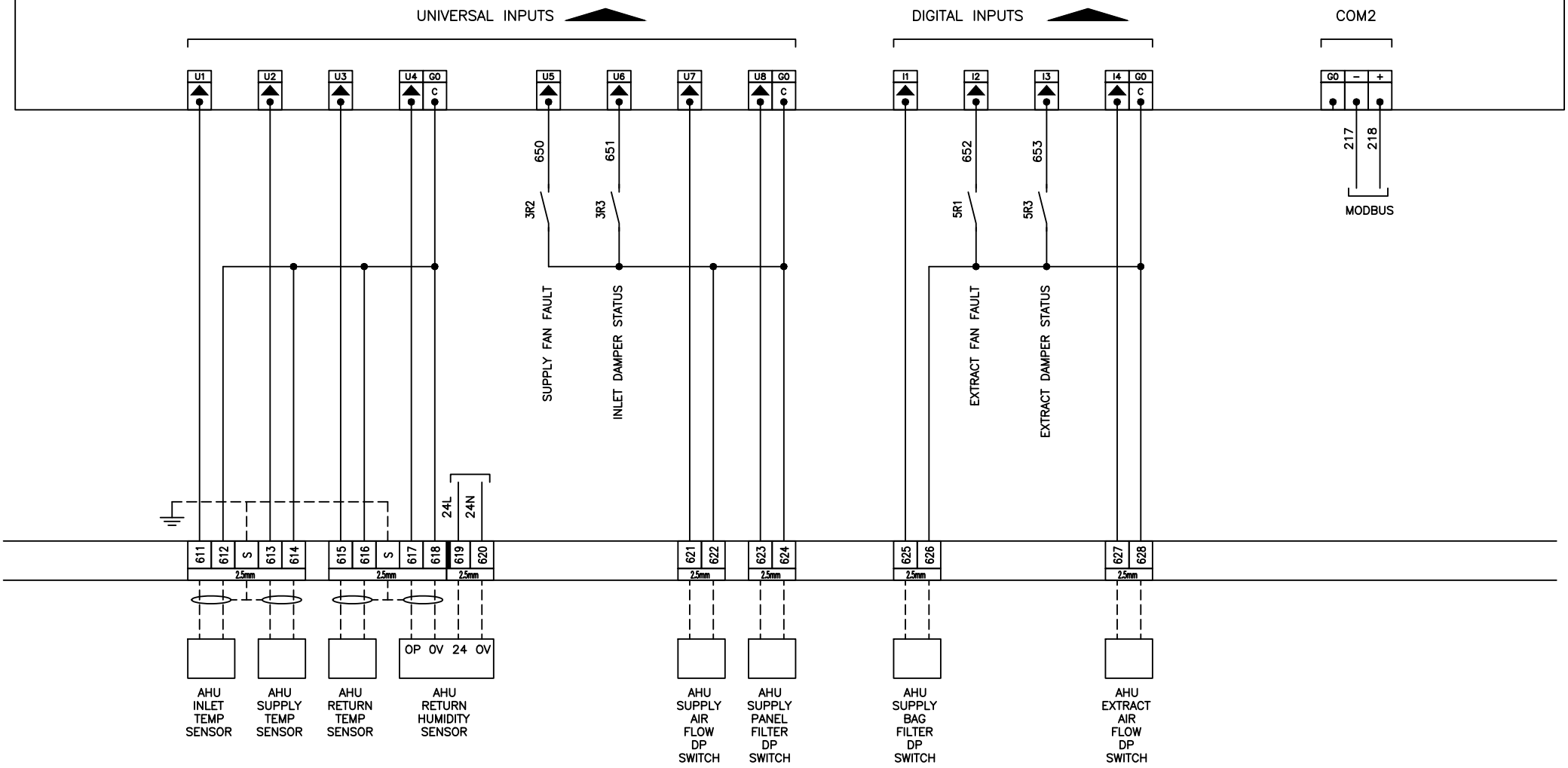
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Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue / Date / Modifications 1FA 28.05.25 FOR APPROVAL 2FA 01.07.25 POWER ADDED	Site: WALNUTS LEISURE CENTRE	Title: AHU1 BMS CONTROL PANEL Client: HENSALL MECHANICAL LTD	Drawn PW Date 28/05/25 Engr CB Chkd	Sheet 05 of 10 Drg NWP00414 – AHU1 Issue 2FA – FOR APPROVAL	

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iSMA AAC20–LCD – TOP ROW



Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
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Site: WALNUTS LEISURE CENTRE

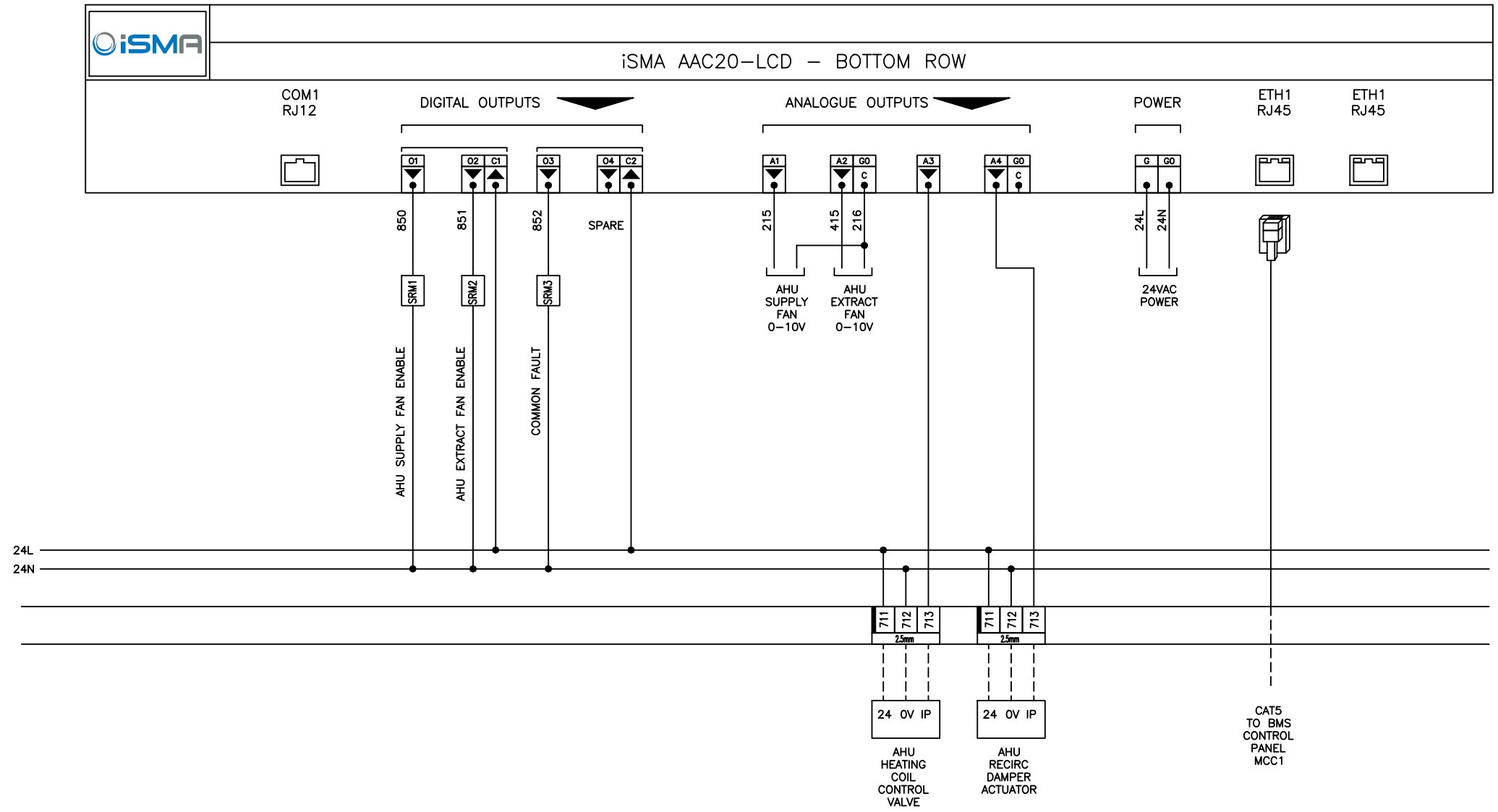
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Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
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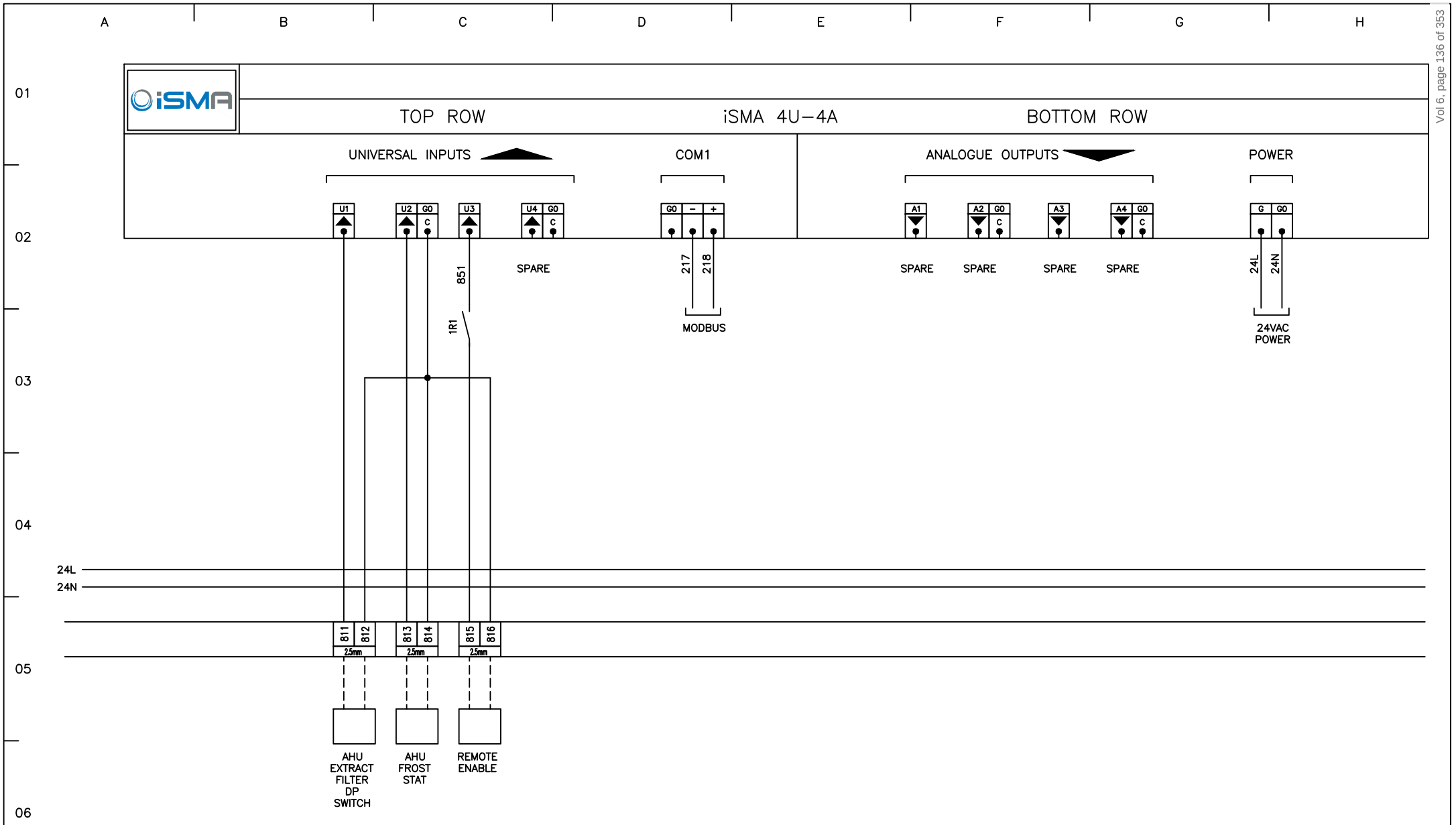
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Drg: NWP00414 – AHU1
Issue: 2FA – FOR APPROVAL

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				Client: HENSALL MECHANICAL LTD	Date: 28/05/25	Drg: NWP00414 – AHU1	
					Engr / Chkd: CB	Issue: 2FA – FOR APPROVAL	

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			Client: HENSALL MECHANICAL LTD

Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Drawn	PW
Date	28/05/25
Engr	CB
Chkd	
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Drg	NWP00414 – AHU1
Issue	2FA – FOR APPROVAL

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SPARE SHEET

Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Concord ENVIRONMENTAL TECHNOLOGIES
CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

Title: AHU1 BMS CONTROL PANEL

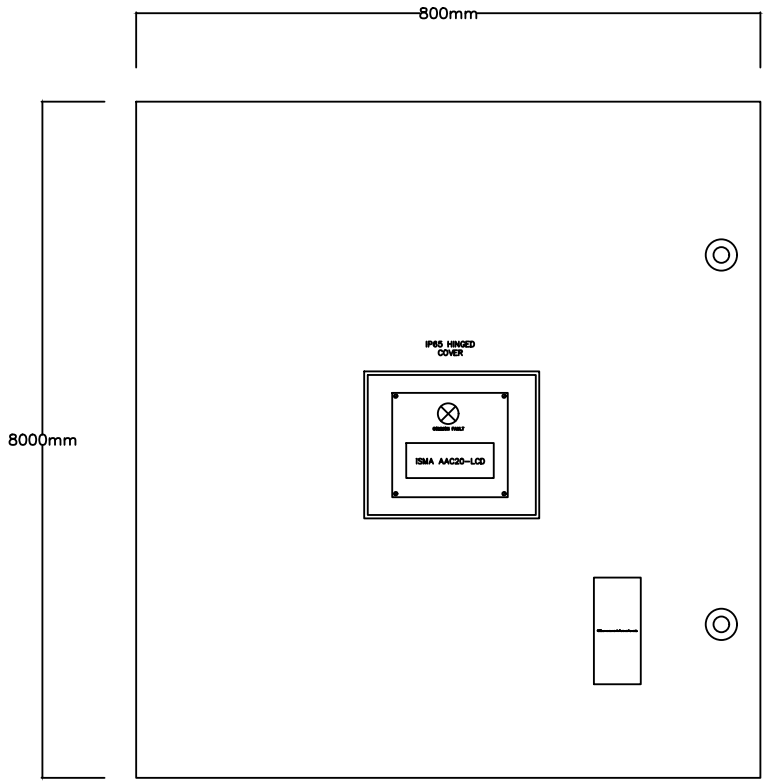
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Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 09 of 10
Drg: NWP00414 – AHU1
Issue: 2FA – FOR APPROVAL

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NOT TO SCALE



PANEL SIZE = 800mm x 800mm x 300mm

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
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DY9 9JH

Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Site: WALNUTS LEISURE CENTRE

Title: AHU1 BMS CONTROL PANEL

Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 10 of 10
Drg: NWP00414 – AHU1
Issue: 2FA – FOR APPROVAL

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11.83

BMS panel wiring diagram AHU3 rev 2FA

The following 11 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`BMS panel wiring diagram AHU3 rev 2FA.pdf`
Pages	11

A B C D E F G H

01 02 03 04 05 06

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1. MINIMUM POWER WIRING 2.5mm
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3. POWER CABLES TO BE FITTED WITH CORD END TERMINALS, OR LUGS, DEPENDING ON SIZE, AND TYPE OF CONNECTION.
4. CONTROL CABLES TO BE FITTED WITH CORD END TERMINALS, PIN, OR FORK, CONFIGURATION, DEPENDING ON TYPE OF CONNECTION.
5. ALL CABLES UP TO 11mm TO BE COLOUR CODED AS FOLLOWS:–
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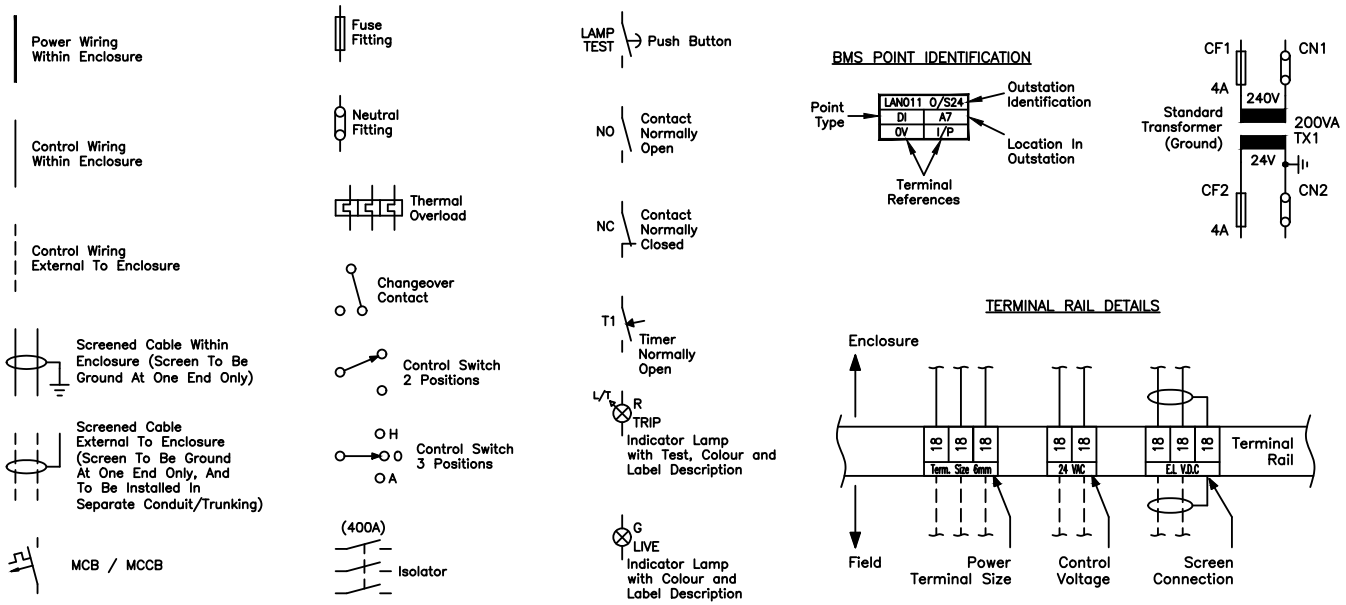
EQUIPMENT NOTES:

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FIELD WIRING NOTES:

1. NETWORK CABLE TO BE BELDEN 9501/9502 OR EQUIVALENT
2. SENSOR CABLE TO BE BELDON 9501 OR EQUIVALENT

Sheet No	Description
01	SUPPLY DISTRIBUTION
02	SUPPLY FAN
03	EXTRACT FAN
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06	ISMA AAC20–LCD – TOP CONNECTIONS
07	ISMA AAC20–LCD – BOTTOM CONNECTIONS
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09	SPARE SHEET
10	GA1



Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

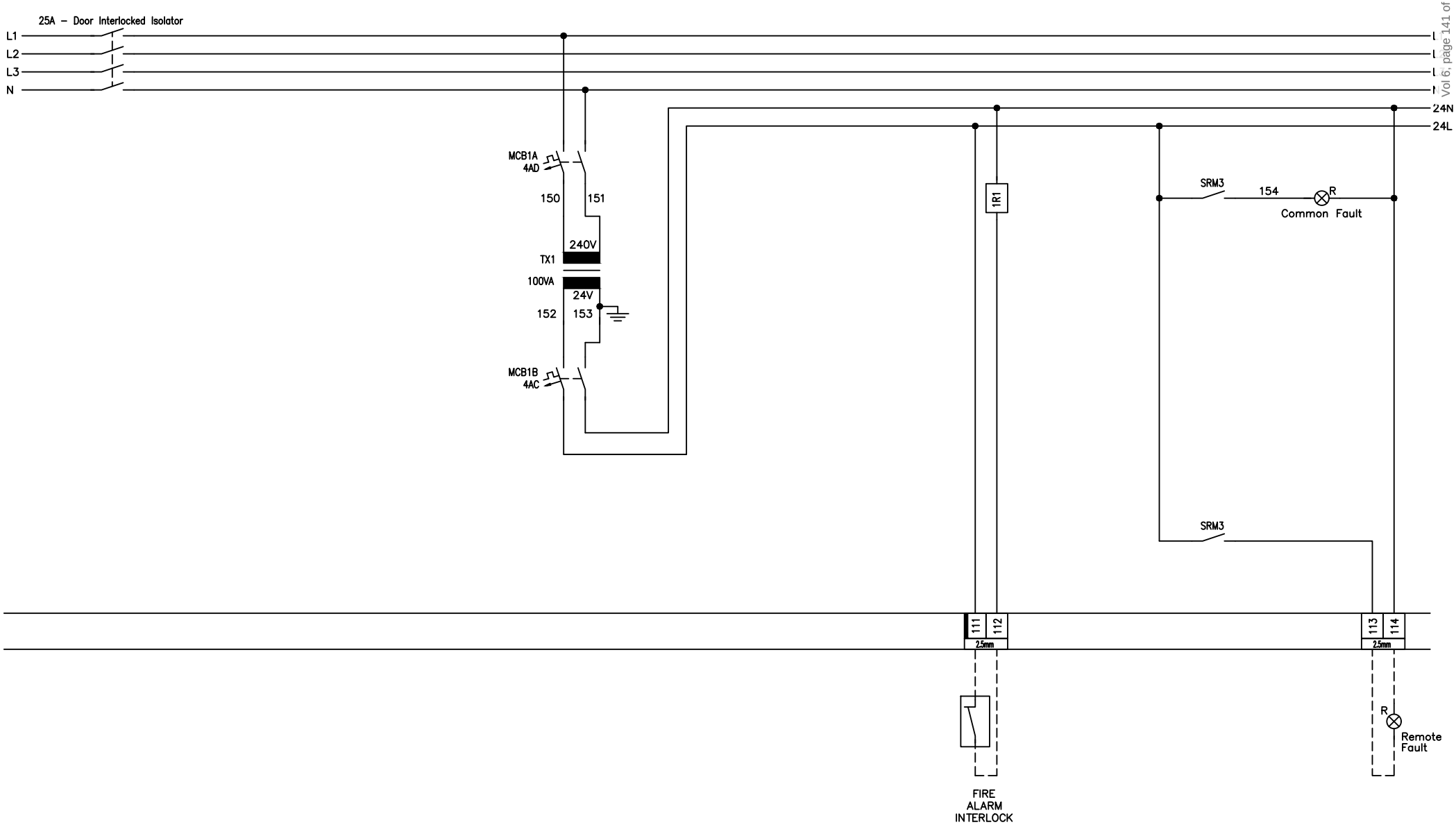
Title: AHU2 BMS CONTROL PANEL

Client: HENSALL MECHANICAL LTD

Drawn PW
Date 28/05/25
Engr CB
Chkd

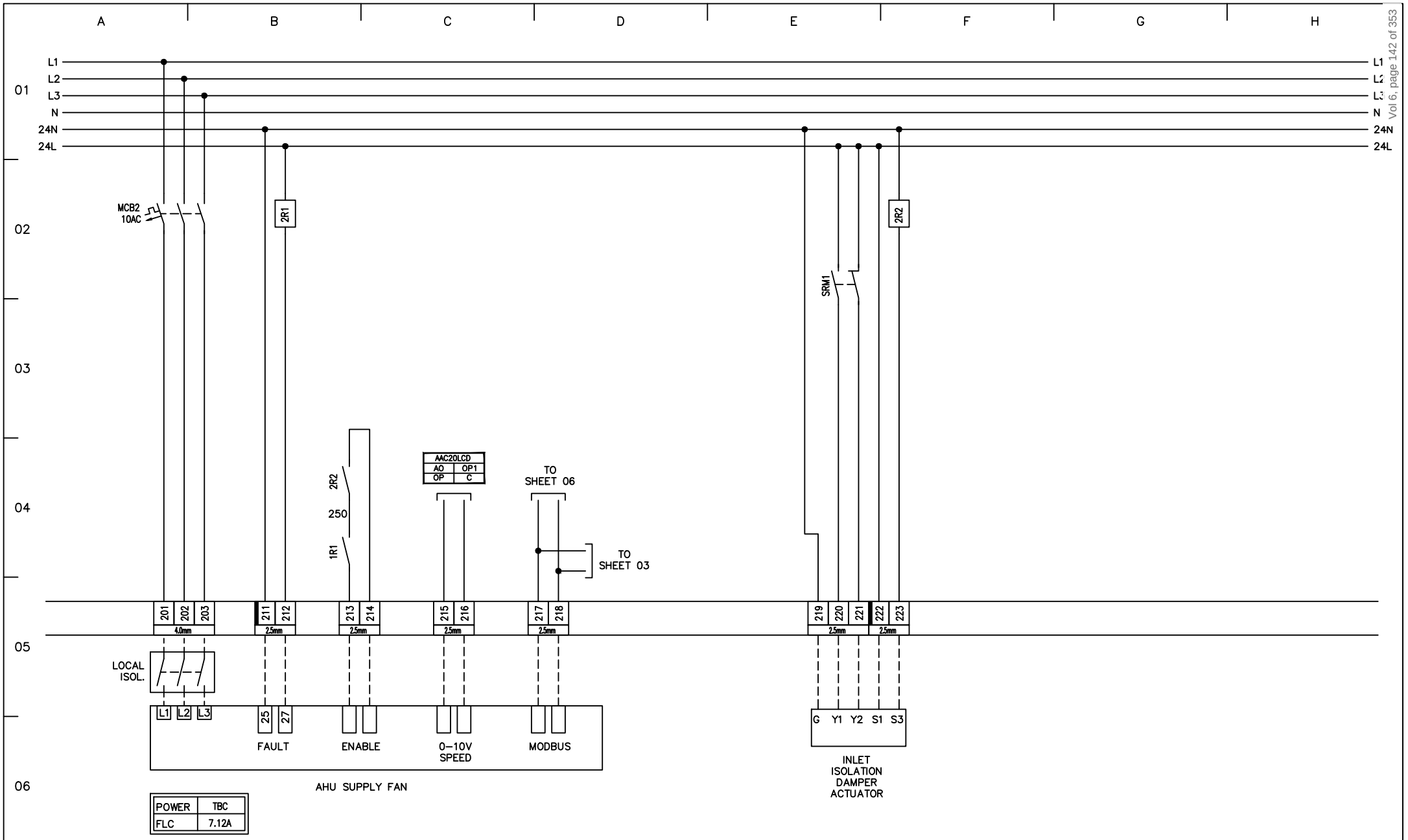
Sheet INDEX of 10
Drg NWP00414 – AHU2
Issue 2FA – FOR APPROVAL

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				Client HENSALL MECHANICAL LTD			

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Concord
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HAGLEY
STOURBRIDGE
DY9 9JH

Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Site: WALNUTS
LEISURE CENTRE

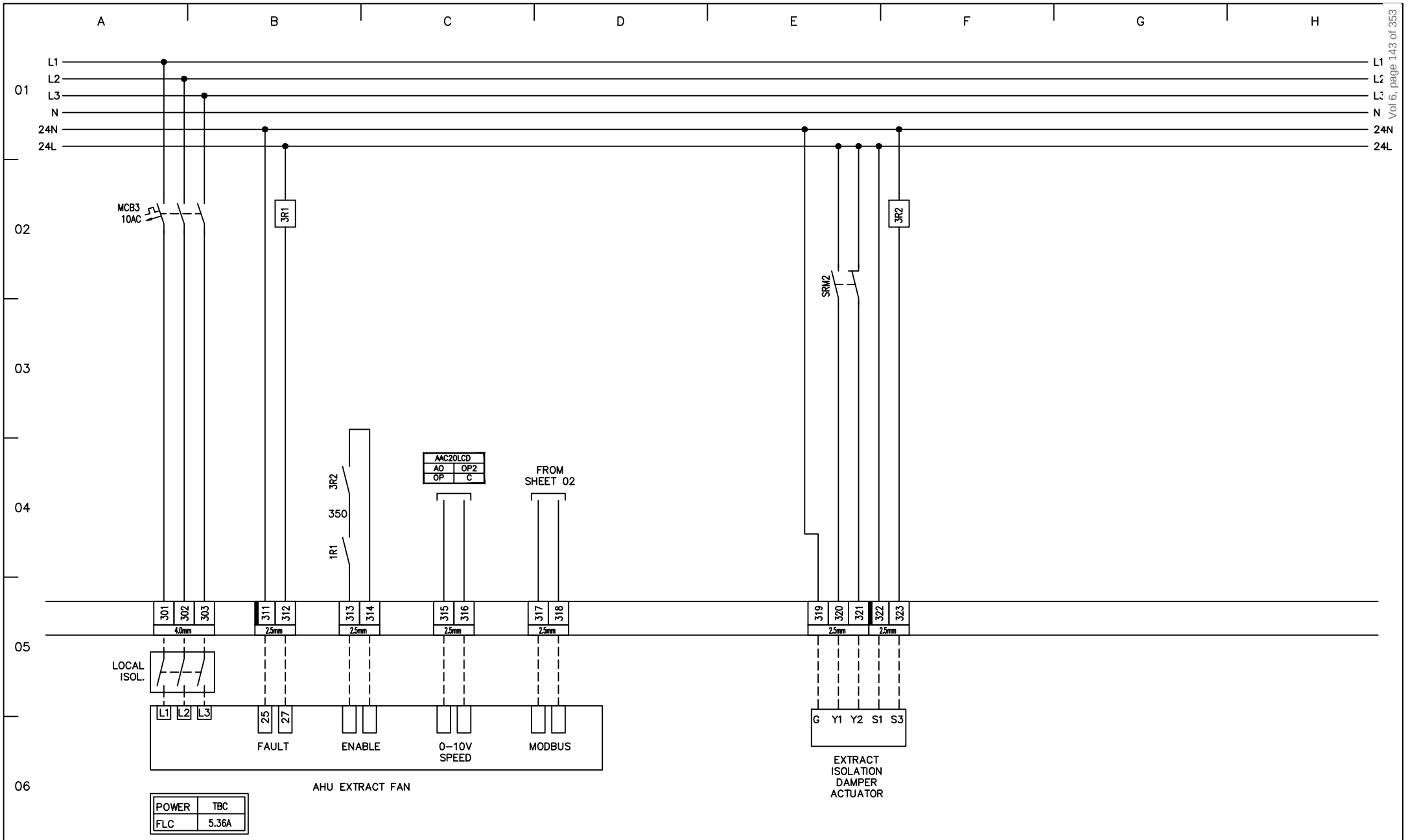
Title: AHU2
BMS CONTROL PANEL

Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 02 of 10
Drg: NWP00414 – AHU2
Issue: 2FA – FOR APPROVAL

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Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH

Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Site	WALNUTS LEISURE CENTRE
Title	AHU2 BMS CONTROL PANEL
Client	HENSALL MECHANICAL LTD
Drawn	PW
Date	28/05/25
Engr	CB
Chkd	
Sheet	03 of 10
Drg	NWP00414 – AHU2
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A B C D E F G H

01

L1
L2
L3
N
24N
24L
24L1

02

03

SPARE SHEET

04

05

06

Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue / Date / Modifications 1FA 28.05.25 FOR APPROVAL 2FA 01.07.25 POWER ADDED	Site: WALNUTS LEISURE CENTRE	Title: AHU2 BMS CONTROL PANEL Client: HENSALL MECHANICAL LTD	Drawn PW Date 28/05/25 Engr CB Chkd	Sheet 04 of 10 Drg NWP00414 – AHU2 Issue 2FA – FOR APPROVAL	

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SPARE SHEET

04

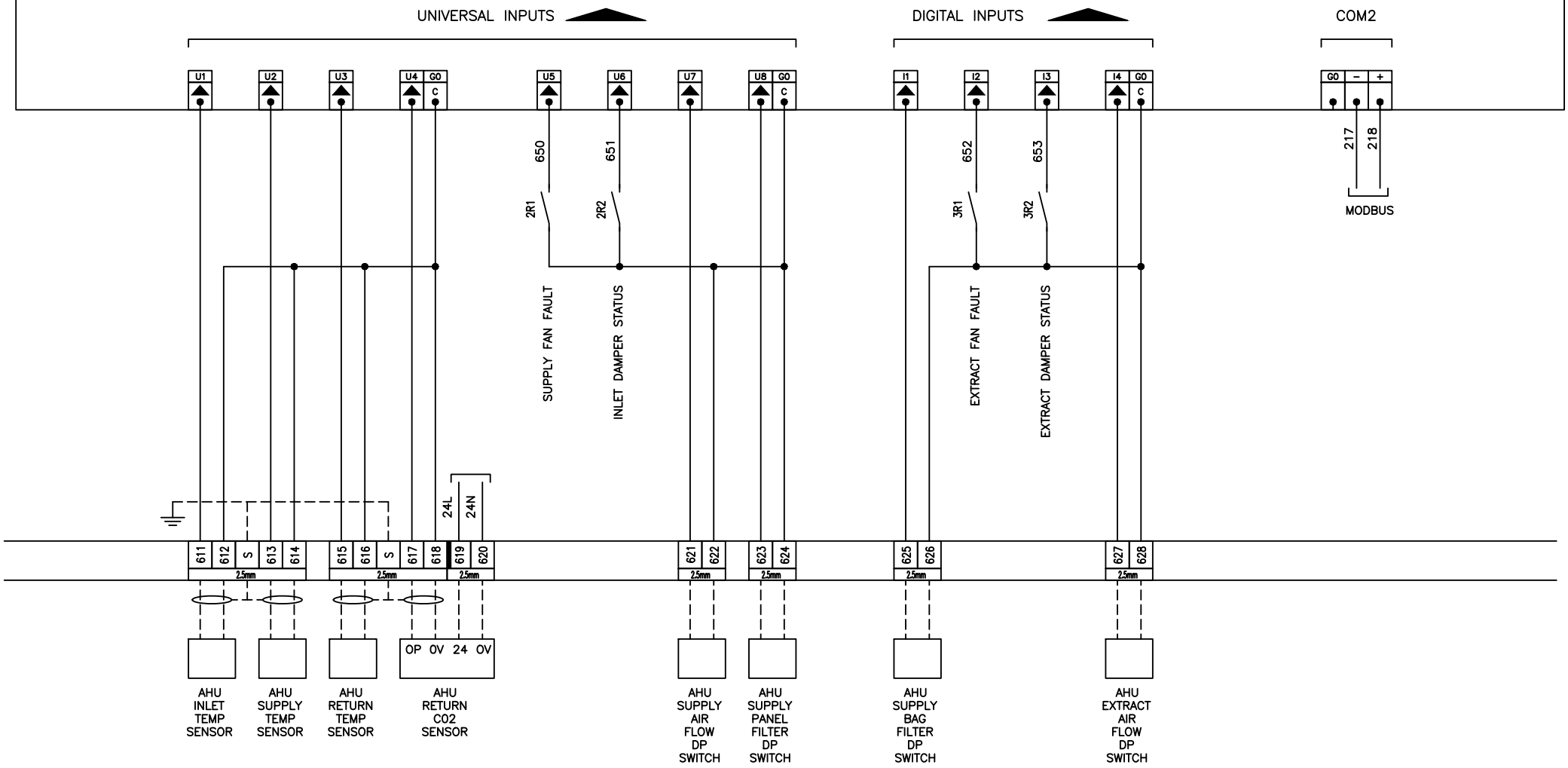
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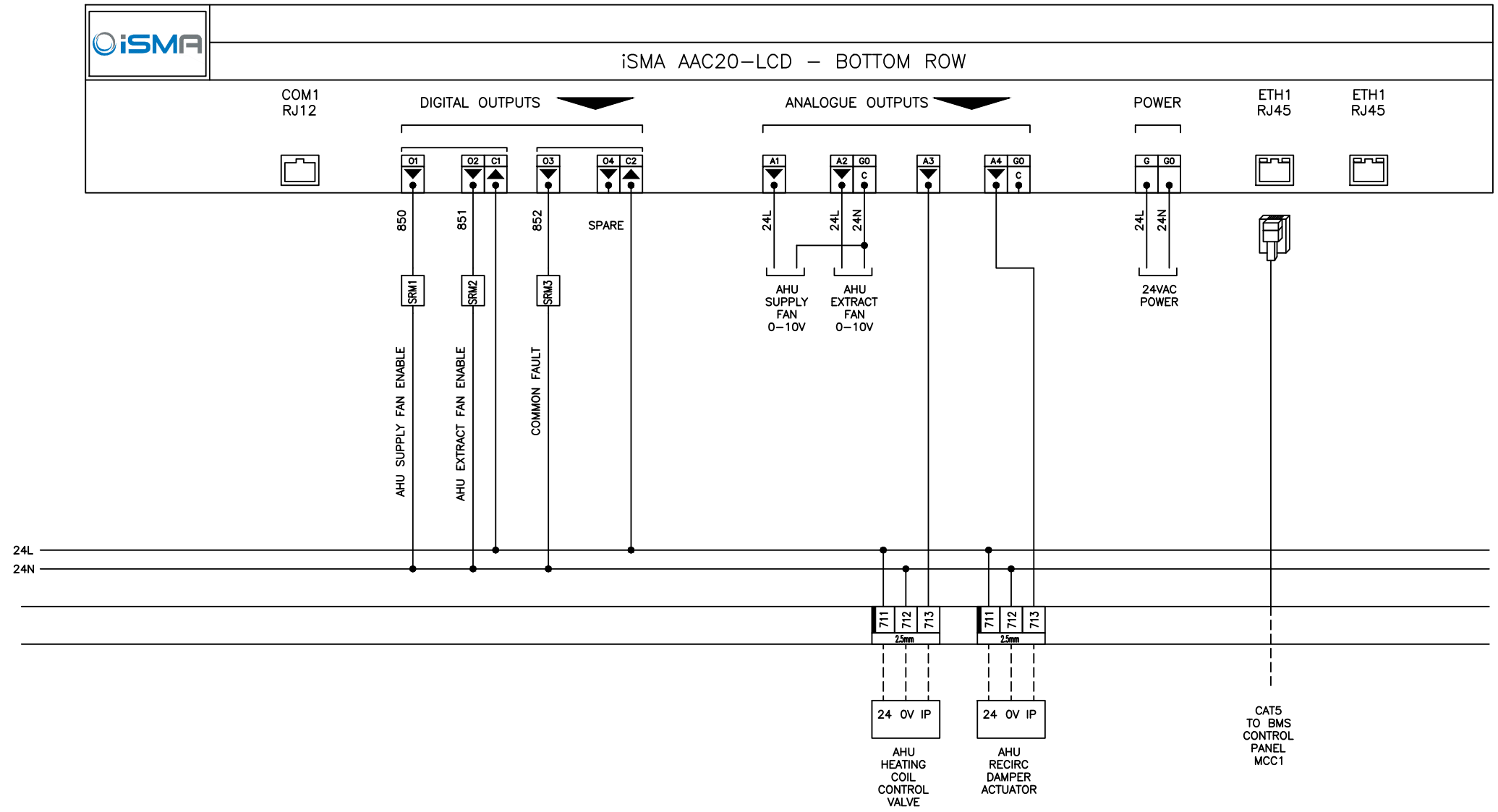
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iSMA AAC20–LCD – TOP ROW



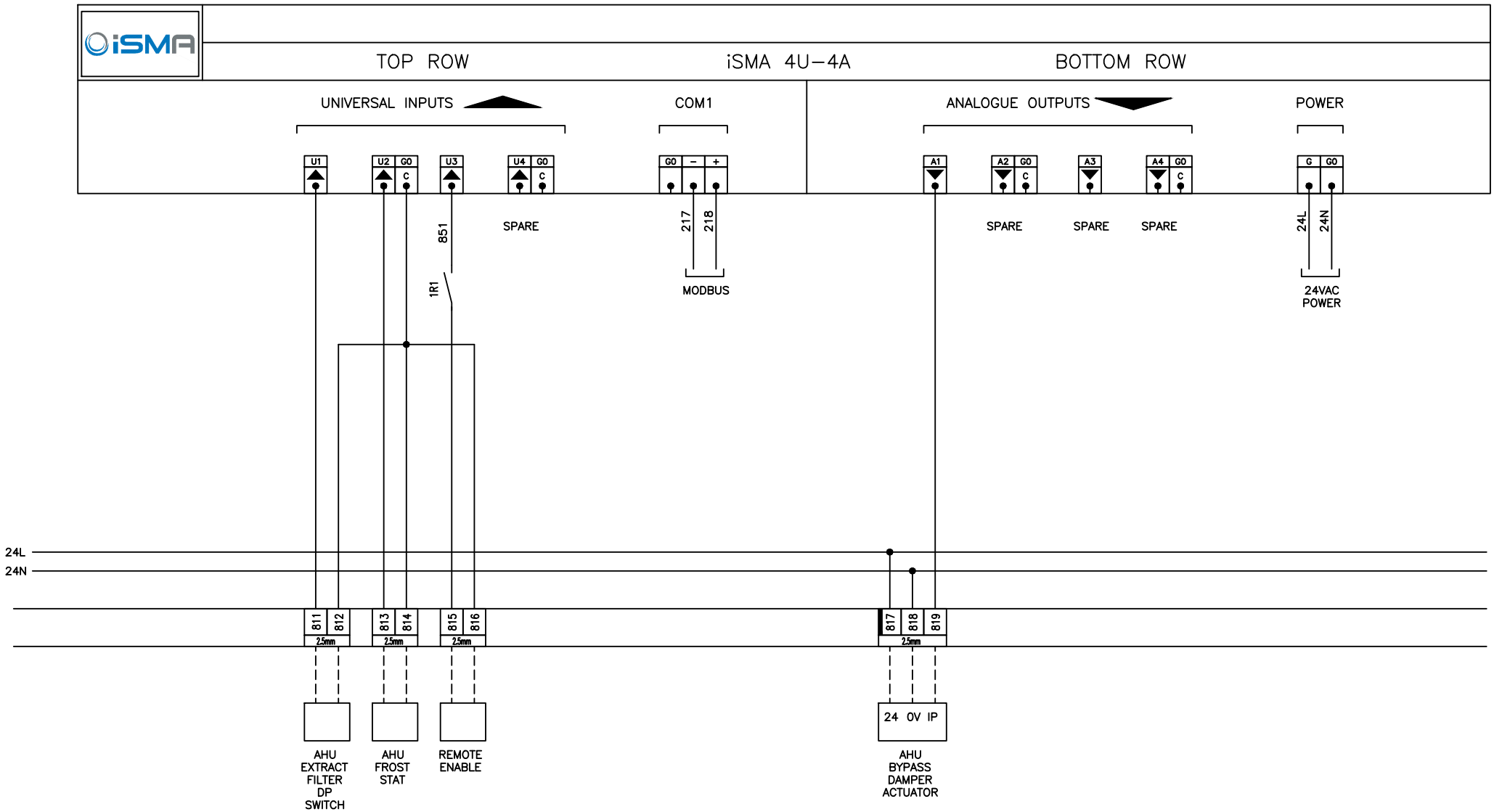
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				Client: HENSALL MECHANICAL LTD	Date: 28/05/25	Drg: NWP00414 – AHU2	
					Engr: CB Chkd	Issue: 2FA – FOR APPROVAL	

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				Client: HENSALL MECHANICAL LTD	Date: 28/05/25	Drg: NWP00414 – AHU2	
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SPARE SHEET

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Concord ENVIRONMENTAL TECHNOLOGIES
CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

Title: AHU2 BMS CONTROL PANEL

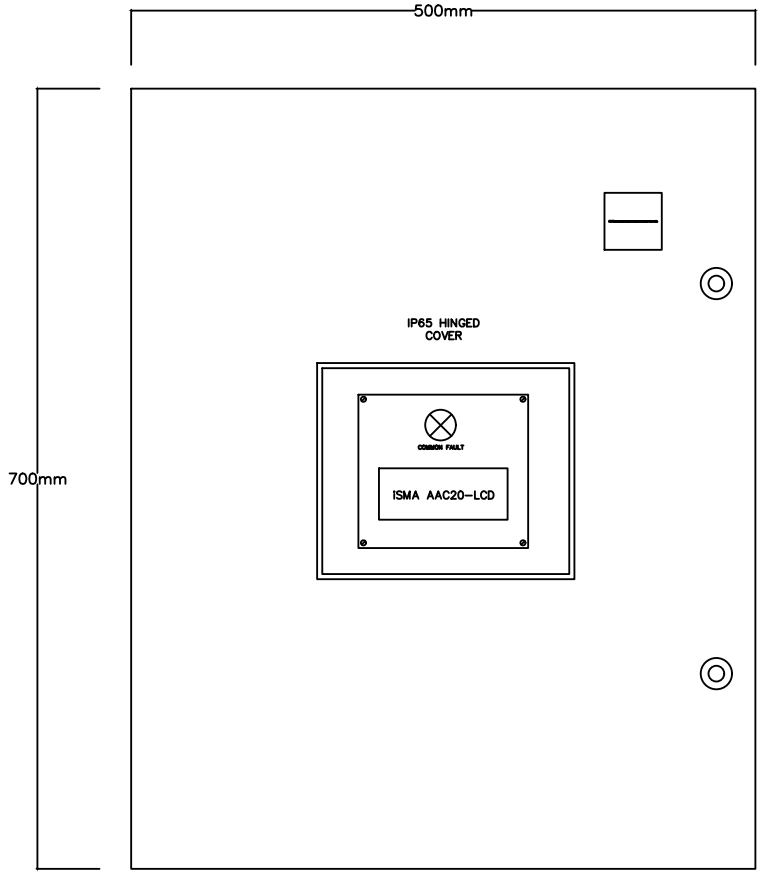
Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 09 of 10
Drg: NWP00414 – AHU2
Issue: 2FA – FOR APPROVAL

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NOT TO SCALE



PANEL SIZE = 700mm x 500mm x 210mm

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11.84

BMS panel wiring diagram AHU4 rev 2FA

The following 11 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`BMS panel wiring diagram AHU4 rev 2FA.pdf`
Pages	11

A B C D E F G H

01 02 03 04 05 06

WIRING NOTES:

1. MINIMUM POWER WIRING 2.5mm
2. MINIMUM CONTROL WIRING 1.0mm
3. POWER CABLES TO BE FITTED WITH CORD END TERMINALS, OR LUGS, DEPENDING ON SIZE, AND TYPE OF CONNECTION.
4. CONTROL CABLES TO BE FITTED WITH CORD END TERMINALS, PIN, OR FORK, CONFIGURATION, DEPENDING ON TYPE OF CONNECTION.
5. ALL CABLES UP TO 11mm TO BE COLOUR CODED AS FOLLOWS:–
   400 VOLTS L1.L2.L3. – BROWN, BLACK, GREY
   230 VOLTS NEUTRAL – BLUE
   LOW VOLTAGE A.C. – WHITE
   EXTRA LOW VOLTAGE D.C. – VIOLET
   EXTERNALLY SUPPLIED (I.E INTERLOCKS & VFC) – ORANGE
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8. FINAL CABLE No.
9. WHEN A CABLE CONNECTS TO AN OUTGOING TERMINAL THE CABLE IDENTIFICATION NUMBER IS THE SAME AS THE TERMINAL NUMBER.
11. FINAL TERMINAL No. POWER/230VAC –
    FINAL TERMINAL No. CONTROL/24VAC –
    FINAL TERMINAL No. SIGNAL –

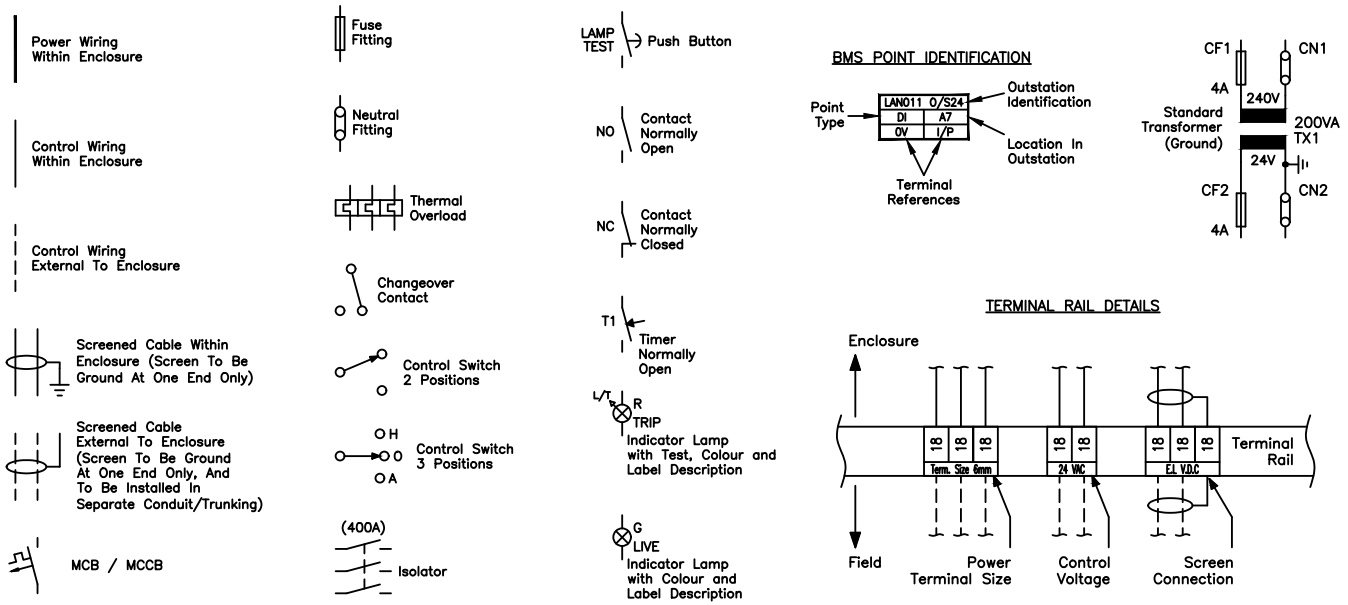
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2. MAIN SUPPLY ISOLATORS TO BE OF SOCOMEC MANUFACTURE.
3. FUSE SWITCHES TO BE OF SOCOMEC MANUFACTURE.
4. MCB'S AND MCCB'S TO BE OF KLOCKNER MOELLER MANUFACTURE.
5. ALL OUTGOING TERMINALS TO BE OF TELEMECANIQUE MANUFACTURE.
6. ALL PILOT LIGHTS TO BE OF TMA MANUFACTURE.
7. SELECTOR SWITCHES TO BE OF TELEMECHANIQUE MANUFACTURE.
8. CONTROL RELAYS TO BE OF FINDER MANUFACTURE.
9. WHERE HRC FUSE CARRIERS ARE INDICATED ON THE SCHEMATIC DIAGRAM, THE CARRIERS ARE TO BE OF BUSSMAN MANUFACTURE.
11. PANEL COLOUR RAL7032 C/W GALVANISED STEEL BACK PLATE.

FIELD WIRING NOTES:

1. NETWORK CABLE TO BE BELDEN 9501/9502 OR EQUIVALENT
2. SENSOR CABLE TO BE BELDON 9501 OR EQUIVALENT

Sheet No	Description
01	SUPPLY DISTRIBUTION
02	SUPPLY FAN
03	EXTRACT FAN
04	THERMAL WHEEL
05	SPARE SHEET
06	ISMA AAC20–LCD – TOP CONNECTIONS
07	ISMA AAC20–LCD – BOTTOM CONNECTIONS
08	ISMA 4U–4A
09	SPARE SHEET
10	GA1



Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
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Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: ELMWOOD LEISURE CENTRE

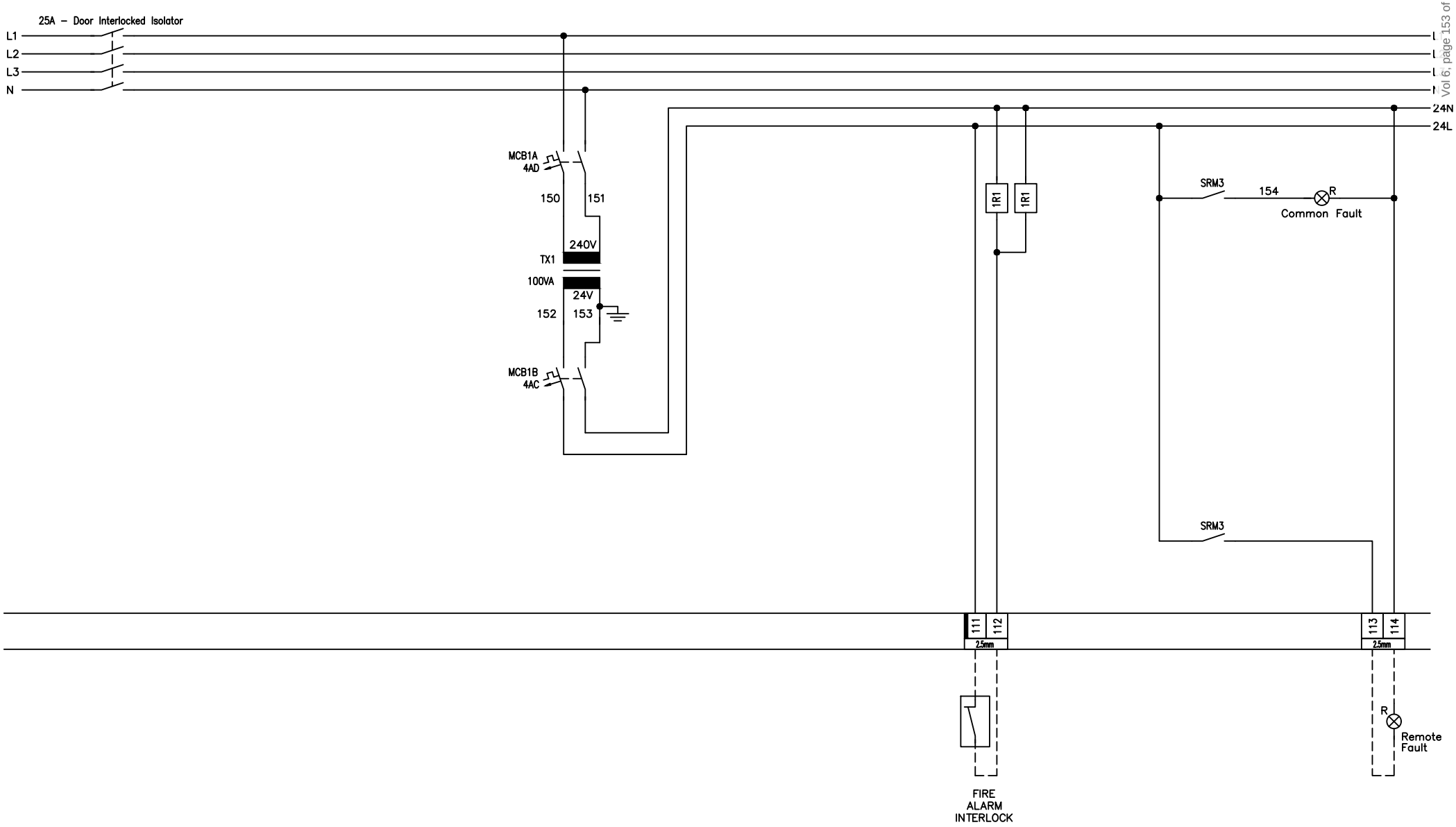
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Client: HENSALL MECHANICAL LTD

Drawn PW
Date 28/05/25
Engr CB
Chkd

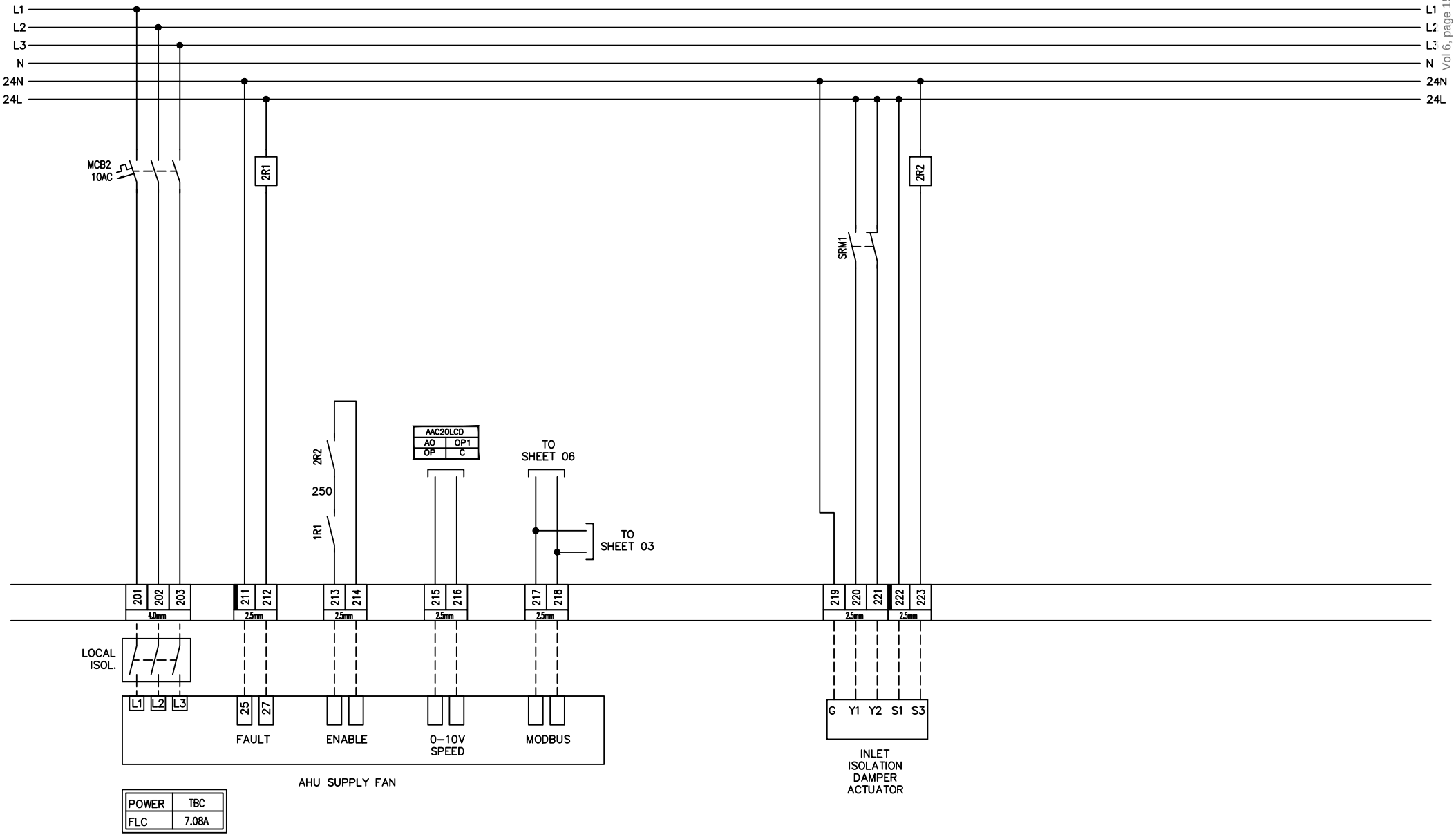
Sheet INDEX of 10
Drg NWP00414 – AHU 3
Issue 2FA – FOR APPROVAL

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				Client HENSALL MECHANICAL LTD			

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Concord
ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
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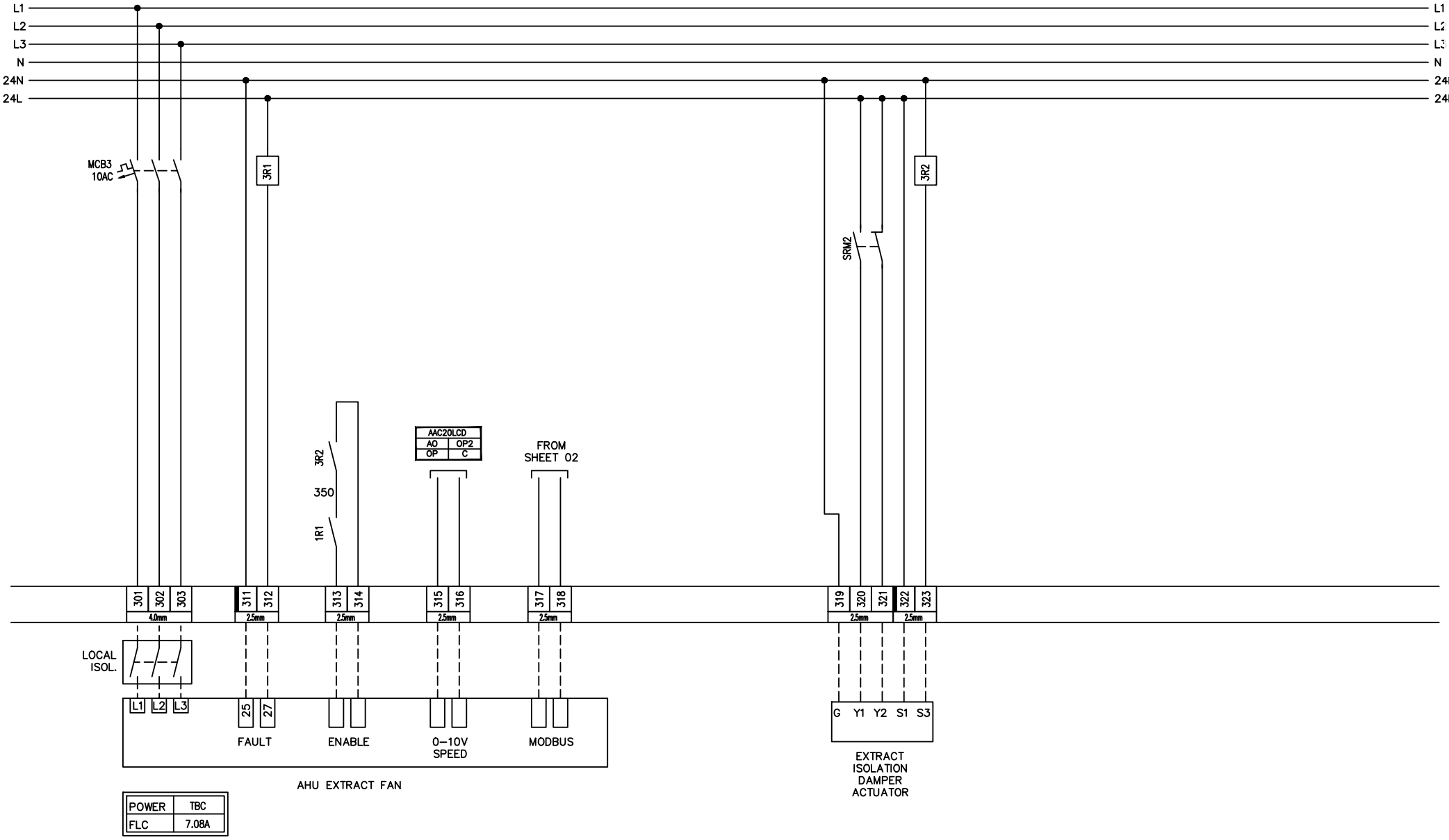
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BMS CONTROL PANEL

Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 02 of 10
Drg: NWP00414 – AHU 3
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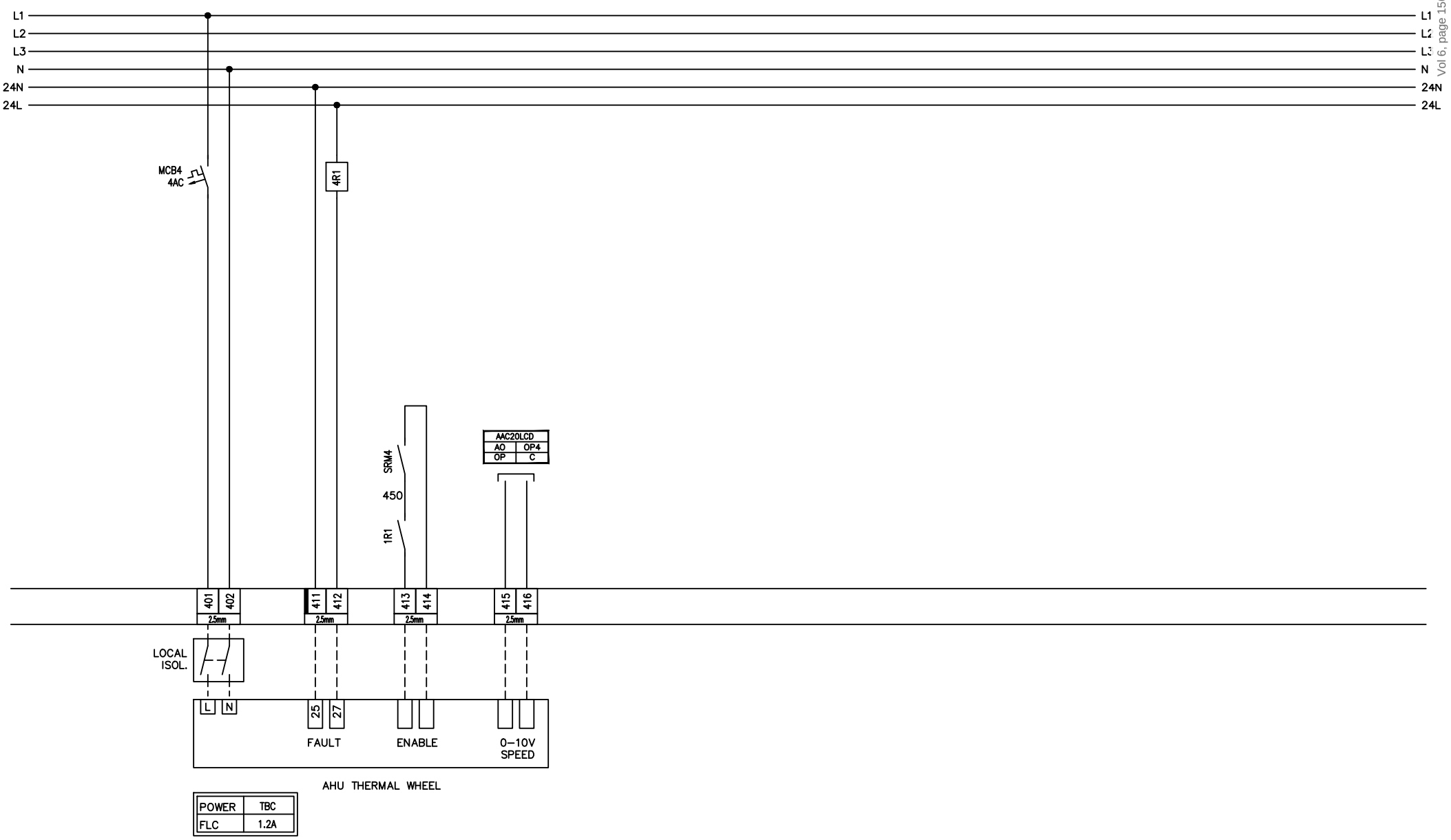


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Issue	Date	Modifications
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Title	AHU 3 BMS CONTROL PANEL
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Drawn	PW
Date	28/05/25
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Chkd	
Sheet	03 of 10
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		Title: AHU 3 BMS CONTROL PANEL	Date: 28/05/25
		Client: HENSALL MECHANICAL LTD	Engr: CB Chkd:
			Sheet: 04 of 10
			Drg: NWP00414 – AHU 3
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A B C D E F G H

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SPARE SHEET

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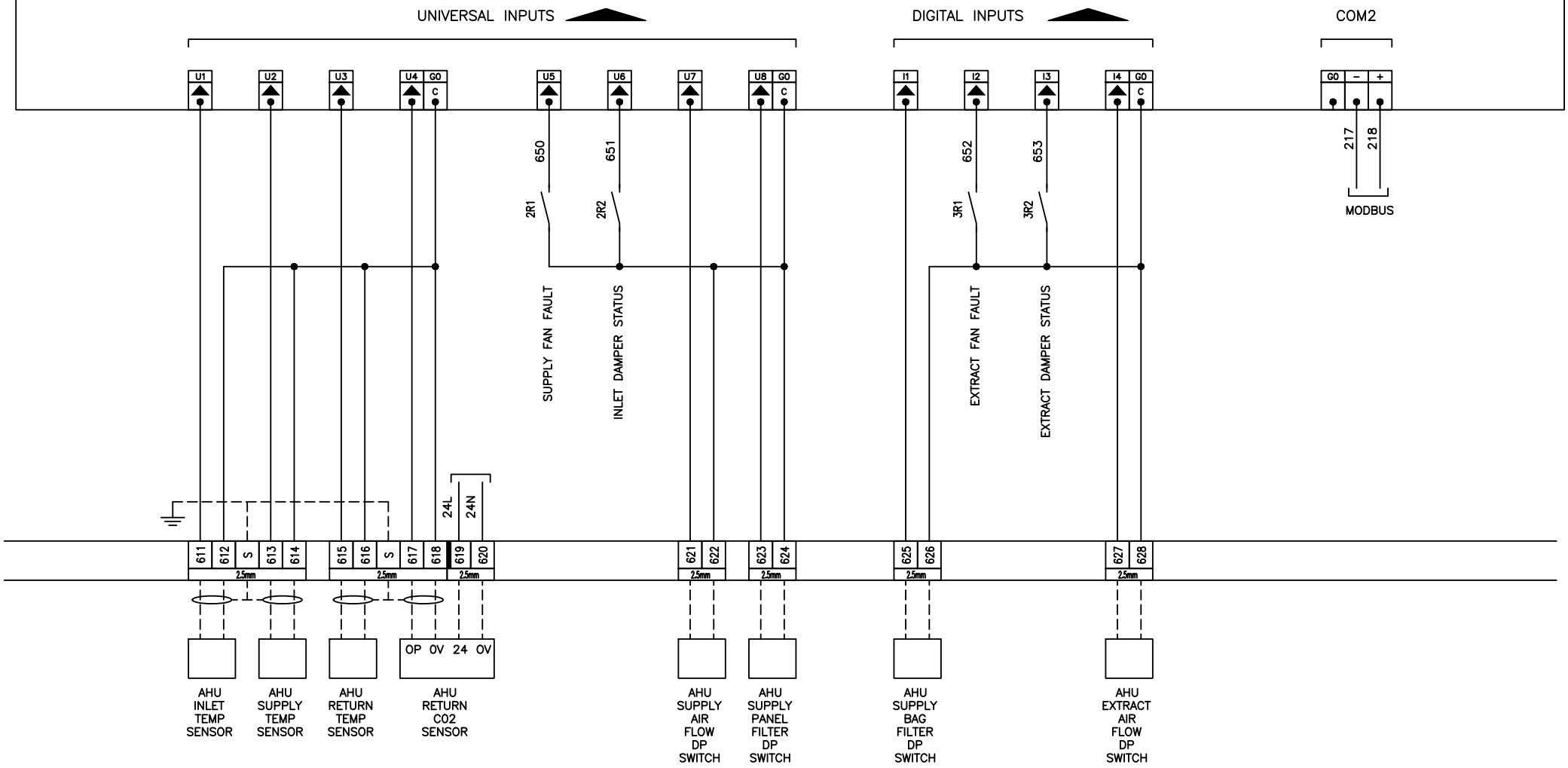
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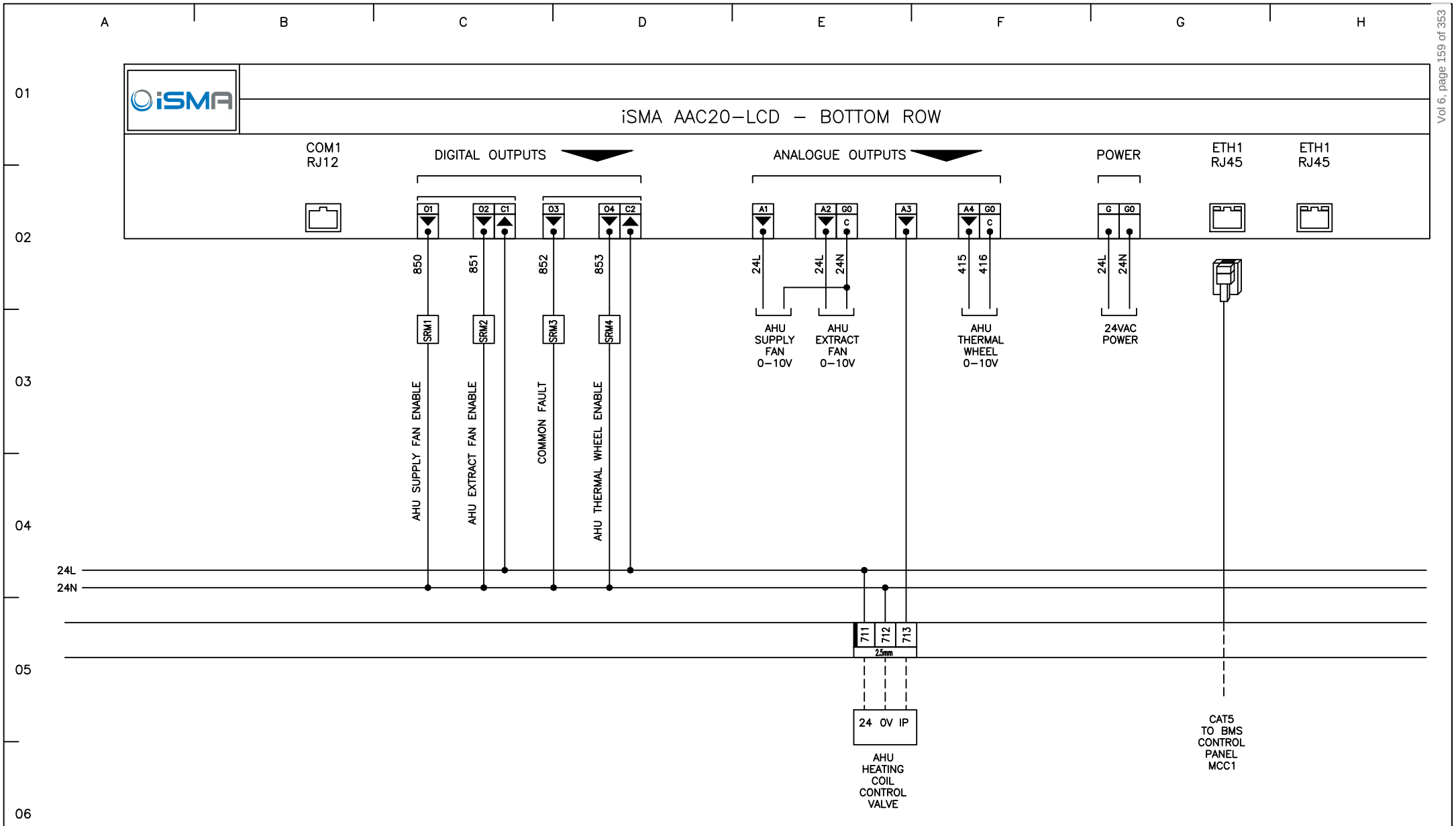
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iSMA AAC20–LCD – TOP ROW



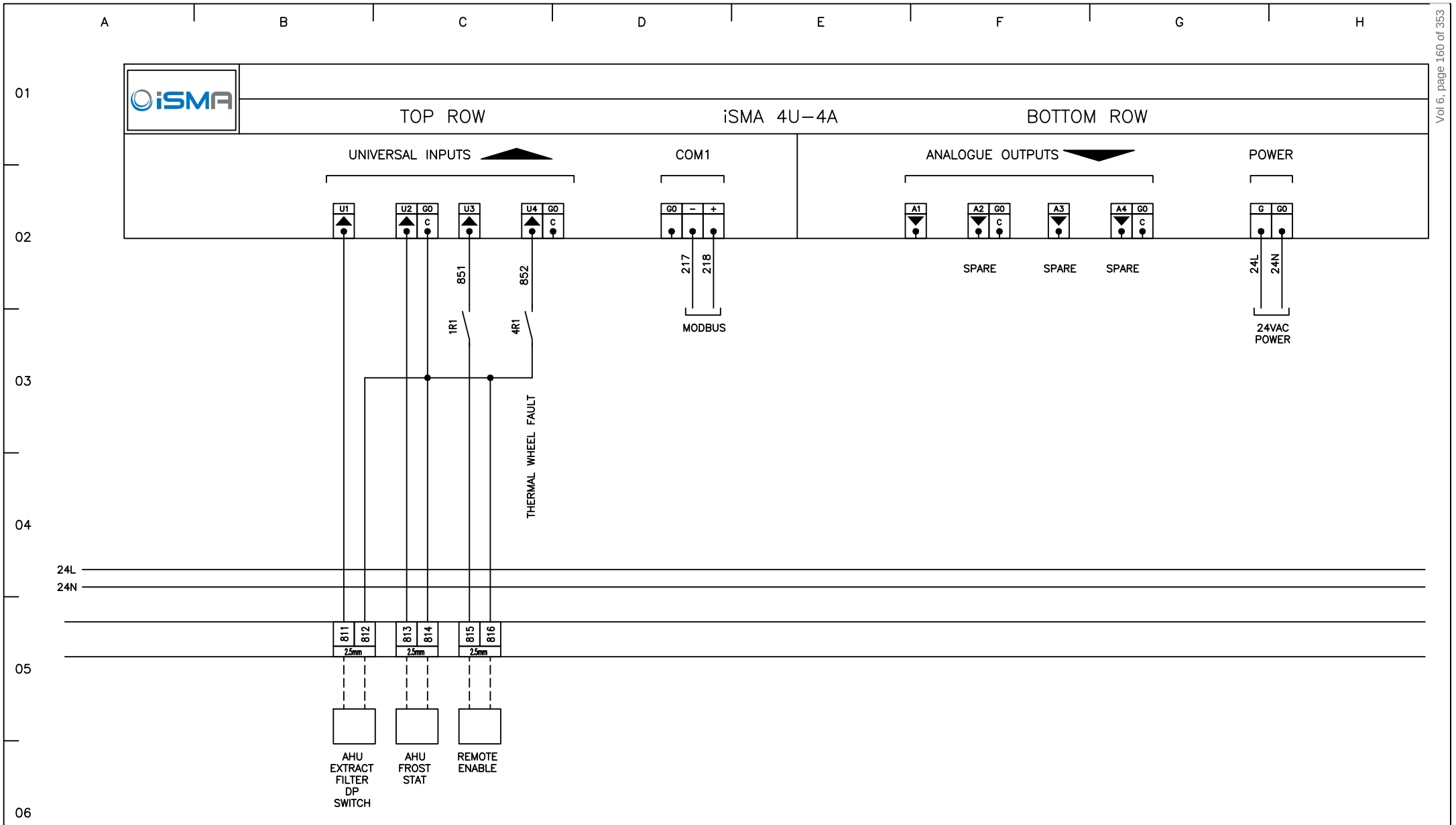
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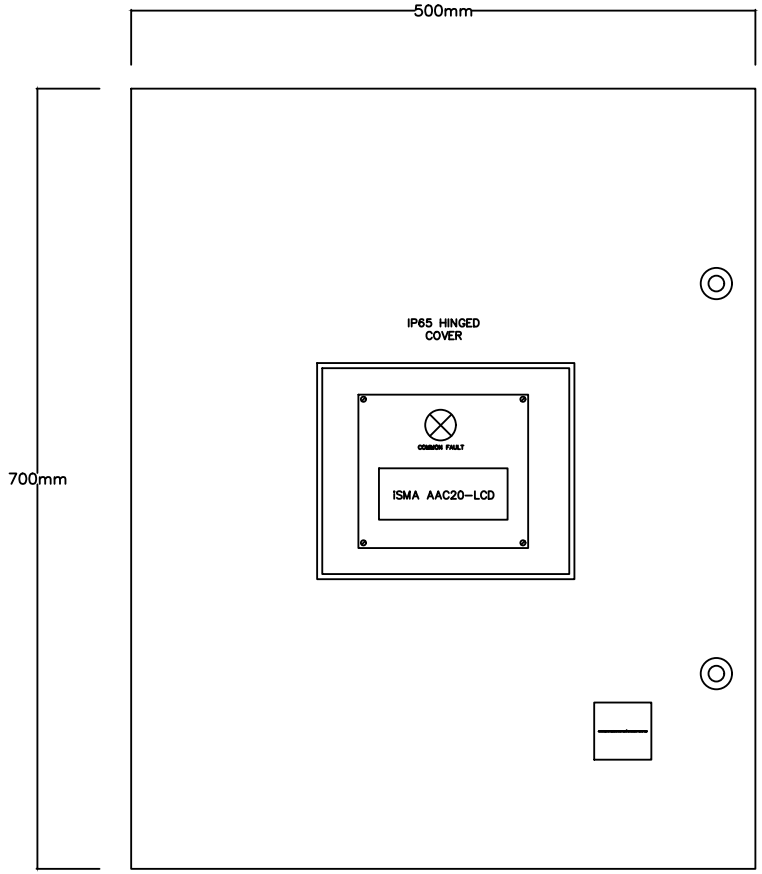
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NOT TO SCALE



PANEL SIZE = 700mm x 500mm x 210mm

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11.85

BMS panel wiring diagram AHU5 rev 2FA

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Asset	General
Provided by	Not recorded
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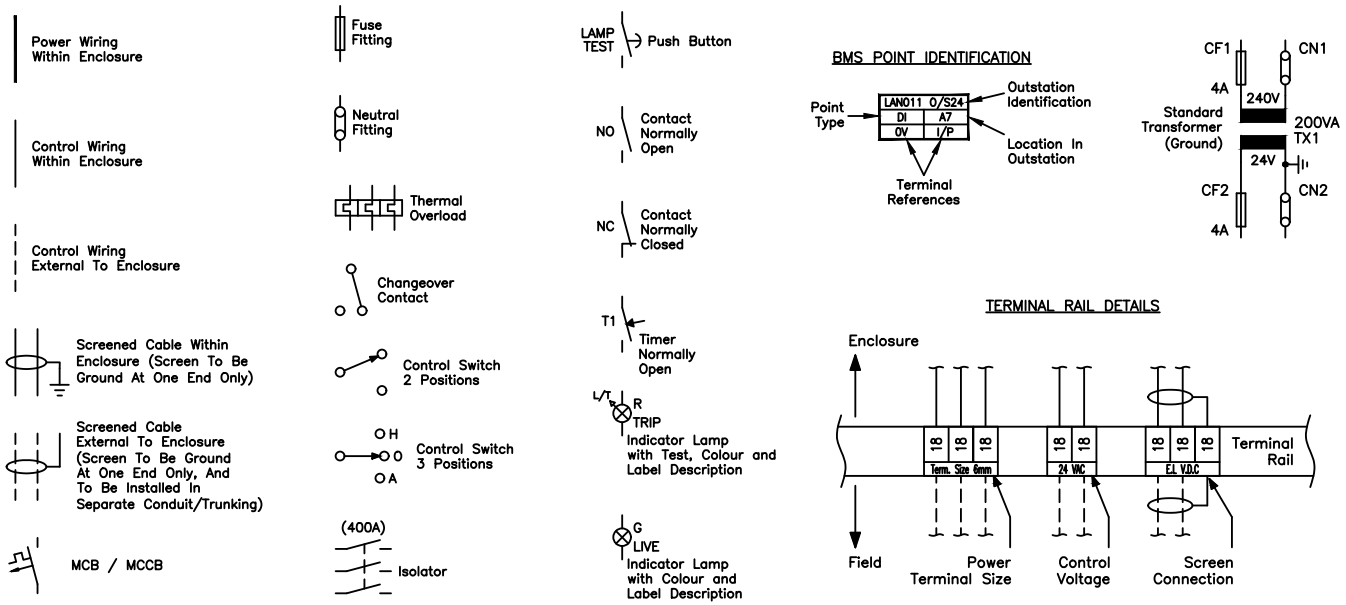
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FIELD WIRING NOTES:

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Sheet No	Description
01	SUPPLY DISTRIBUTION
02	SUPPLY FAN
03	EXTRACT FAN
04	THERMAL WHEEL
05	SPARE SHEET
06	ISMA AAC20–LCD – TOP CONNECTIONS
07	ISMA AAC20–LCD – BOTTOM CONNECTIONS
08	ISMA 4U–4A
09	SPARE SHEET
10	GA1



Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: ELMWOOD LEISURE CENTRE

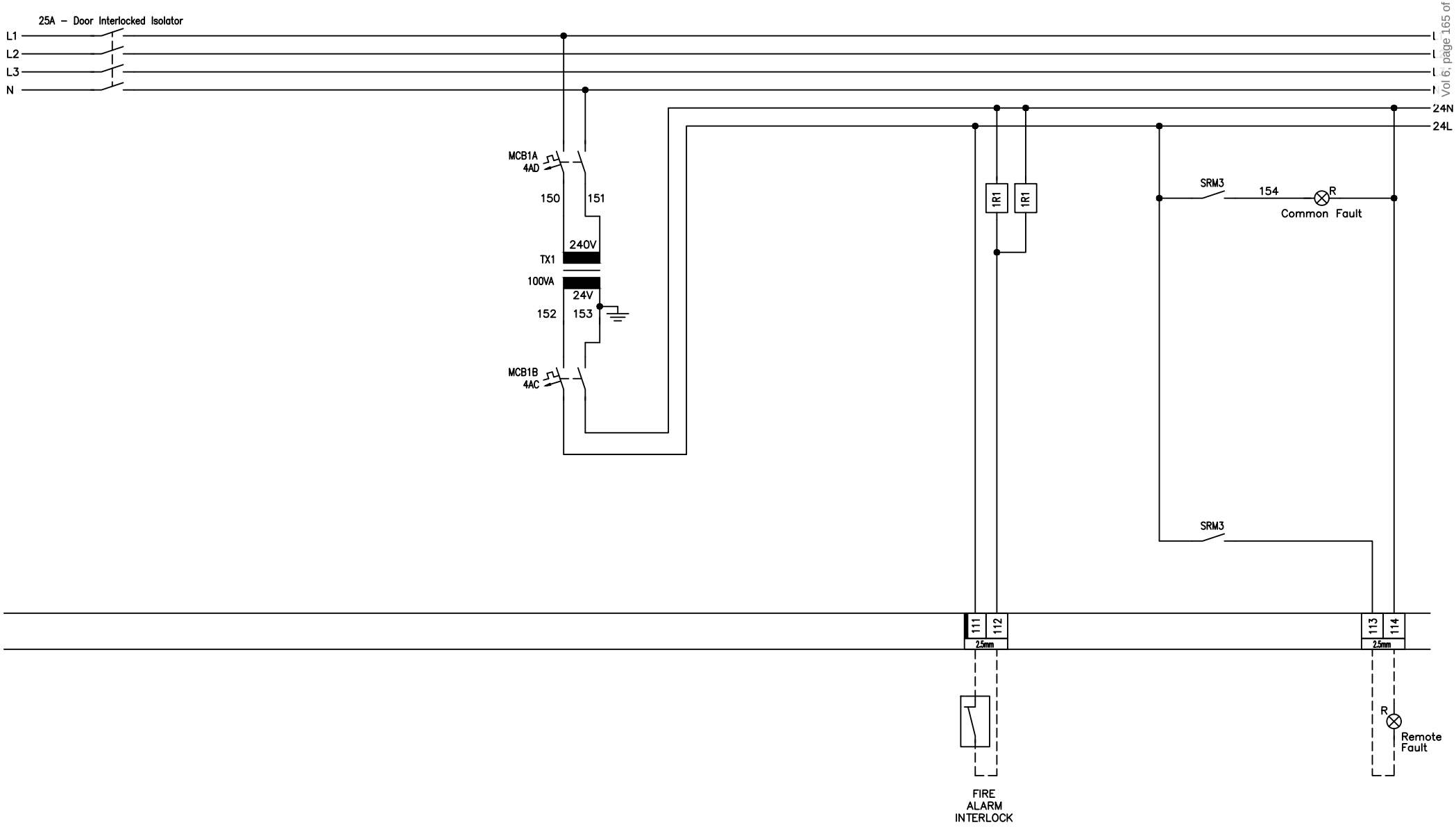
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Client: HENSALL MECHANICAL LTD

Drawn PW
Date 28/05/25
Engr CB
Chkd

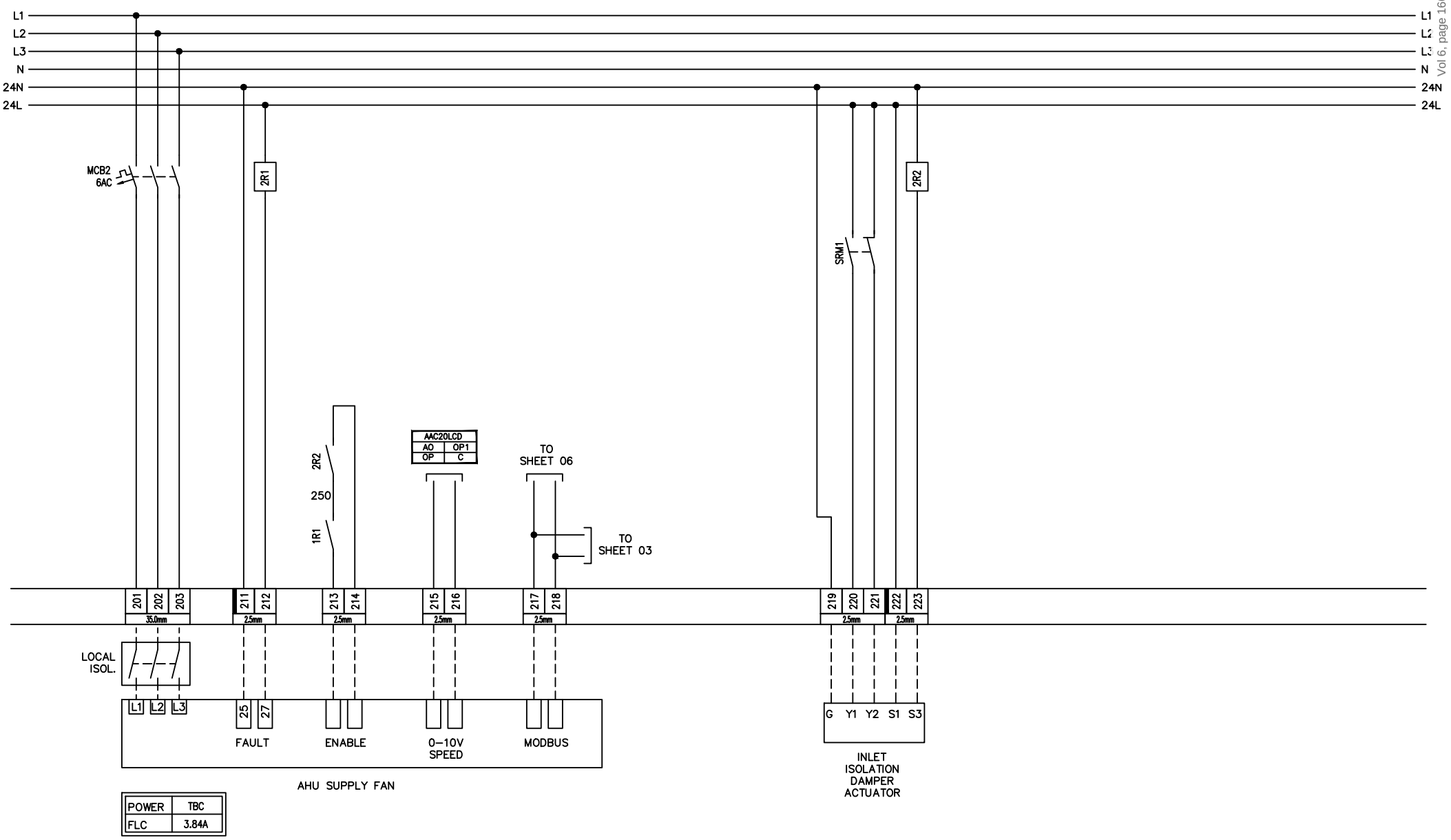
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				Client HENSALL MECHANICAL LTD			

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HAGLEY
STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

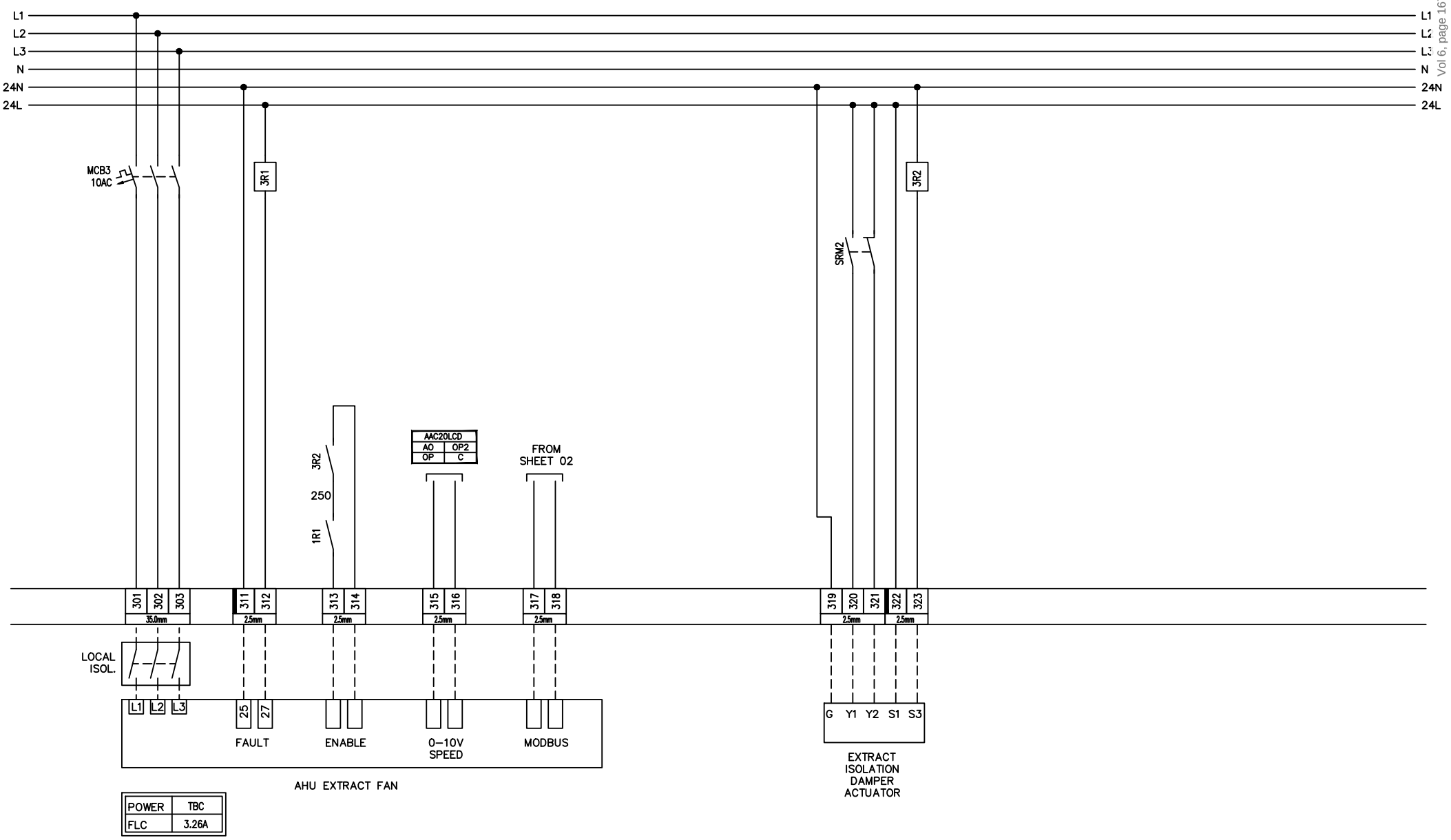
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BMS CONTROL PANEL

Client: HENSALL MECHANICAL LTD

Drawn: PW
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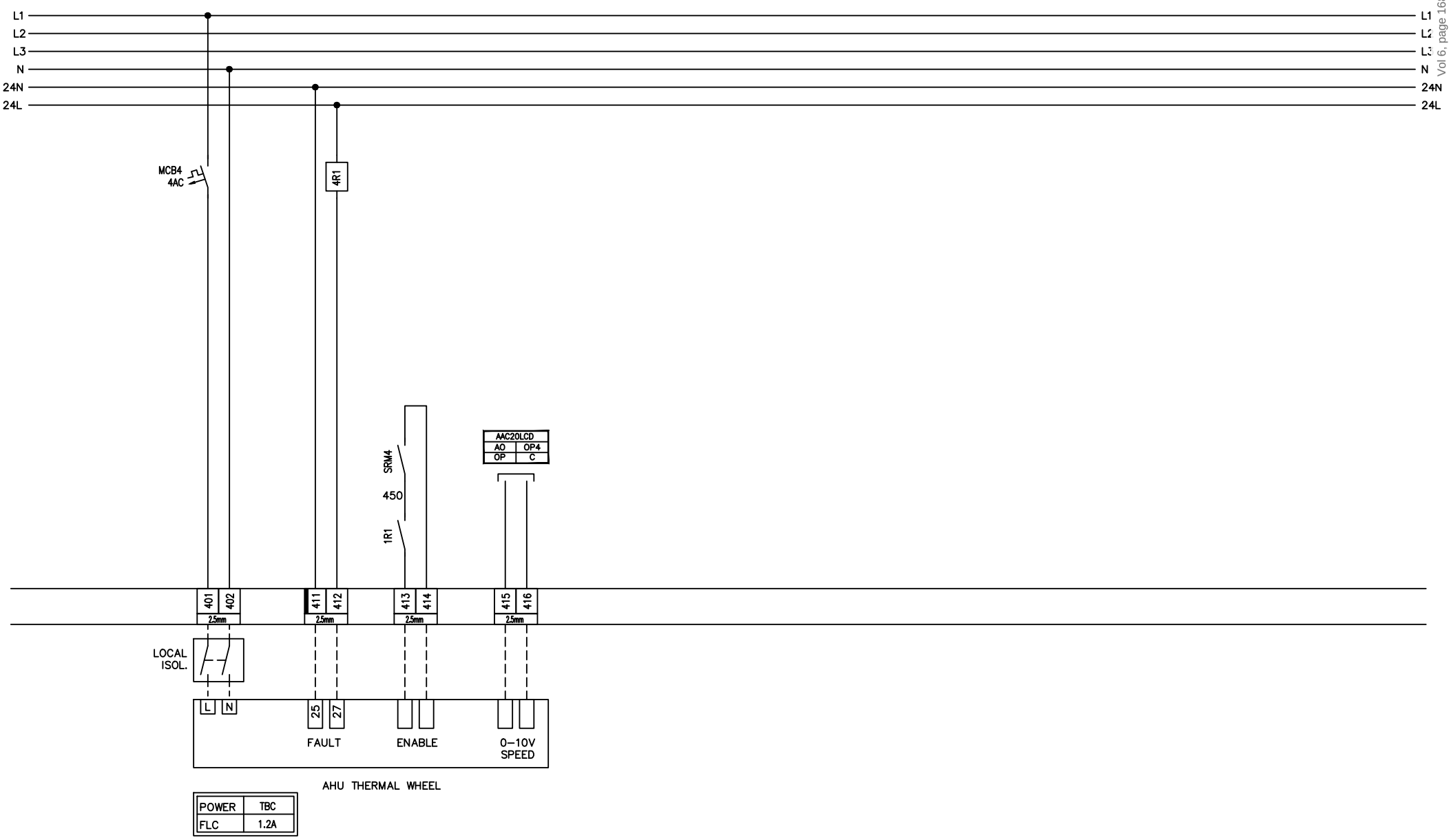
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Title	AHU 4 BMS CONTROL PANEL
Client	HENSALL MECHANICAL LTD

Drawn	PW
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		Client: HENSALL MECHANICAL LTD	Engr: CB Chkd:
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01

L1
L2
L3
N
24N
24L
24L1

02

03

SPARE SHEET

04

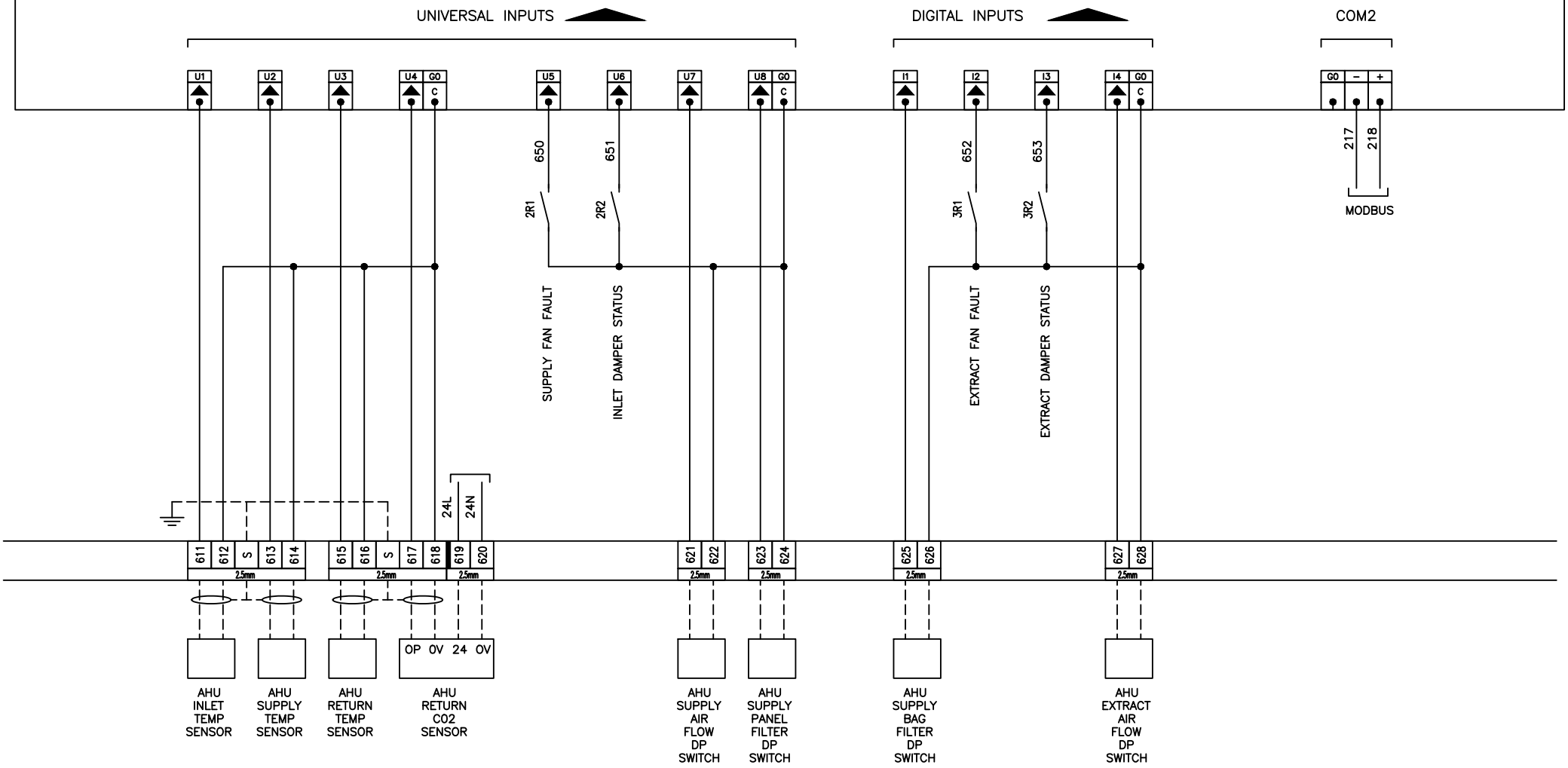
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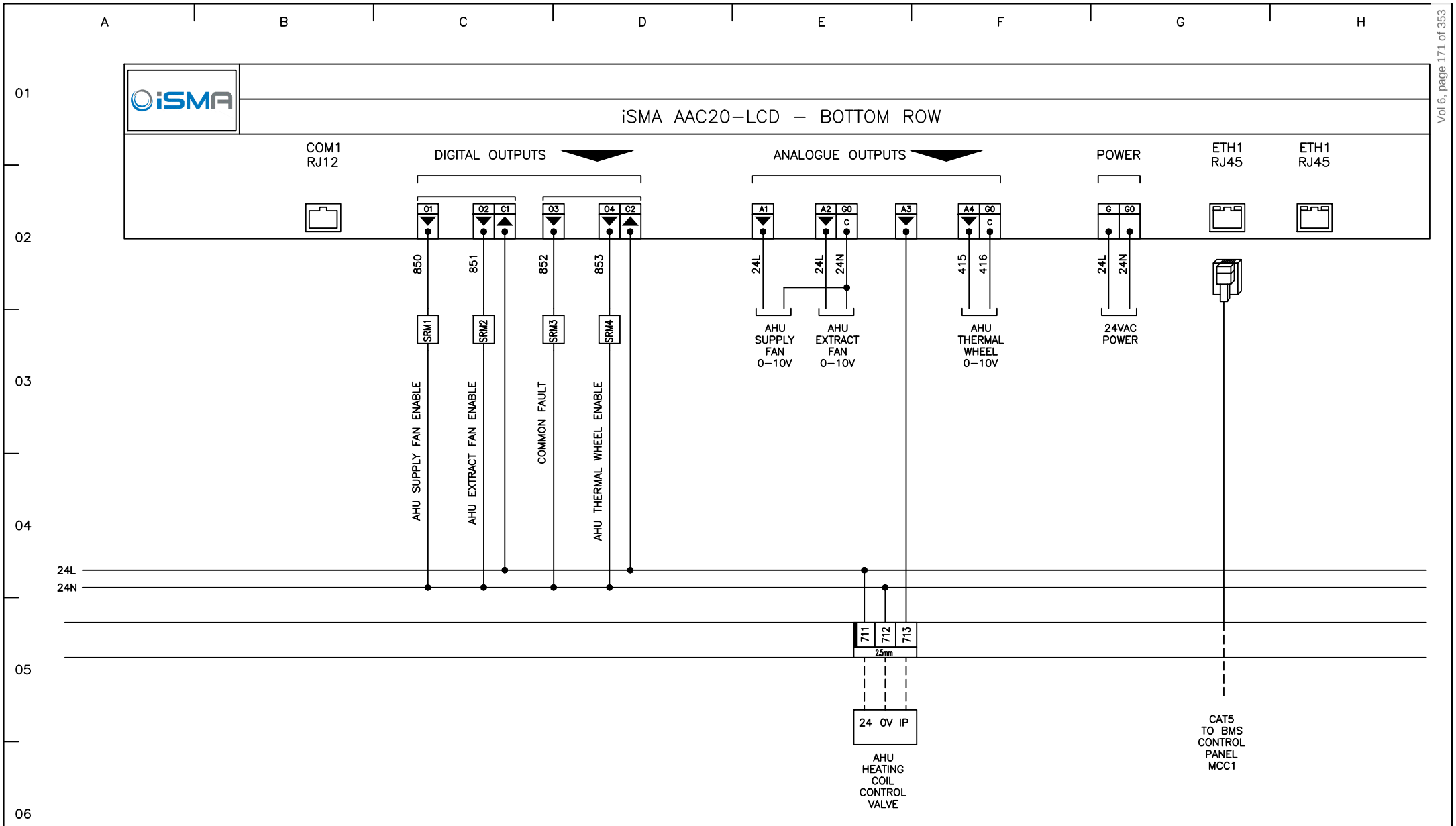
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iSMA AAC20–LCD – TOP ROW



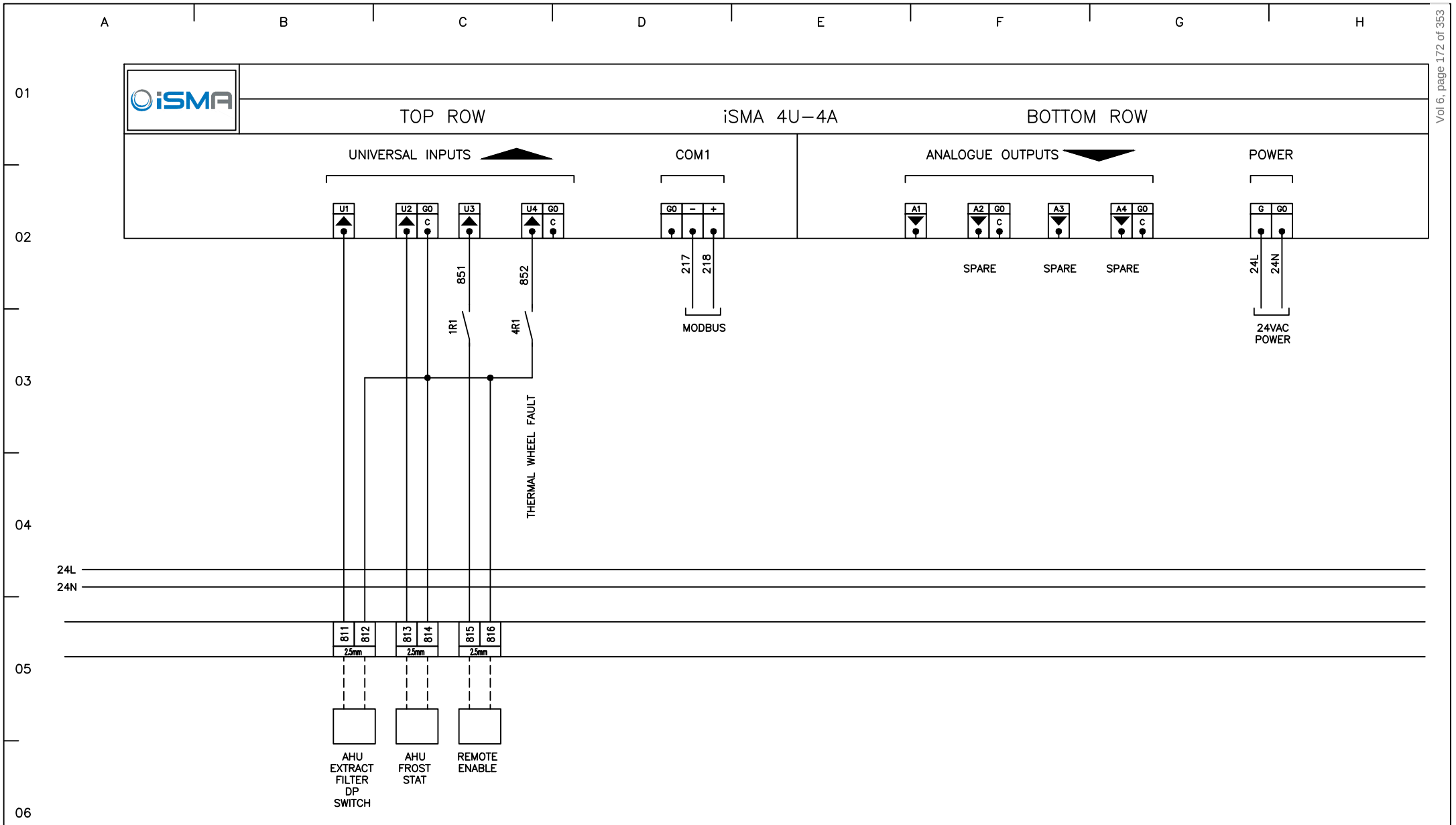
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SPARE SHEET

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CDC HOUSE,
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WASSELL GROVE LANE
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STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

Title: AHU 4 BMS CONTROL PANEL

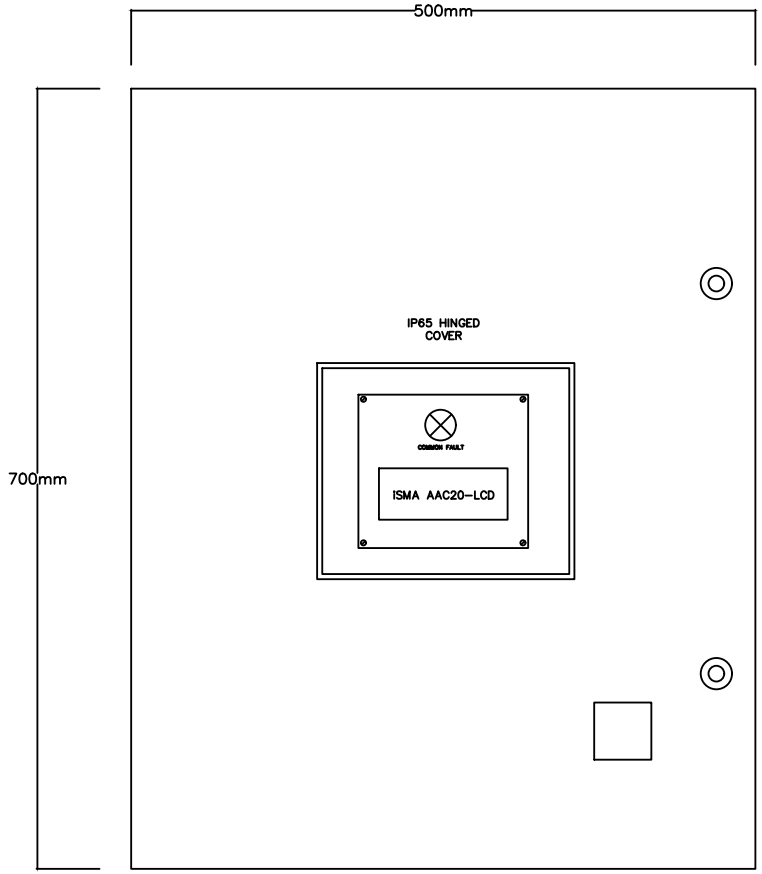
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NOT TO SCALE



PANEL SIZE = 700mm x 500mm x 210mm

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11.86

BMS panel wiring diagram AHU6 rev 2FA

The following 11 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`BMS panel wiring diagram AHU6 rev 2FA.pdf`
Pages	11

WIRING NOTES:

1. MINIMUM POWER WIRING 2.5mm
2. MINIMUM CONTROL WIRING 1.0mm
3. POWER CABLES TO BE FITTED WITH CORD END TERMINALS, OR LUGS, DEPENDING ON SIZE, AND TYPE OF CONNECTION.
4. CONTROL CABLES TO BE FITTED WITH CORD END TERMINALS, PIN, OR FORK, CONFIGURATION, DEPENDING ON TYPE OF CONNECTION.
5. ALL CABLES UP TO 11mm TO BE COLOUR CODED AS FOLLOWS:–
   400 VOLTS L1.L2.L3. – BROWN, BLACK, GREY
   230 VOLTS NEUTRAL – BLUE
   LOW VOLTAGE A.C. – WHITE
   EXTRA LOW VOLTAGE D.C. – VIOLET
   EXTERNALLY SUPPLIED (I.E INTERLOCKS & VFC) – ORANGE
6. ALL CABLES ABOVE 6mm TO BE BLACK WITH COLOUR CODED PHASE IDENTIFICATION.
7. ALL CONTROL CABLES TO BE IDENTIFIED AT EACH END BY THE USE OF COLOUR CODED FERRULES.
8. FINAL CABLE No.
9. WHEN A CABLE CONNECTS TO AN OUTGOING TERMINAL THE CABLE IDENTIFICATION NUMBER IS THE SAME AS THE TERMINAL NUMBER.
11. FINAL TERMINAL No. POWER/230VAC –
    FINAL TERMINAL No. CONTROL/24VAC –
    FINAL TERMINAL No. SIGNAL –

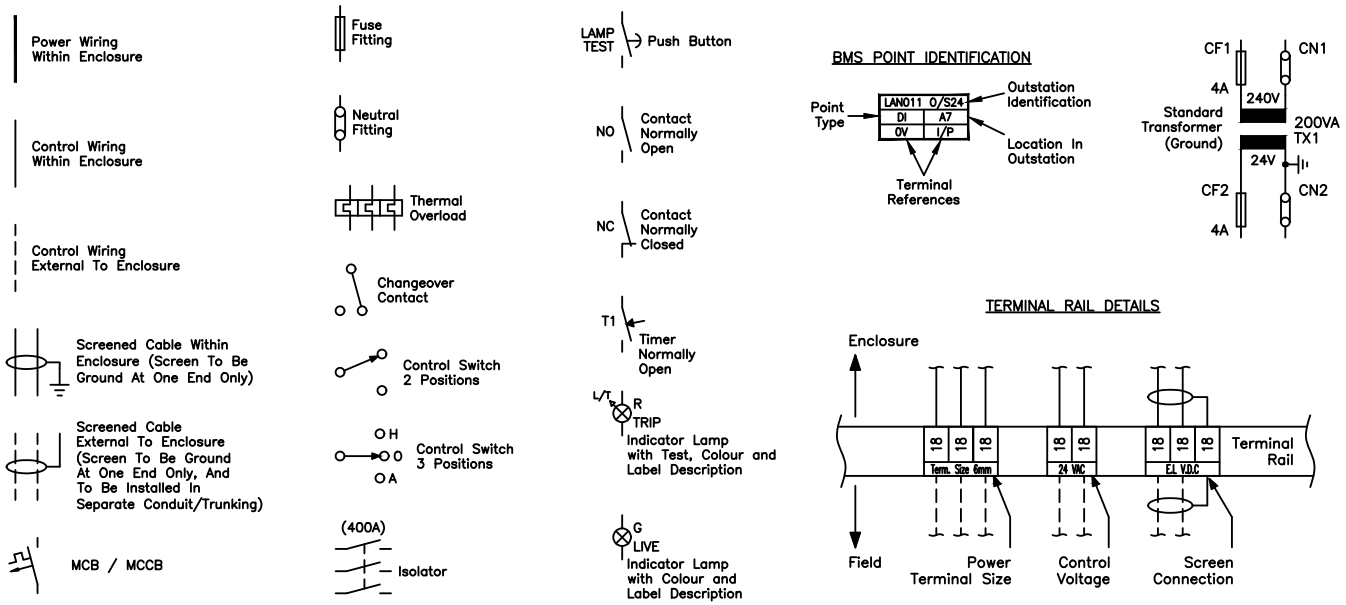
EQUIPMENT NOTES:

1. ALL STARTERS TO BE OF TELEMECANIQUE MANUFACTURE.
2. MAIN SUPPLY ISOLATORS TO BE OF SOCOMEC MANUFACTURE.
3. FUSE SWITCHES TO BE OF SOCOMEC MANUFACTURE.
4. MCB'S AND MCCB'S TO BE OF KLOCKNER MOELLER MANUFACTURE.
5. ALL OUTGOING TERMINALS TO BE OF TELEMECANIQUE MANUFACTURE.
6. ALL PILOT LIGHTS TO BE OF TMA MANUFACTURE.
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Site: ELMWOOD LEISURE CENTRE

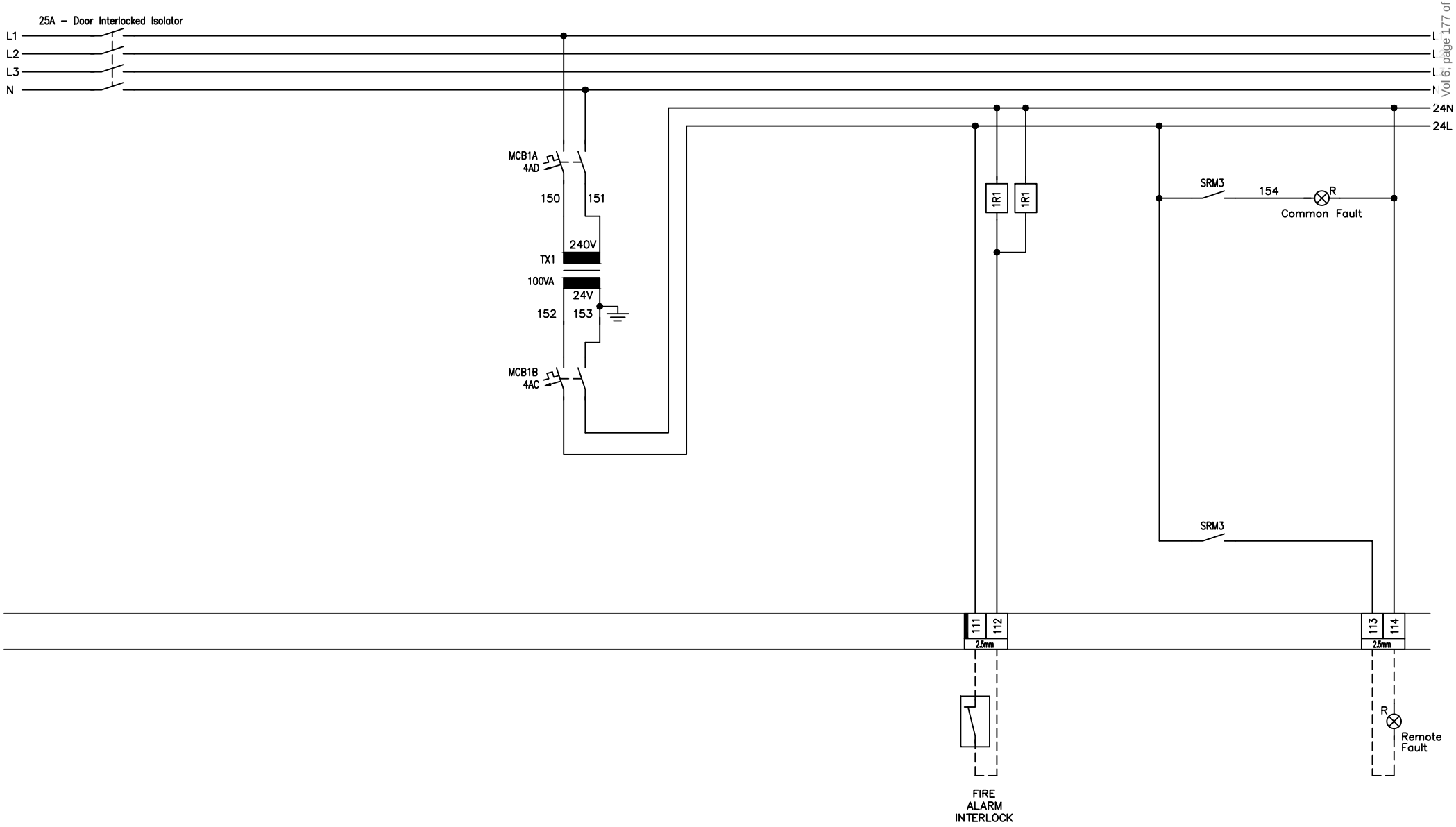
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Client: HENSALL MECHANICAL LTD

Drawn PW
Date 28/05/25
Engr CB
Chkd

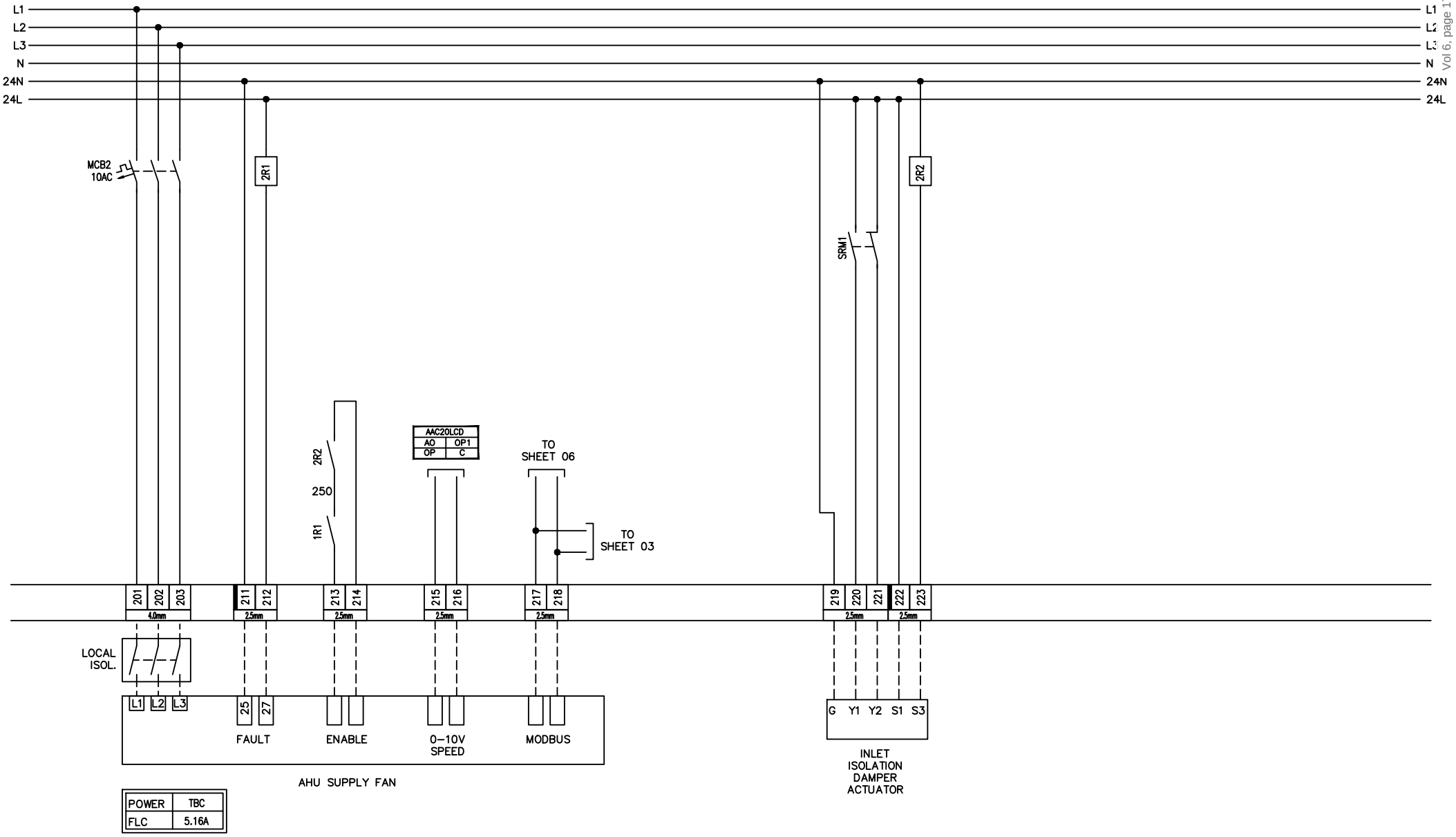
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				Client HENSALL MECHANICAL LTD			

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Concord
ENVIRONMENTAL TECHNOLOGIES

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LEISURE CENTRE

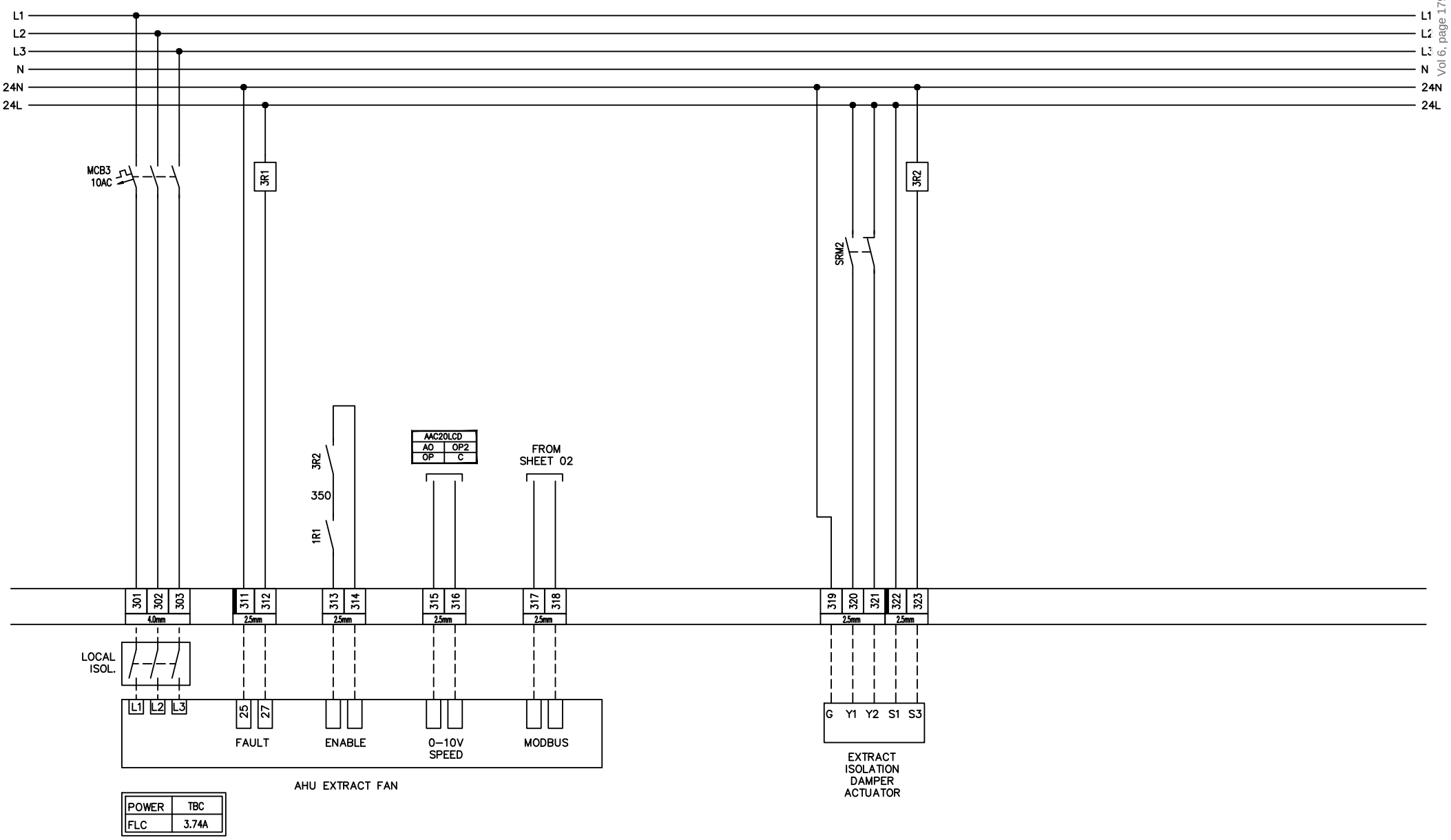
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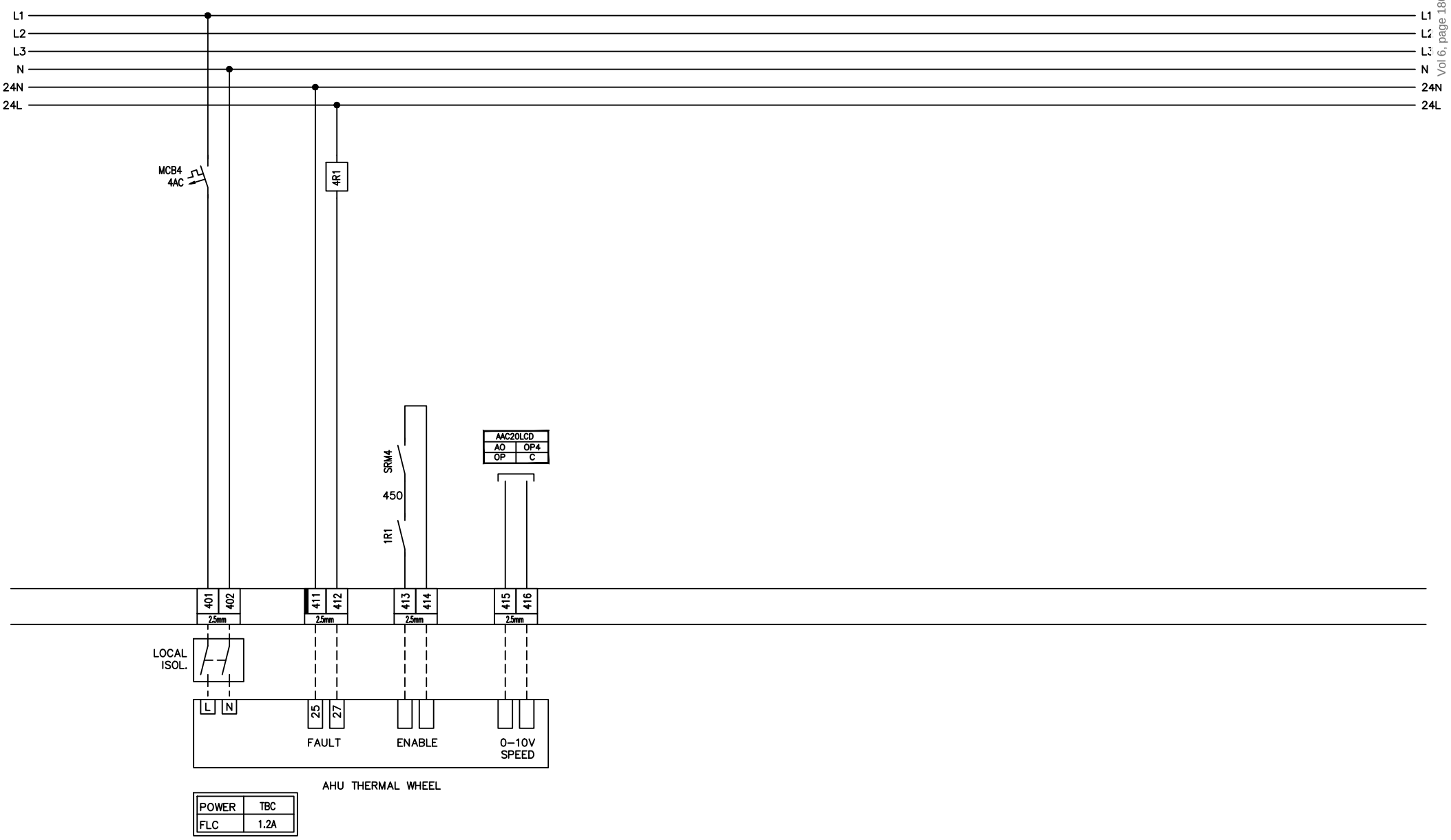


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01

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SPARE SHEET

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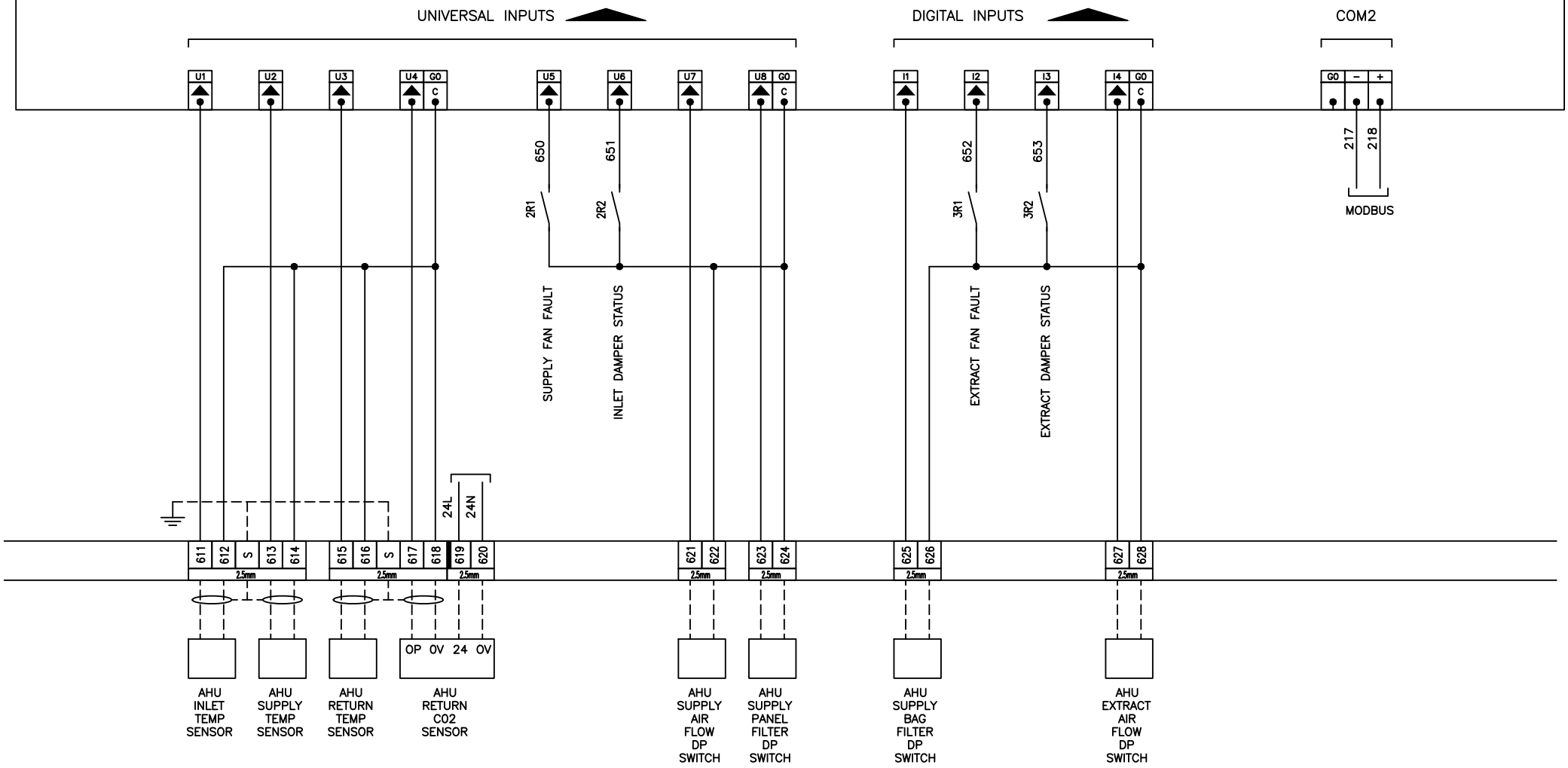
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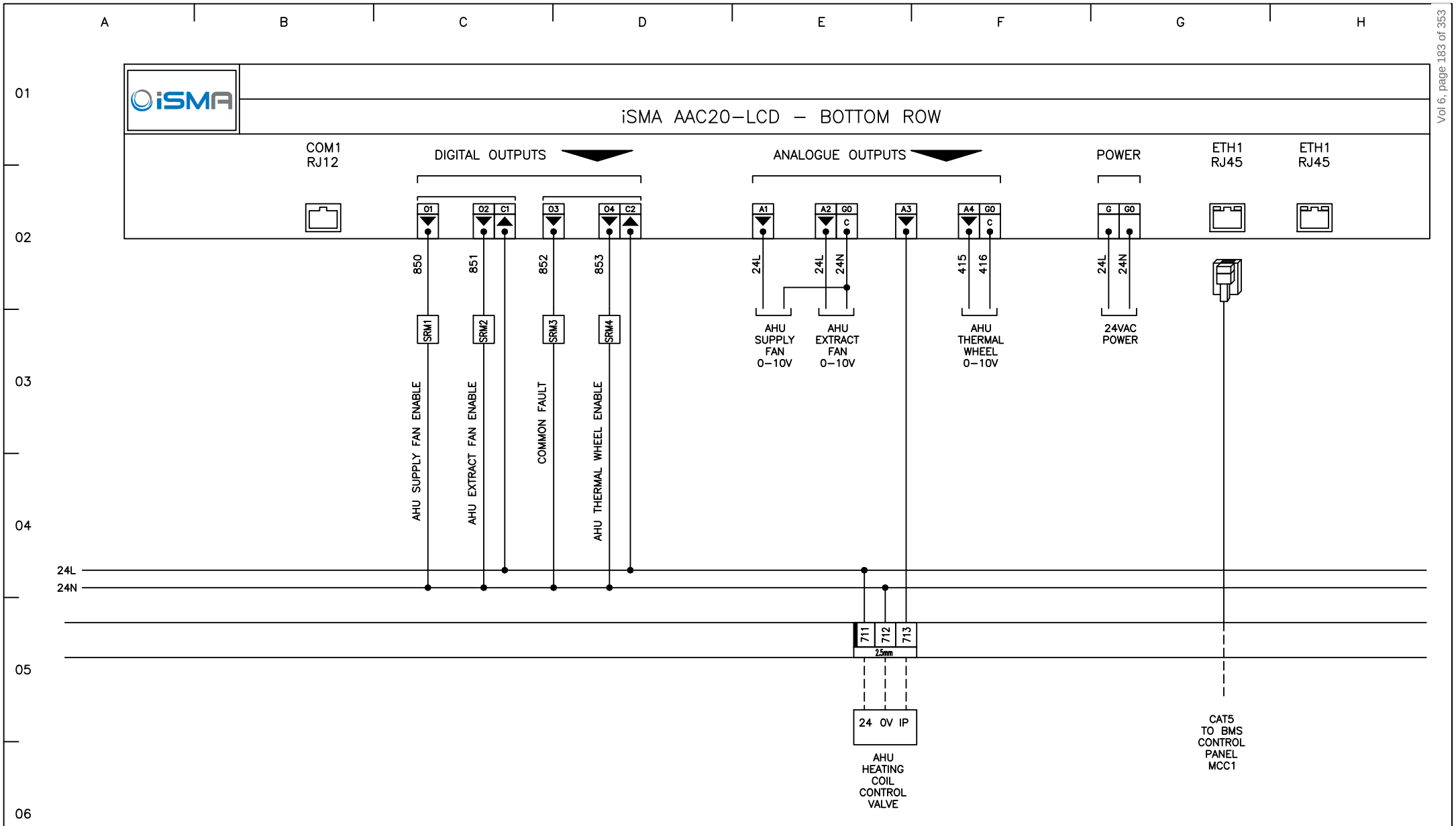
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iSMA AAC20–LCD – TOP ROW



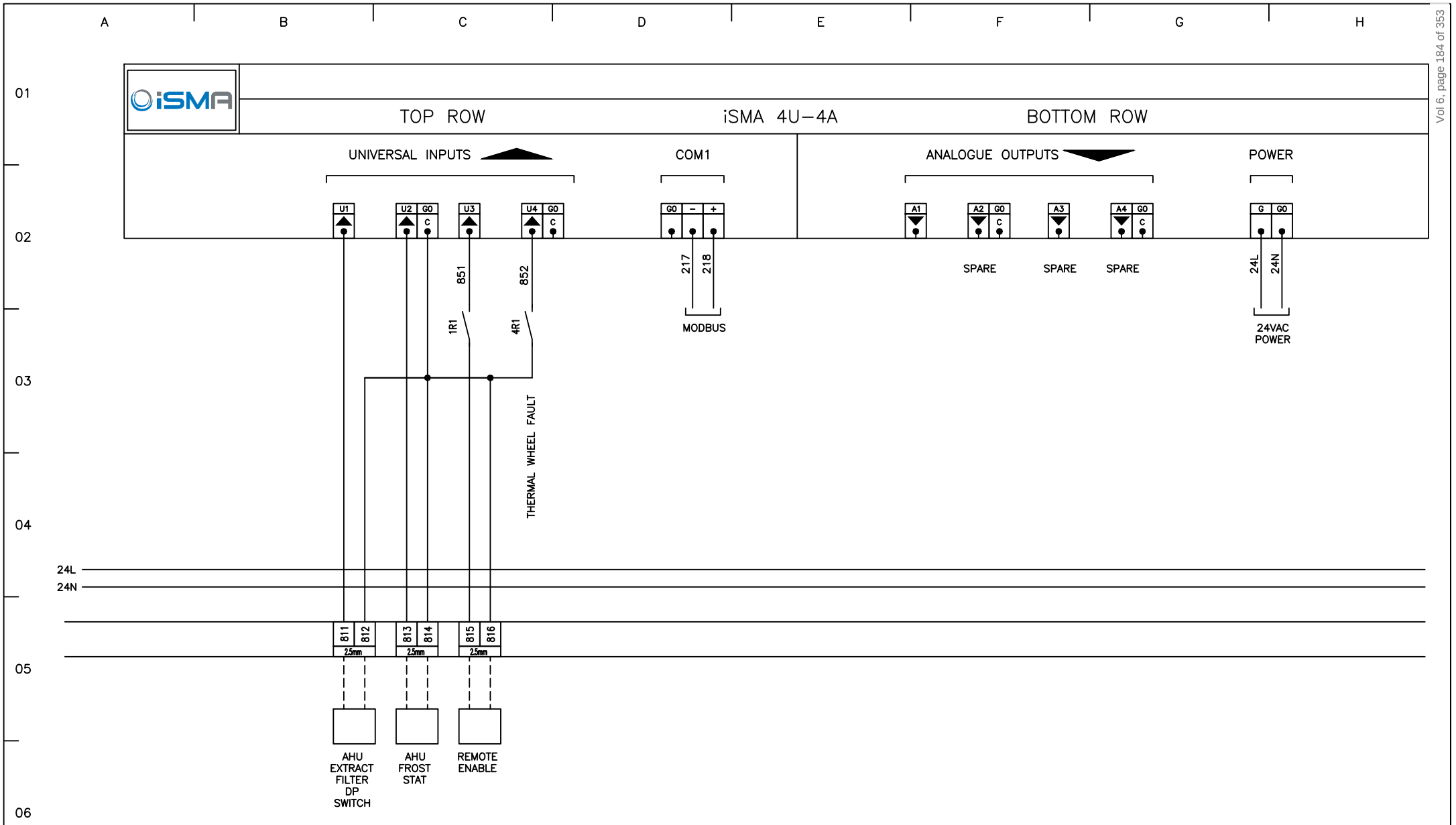
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Site: WALNUTS LEISURE CENTRE

Title: AHU 5 BMS CONTROL PANEL

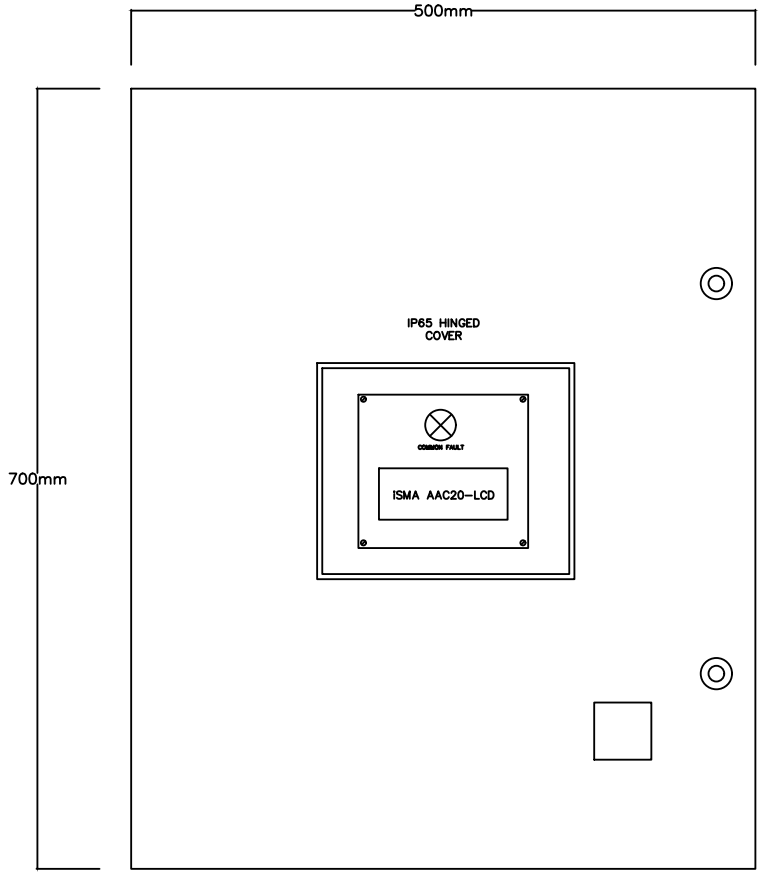
Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 09 of 10
Drg: NWP00414 – AHU 5
Issue: 2FA – FOR APPROVAL

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NOT TO SCALE



PANEL SIZE = 700mm x 500mm x 210mm

Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue / Date / Modifications 1FA 28.05.25 FOR APPROVAL 2FA 01.07.25 POWER ADDED	Site: WALNUTS LEISURE CENTRE	Title: AHU 5 BMS CONTROL PANEL Client: HENSALL MECHANICAL LTD	Drawn PW Date 28/05/25 Engr CB Chkd	Sheet 10 of 10 Drg NWP00414 – AHU 5 Issue 2FA – FOR APPROVAL	

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11.87

BMS panel wiring diagram AHU7 rev 2FA

The following 11 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`BMS panel wiring diagram AHU7 rev 2FA.pdf`
Pages	11

WIRING NOTES:

1. MINIMUM POWER WIRING 2.5mm
2. MINIMUM CONTROL WIRING 1.0mm
3. POWER CABLES TO BE FITTED WITH CORD END TERMINALS, OR LUGS, DEPENDING ON SIZE, AND TYPE OF CONNECTION.
4. CONTROL CABLES TO BE FITTED WITH CORD END TERMINALS, PIN, OR FORK, CONFIGURATION, DEPENDING ON TYPE OF CONNECTION.
5. ALL CABLES UP TO 11mm TO BE COLOUR CODED AS FOLLOWS:–
   400 VOLTS L1.L2.L3. – BROWN, BLACK, GREY
   230 VOLTS NEUTRAL – BLUE
   LOW VOLTAGE A.C. – WHITE
   EXTRA LOW VOLTAGE D.C. – VIOLET
   EXTERNALLY SUPPLIED (I.E INTERLOCKS & VFC) – ORANGE
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7. ALL CONTROL CABLES TO BE IDENTIFIED AT EACH END BY THE USE OF COLOUR CODED FERRULES.
8. FINAL CABLE No.
9. WHEN A CABLE CONNECTS TO AN OUTGOING TERMINAL THE CABLE IDENTIFICATION NUMBER IS THE SAME AS THE TERMINAL NUMBER.
11. FINAL TERMINAL No. POWER/230VAC –
    FINAL TERMINAL No. CONTROL/24VAC –
    FINAL TERMINAL No. SIGNAL –

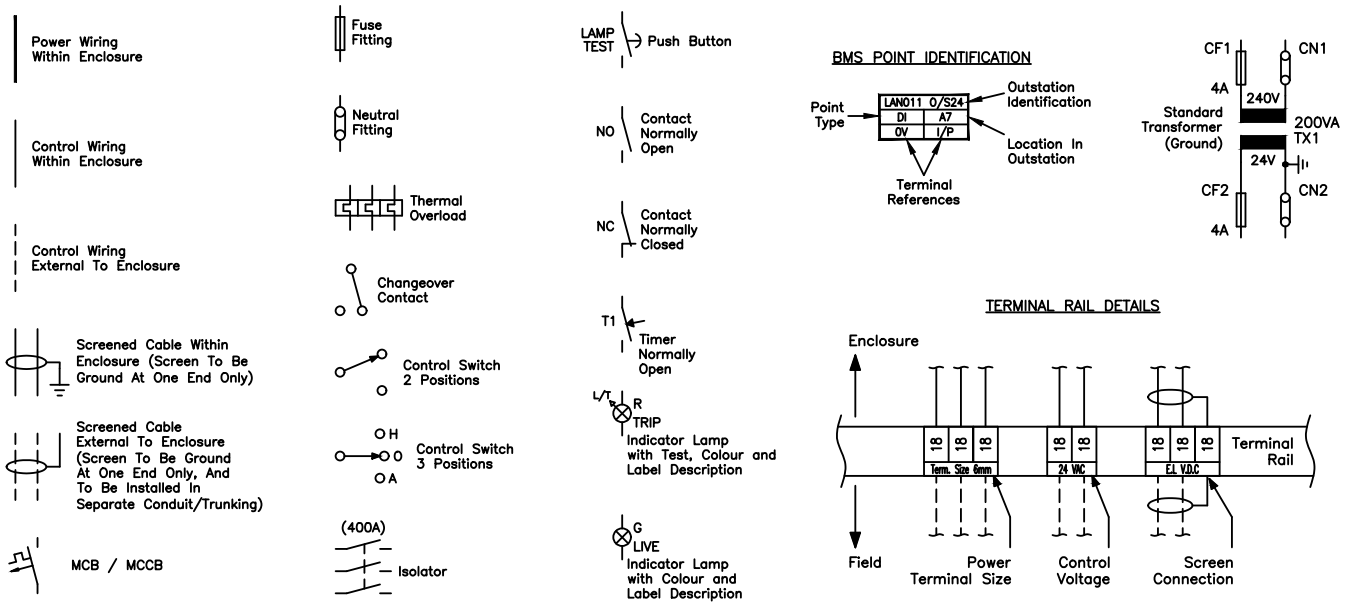
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FIELD WIRING NOTES:

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2. SENSOR CABLE TO BE BELDON 9501 OR EQUIVALENT

Sheet No	Description
01	SUPPLY DISTRIBUTION
02	SUPPLY FAN
03	EXTRACT FAN
04	THERMAL WHEEL
05	SPARE SHEET
06	ISMA AAC20–LCD – TOP CONNECTIONS
07	ISMA AAC20–LCD – BOTTOM CONNECTIONS
08	ISMA 4U–4A
09	SPARE SHEET
10	GA1



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1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: ELMWOOD LEISURE CENTRE

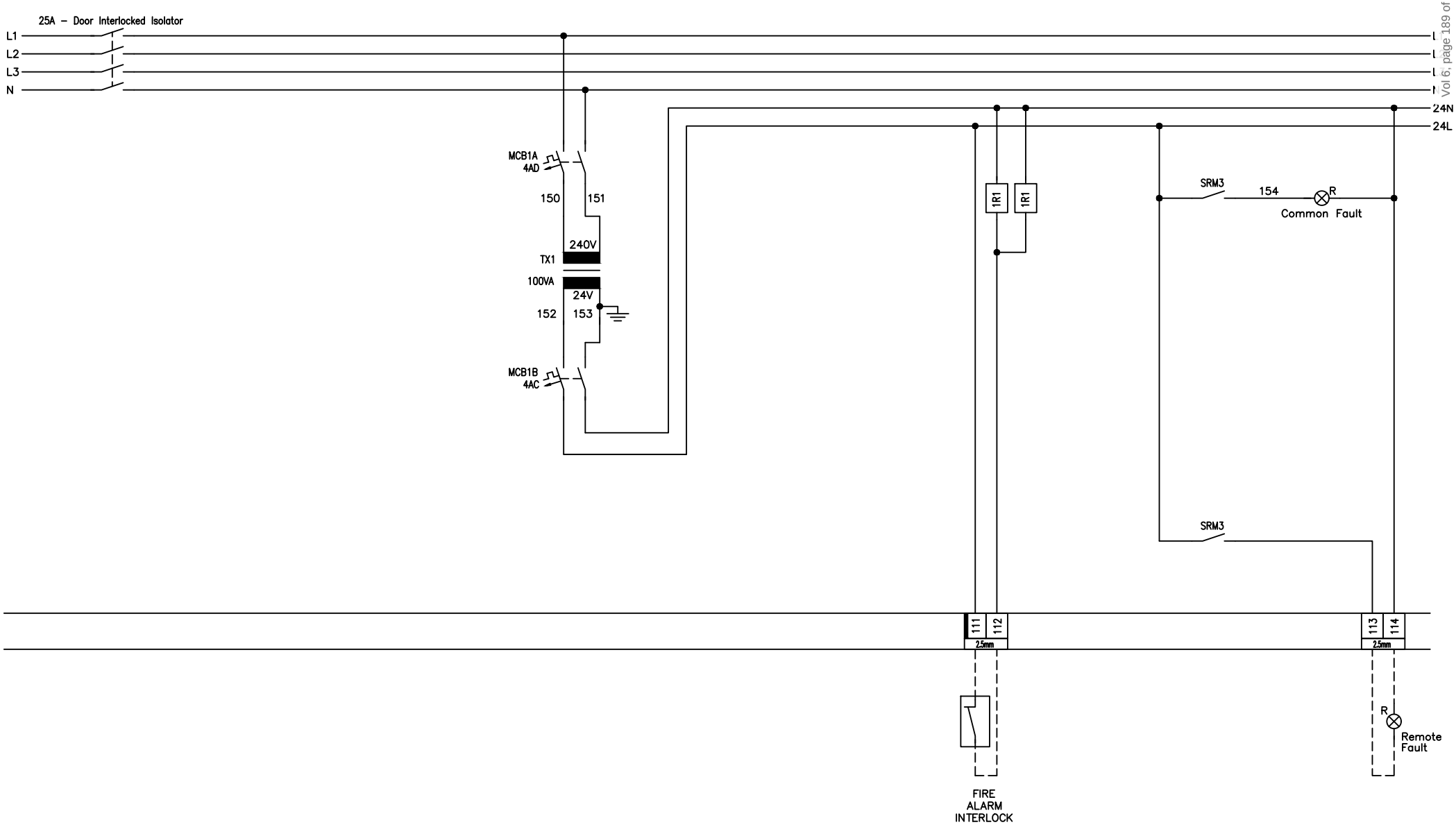
Title: AHU 6 BMS CONTROL PANEL

Client: HENSALL MECHANICAL LTD

Drawn PW
Date 28/05/25
Engr CB
Chkd

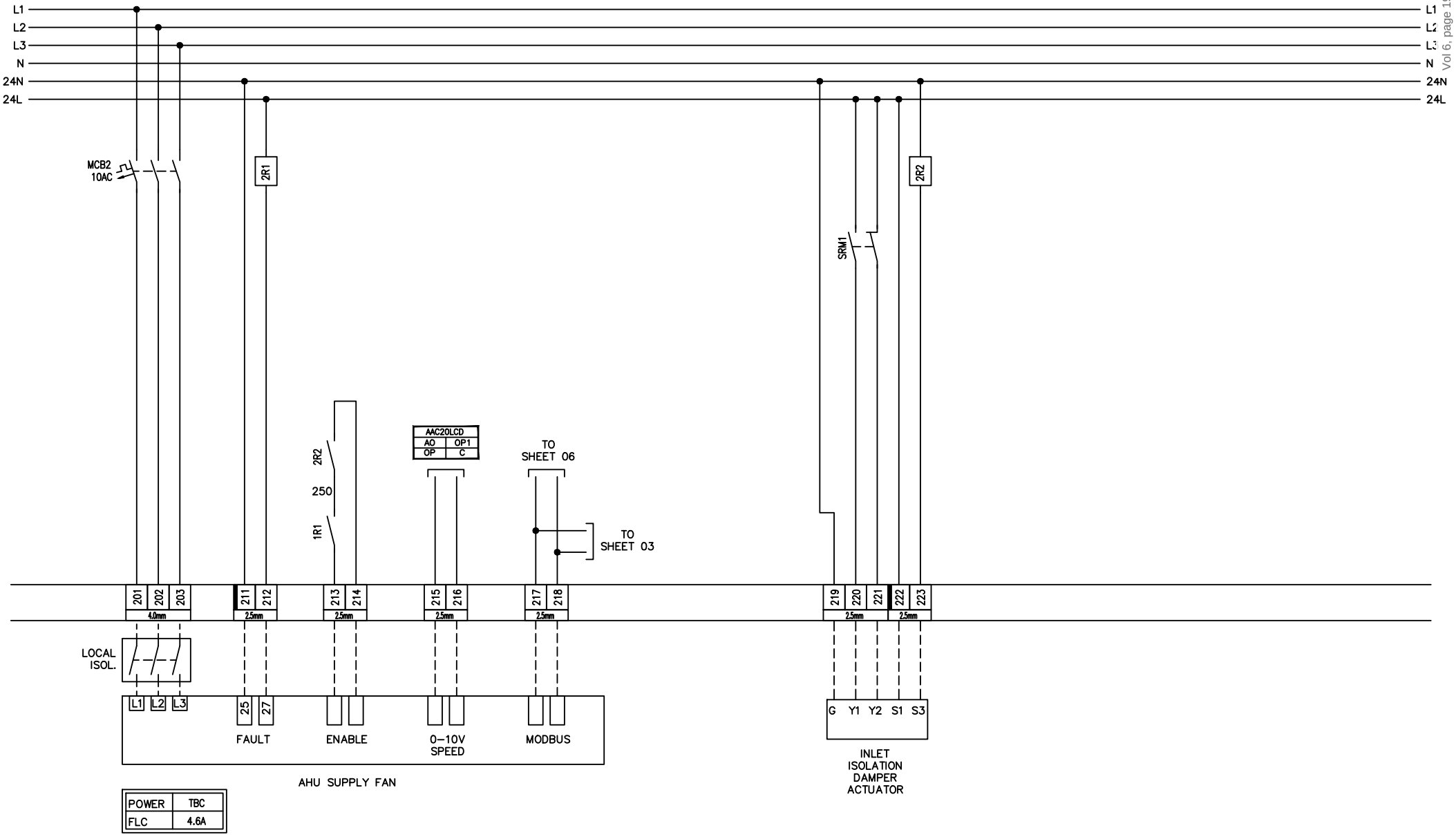
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Drg NWP00414 – AHU 6
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				Client HENSALL MECHANICAL LTD			

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Concord
ENVIRONMENTAL TECHNOLOGIES

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HAGLEY
STOURBRIDGE
DY9 9JH

Issue	Date	Modifications
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Site: WALNUTS
LEISURE CENTRE

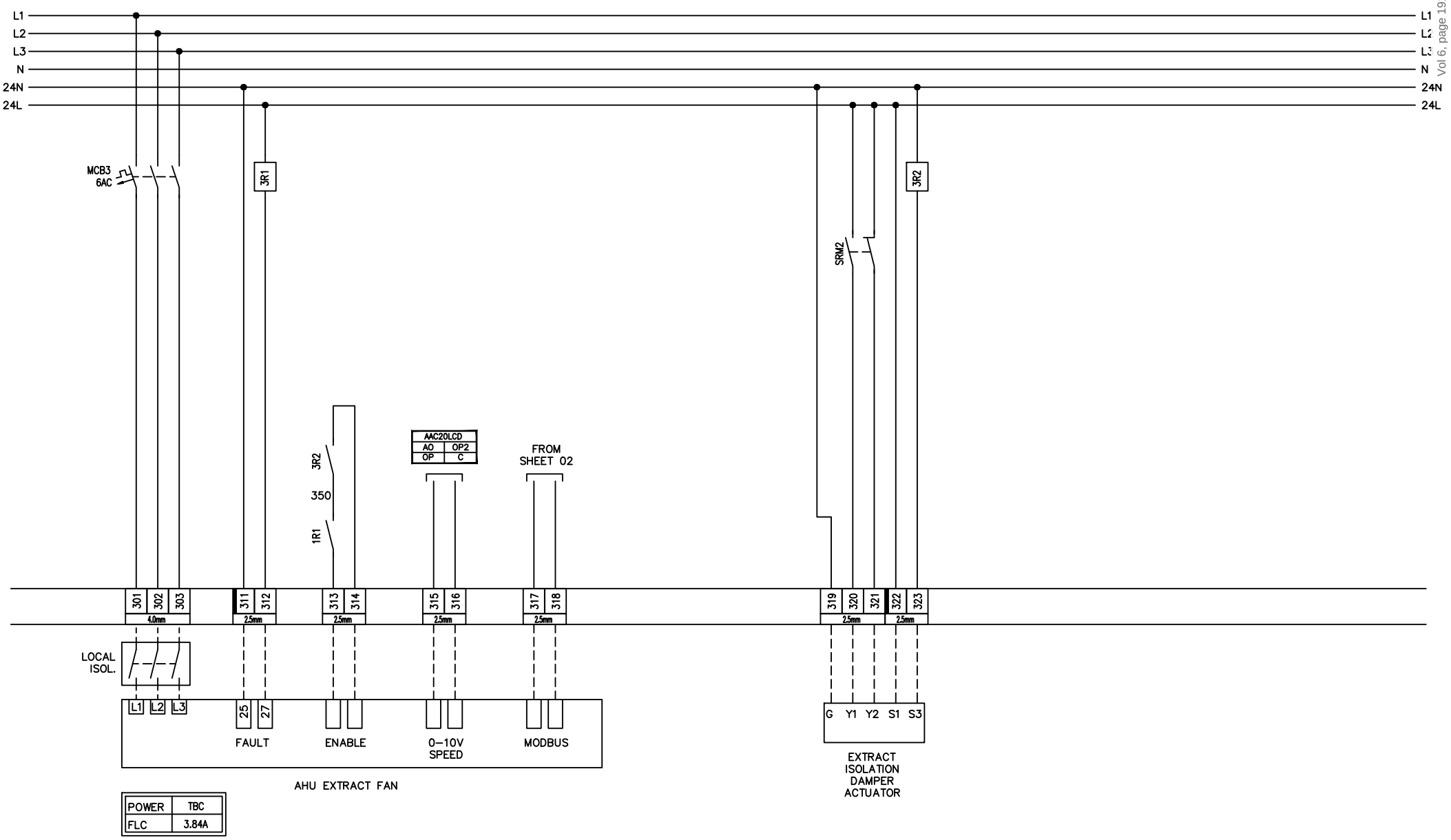
Title: AHU 6
BMS CONTROL PANEL

Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 02 of 10
Drg: NWP00414 – AHU 6
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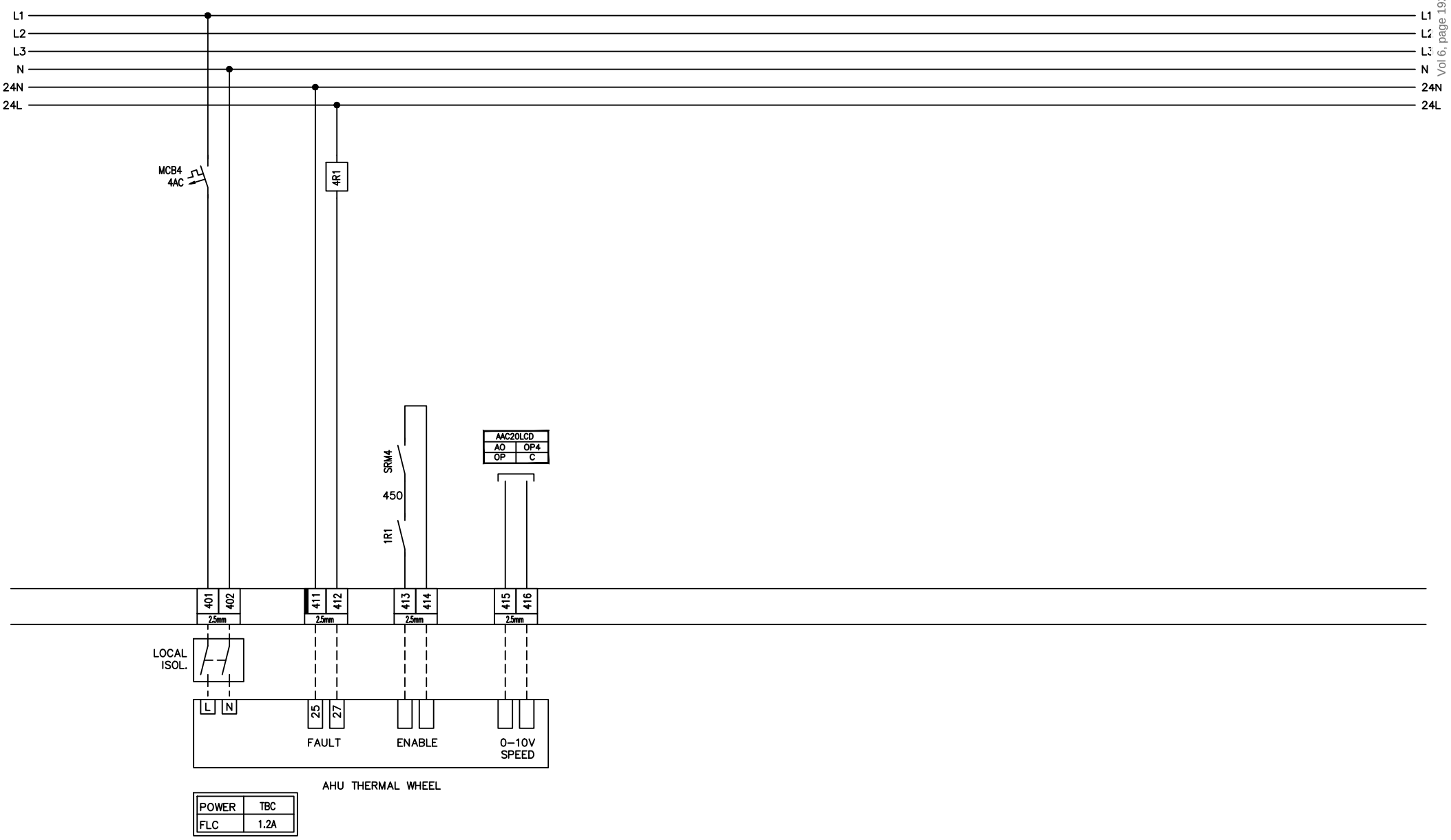
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Issue	Date	Modifications
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Title	AHU 6 BMS CONTROL PANEL
Client	HENSALL MECHANICAL LTD

Drawn	PW
Date	28/05/25
Engr	CB
Chkd	
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Drg	NWP00414 – AHU 6
Issue	2FA – FOR APPROVAL

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			Sheet: 04 of 10
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A B C D E F G H

01

L1
L2
L3
N
24N
24L
24L1

02

03

SPARE SHEET

04

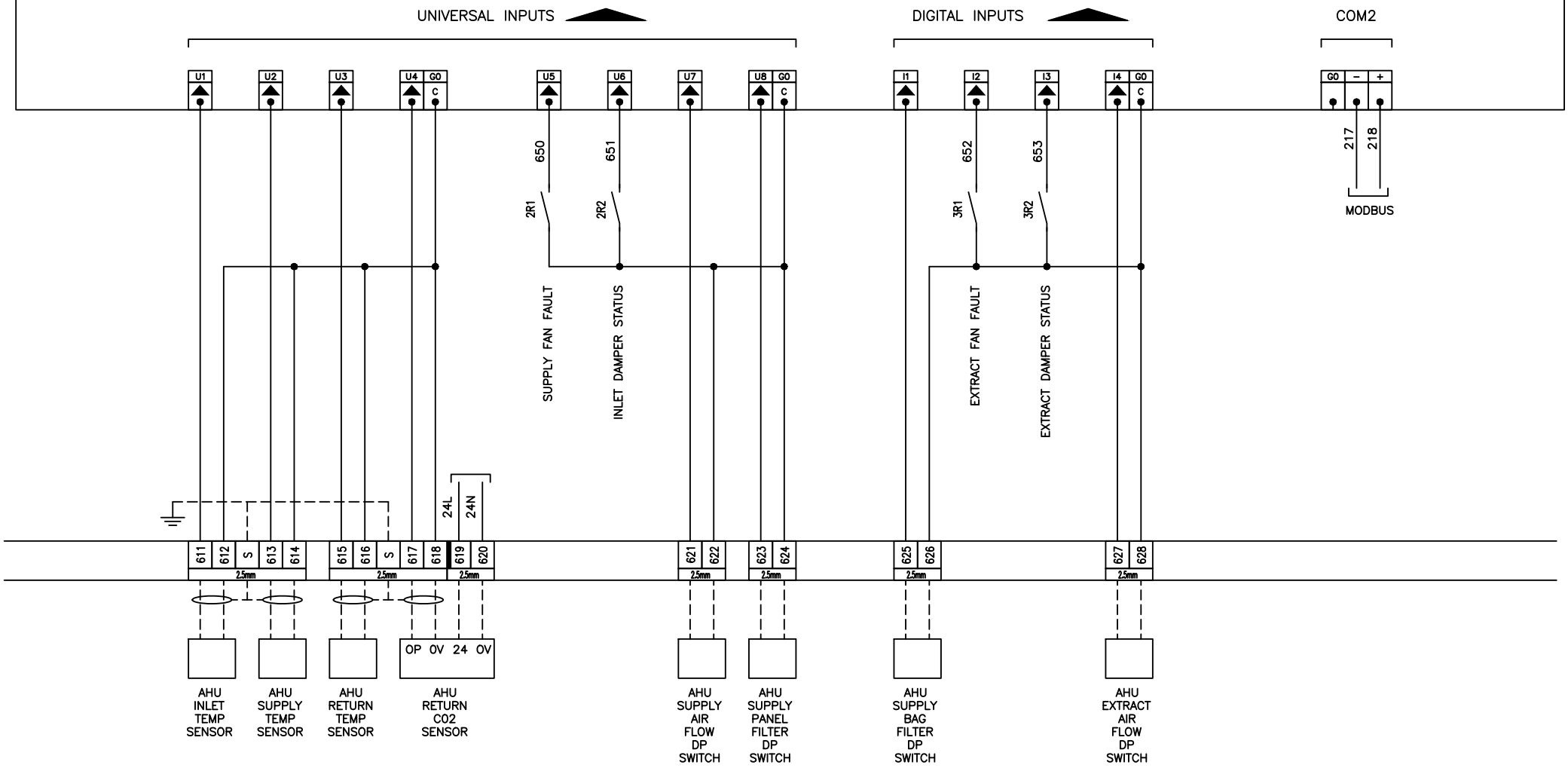
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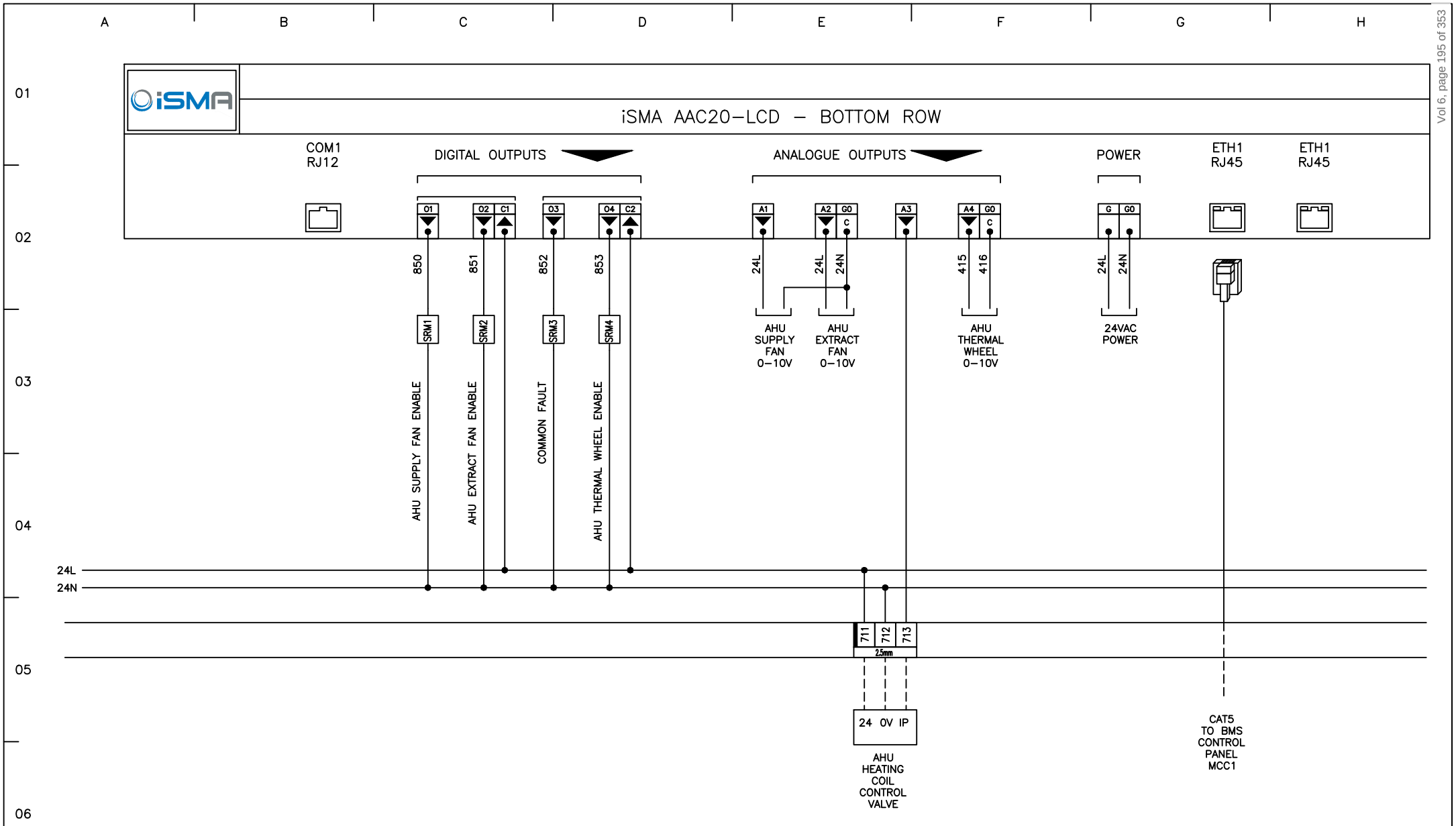
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iSMA AAC20–LCD – TOP ROW



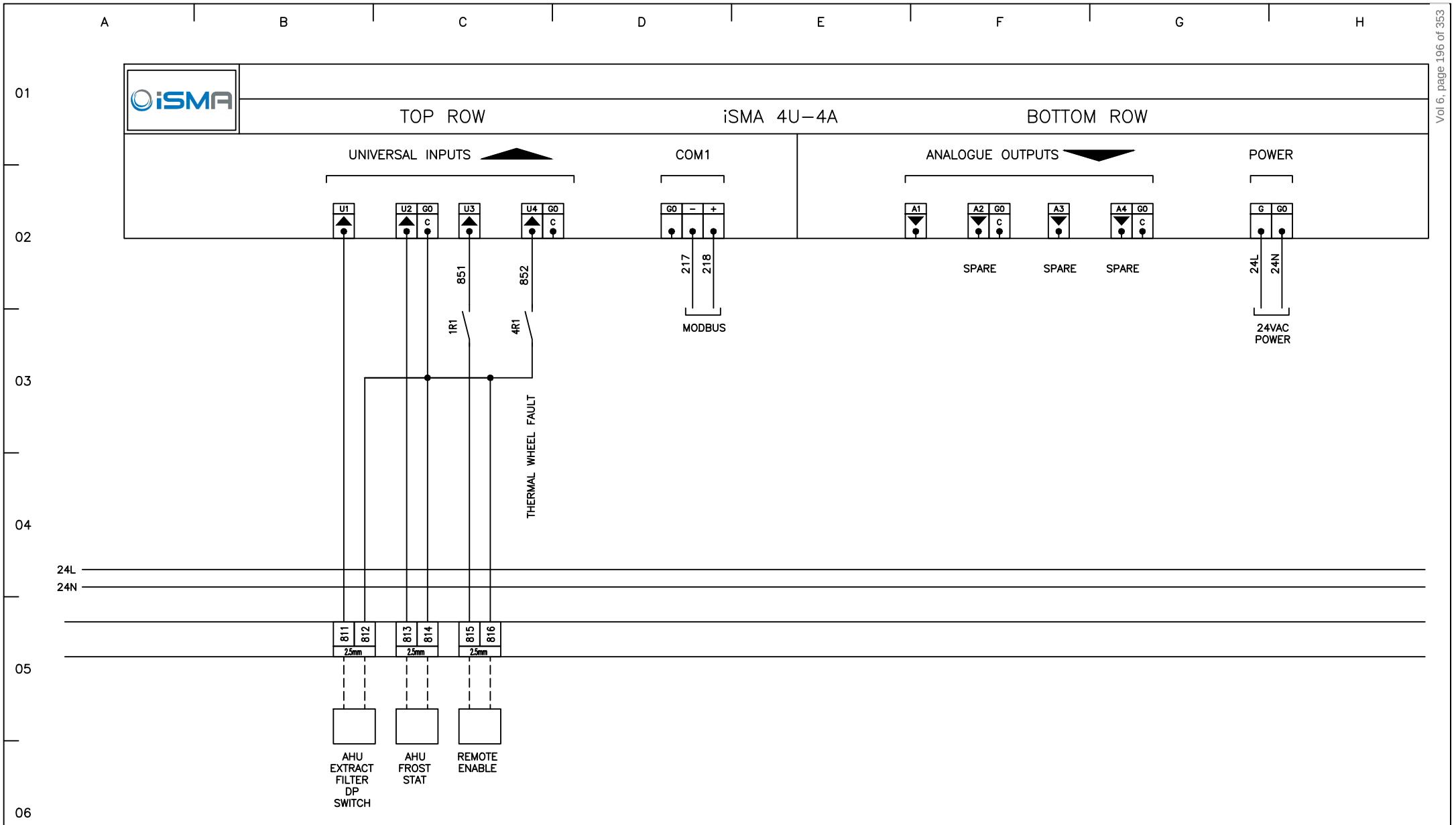
Concord Environmental Technologies	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue / Date / Modifications: 1FA 28.05.25 FOR APPROVAL; 2FA 01.07.25 POWER ADDED	Site: WALNUTS LEISURE CENTRE	Title: AHU 6 BMS CONTROL PANEL	Drawn: PW	Sheet: 06 of 10	
				Client: HENSALL MECHANICAL LTD	Date: 28/05/25	Drg: NWP00414 – AHU 6	
					Engr: CB / Chkd:	Issue: 2FA – FOR APPROVAL	

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		Client: HENSALL MECHANICAL LTD	Drawn: PW Date: 28/05/25 Engr: CB Chkd:
			Sheet: 08 of 10 Drg: NWP00414 – AHU 6 Issue: 2FA – FOR APPROVAL

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SPARE SHEET

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Concord ENVIRONMENTAL TECHNOLOGIES
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DY9 9JH

Site: WALNUTS LEISURE CENTRE

Title: AHU 6 BMS CONTROL PANEL

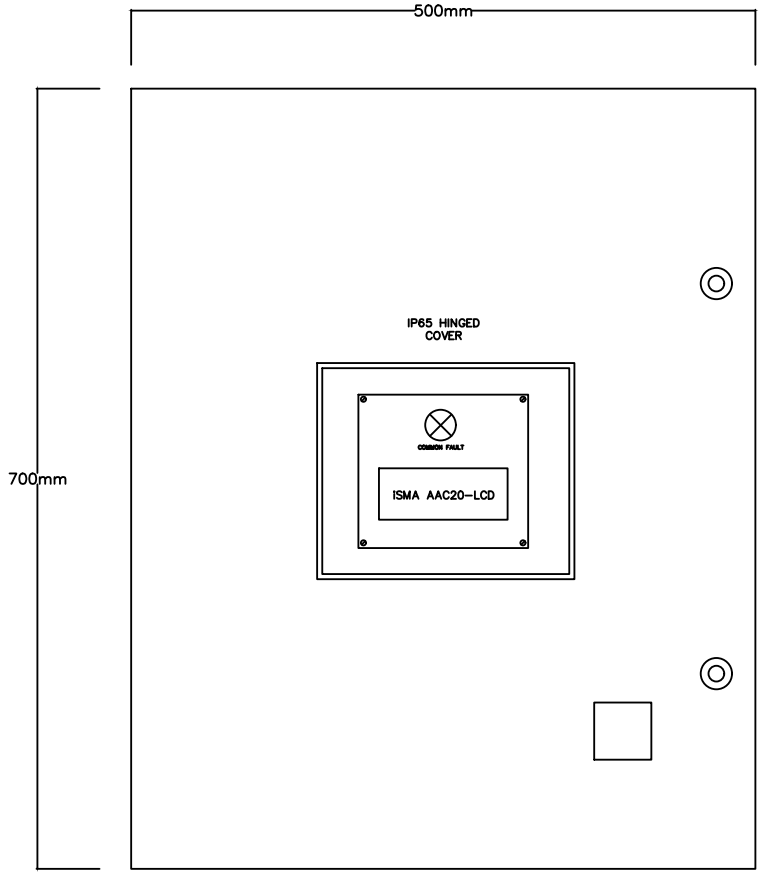
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NOT TO SCALE



PANEL SIZE = 700mm x 500mm x 210mm

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01 02 03 04 05 06

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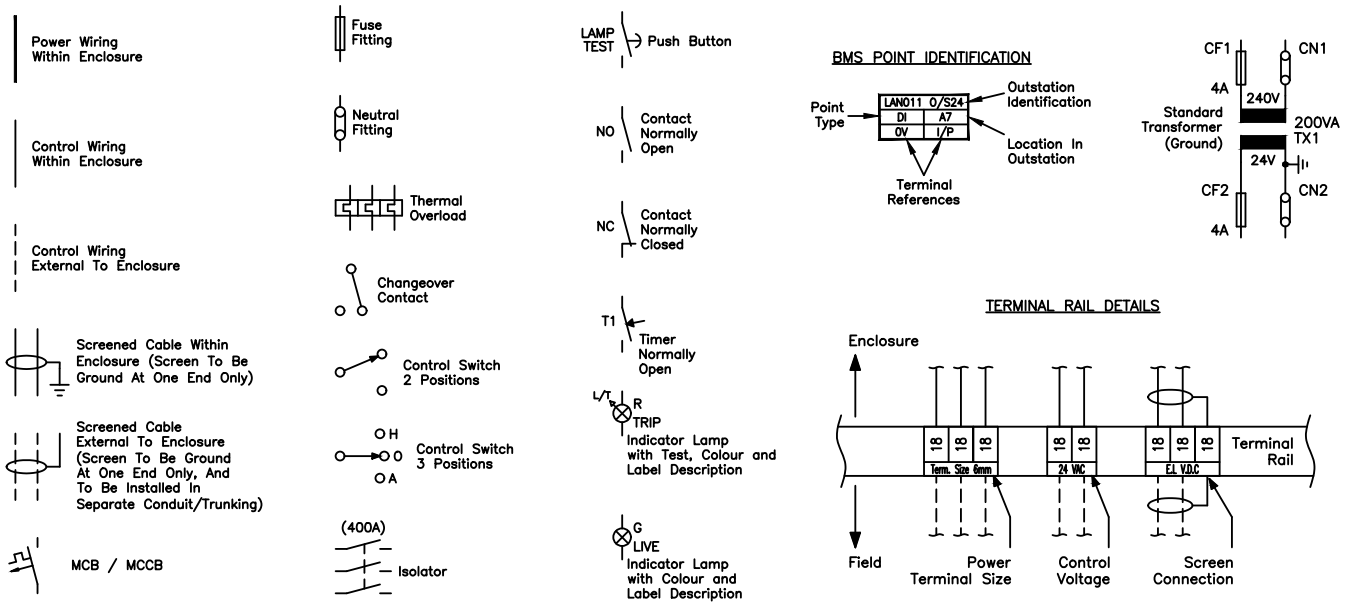
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03	EXTRACT FAN
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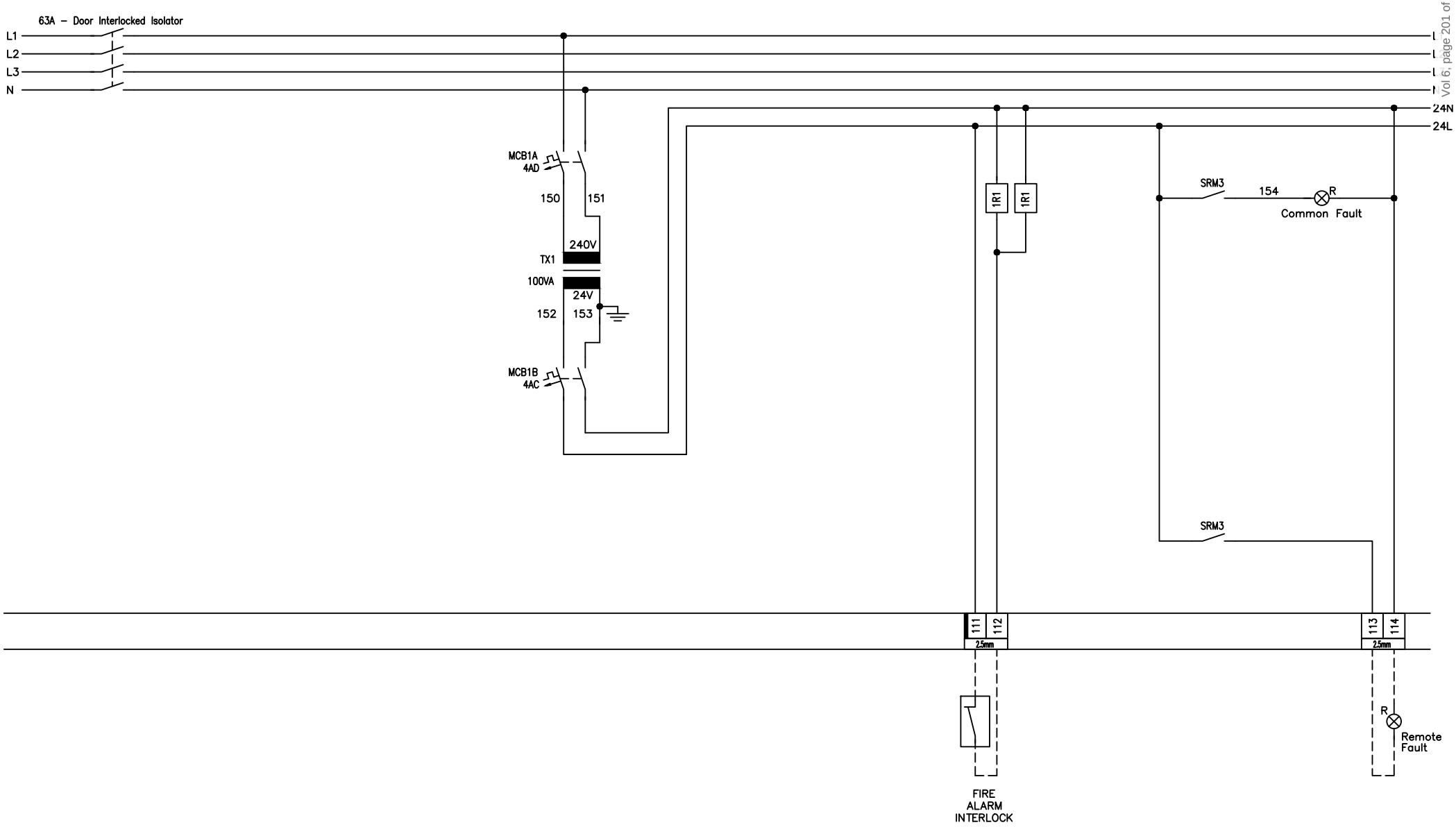
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Client: HENSALL MECHANICAL LTD

Drawn PW
Date 28/05/25
Engr CB
Chkd

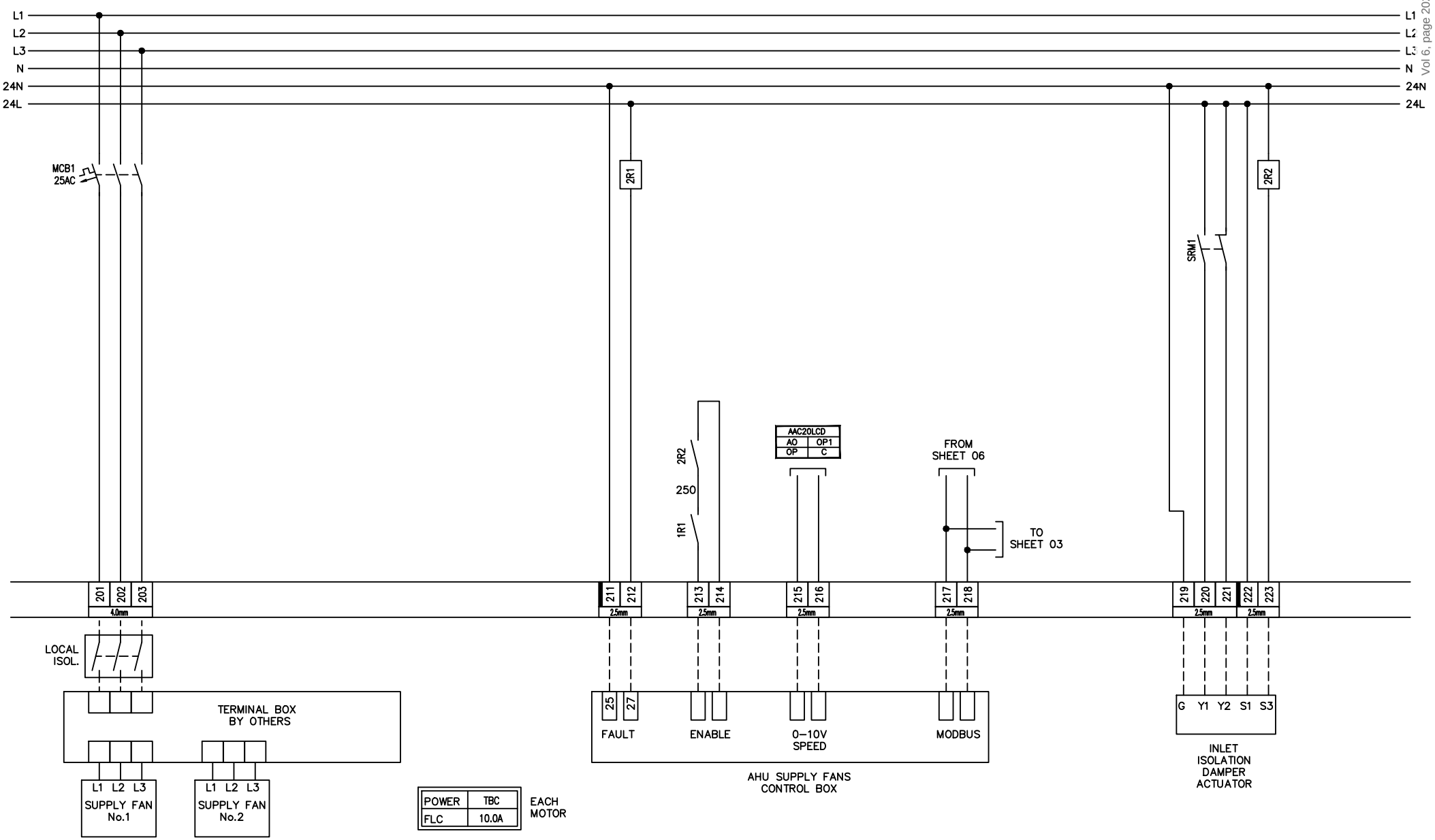
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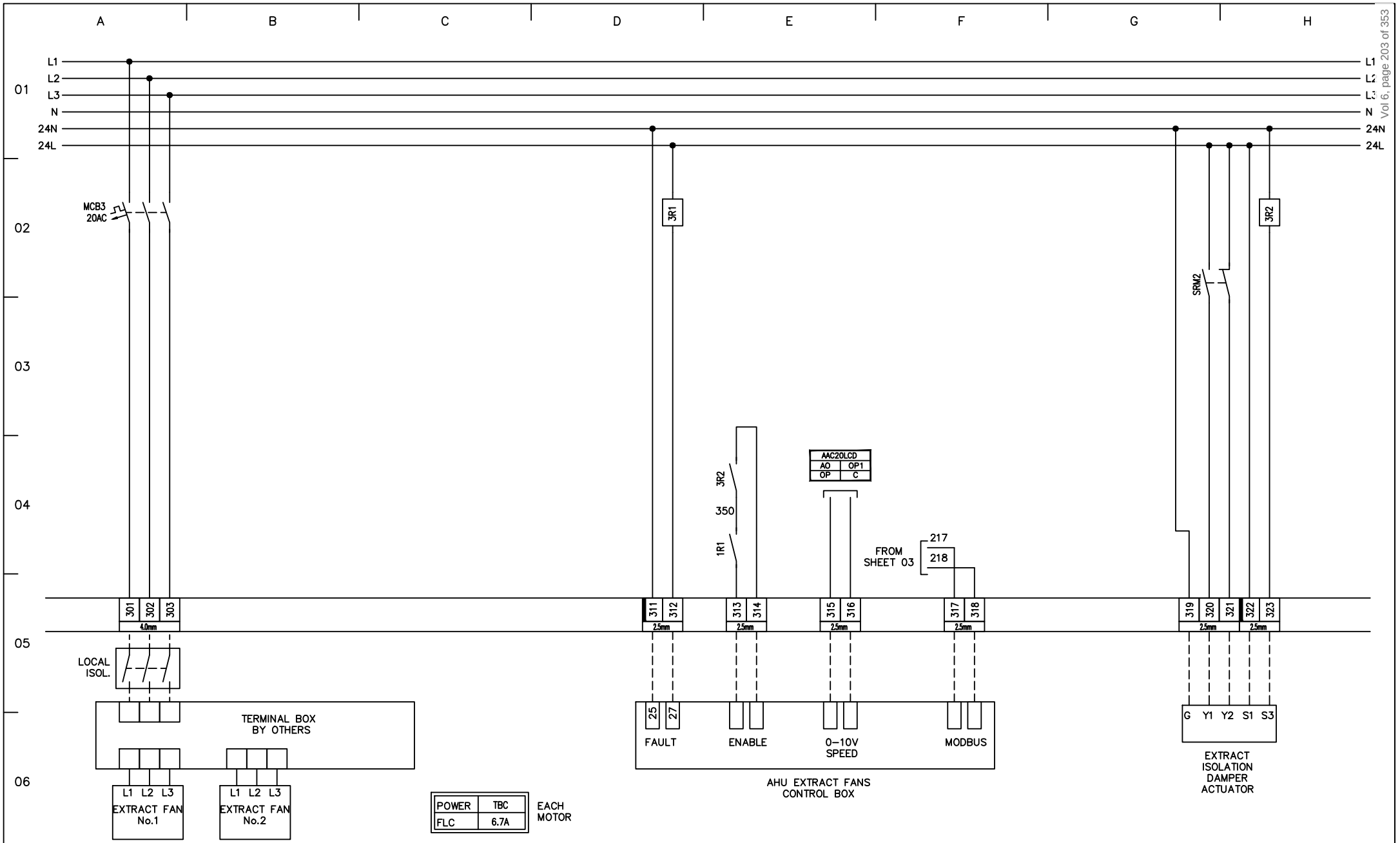
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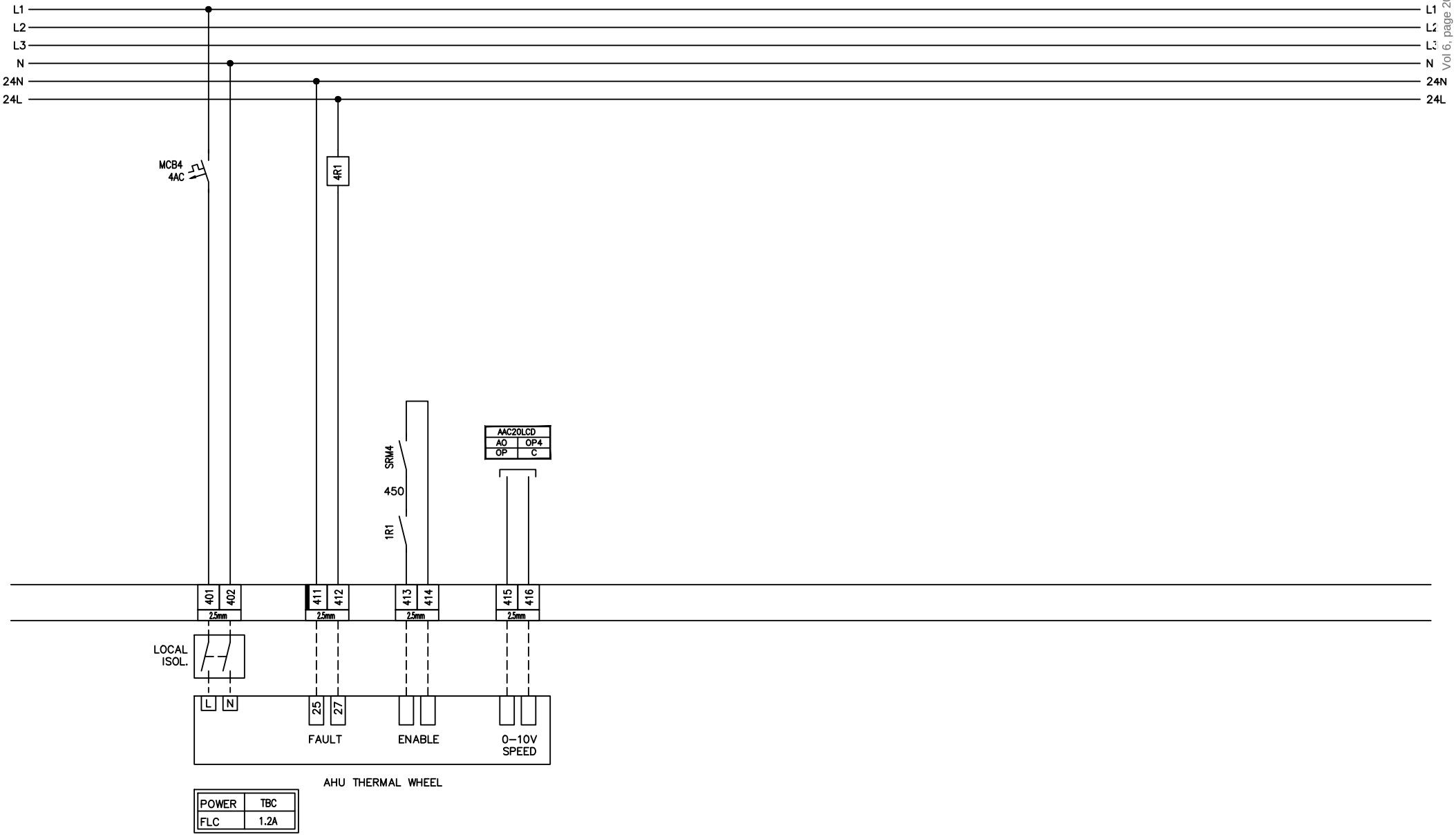
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A B C D E F G H

01 L1 L2 L3 N 24N 24L

02

03

SPARE SHEET

04

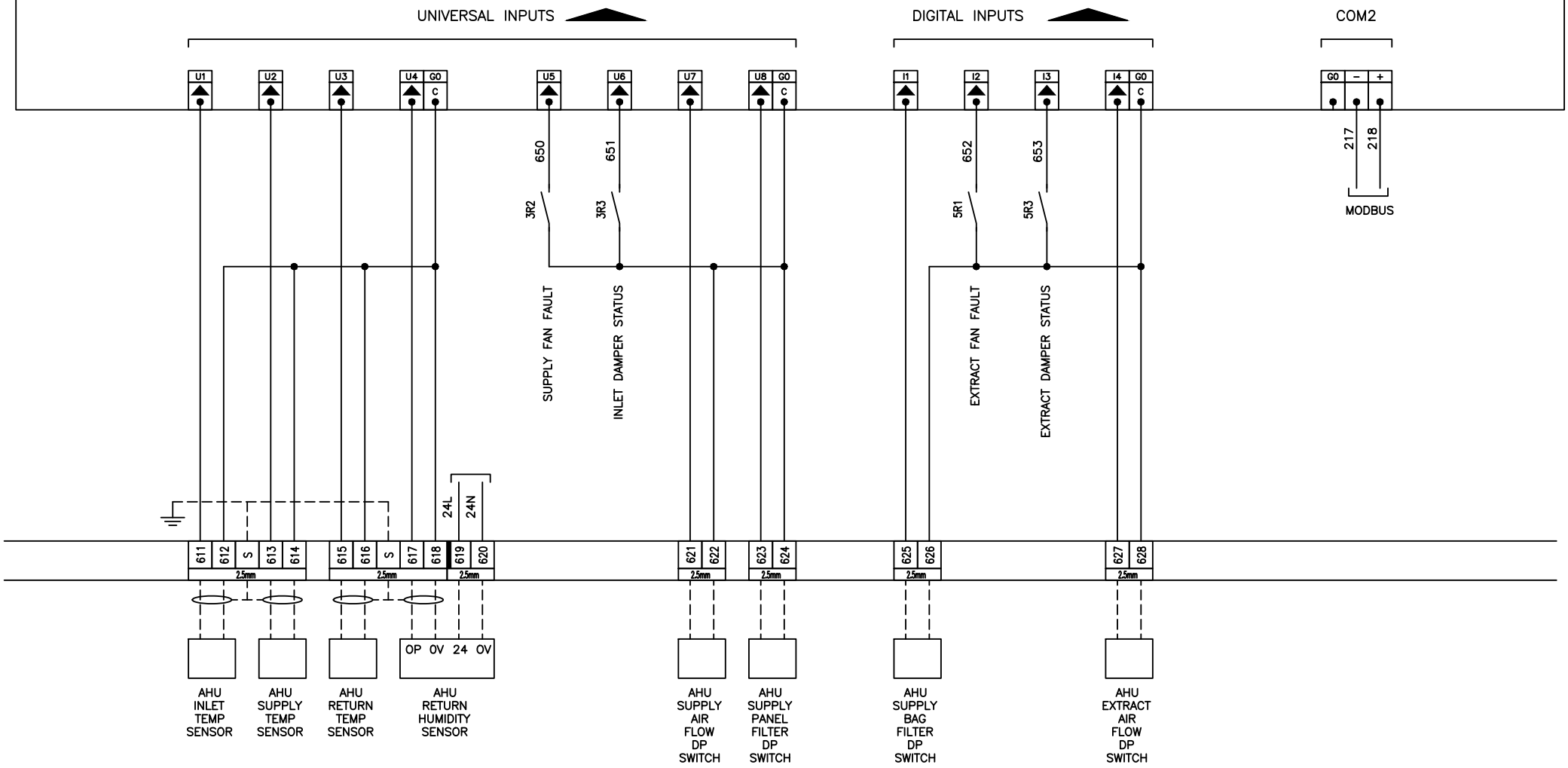
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06

Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue / Date / Modifications: 1FA 28.05.25 FOR APPROVAL 2FA 01.07.25 POWER ADDED	Site: WALNUTS LEISURE CENTRE	Title: AHU7 BMS CONTROL PANEL Client: HENSALL MECHANICAL LTD	Drawn PW Date 28/05/25 Engr CB Chkd	Sheet 05 of 10 Drg NWP00414 – AHU7 Issue 2FA – FOR APPROVAL	

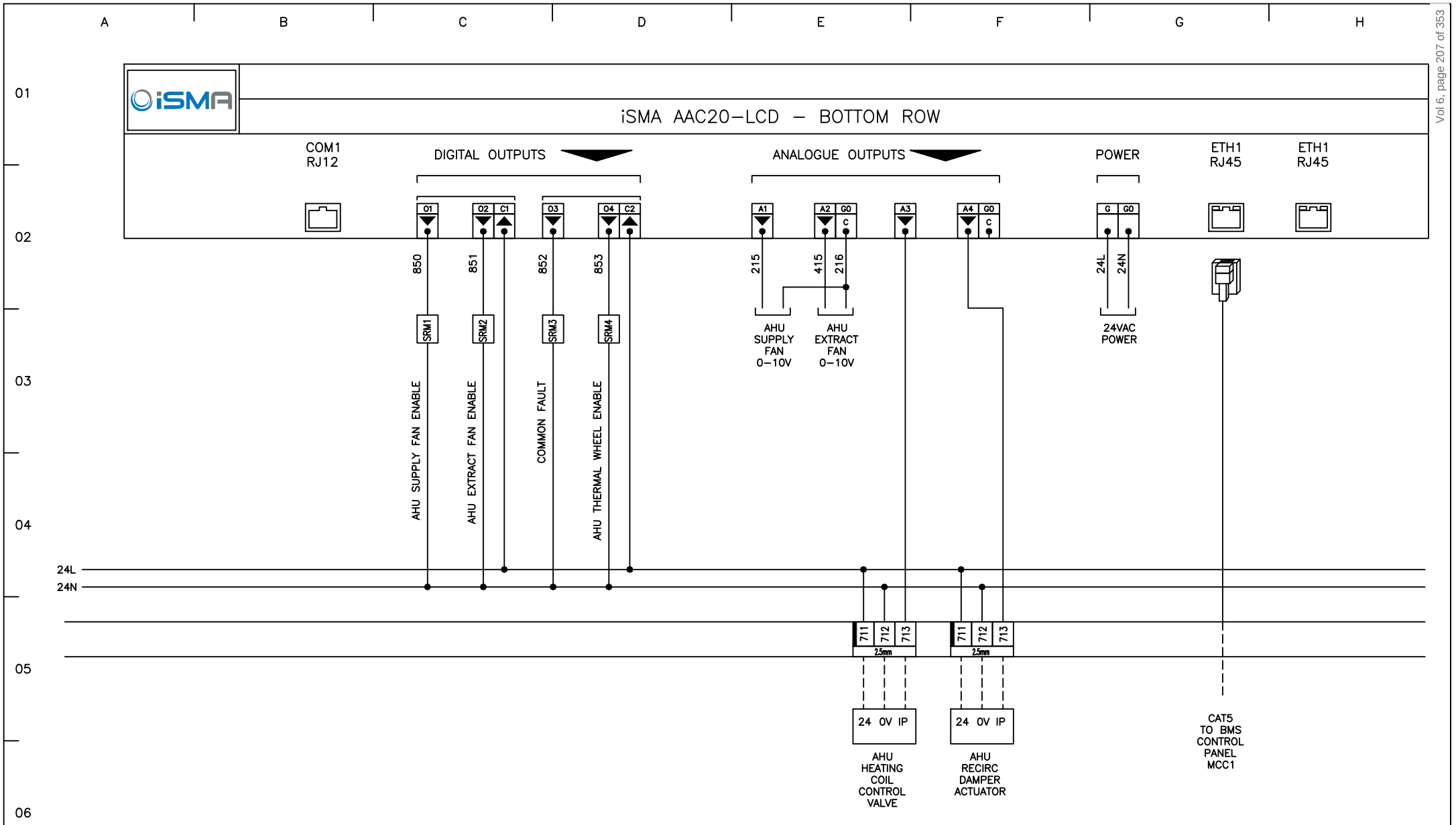
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iSMA AAC20–LCD – TOP ROW



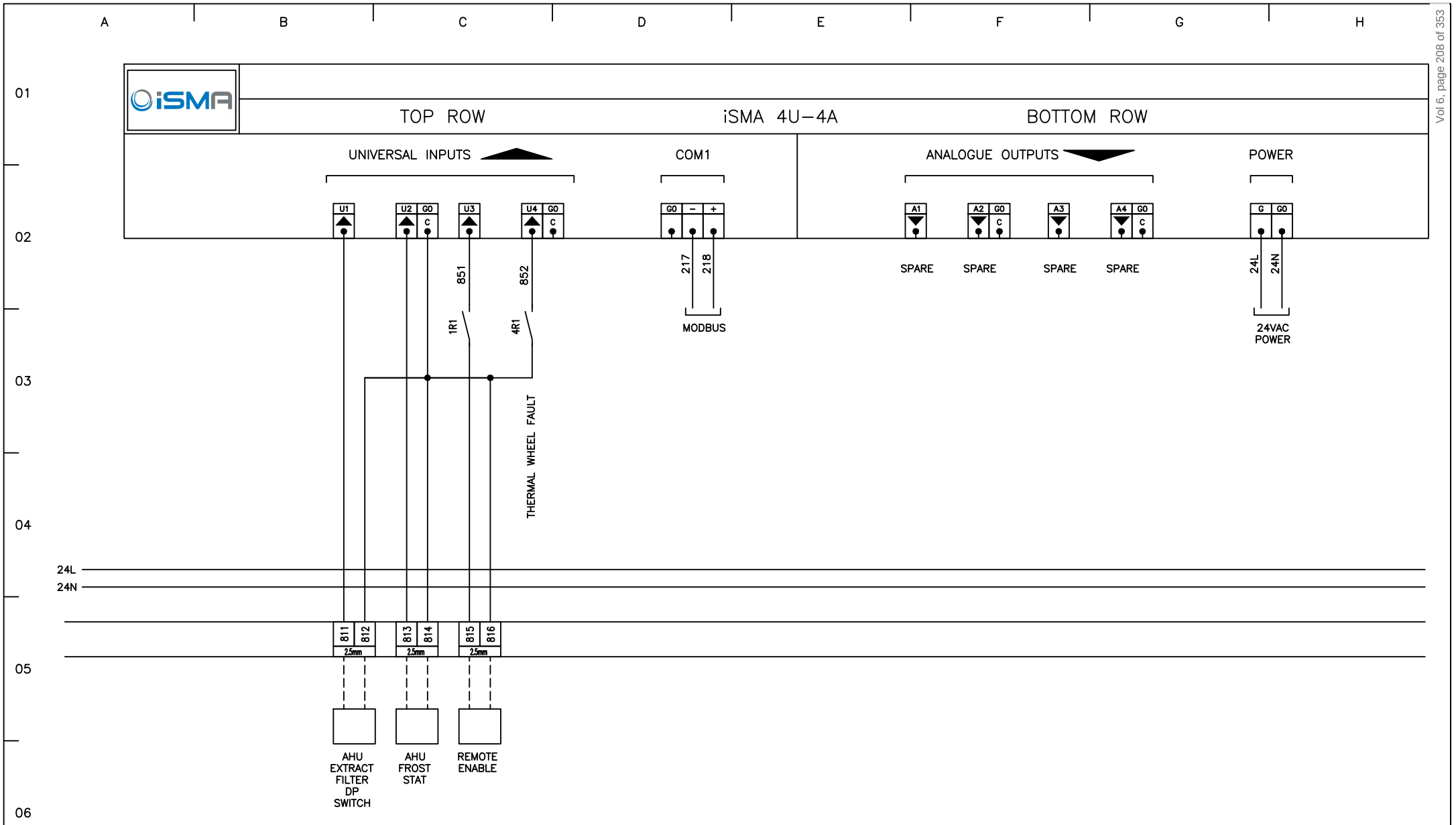
Concord Environmental Technologies	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue	Date	Modifications	Site: WALNUTS LEISURE CENTRE	Title: AHU7 BMS CONTROL PANEL	Drawn: PW	Sheet: 06 of 10
		1FA	28.05.25	FOR APPROVAL			Date: 28/05/25	Drg: NWP00414 – AHU7
		2FA	01.07.25	POWER ADDED		Client: HENSALL MECHANICAL LTD	Engr: CB Chkd	Issue: 2FA – FOR APPROVAL

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				Client: HENSALL MECHANICAL LTD	Date: 28/05/25	Drg: NWP00414 – AHU7	
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SPARE SHEET

Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Concord ENVIRONMENTAL TECHNOLOGIES
CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

Title: AHU7 BMS CONTROL PANEL

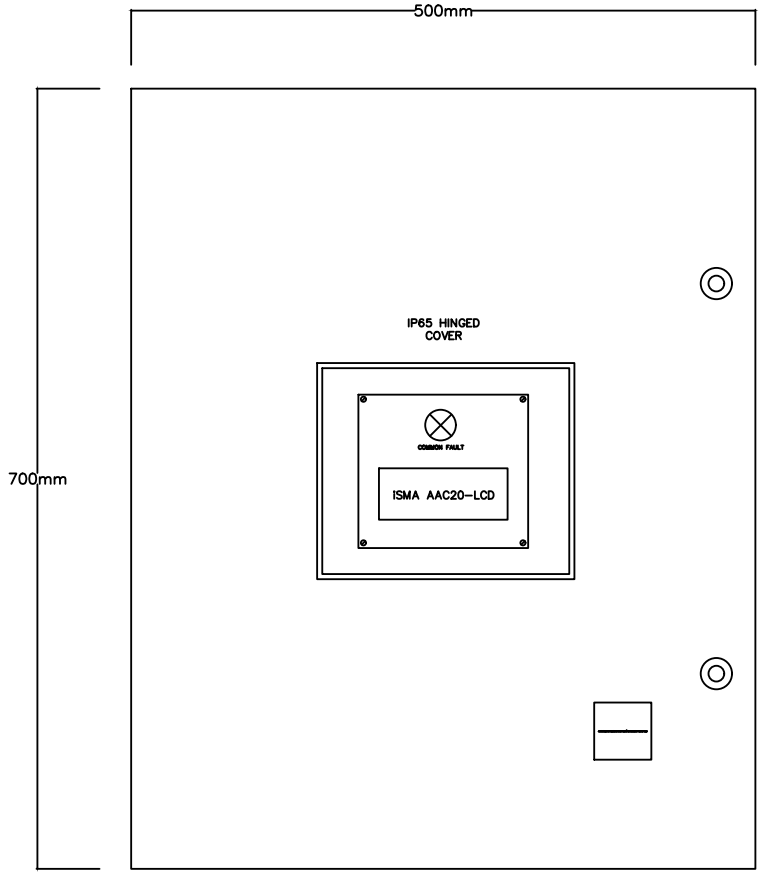
Client: HENSALL MECHANICAL LTD

Drawn: PW
Date: 28/05/25
Engr: CB
Chkd:

Sheet: 09 of 10
Drg: NWP00414 – AHU7
Issue: 2FA – FOR APPROVAL

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NOT TO SCALE



PANEL SIZE = 700mm x 500mm x 210mm

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11.89

BMS panel wiring diagram AHU9 rev 2FA

The following 11 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`BMS panel wiring diagram AHU9 rev 2FA.pdf`
Pages	11

WIRING NOTES:

1. MINIMUM POWER WIRING 2.5mm
2. MINIMUM CONTROL WIRING 1.0mm
3. POWER CABLES TO BE FITTED WITH CORD END TERMINALS, OR LUGS, DEPENDING ON SIZE, AND TYPE OF CONNECTION.
4. CONTROL CABLES TO BE FITTED WITH CORD END TERMINALS, PIN, OR FORK, CONFIGURATION, DEPENDING ON TYPE OF CONNECTION.
5. ALL CABLES UP TO 11mm TO BE COLOUR CODED AS FOLLOWS:–
   400 VOLTS L1.L2.L3. – BROWN, BLACK, GREY
   230 VOLTS NEUTRAL – BLUE
   LOW VOLTAGE A.C. – WHITE
   EXTRA LOW VOLTAGE D.C. – VIOLET
   EXTERNALLY SUPPLIED (I.E INTERLOCKS & VFC) – ORANGE
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8. FINAL CABLE No.
9. WHEN A CABLE CONNECTS TO AN OUTGOING TERMINAL THE CABLE IDENTIFICATION NUMBER IS THE SAME AS THE TERMINAL NUMBER.
11. FINAL TERMINAL No. POWER/230VAC –
    FINAL TERMINAL No. CONTROL/24VAC –
    FINAL TERMINAL No. SIGNAL –

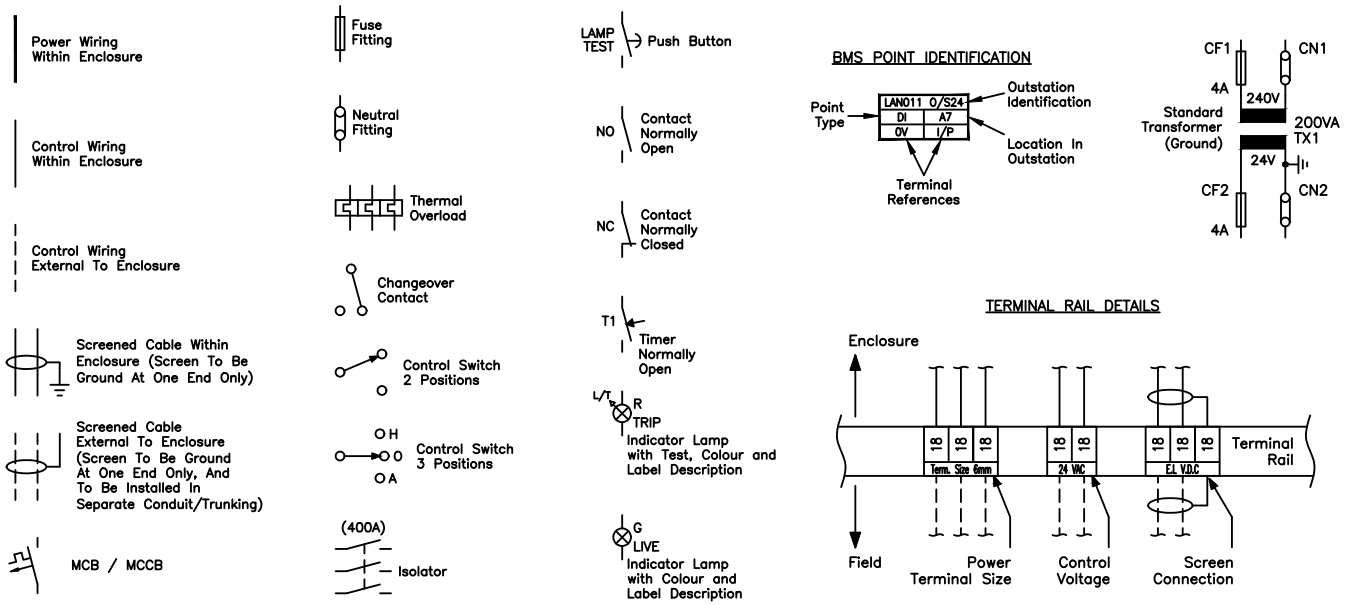
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2. MAIN SUPPLY ISOLATORS TO BE OF SOCOMEC MANUFACTURE.
3. FUSE SWITCHES TO BE OF SOCOMEC MANUFACTURE.
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FIELD WIRING NOTES:

1. NETWORK CABLE TO BE BELDEN 9501/9502 OR EQUIVALENT
2. SENSOR CABLE TO BE BELDON 9501 OR EQUIVALENT

Sheet No	Description
01	SUPPLY DISTRIBUTION
02	SUPPLY FAN
03	EXTRACT FAN
04	THERMAL WHEEL
05	SPARE SHEET
06	ISMA AAC20–LCD – TOP CONNECTIONS
07	ISMA AAC20–LCD – BOTTOM CONNECTIONS
08	ISMA 4U–4A
09	SPARE SHEET
10	GA1



Issue	Date	Modifications
1FA	28.05.25	FOR APPROVAL
2FA	01.07.25	POWER ADDED

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: ELMWOOD LEISURE CENTRE

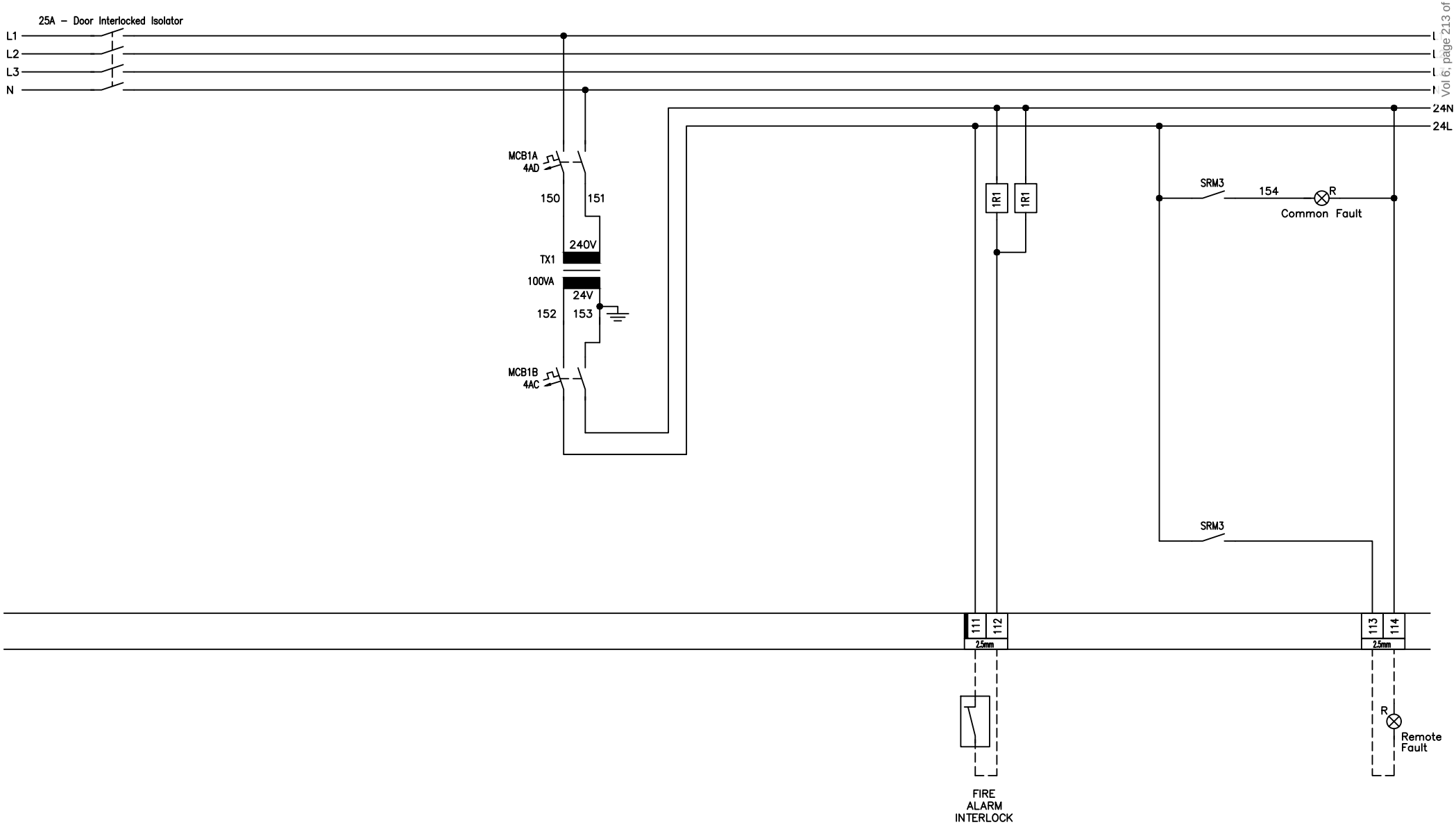
Title: AHU 8 BMS CONTROL PANEL

Client: HENSALL MECHANICAL LTD

Drawn PW
Date 28/05/25
Engr CB
Chkd

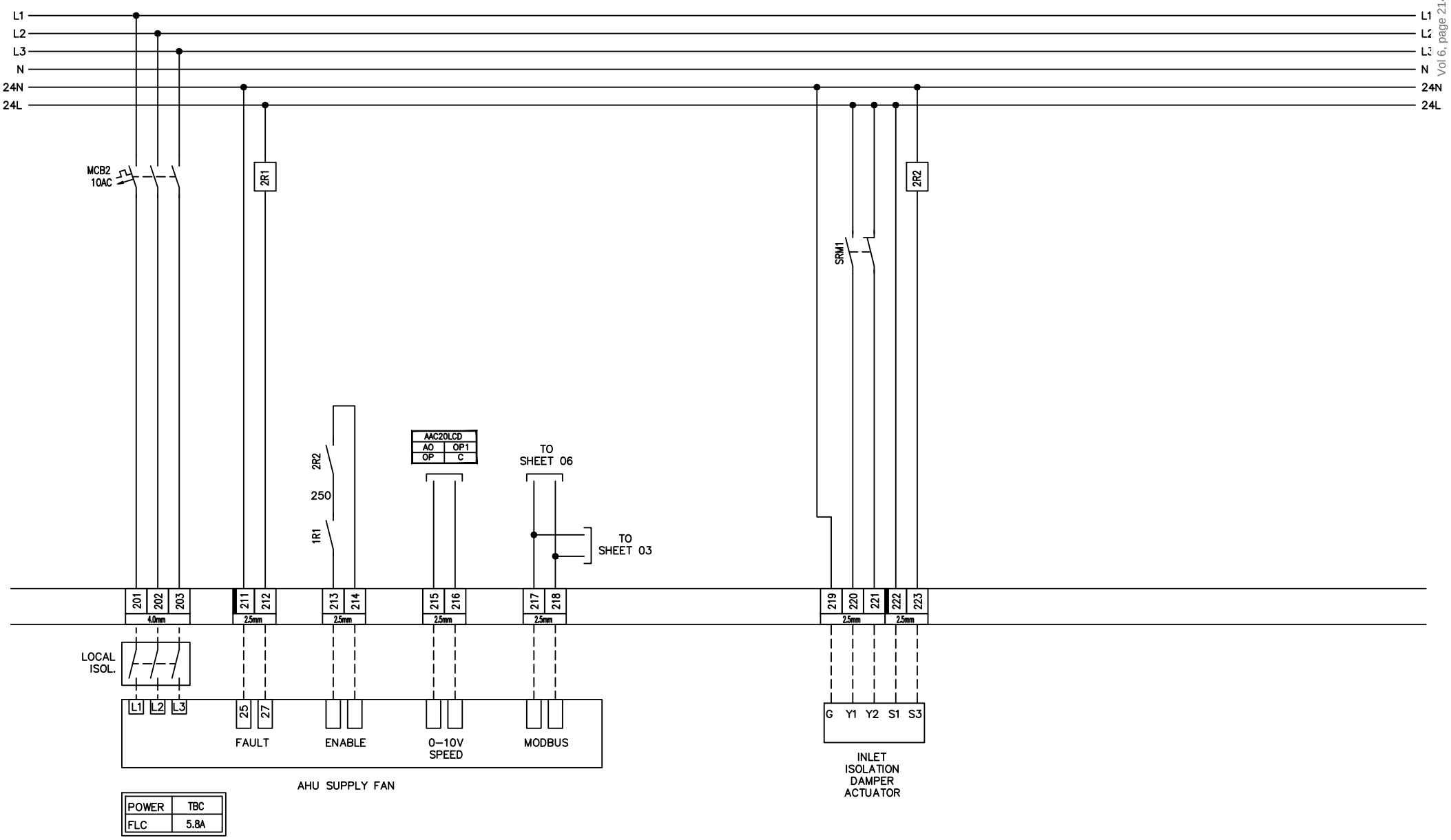
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Drg NWP00414 – AHU 8
Issue 2FA – FOR APPROVAL

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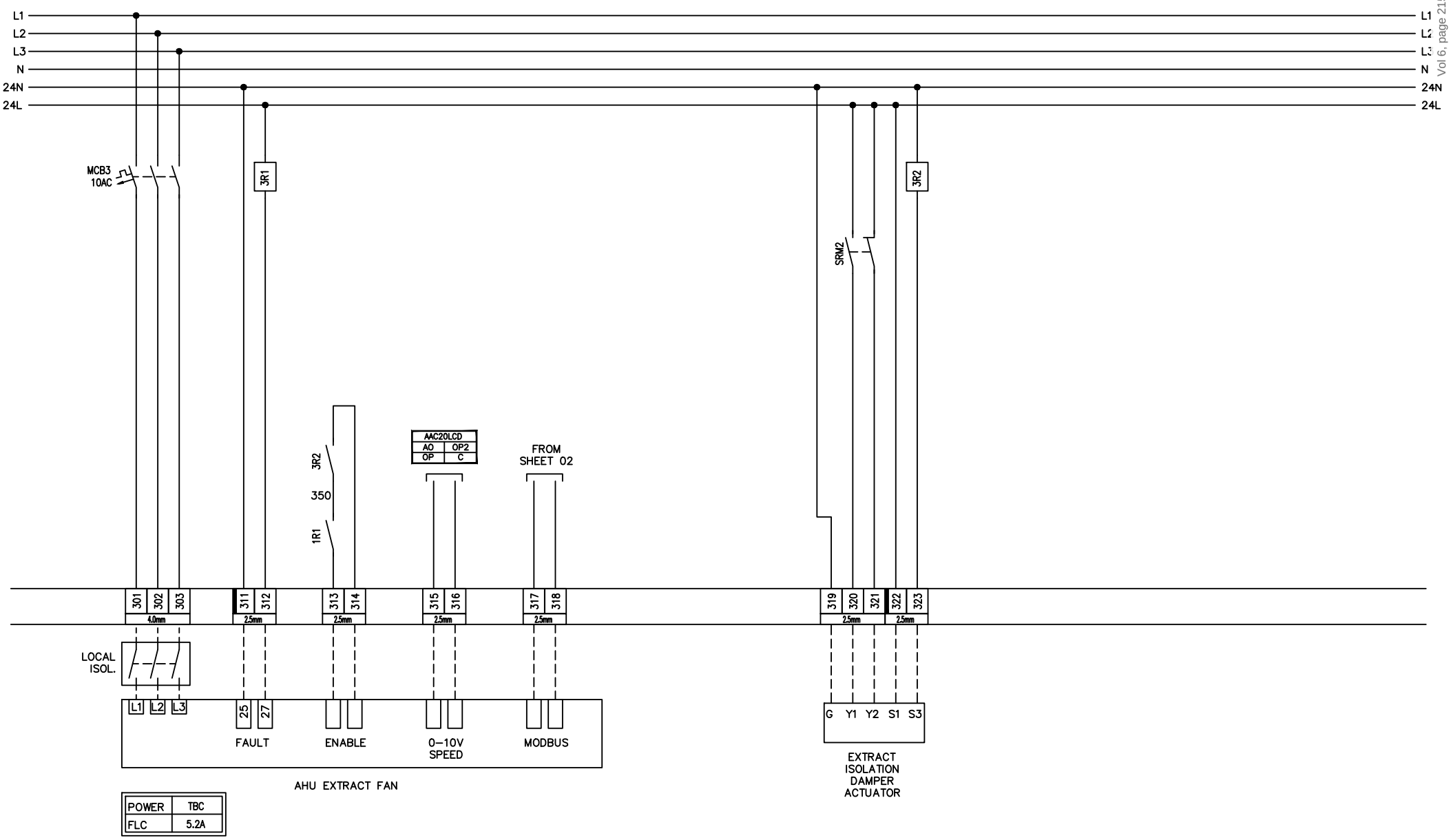
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Issue	Date	Modifications
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Site	WALNUTS LEISURE CENTRE
Title	AHU 8 BMS CONTROL PANEL
Client	HENSALL MECHANICAL LTD

Drawn	PW
Date	28/05/25
Engr	CB
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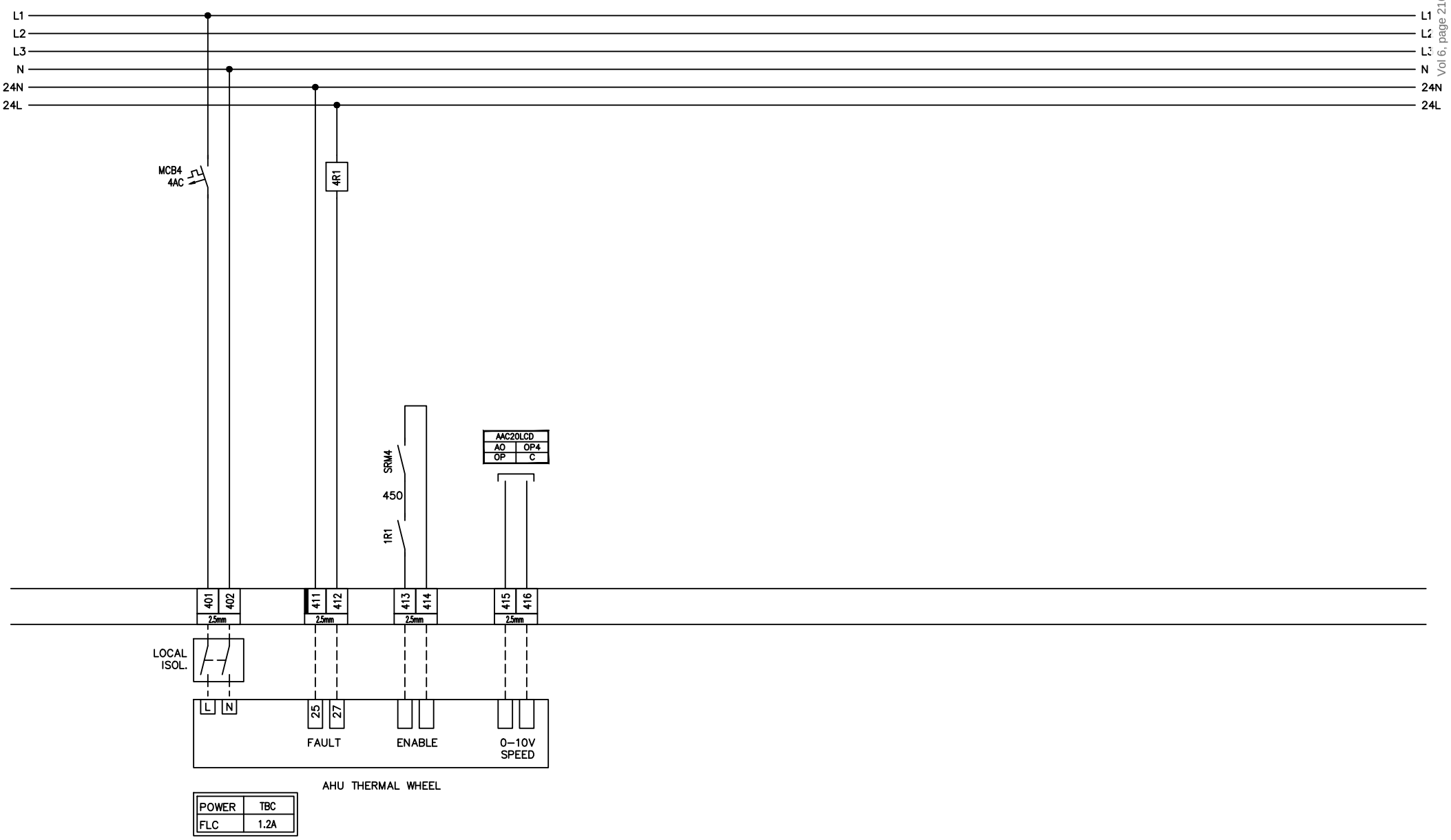
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Drawn	PW
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Chkd	
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Drg	NWP00414 – AHU 8
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		Title: AHU 8 BMS CONTROL PANEL	Date: 28/05/25
		Client: HENSALL MECHANICAL LTD	Engr: CB Chkd:
			Sheet: 04 of 10
			Drg: NWP00414 – AHU 8
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A B C D E F G H

01 L1 L2 L3 N 24N 24L 24L1

02

03

SPARE SHEET

04

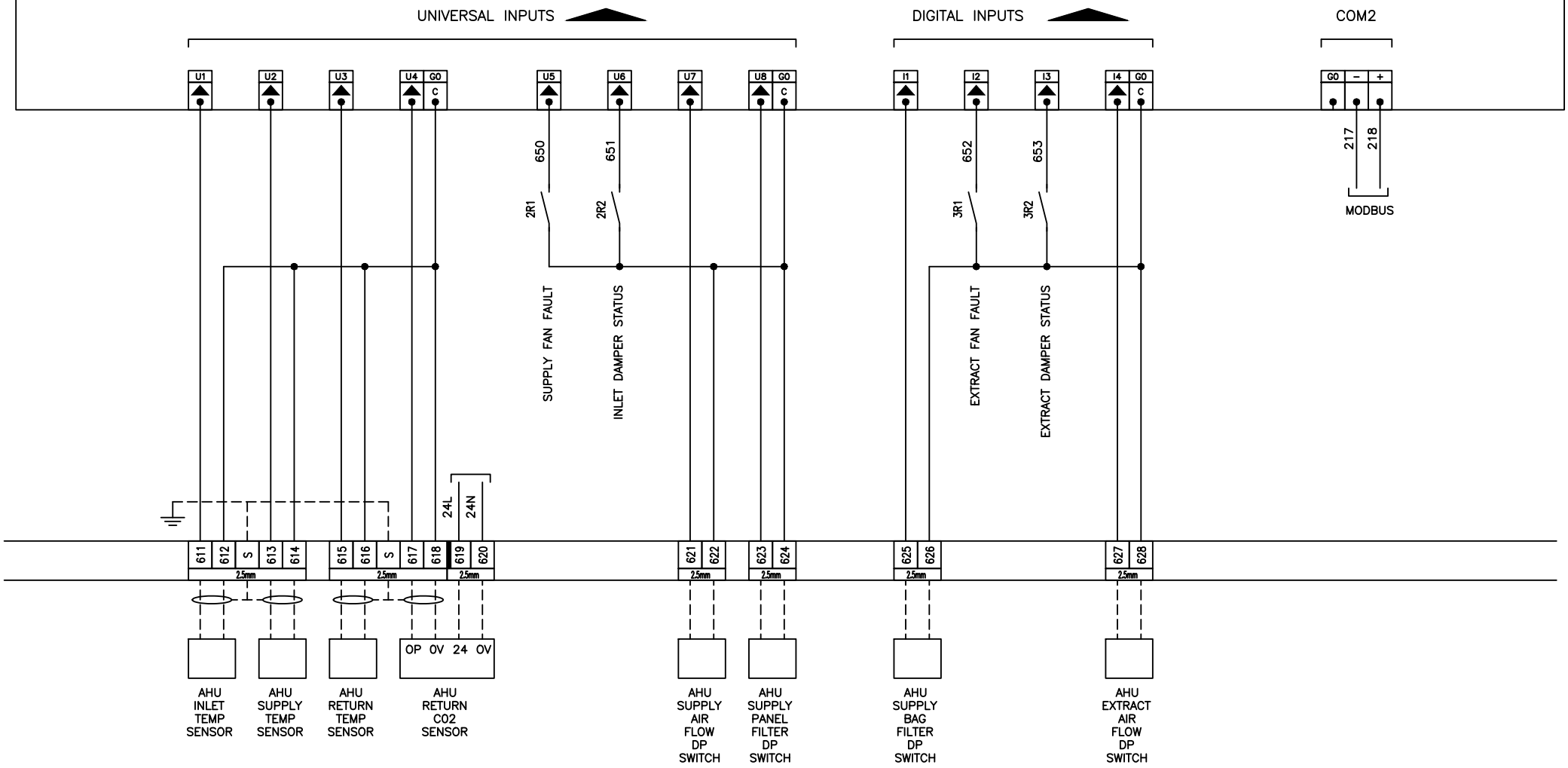
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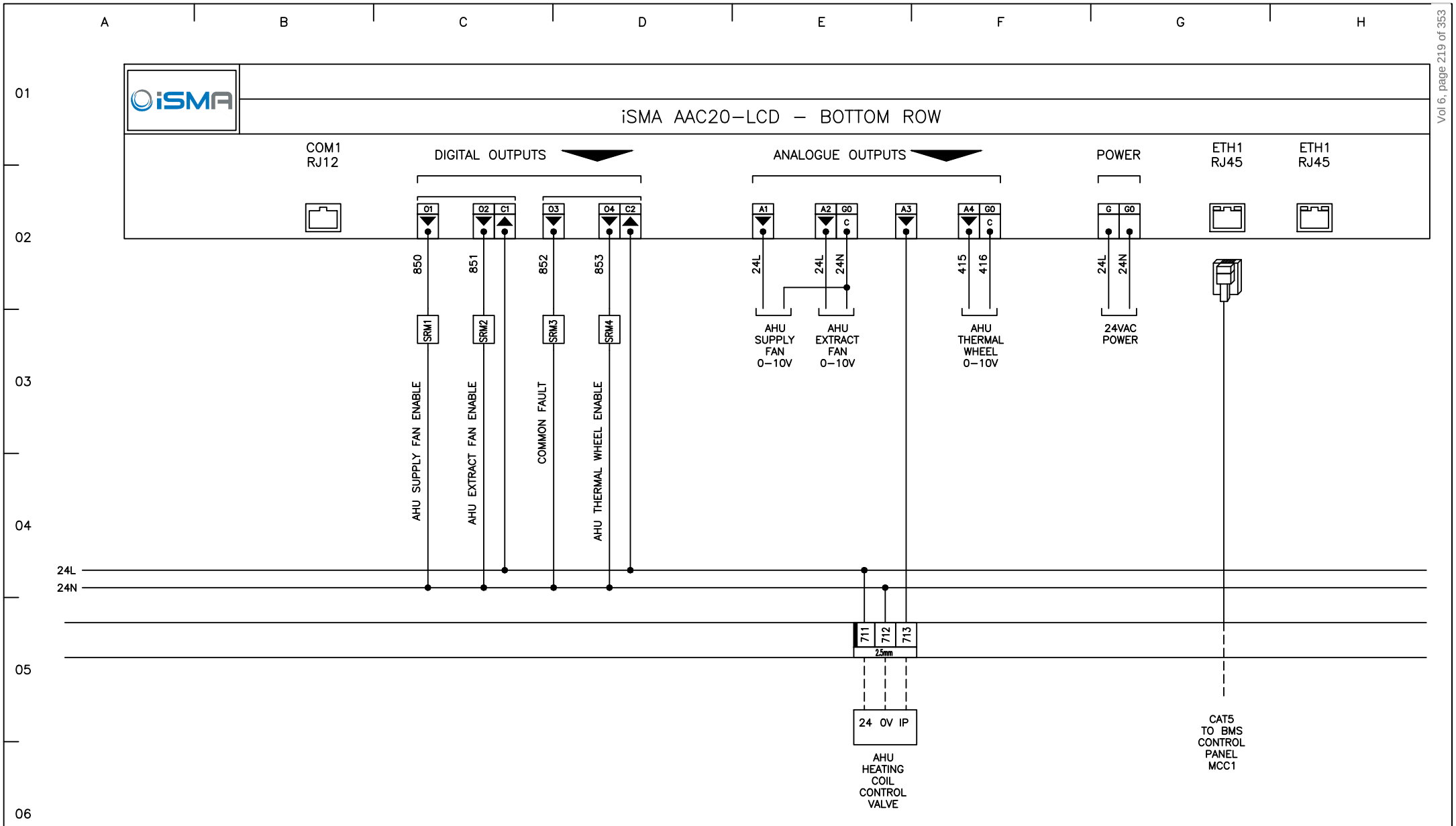
iSMA AAC20–LCD – TOP ROW



Concord Environmental Technologies	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Site: WALNUTS LEISURE CENTRE	Drawn: PW
		Title: AHU 8 BMS CONTROL PANEL	Date: 28/05/25
		Client: HENSALL MECHANICAL LTD	Engr: CB
			Chkd:
			Sheet: 06 of 10
			Drg: NWP00414 – AHU 8
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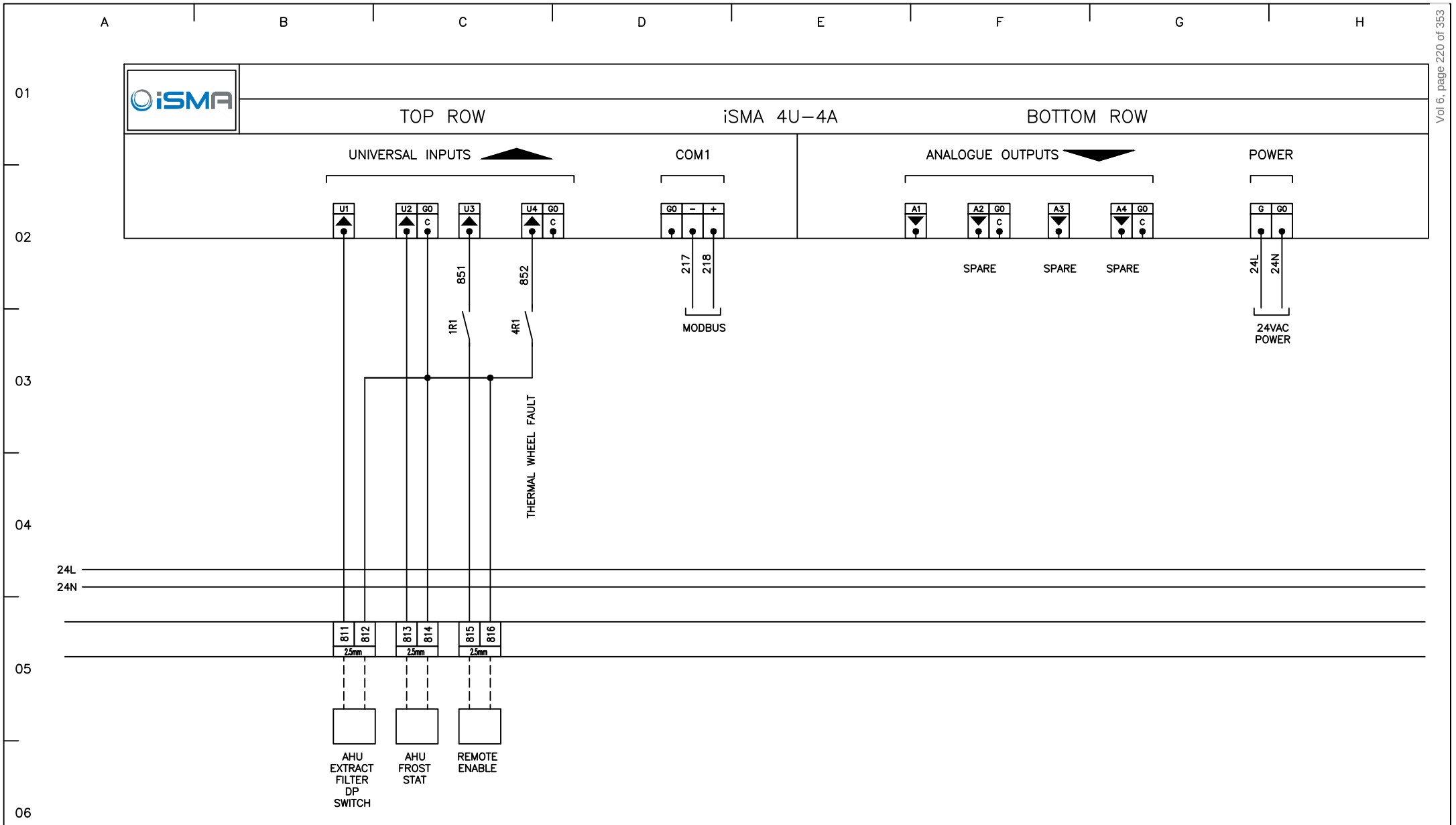
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				Client: HENSALL MECHANICAL LTD	Date: 28/05/25	Drg: NWP00414 – AHU 8	
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SPARE SHEET

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1FA	28.05.25	FOR APPROVAL
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Concord ENVIRONMENTAL TECHNOLOGIES
CDC HOUSE,
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Site: WALNUTS LEISURE CENTRE

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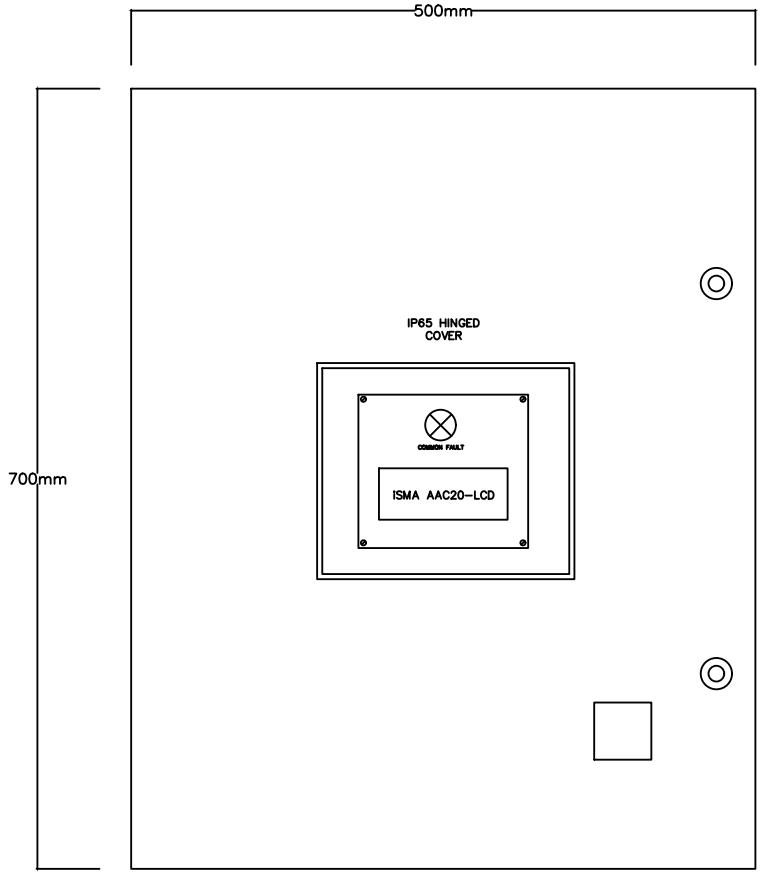
Client: HENSALL MECHANICAL LTD

Drawn: PW
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Sheet: 09 of 10
Drg: NWP00414 – AHU 8
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NOT TO SCALE



PANEL SIZE = 700mm x 500mm x 210mm

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11.90

BMS panel wiring diagram MCP1 rev 2FA

The following 41 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`BMS panel wiring diagram MCP1 rev 2FA.pdf`
Pages	41

A B C D E F G H

01 02 03 04 05 06

WIRING NOTES:

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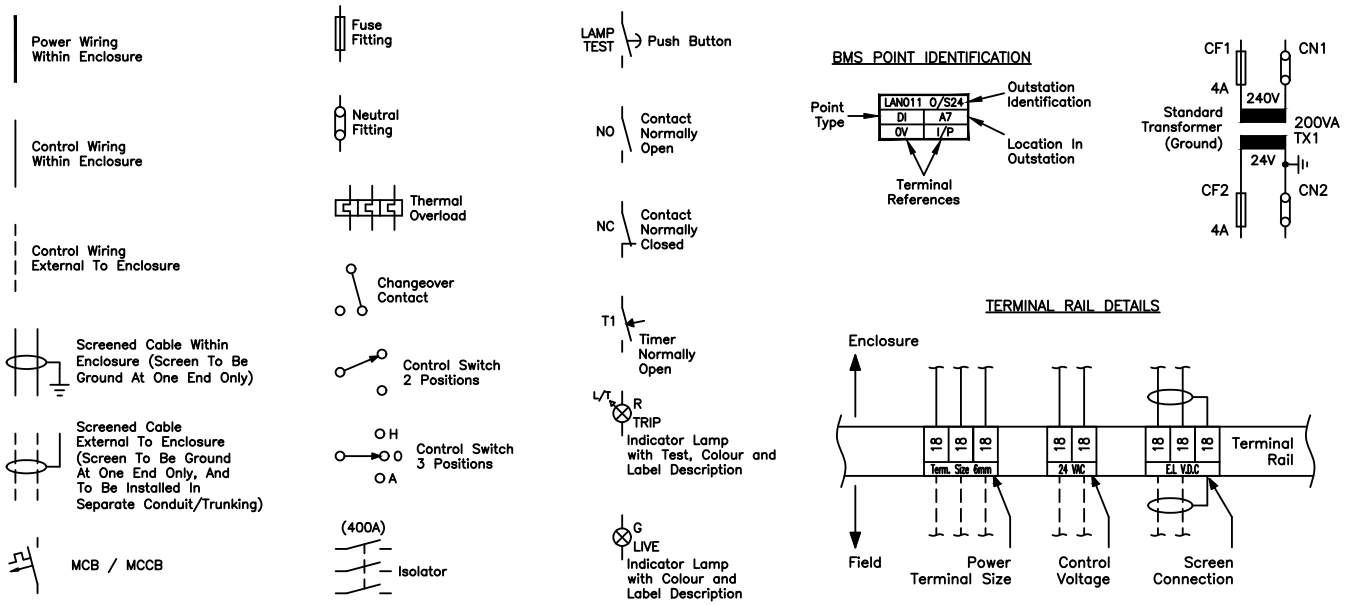
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FIELD WIRING NOTES:

1. NETWORK CABLE TO BE BELDEN 9501/9502 OR EQUIVALENT
2. SENSOR CABLE TO BE BELDON 9501 OR EQUIVALENT

Sheet No	Description
01	SUPPLY DISTRIBUTION & DISPLAY
02	PRESSURISATION UNIT
03	ASHP SYSTEM
04	ASHP PRIMARY PUMP 1 P.B.01
05	ASHP PRIMARY PUMP 2 P.B.01
06	AHU LTHW PUMP 1 P.B.02
07	AHU LTHW PUMP 2 P.B.02
08	POOL PHX PUMP 1 P.B.03
09	POOL PHX PUMP 2 P.B.03
10	DHW LTHW PUMP 1 P.B.04
11	DHW LTHW PUMP 2 P.B.04
12	DHW SECONDARY PUMP P.B.05
13	DHW IMMERSION HEATER 1 WH/B/01
14	DHW IMMERSION HEATER 2 WH/B/02
15	COLD WATER BOOSTER & POOL WASH BOOSTER
16	POOL AHU R.01
17	WET CHANGE AHU R.02
18	FRONT OF HOUSE AHU R.03
19	DANCE STUDIO AHU R.04
20	SOFT PLAY AHU R.05
21	SPIN STUDIO AHU R.06
22	SPORTS HALL AHU R.07
23	FITNESS STUDIO AHU R.08
24	SQUASH COURT AHU R.09
25	CHEMICAL EXTRACT EF B.01
26	HYPO EXTRACT EF B.02
27	KITCHEN EXTRACT EF B.03
28	SPARE SHEET
29	SPARE SHEET
30	ETHERNET SWITCHES
31	JACE 9000
32	MODULE 1 – MIX38 INPUTS
33	MODULE 1 – MIX38 OUTPUTS
34	MODULE 2 – MIX38 INPUTS
35	MODULE 2 – MIX38 OUTPUTS
36	MODULE 3 – MIX38 INPUTS
37	MODULE 3 – MIX38 OUTPUTS
38	SPARE SHEET
39	GA1
40	GA2



Issue	Date	Modifications
1FA	07.03.23	FOR APPROVAL
2FA	29.04.23	FOR APPROVAL

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

Title: MCP1 BMS CONTROL PANEL

Client: HENSALL MECHANICAL SERVICES LTD

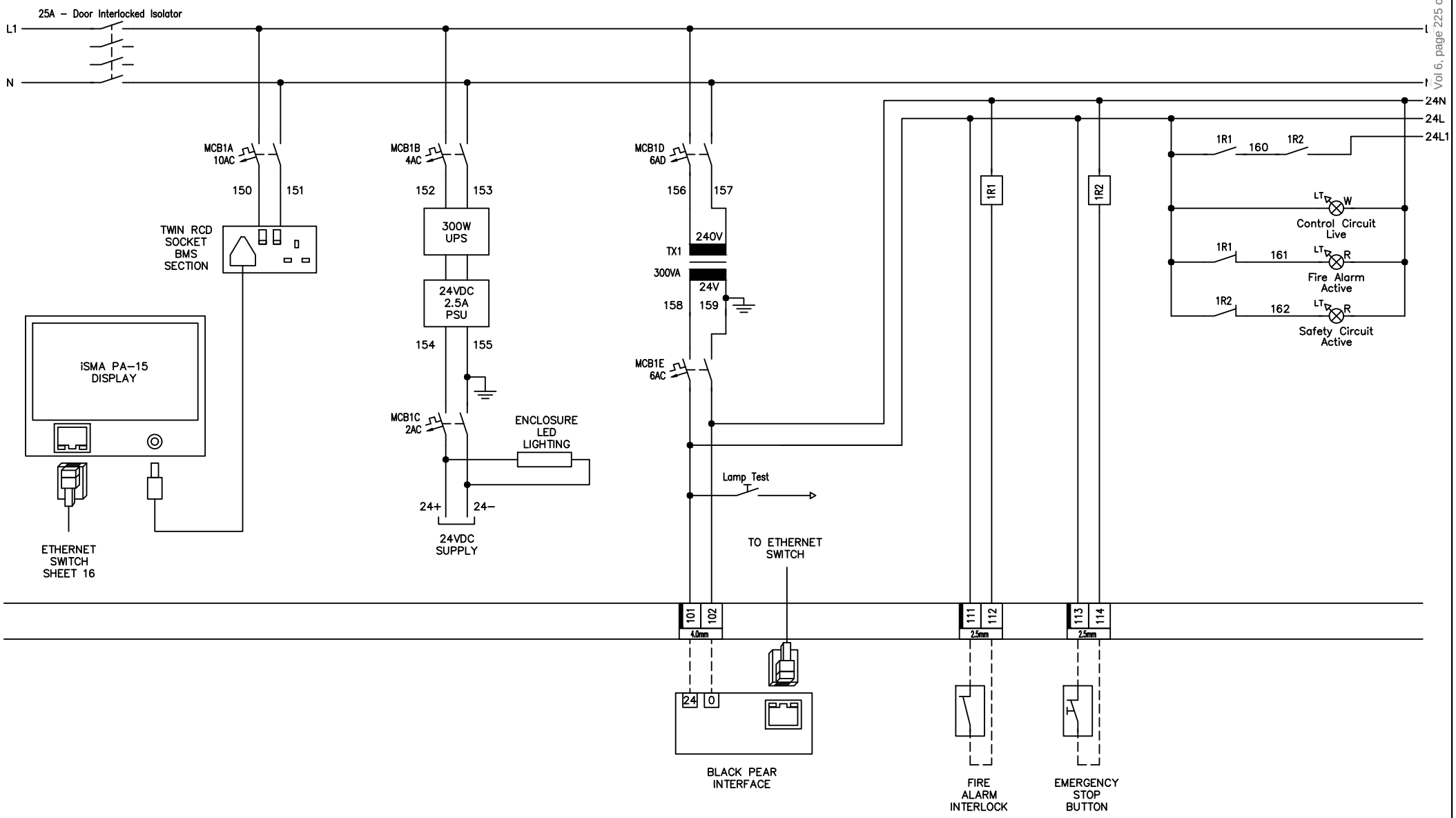
Drawn PW | Date 07/03/25 | Engr CB | Chkd

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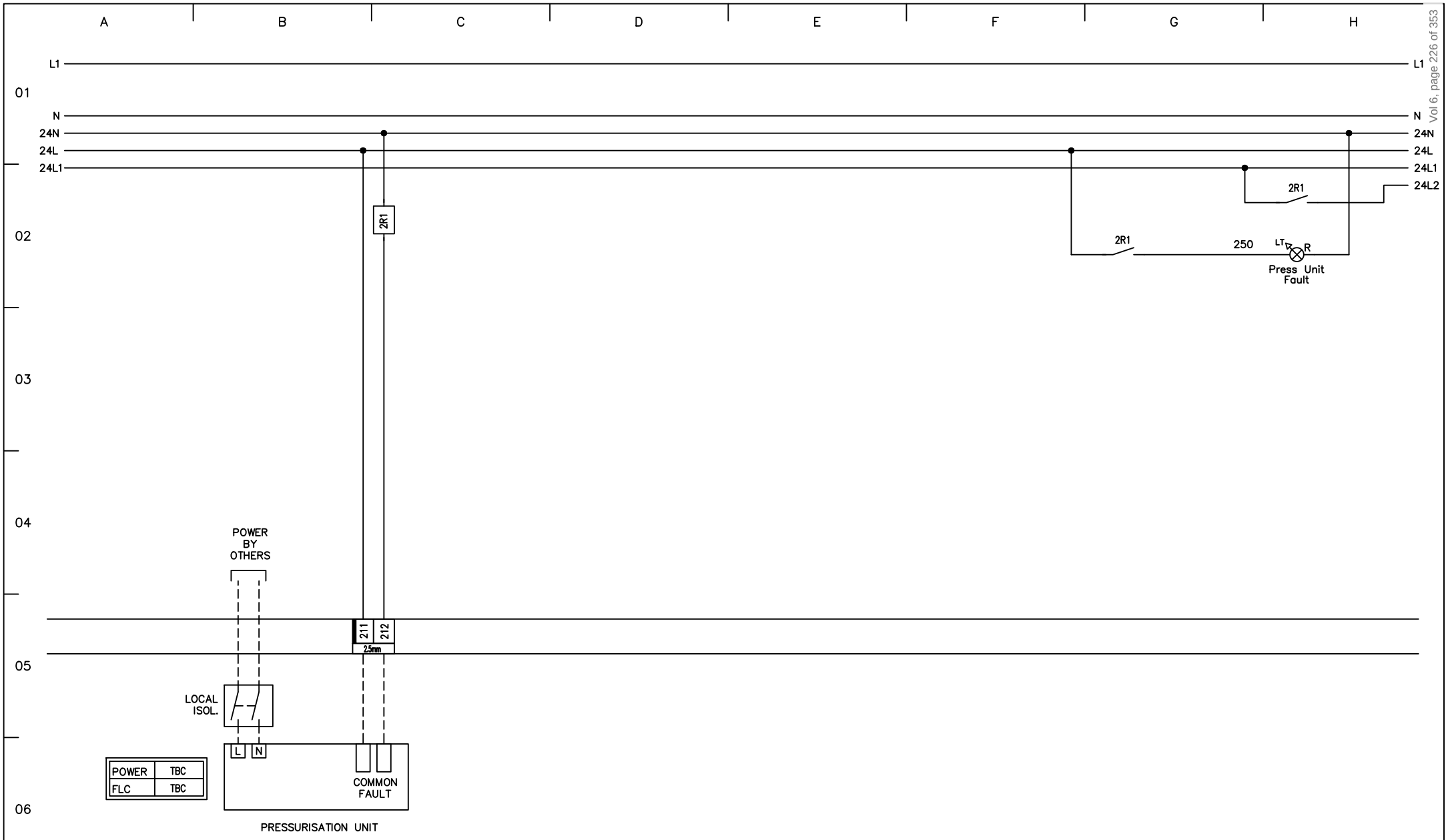
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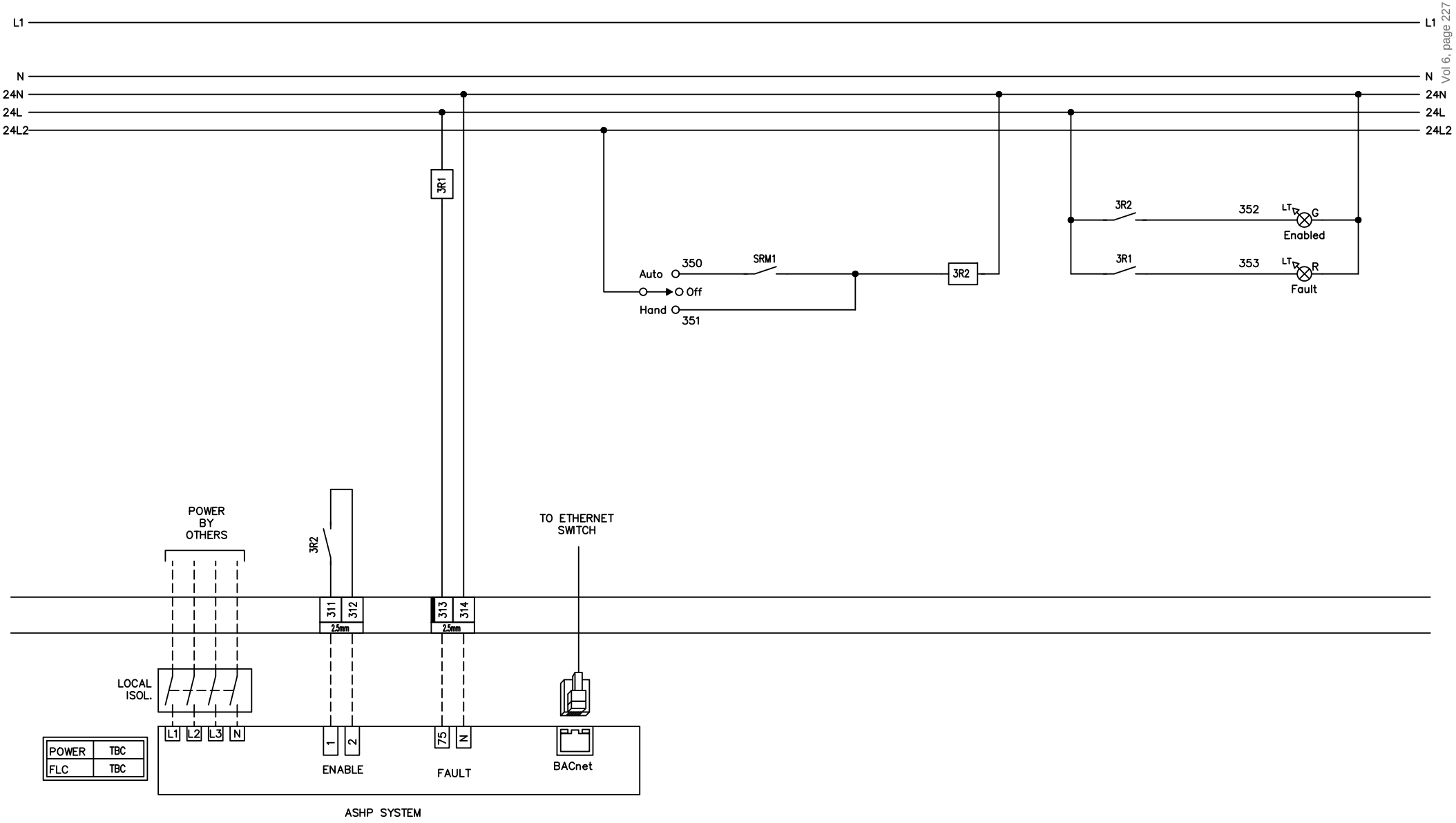
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Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Site: WALNUTS LEISURE CENTRE	Drawn: PW
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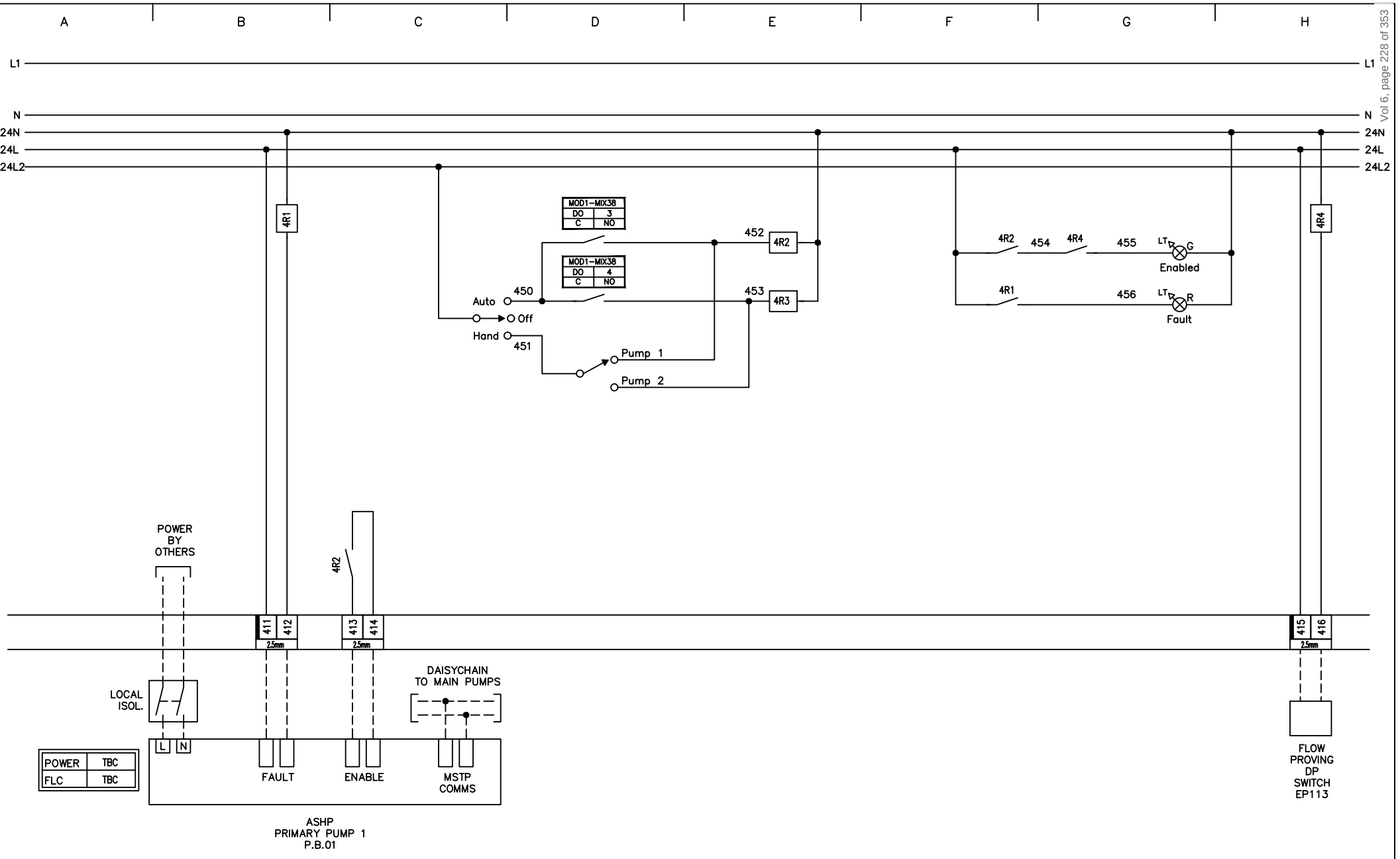
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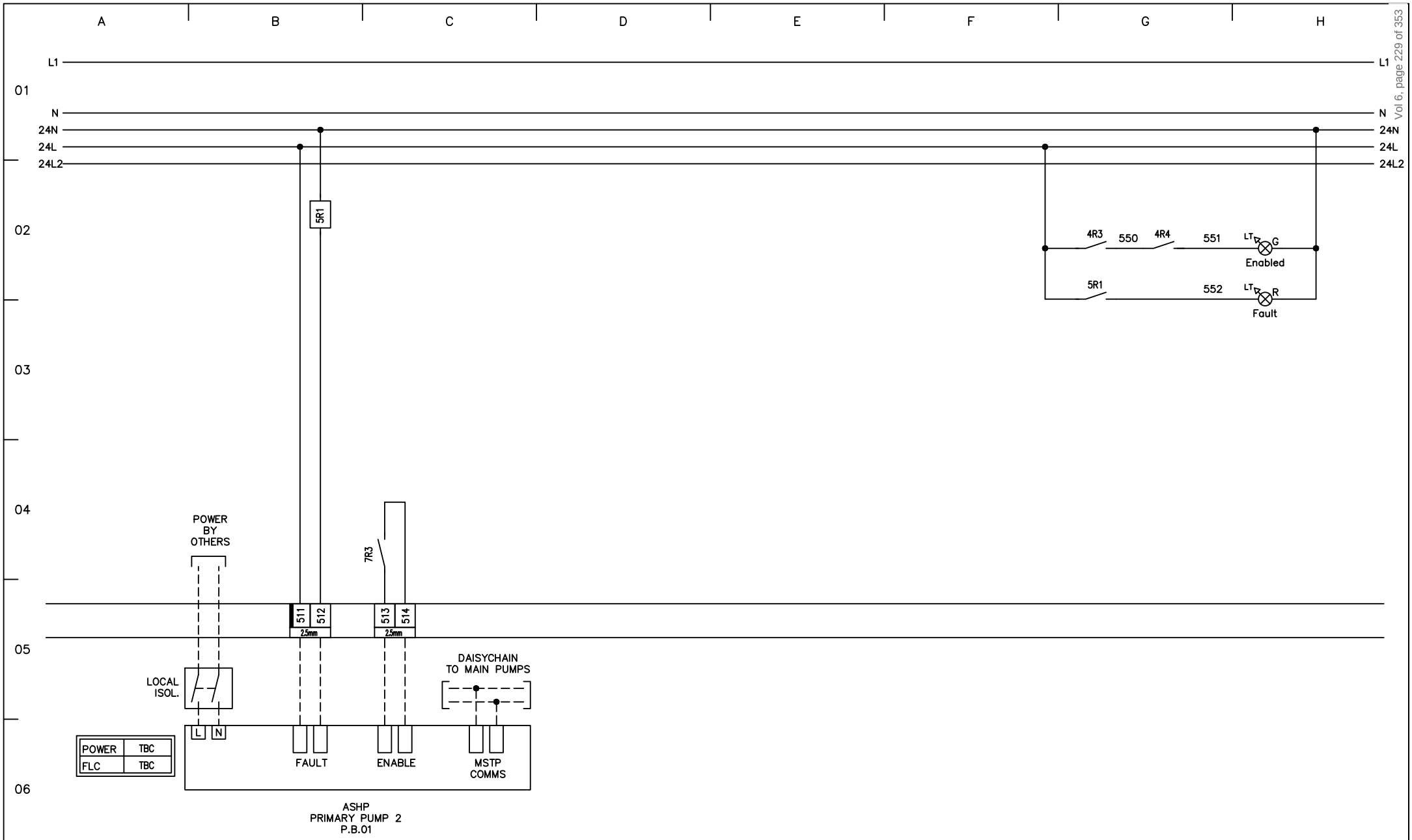
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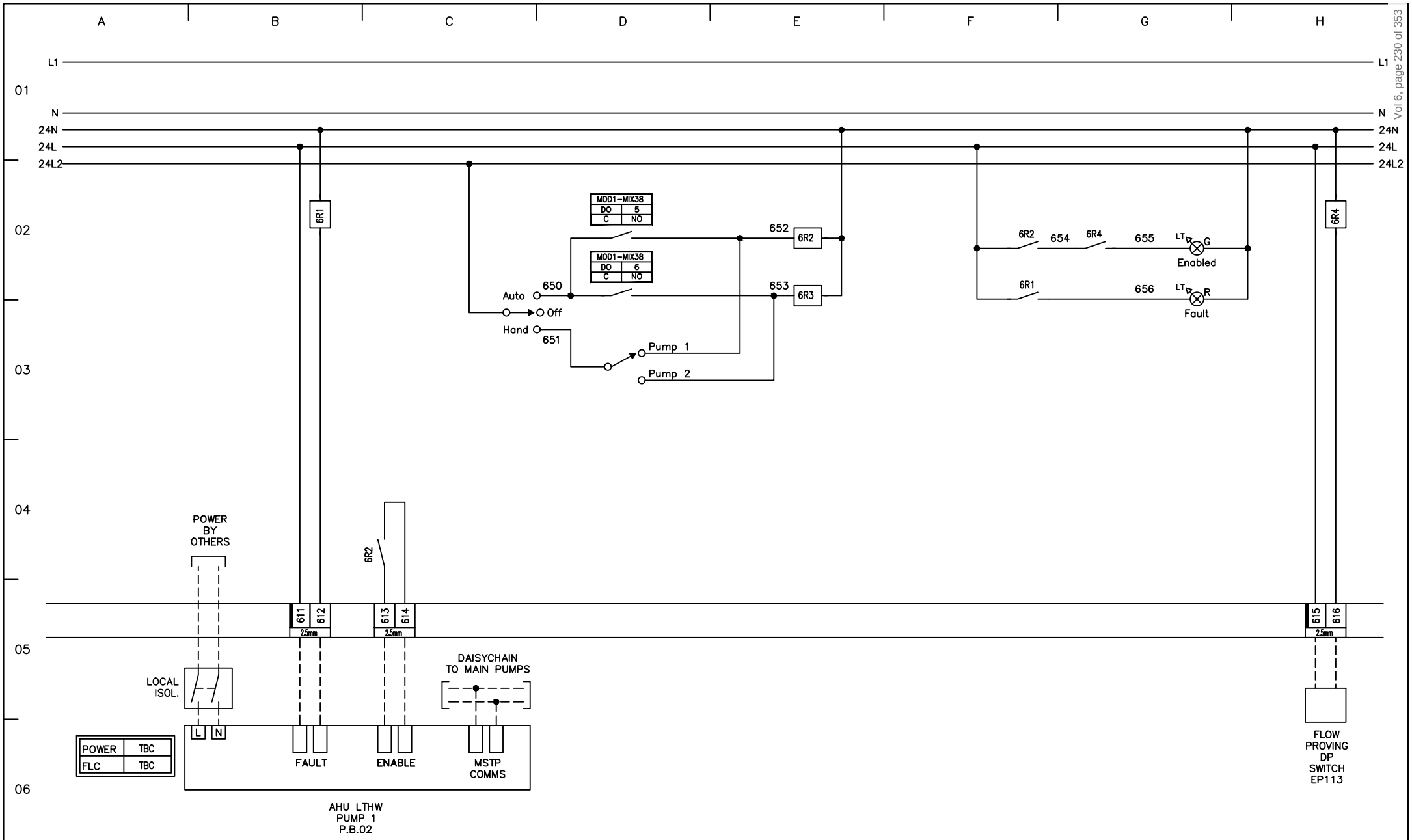
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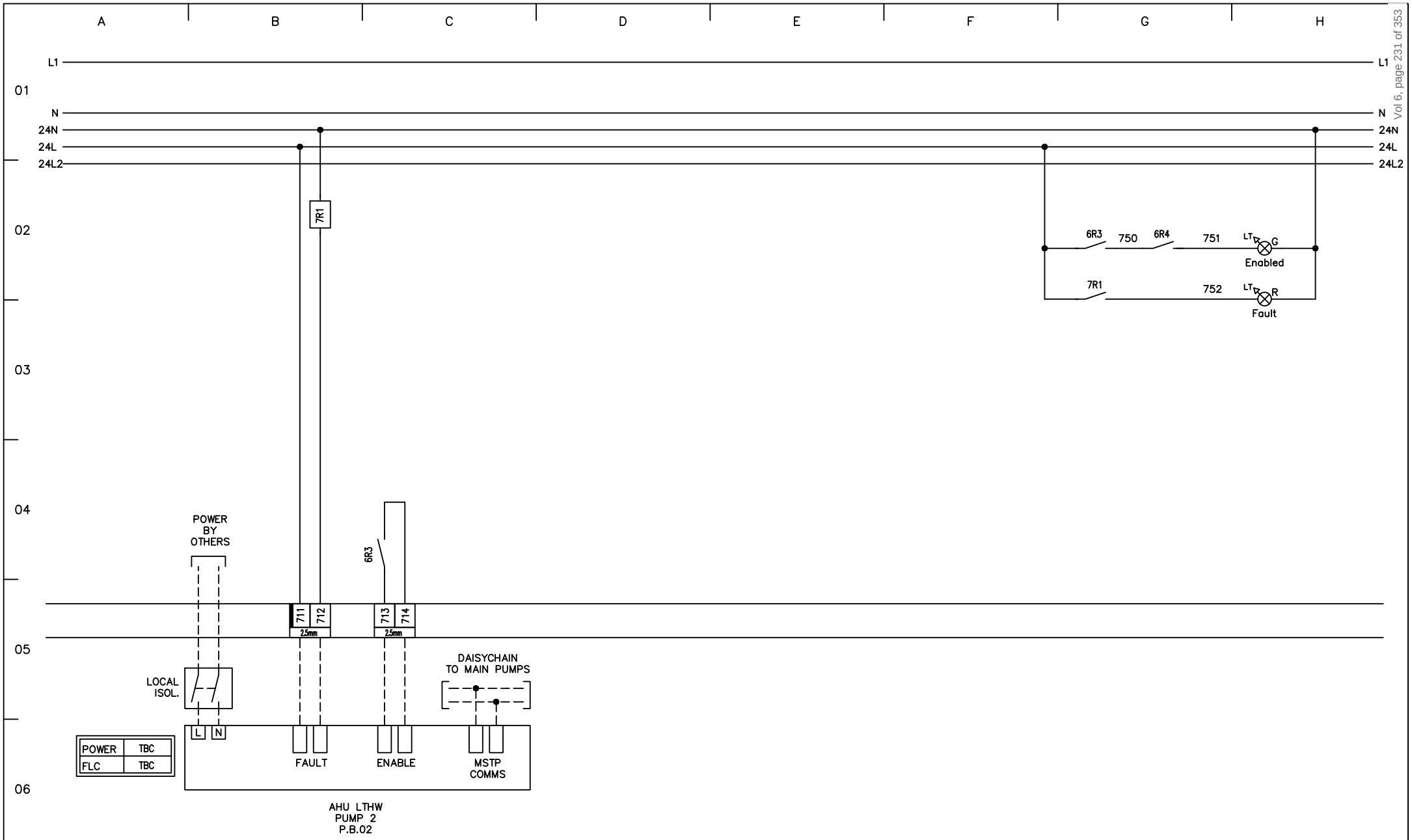
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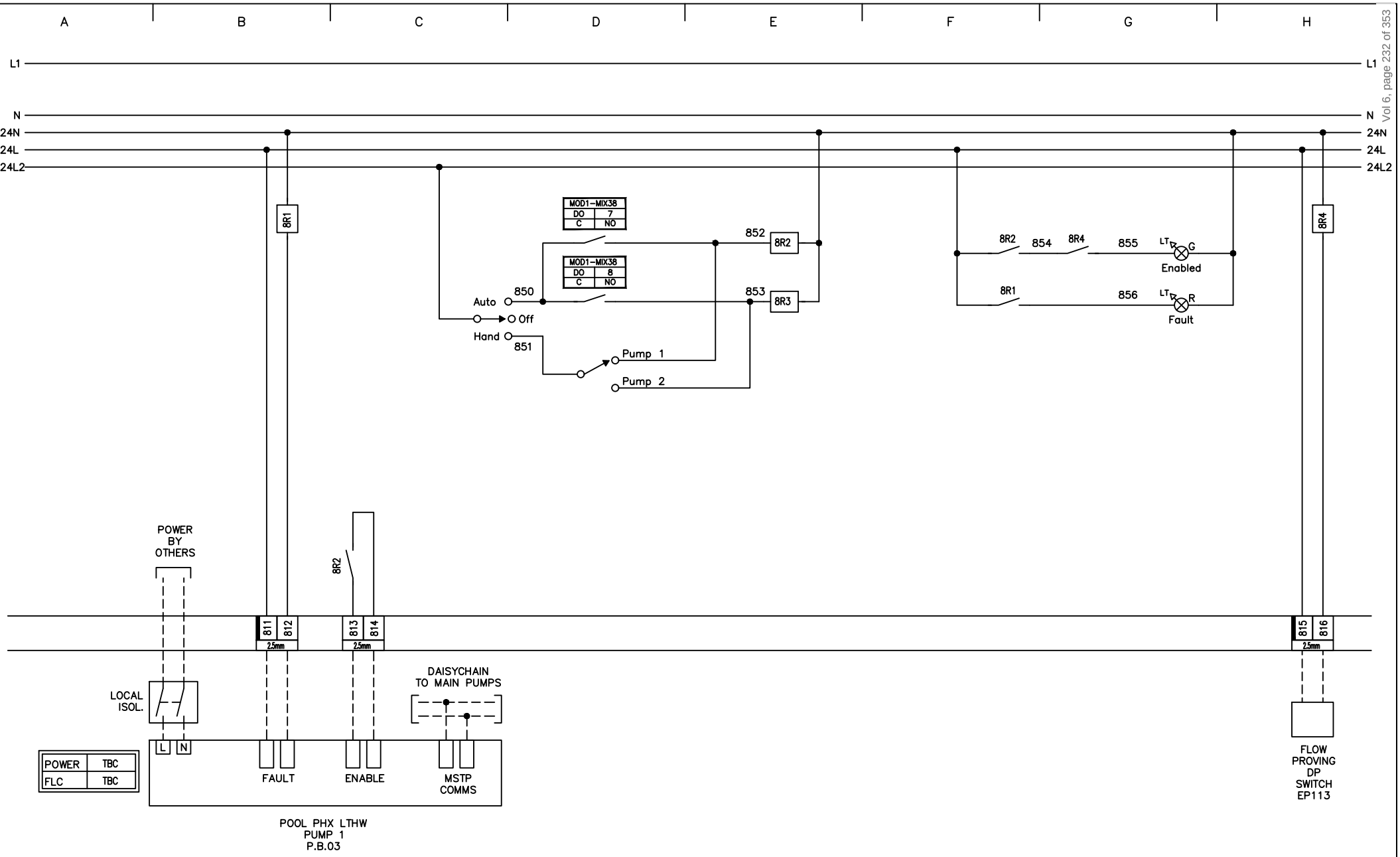
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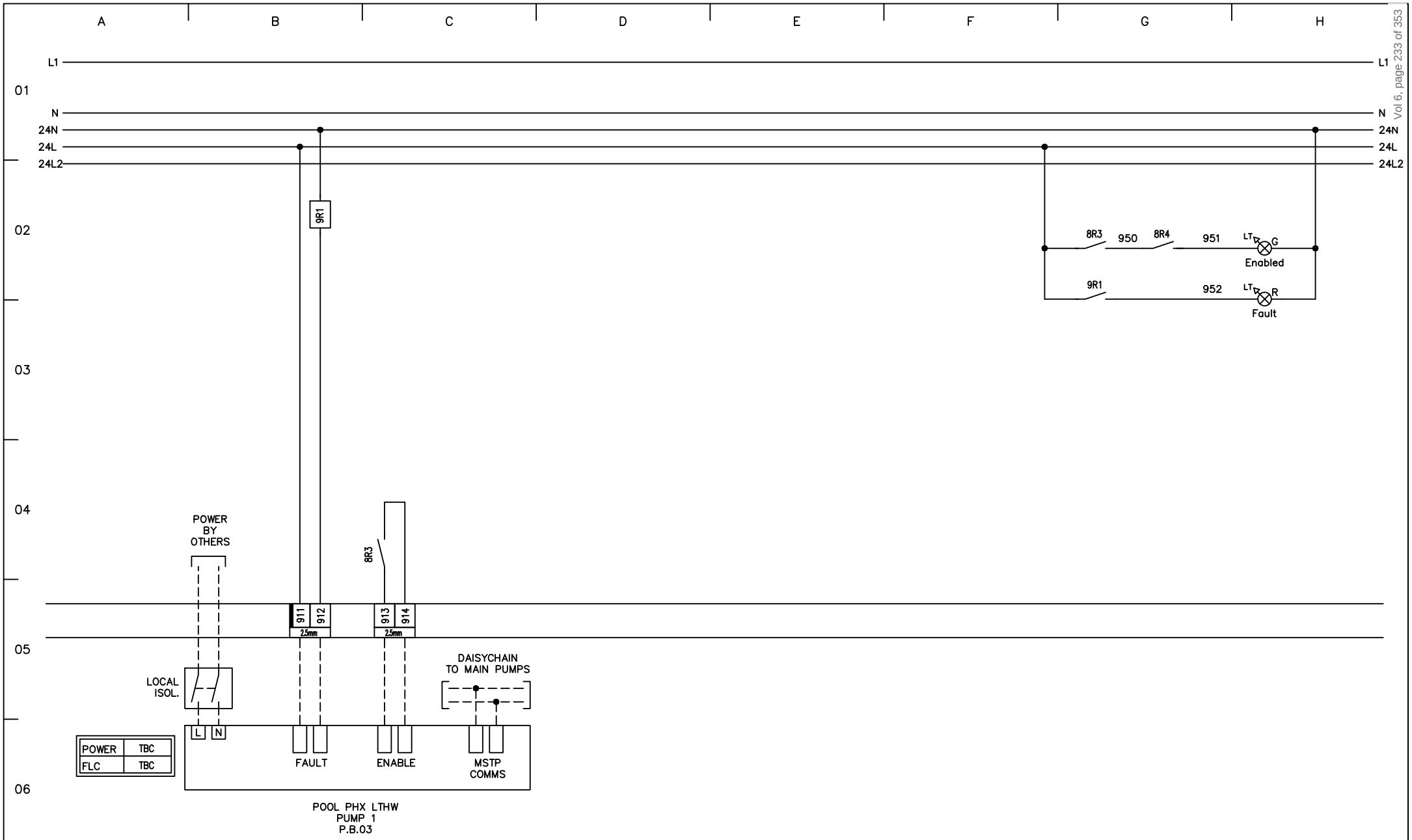
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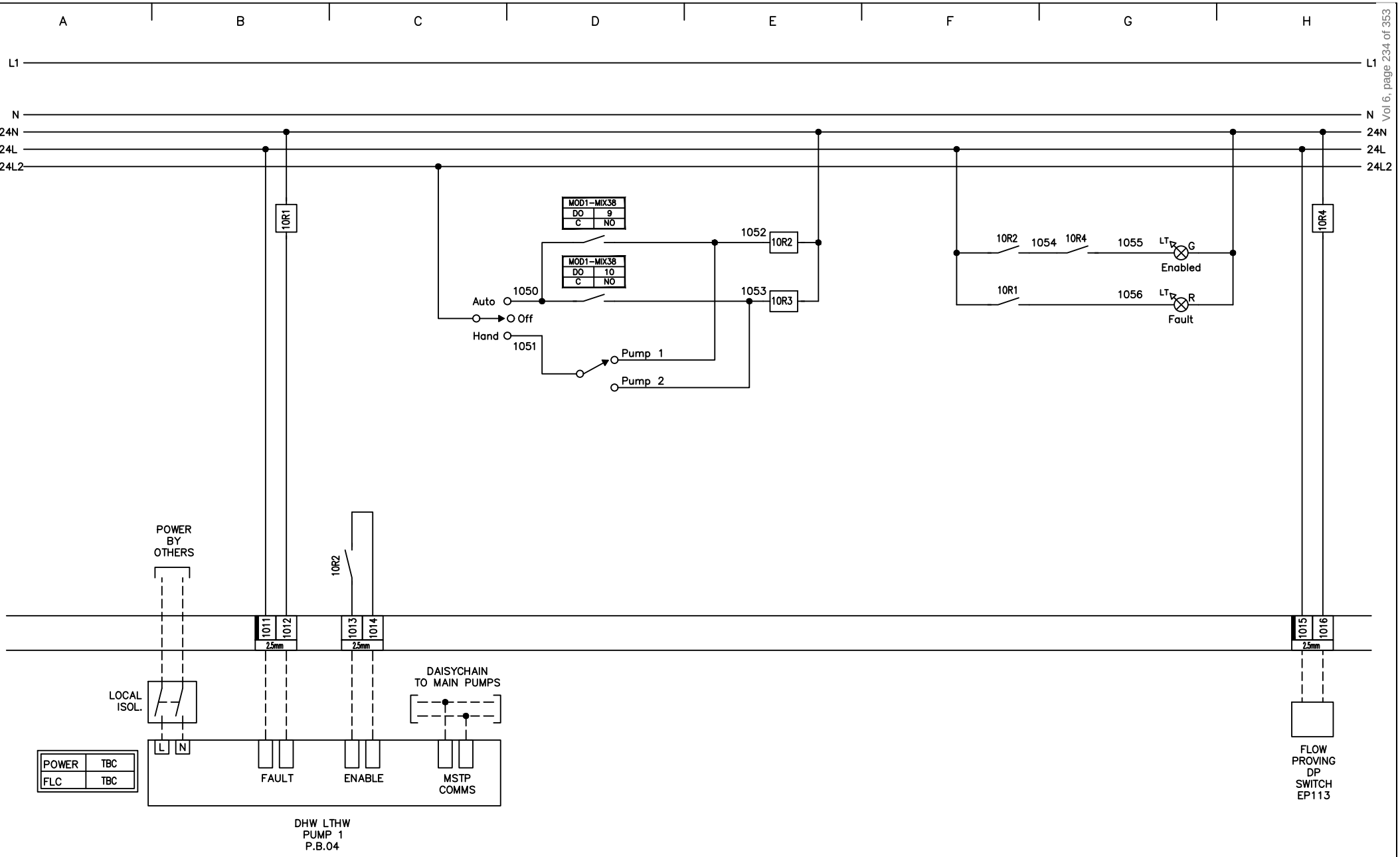
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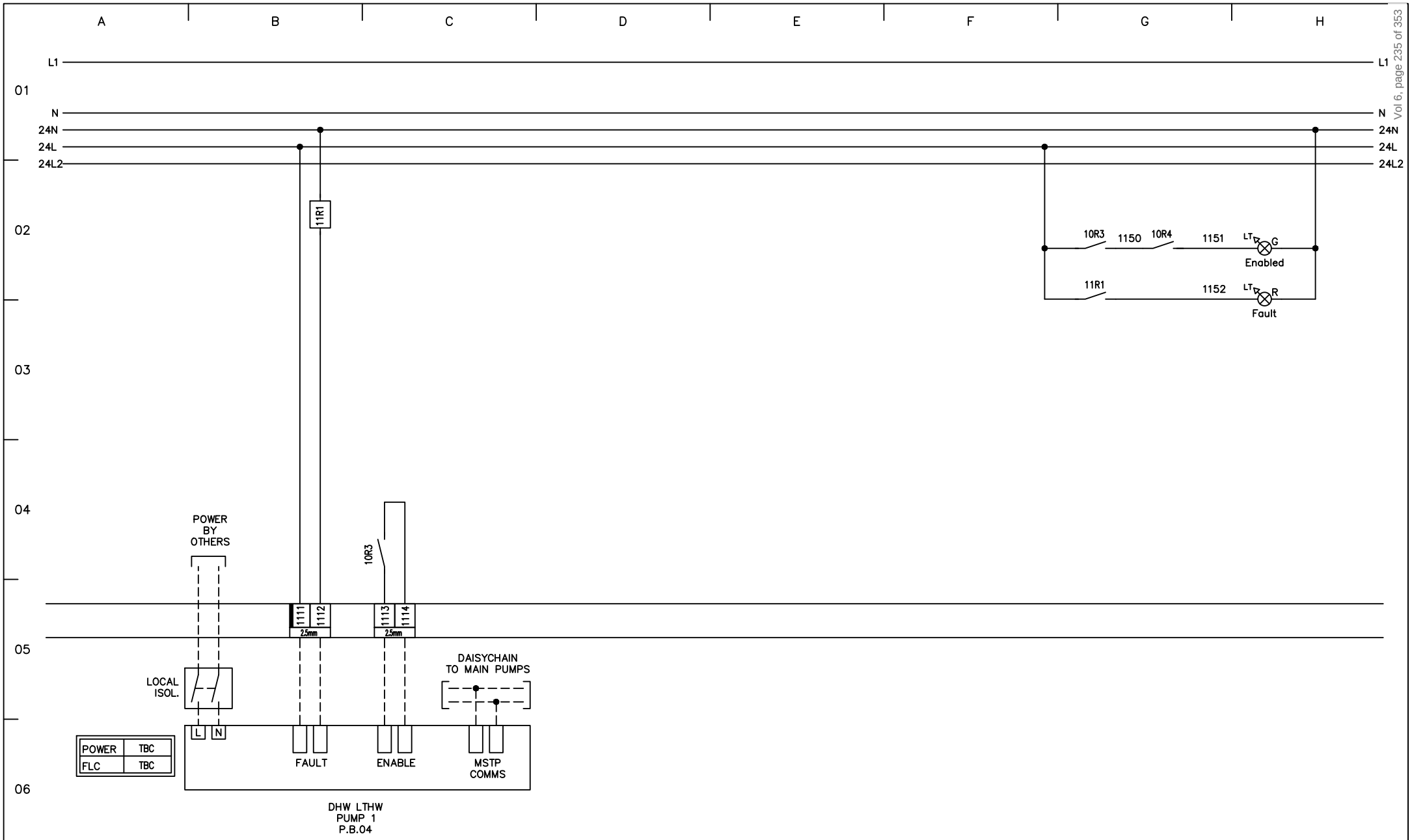
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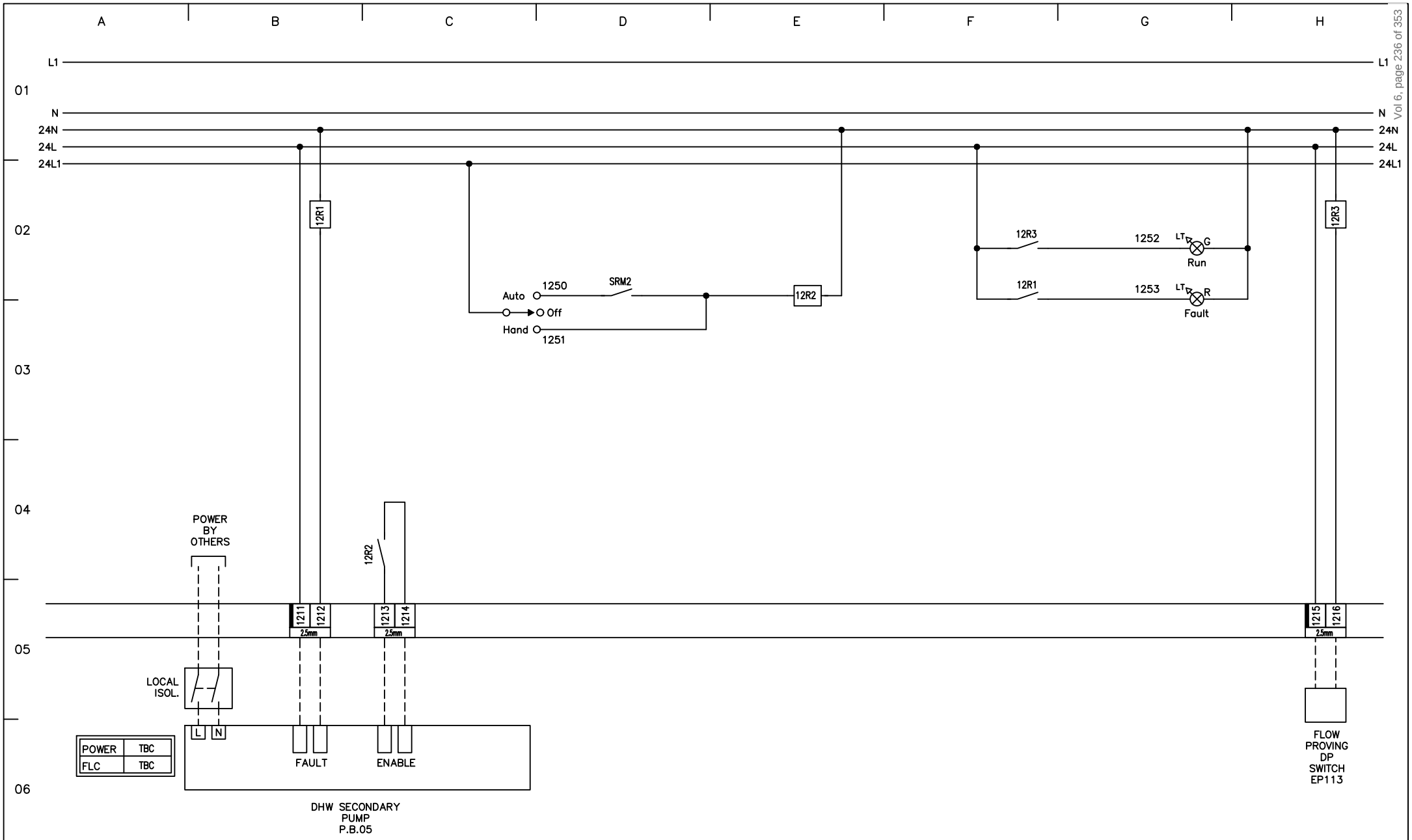
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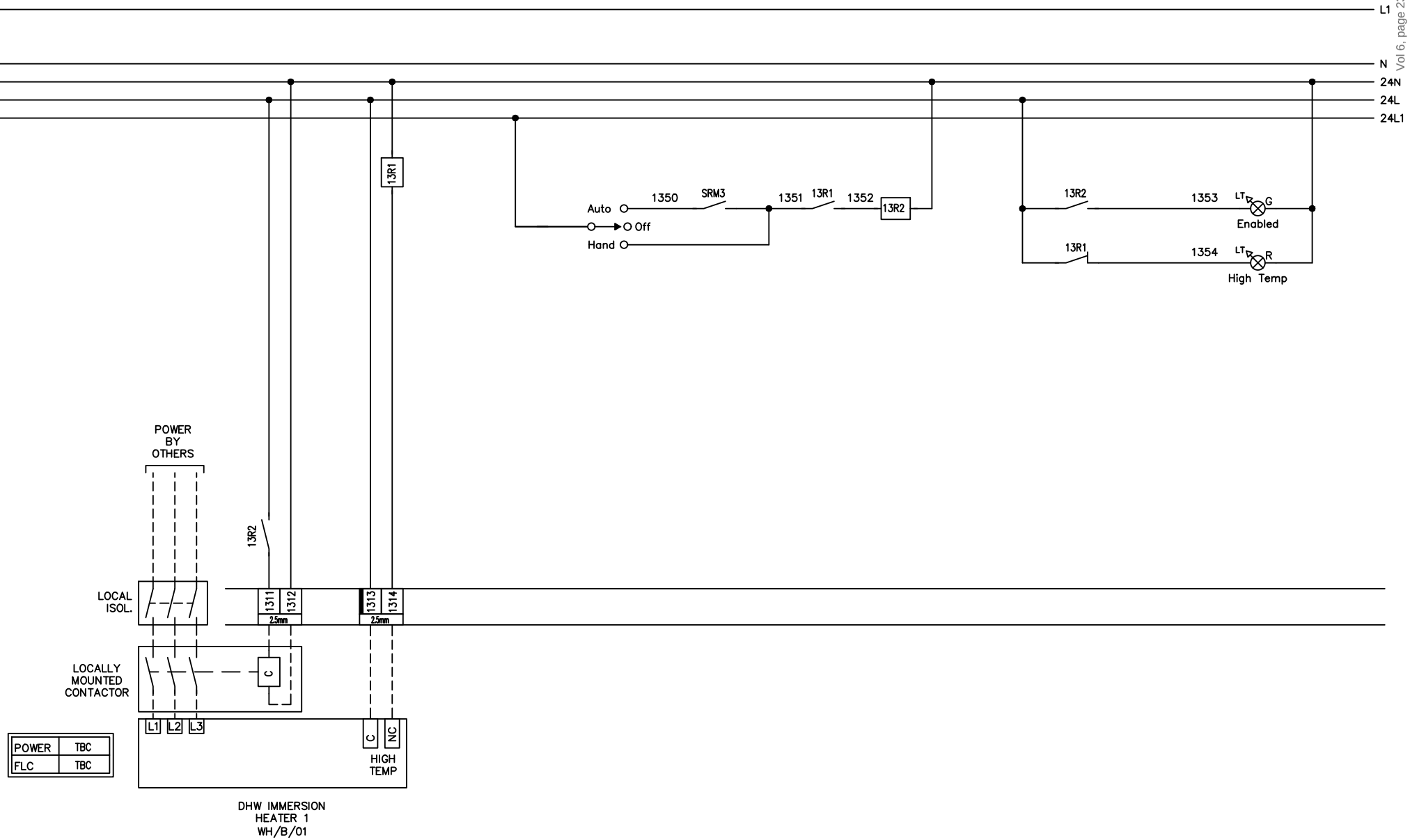
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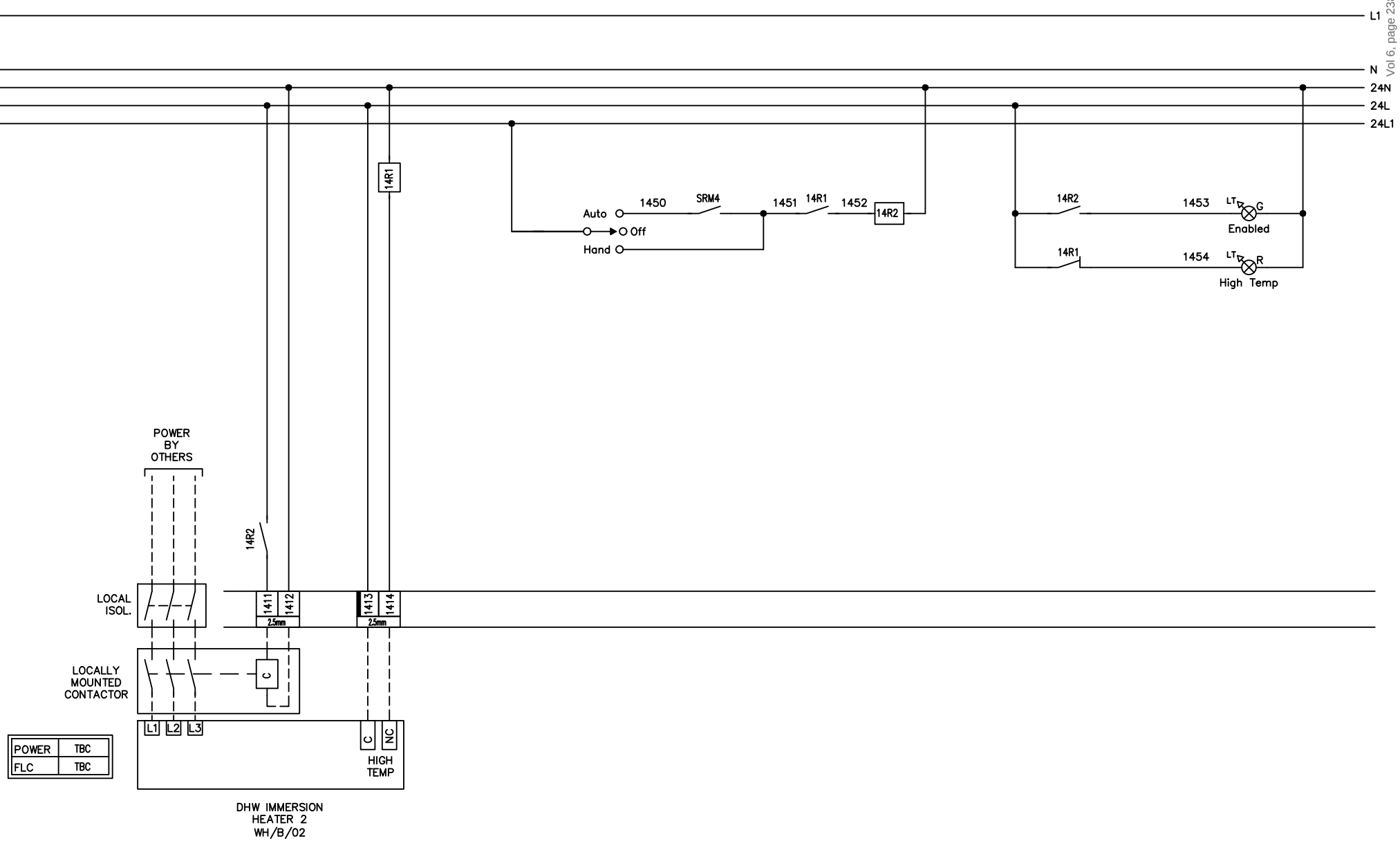


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Issue	Date	Modifications
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Client	HENSALL MECHANICAL SERVICES LTD
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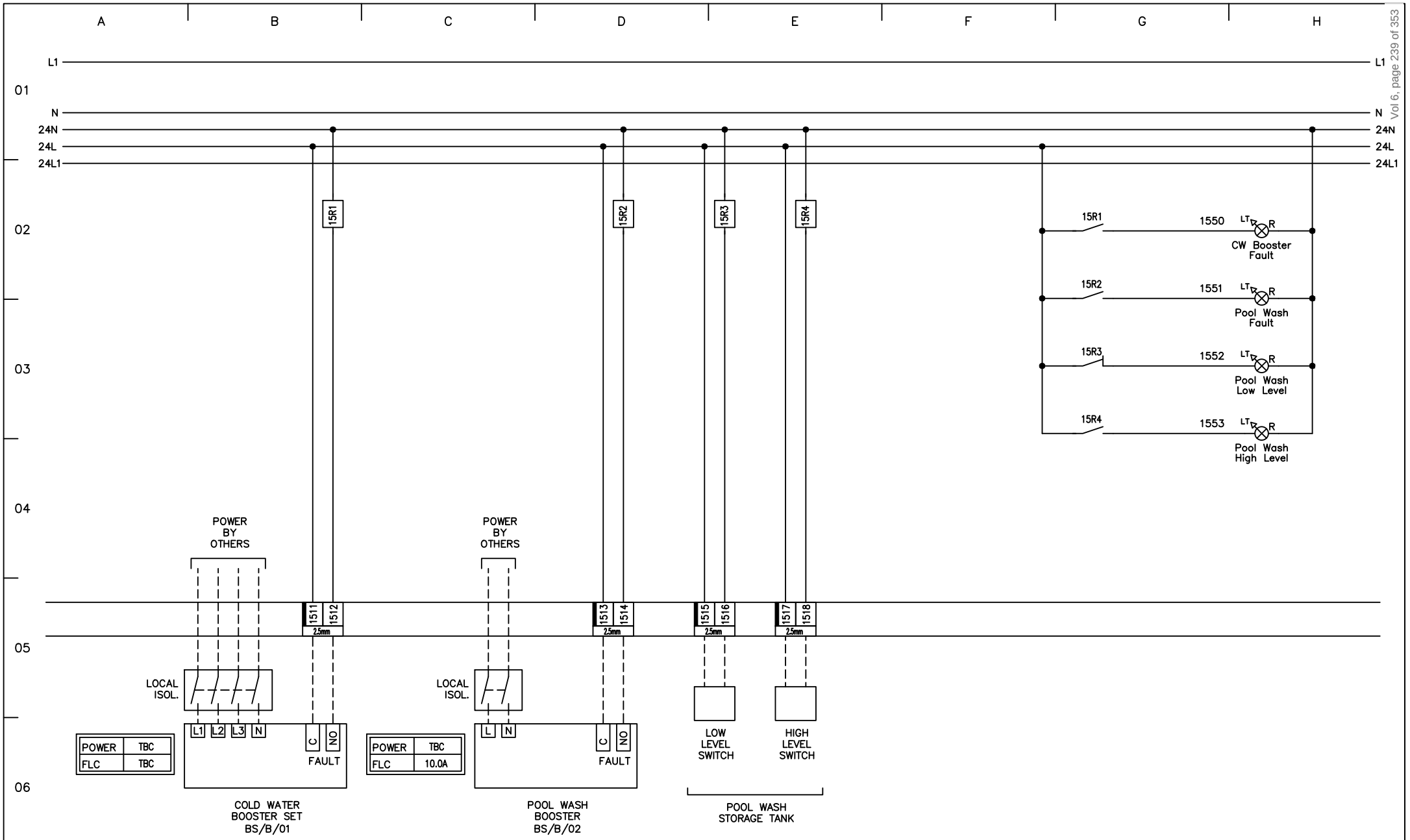


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CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Issue	Date	Modifications
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Site: WALNUTS LEISURE CENTRE

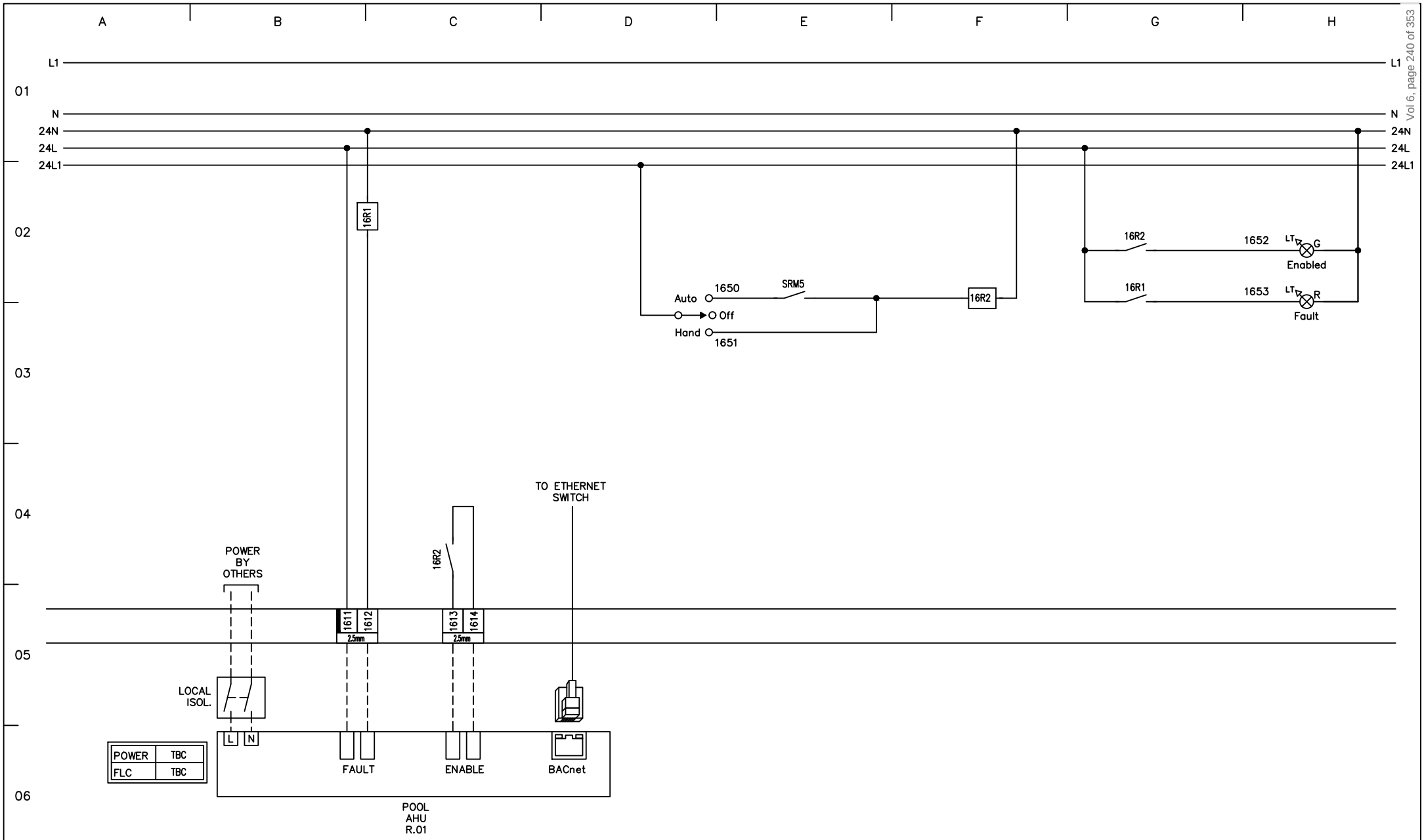
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Client: HENSALL MECHANICAL SERVICES LTD

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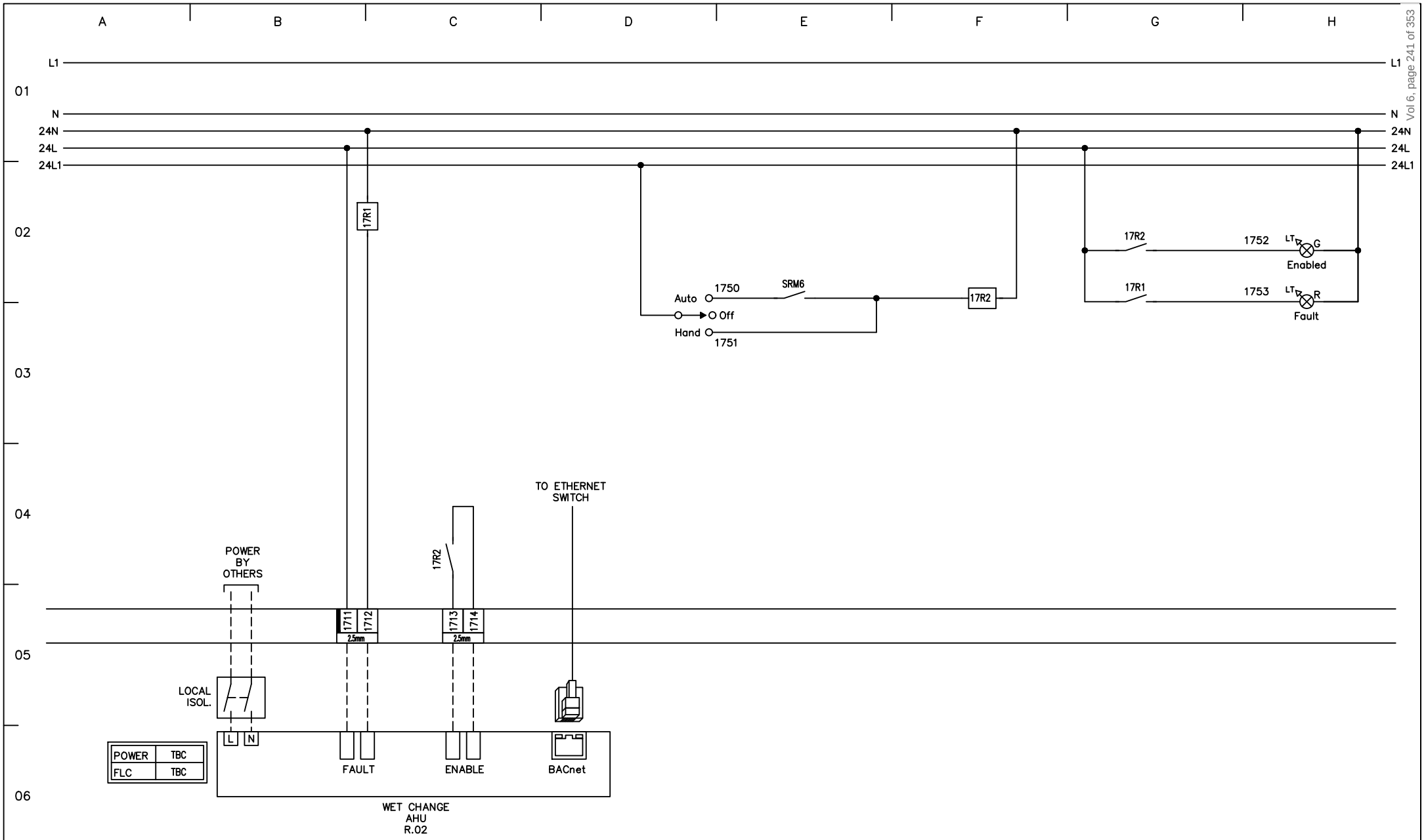
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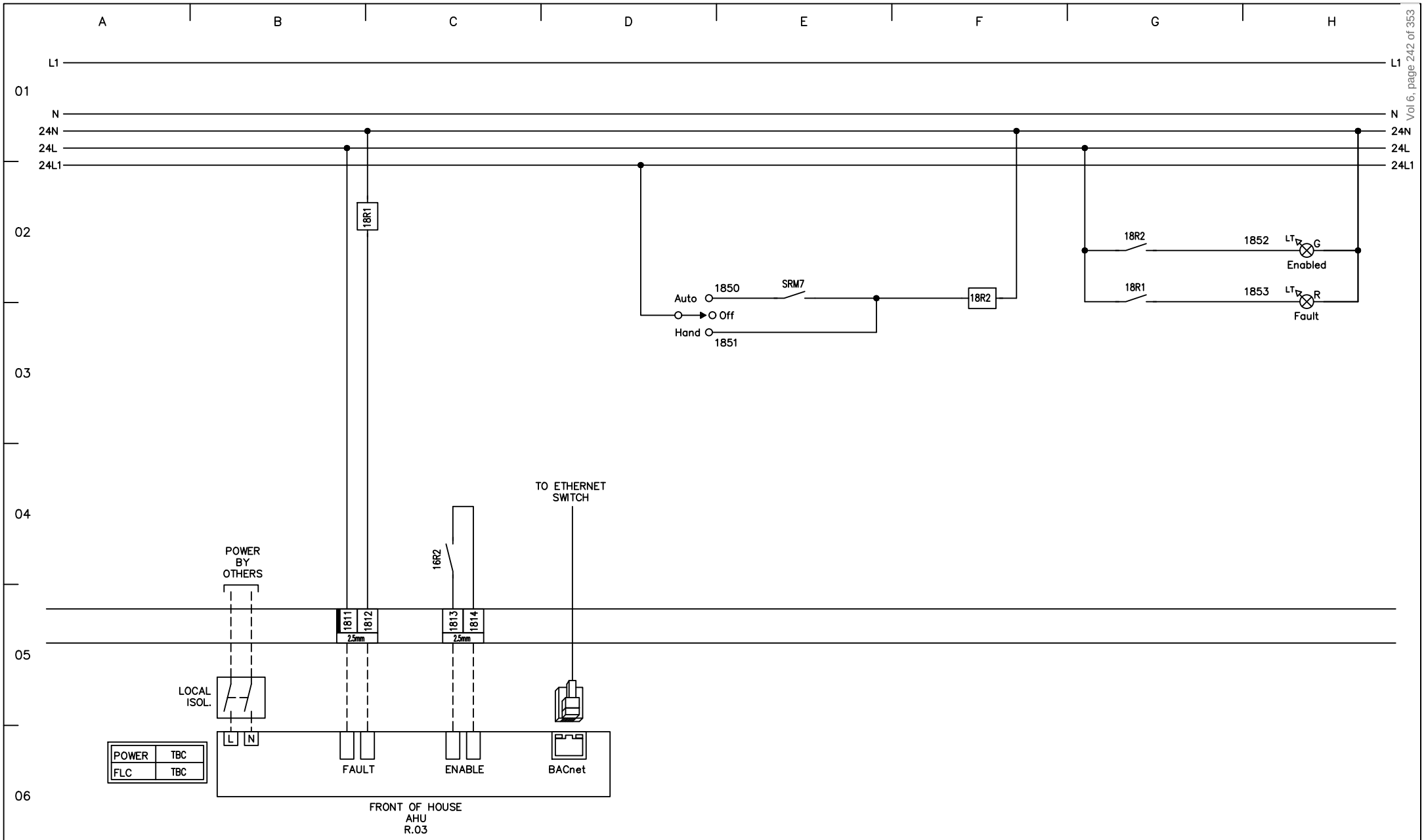
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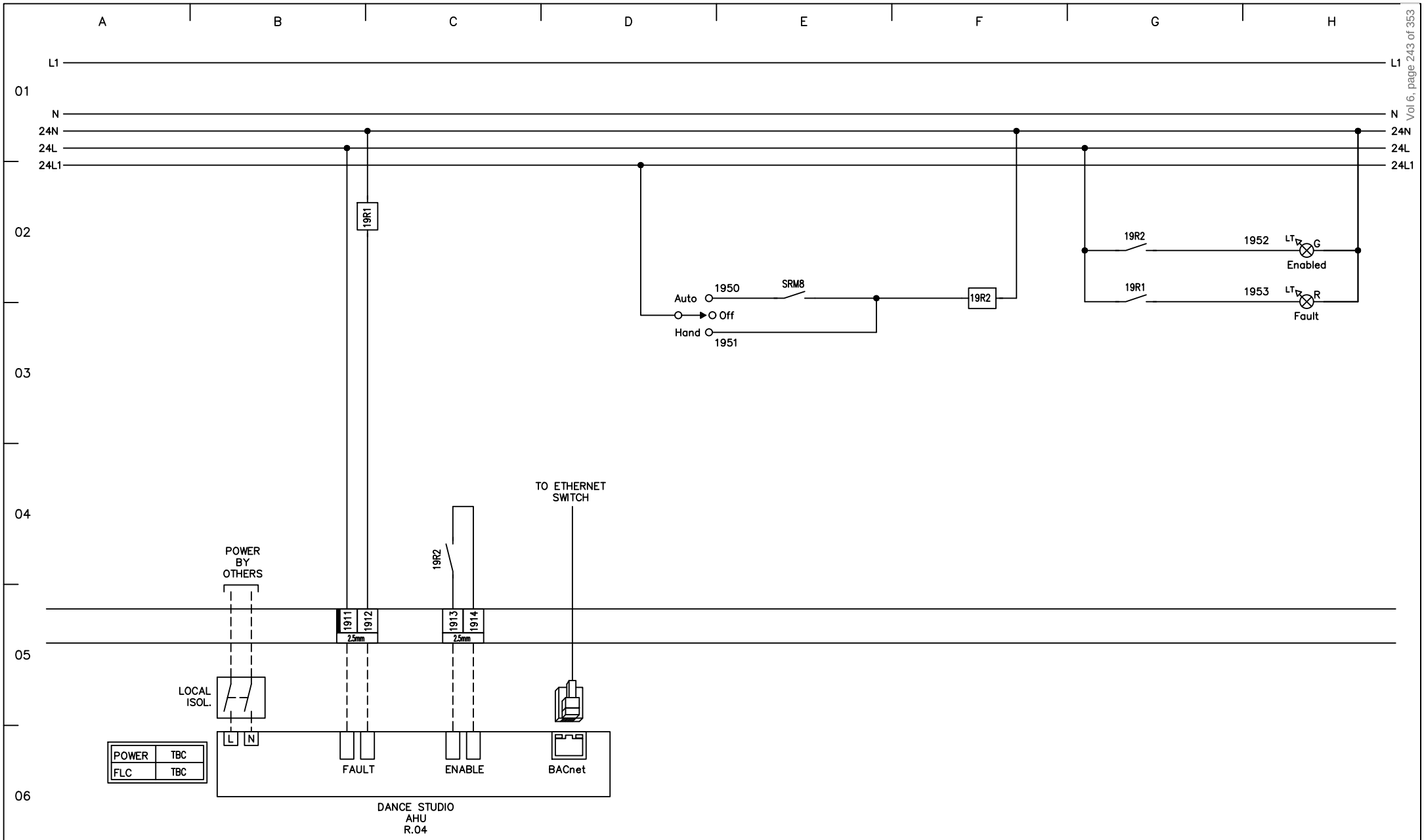
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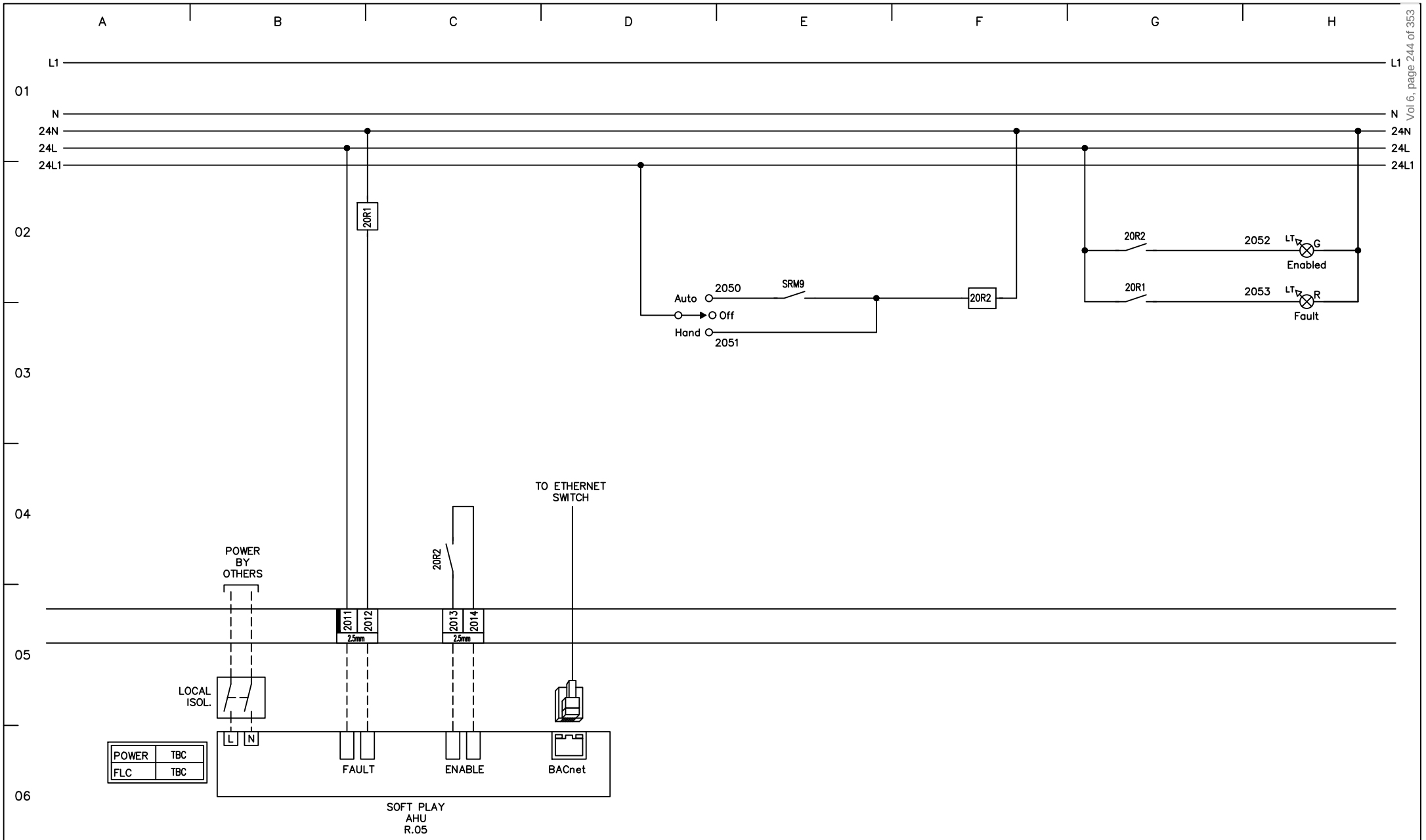


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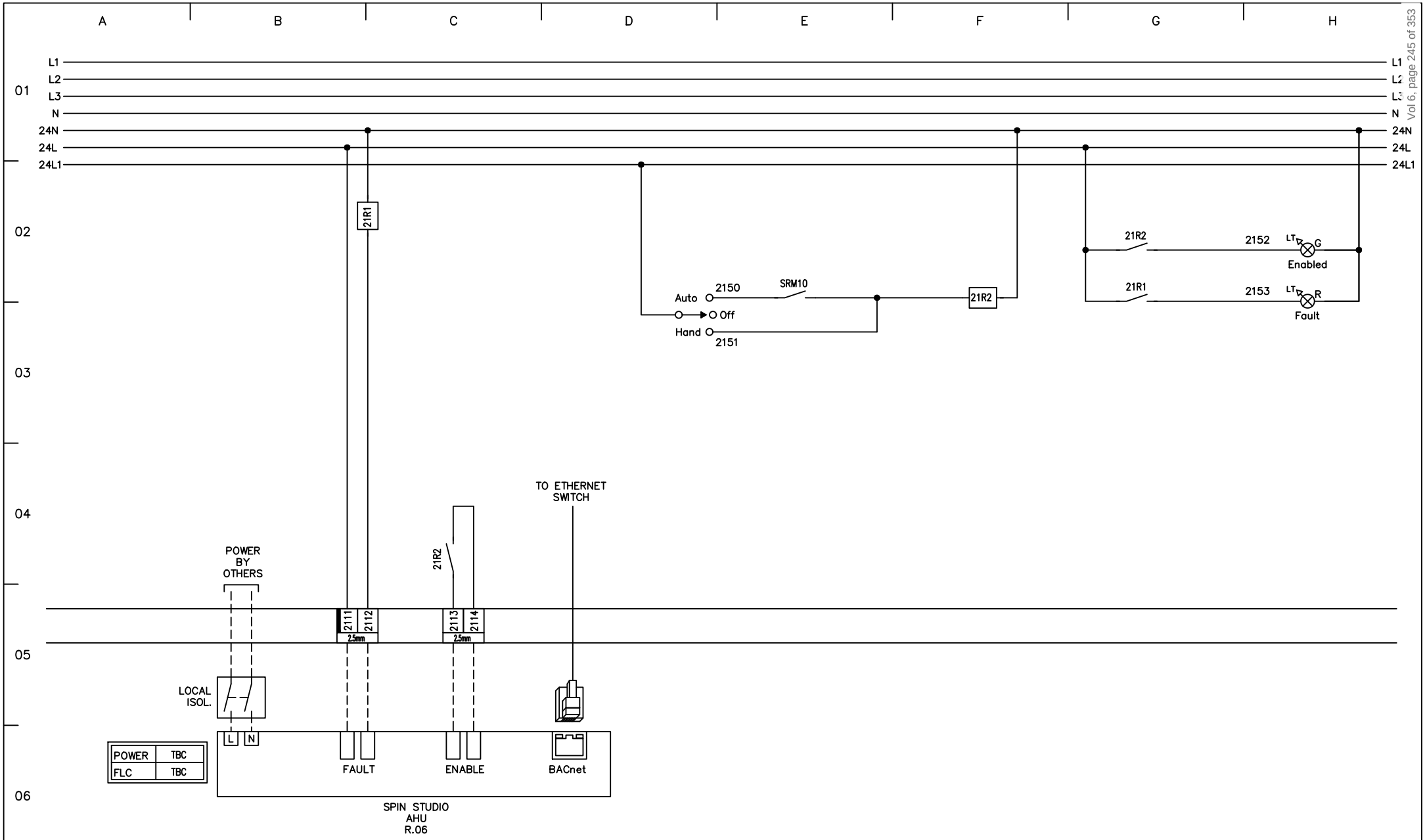
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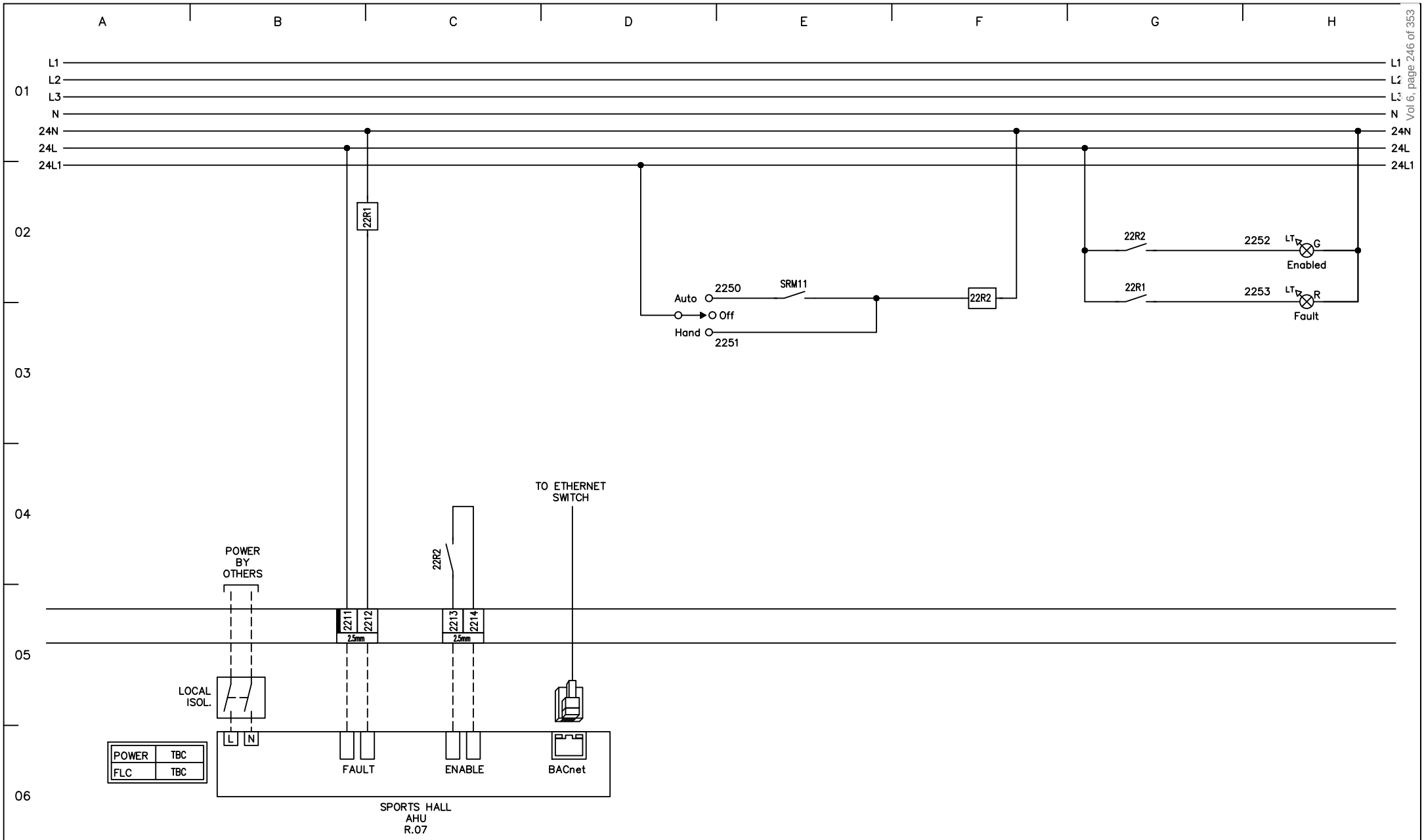
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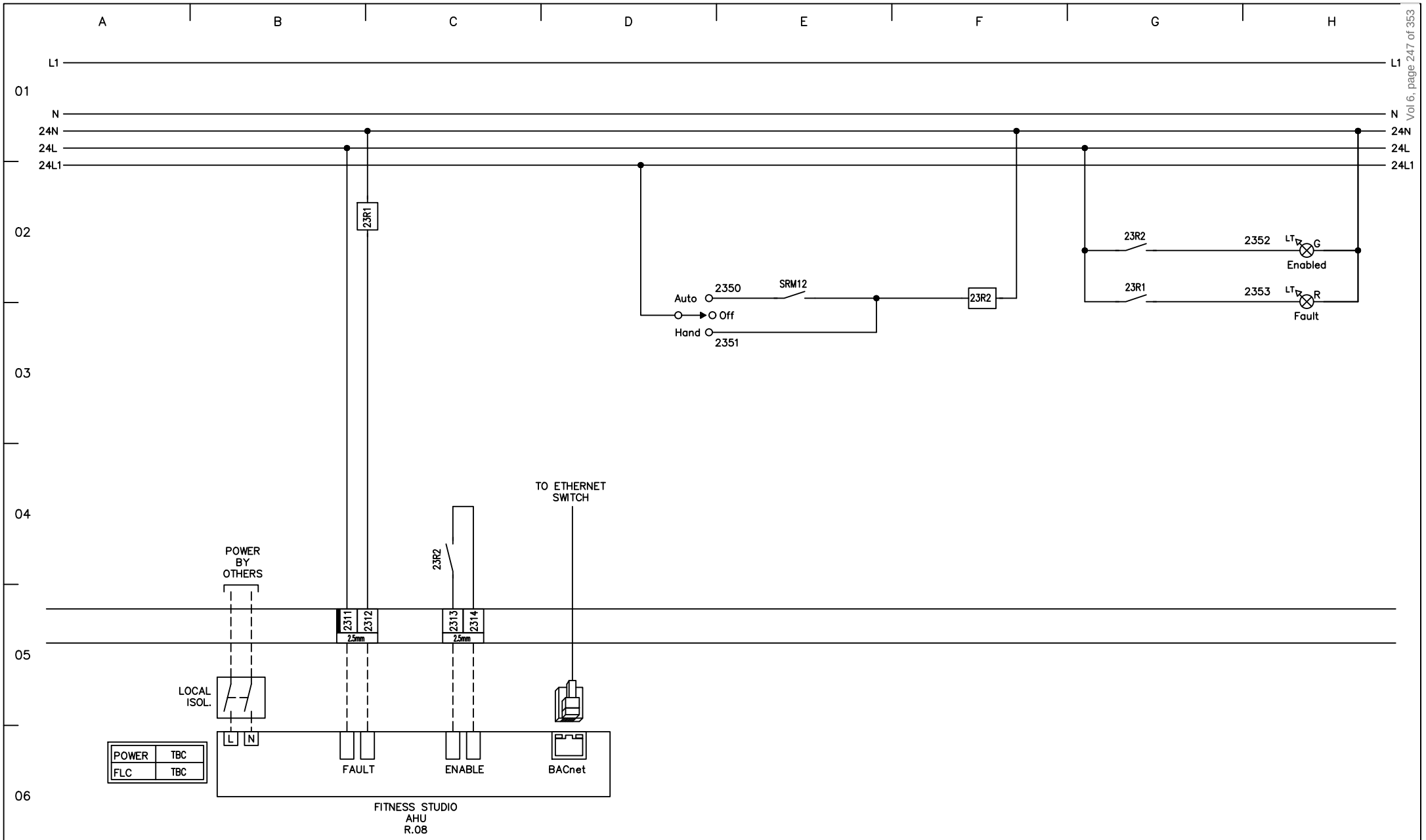


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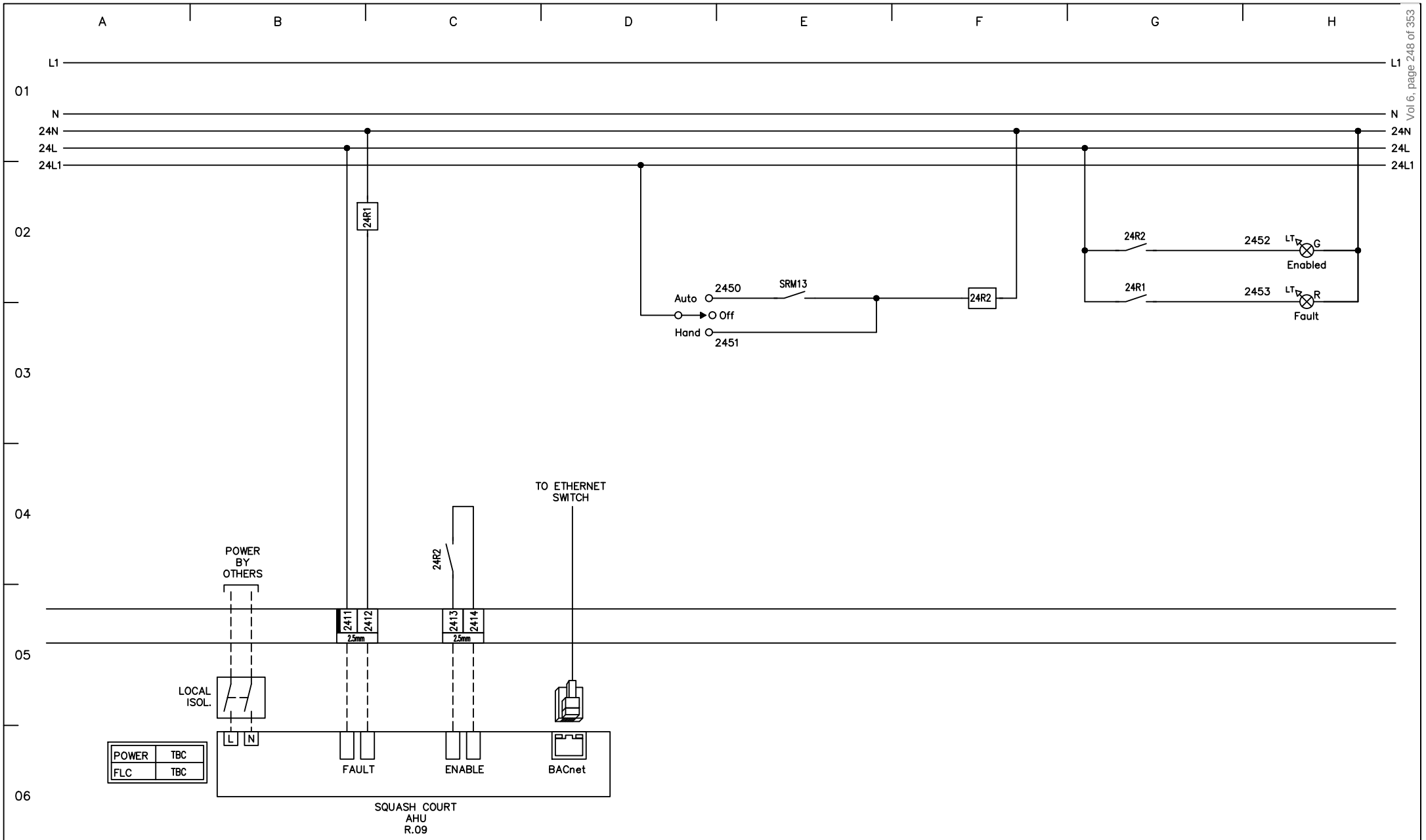
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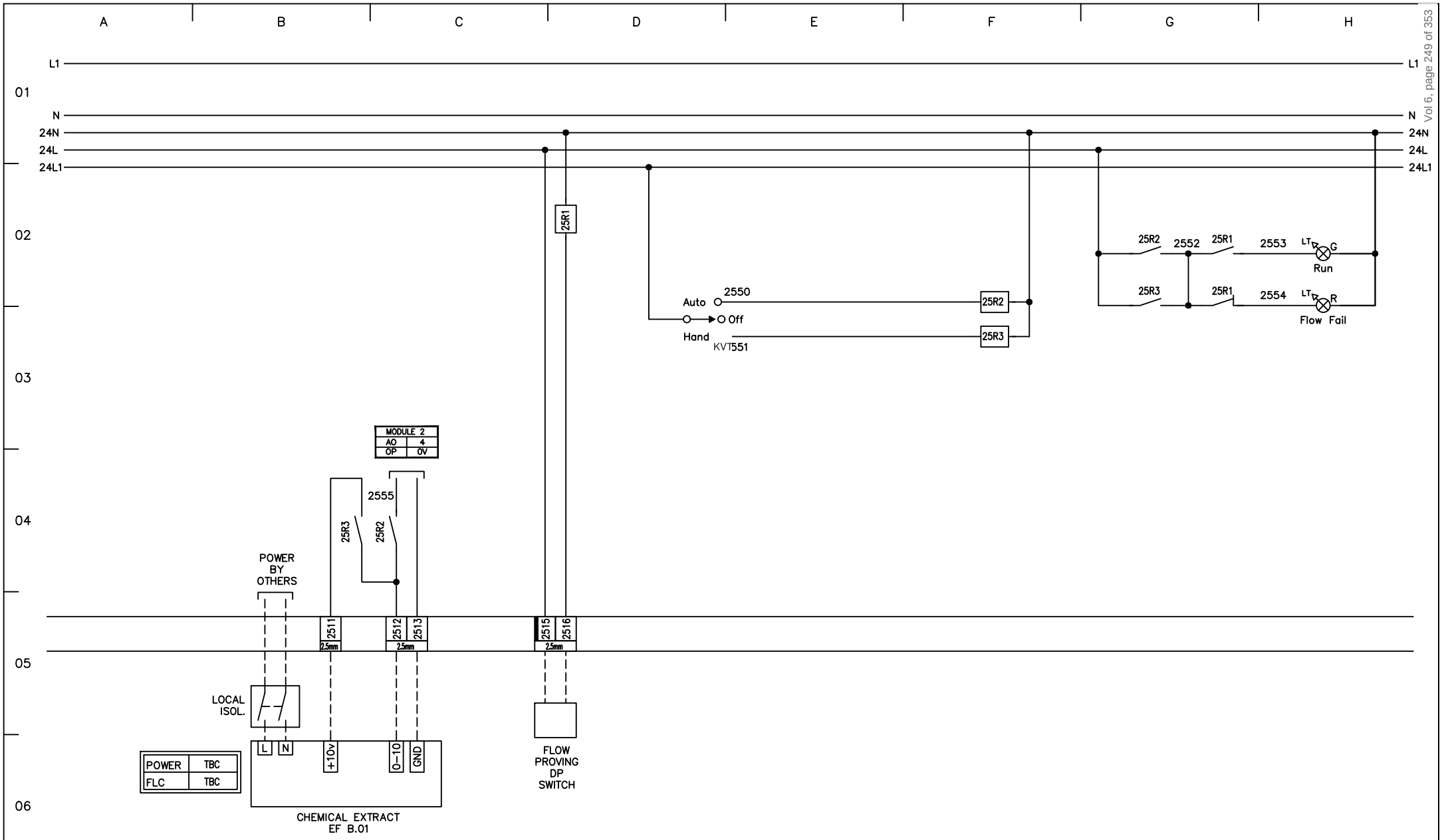
Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue / Date / Modifications 1FA 07.03.23 FOR APPROVAL 2FA 29.04.23 FOR APPROVAL	Site: WALNUTS LEISURE CENTRE	Title: MCP1 BMS CONTROL PANEL Client: HENSALL MECHANICAL SERVICES LTD	Drawn: PW Date: 07/03/25 Engr: CB Chkd:	Sheet: 23 of 40 Drg: NWP00414 – MCP1 Issue: 2FA – FOR APPROVAL	

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Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Issue	Date	Modifications
1FA	07.03.23	FOR APPROVAL
2FA	29.04.23	FOR APPROVAL

Site: WALNUTS LEISURE CENTRE

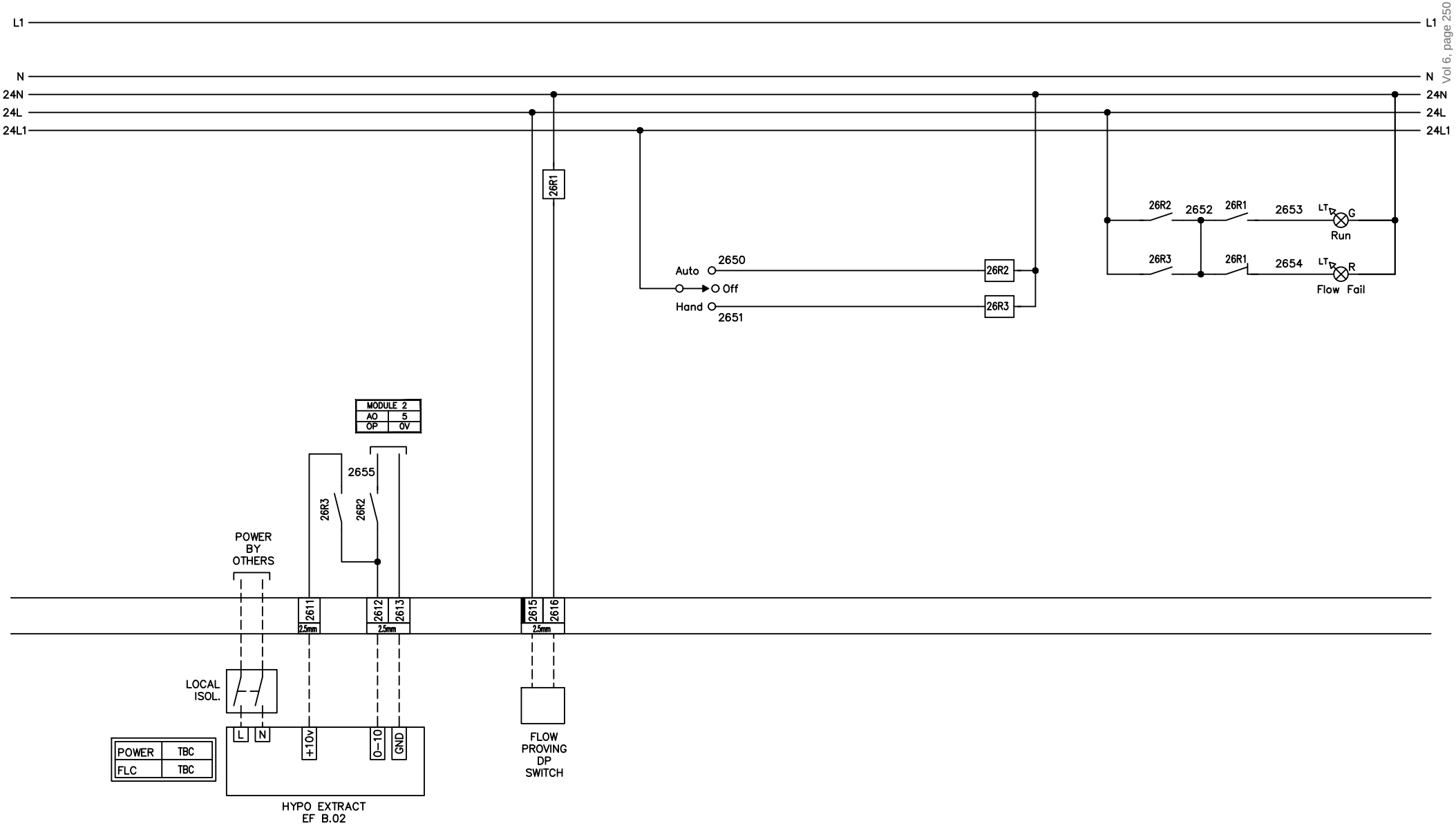
Title: MCP1 BMS CONTROL PANEL

Client: HENSALL MECHANICAL SERVICES LTD

Drawn: PW
Date: 07/03/25
Engr: CB
Chkd:

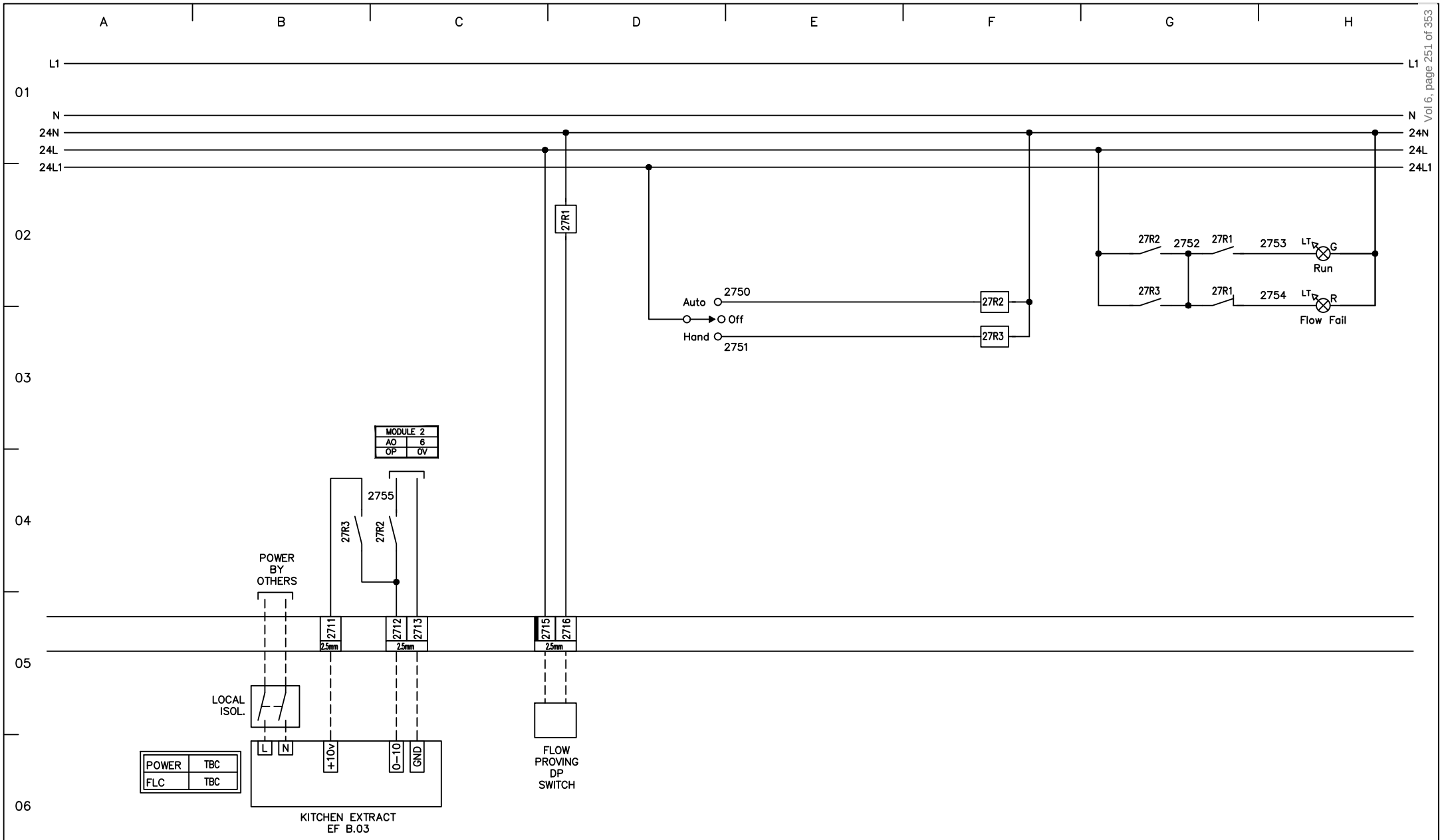
Sheet: 25 of 40
Drg: NWP00414 – MCP1
Issue: 2FA – FOR APPROVAL

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				Client: HENSALL MECHANICAL SERVICES LTD	Date: 07/03/25	Drg: NWP00414 – MCP1	
					Engr: CB / Chkd:	Issue: 2FA – FOR APPROVAL	

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A B C D E F G H

L1 L1
N N
24N 24N
24L 24L
24L1 24L1

SPARE SHEET

Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	Issue / Date / Modifications: 1FA 07.03.23 FOR APPROVAL 2FA 29.04.23 FOR APPROVAL	Site: WALNUTS LEISURE CENTRE	Title: MCP1 BMS CONTROL PANEL Client: HENSALL MECHANICAL SERVICES LTD	Drawn PW Date 07/03/25 Engr CB Chkd	Sheet 28 of 40 Drg NWP00414 – MCP1 Issue 2FA – FOR APPROVAL	

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A B C D E F G H

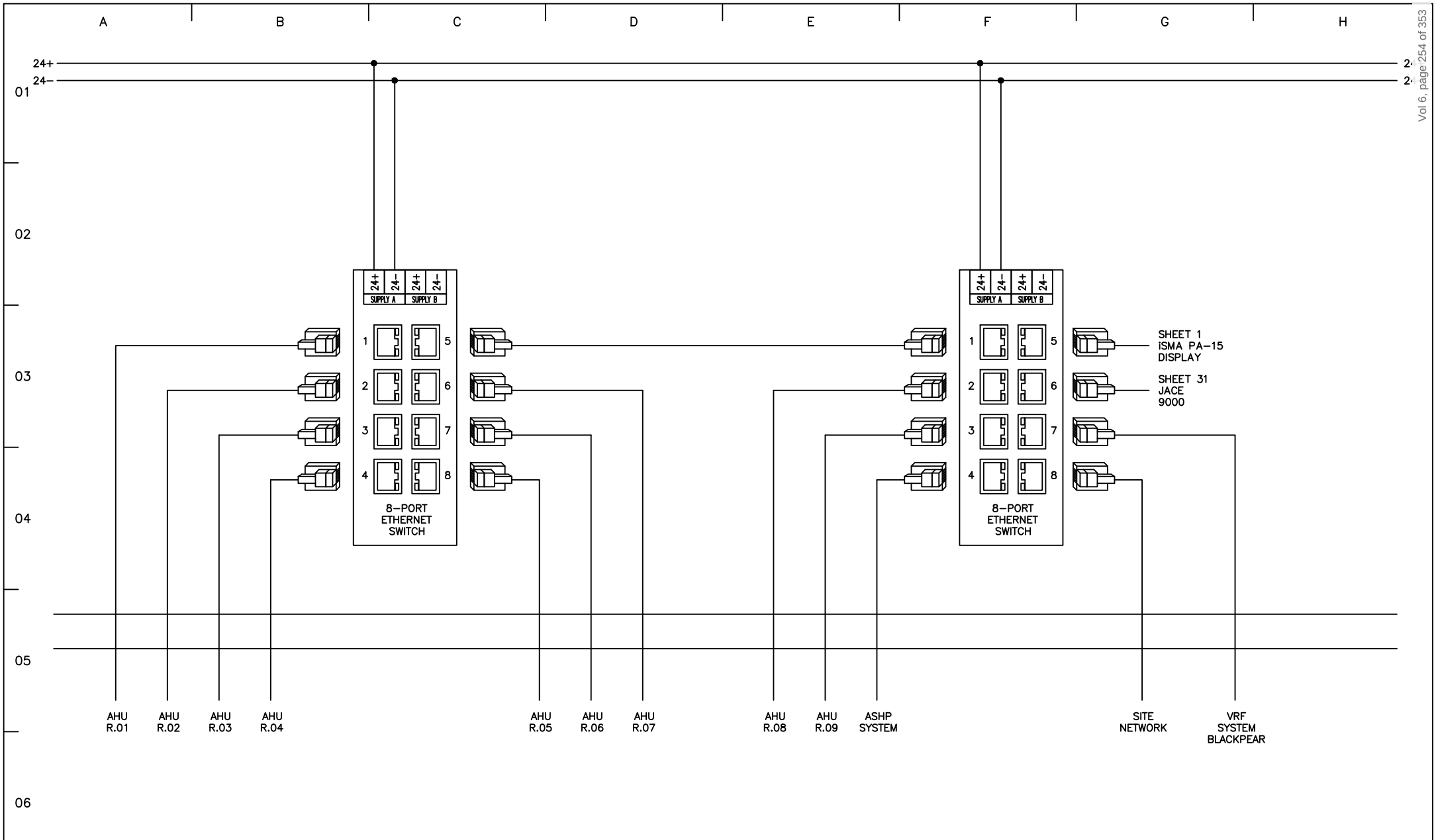
L1
N
24N
24L
24L1

01 02 03 04 05 06

SPARE SHEET

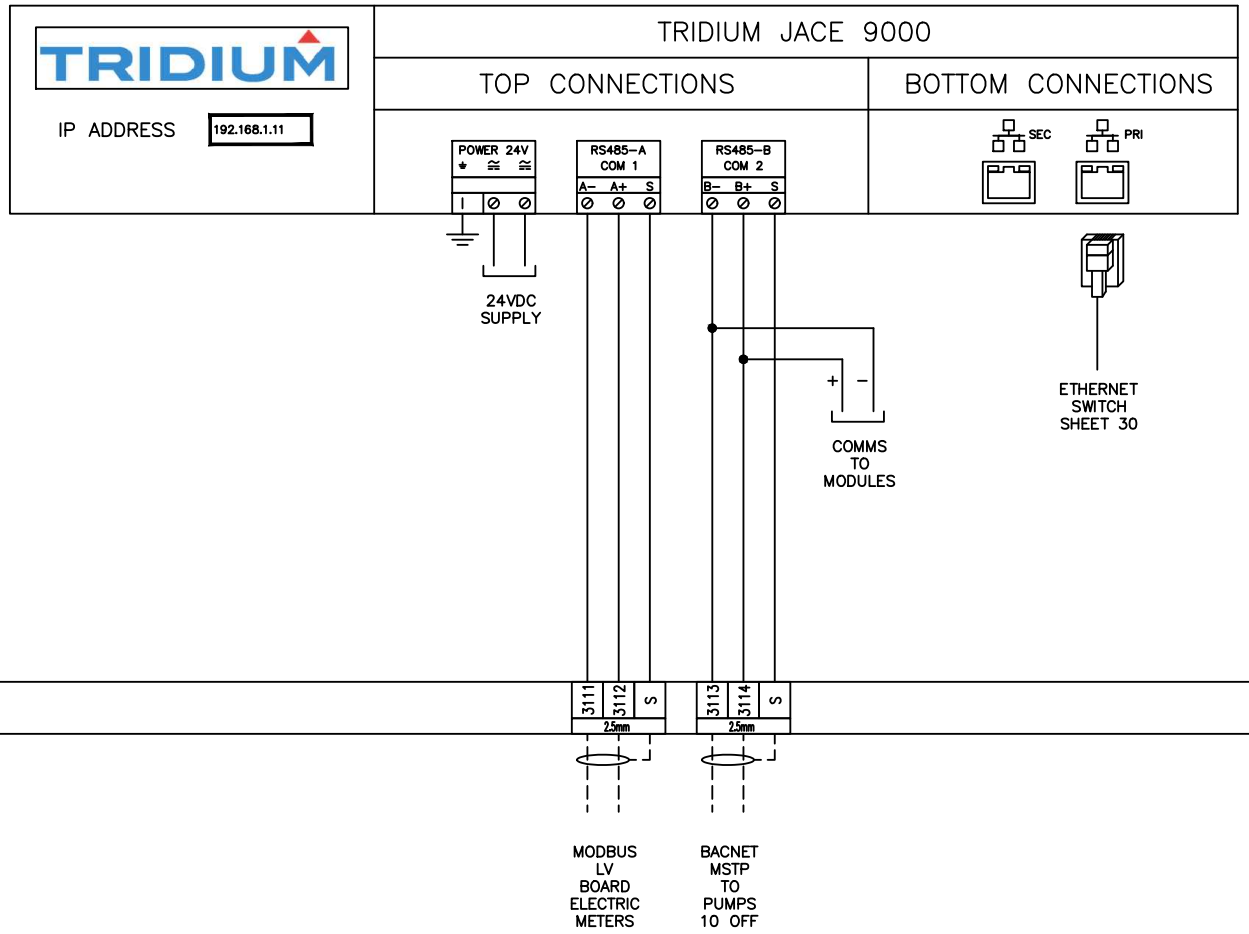
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				Client: HENSALL MECHANICAL SERVICES LTD	Date: 07/03/25	Drg: NWP00414 – MCP1
					Engr: CB Chkd	Issue: 2FA – FOR APPROVAL

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iSMA MIX38 – TOP ROW

Module 1

UNIVERSAL INPUTS

DIGITAL INPUTS

COM1

U1 U2 U3 U4 G0 C U5 U6 U7 U8 G0 C

I1 I2 I3 I4 G0 C I5 I6 I7 I8 G0 C I9 I10 I11 I12 G0 C

G0 – +

3251	3252	3253	3254	3255	3256	3257	3258	3259	3260	3261	3262	3250											
1R1	1R2	2R1	3R1	11R1	11R2	4R1	5R1	4R4	6R1	7R1	6R4												
FIRE ALARM	SAFETY CIRCUIT	PRESSURISATION UNIT FAULT	ASHP SYSTEM FAULT	WH/B/01 DHWS TANK IMMERSION HEATER HIGH TEMP	WH/B/02 DHWS TANK IMMERSION HEATER HIGH TEMP	P.B.01 ASHP LTHW PUMP 1 FAULT	P.B.01 ASHP LTHW PUMP 2 FAULT	P.B.01 ASHP LTHW PUMPS FLOW STATUS	P.B.02 AHU LTHW PUMP 1 FAULT	P.B.02 AHU LTHW PUMP 2 FAULT	P.B.02 AHU LTHW PUMPS FLOW STATUS												

– + COMMS TO JACE8000

3211 3212 S 3213 3214 (2.5mm) — DHW SECONDARY FLOW TEMP SENSOR; DHW SECONDARY RETURN TEMP SENSOR

3215 3216 S 3217 3218 (2.5mm) — DHW TANK WH/B/01 TEMP SENSOR; DHW TANK WH/B/01 PRIMARY FLOW TEMP SENSOR

3219 3220 S 3221 3222 (2.5mm) — DHW TANK WH/B/01 PRIMARY RETURN TEMP SENSOR; DHW TANK WH/B/02 TEMP SENSOR

3223 3224 S 3225 3226 (2.5mm) — DHW TANK WH/B/02 PRIMARY FLOW TEMP SENSOR; DHW TANK WH/B/02 PRIMARY RETURN TEMP SENSOR

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Issue	Date	Modifications
1FA	07.03.23	FOR APPROVAL
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Site: WALNUTS LEISURE CENTRE

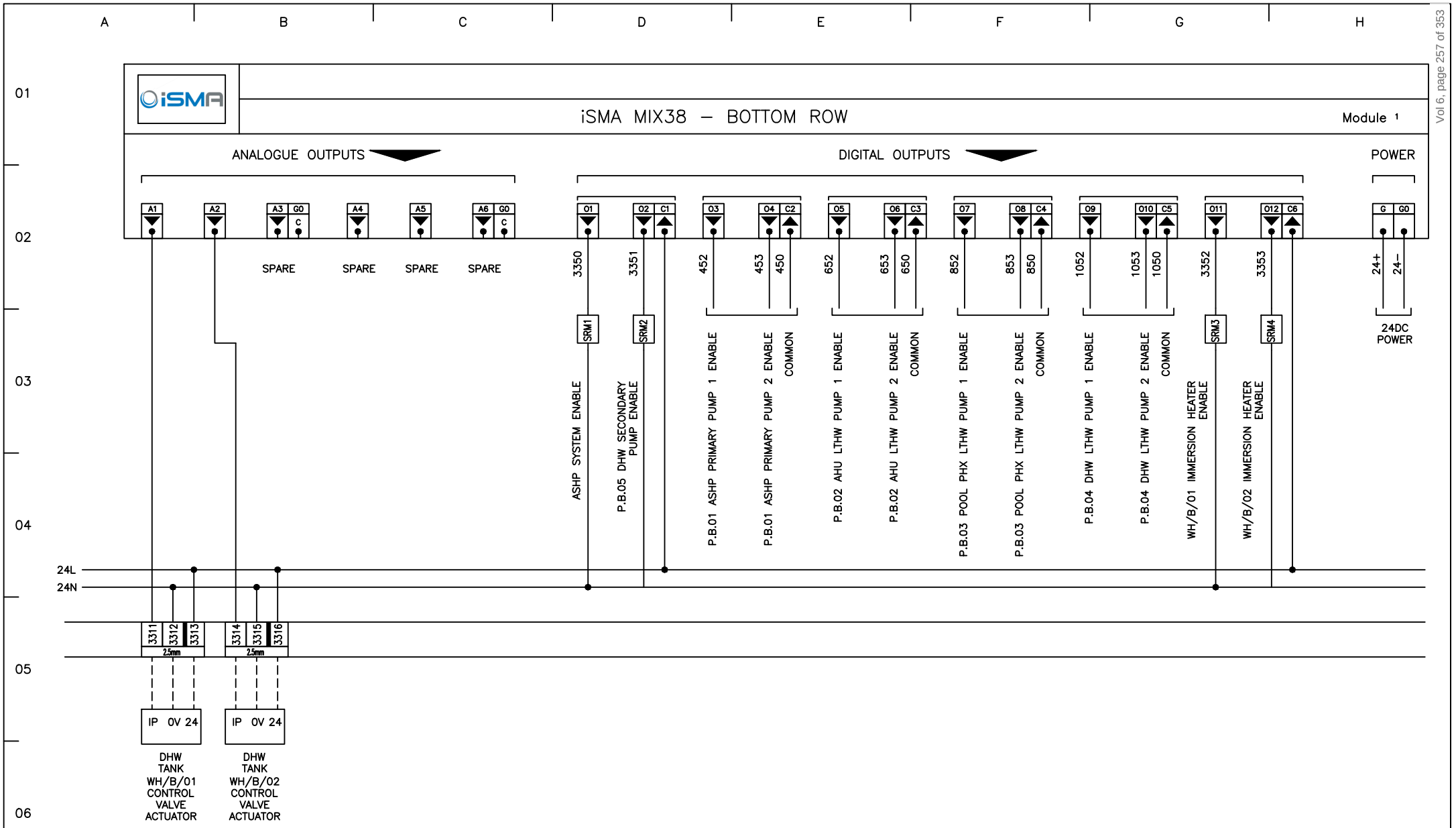
Title: MCP1 BMS CONTROL PANEL

Client: HENSALL MECHANICAL SERVICES LTD

Drawn PW
Date 07/03/25
Engr CB
Chkd

Sheet 32 of 40
Drg NWP00414 – MCP1
Issue 2FA – FOR APPROVAL

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				Client: HENSALL MECHANICAL SERVICES LTD	Date: 07/03/25	Drg: NWP00414 – MCP1	
					Engr: CB Chkd:	Issue: 2FA – FOR APPROVAL	

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iSMA MIX38 – TOP ROW

Module 2

UNIVERSAL INPUTS

DIGITAL INPUTS

COM1

U1 U2 U3 U4 G0 C U5 U6 U7 U8 G0 C

I1 I2 I3 I4 G0 C I5 I6 I7 I8 G0 C I9 I10 I11 I12 G0 C

G0 – +

3451 3452 3453 3454 3455 3456 3457 3458 3459 3461 3461 3462 3450

8R1 9R1 8R4 10R1 11R1 10R4 12R1 12R3 15R1 15R2 15R2 15R3

COMMS TO JACE8000

P.B.03 POOL PHX PUMP 1 FAULT

P.B.03 POOL PHX PUMP 2 FAULT

P.B.03 POOL PHX PUMPS FLOW STATUS

P.B.04 DHW LTHW PUMP 1 FAULT

P.B.04 DHW LTHW PUMP 2 FAULT

P.B.04 AHU LTHW PUMPS FLOW STATUS

P.B.05 DHW SEC PUMP FAULT

P.B.05 DHW SEC PUMP FLOW STATUS

COLD WATER BOOSTER SET FAULT

POOL WASH BOOSTER SET FAULT

POOL WASH STORAGE TANK LOW LEVEL

POOL WASH STORAGE TANK HIGH LEVEL

24+

3411 3412 S 3413 3414 — 2.5mm

3415 3416 S 3417 3418 — 2.5mm

3419 3420 S 3421 3422 — 2.5mm

3423 3424 S 3425 3426 — 2.5mm

POOL HALL TEMP/ HUMIDITY SENSOR

MAIN POOL PHX FLOW TEMP SENSOR

MAIN POOL PHX RETURN TEMP SENSOR

LEARNERS POOL PHX FLOW TEMP SENSOR

LEARNERS POOL PHX RETURN TEMP SENSOR

OUTSIDE AIR TEMP SENSOR

WATER METER PULSE

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Issue	Date	Modifications
1FA	07.03.23	FOR APPROVAL
2FA	29.04.23	FOR APPROVAL

Site: WALNUTS LEISURE CENTRE

Title: MCP1 BMS CONTROL PANEL

Client: HENSALL MECHANICAL SERVICES LTD

Drawn: PW

Date: 07/03/25

Engr: CB

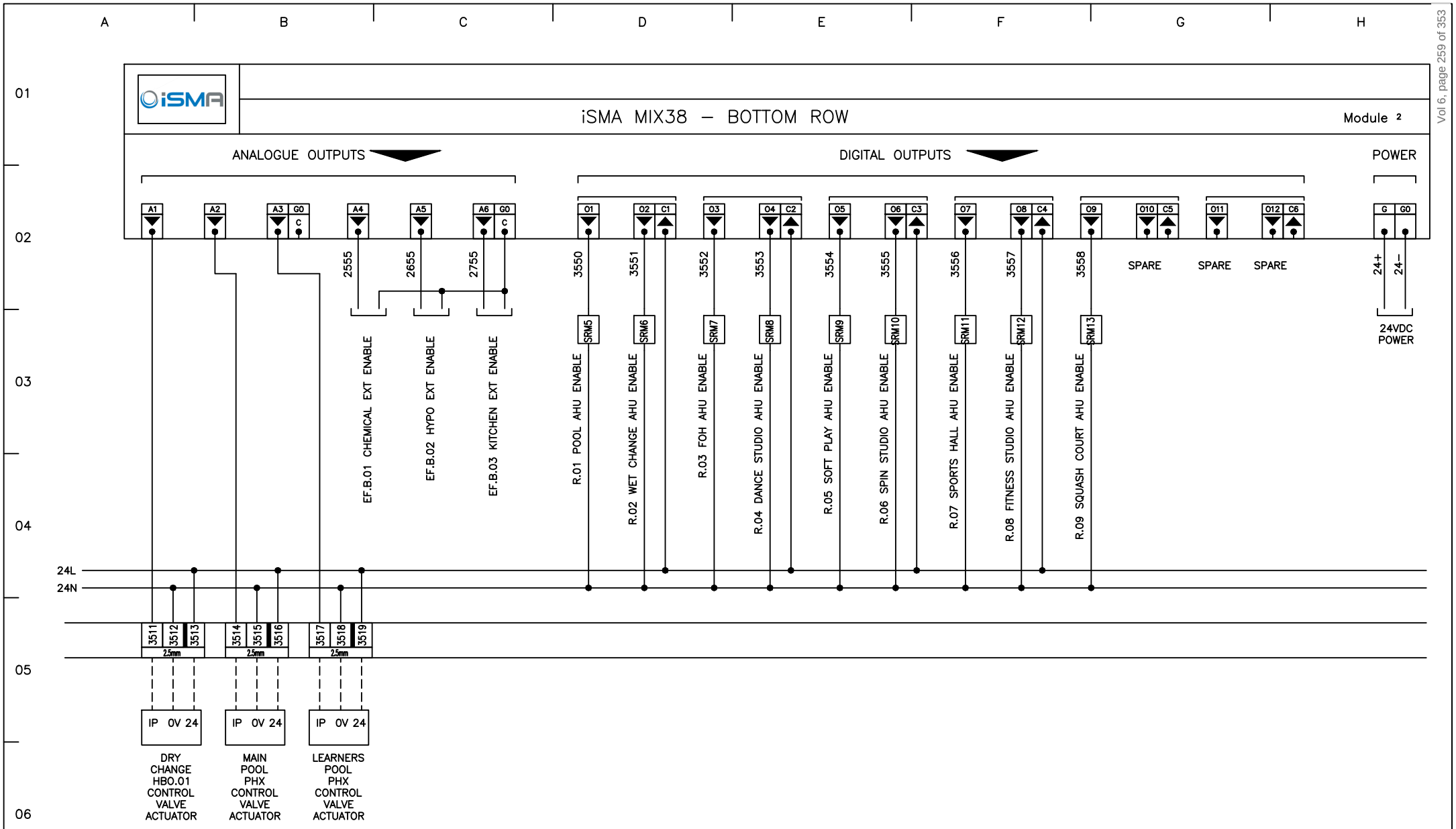
Chkd:

Sheet: 34 of 40

Drg: NWP00414 – MCP1

Issue: 2FA – FOR APPROVAL

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				Client: HENSALL MECHANICAL SERVICES LTD	Date: 07/03/25	Drg: NWP00414 – MCP1	
					Engr: CB / Chkd:	Issue: 2FA – FOR APPROVAL	

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iSMA MIX38 – TOP ROW

Module 3

UNIVERSAL INPUTS

DIGITAL INPUTS

COM1

U1 U2 U3 U4 G0 C U5 U6 U7 U8 G0 C

I1 I2 I3 I4 G0 C I5 I6 I7 I8 G0 C I9 I10 I11 I12 G0 C

G0 – +

3651 3652 3653 3654 3655 3656 3657 3658 3659 3660 3661 3662 3650

16R1 17R1 18R1 19R1 20R1 21R1 22R1 23R1 24R1 25R1 26R1 27R1

POOL AHU R.01 FAULT

WET CHANGE AHU R.02 FAULT

FOH AHU R.03 FAULT

DANCE STUDIO AHU R.04 FAULT

SOFT PLAY AHU R.05 FAULT

SPIN STUDIO AHU R.06 FAULT

SPORTS HALL AHU R.07 FAULT

FITNESS STUDIO AHU R.08 FAULT

SQUASH COURT AHU R.09 FAULT

EF B.01 CHEMICAL EXTRACT FAN FLOW STATUS

EF B.02 HYPO EXTRACT FAN FLOW STATUS

EF B.03 KITCHEN EXTRACT FAN FLOW STATUS

COMMS TO JACE8000

3611 3612 S 3613 3614 (2.5mm)

3615 3616 S 3617 3618 (2.5mm)

3619 3620 S 3621 3622 (2.5mm)

3623 3624 S 3625 3626 (2.5mm)

SPARE SPARE SPARE SPARE SPARE SPARE

DRY CHANGE SUPPLY AIR TEMP SENSOR

DRY CHANGE SPACE TEMP SENSOR

Issue	Date	Modifications
1FA	07.03.23	FOR APPROVAL
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Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

Title: MCP1 BMS CONTROL PANEL

Client: HENSALL MECHANICAL SERVICES LTD

Drawn: PW

Date: 07/03/25

Engr: CB

Chkd:

Sheet: 36 of 40

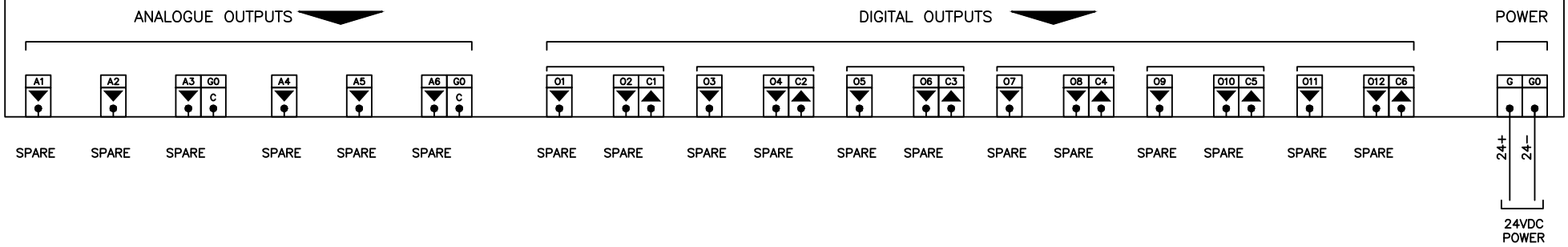
Drg: NWP00414 – MCP1

Issue: 2FA – FOR APPROVAL

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iSMA MIX38 – BOTTOM ROW

Module 3



24L
24N

Concord ENVIRONMENTAL TECHNOLOGIES	CDC HOUSE, 3 THE STABLES WASSELL GROVE LANE HAGLEY STOURBRIDGE DY9 9JH	

Issue	Date	Modifications
1FA	07.03.23	FOR APPROVAL
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Site: WALNUTS LEISURE CENTRE

Title: MCP1 BMS CONTROL PANEL

Client: HENSALL MECHANICAL SERVICES LTD

Drawn: PW
Date: 07/03/25
Engr: CB
Chkd:

Sheet: 29 of 40
Drg: NWP00414 – MCP1
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SPARE SHEET

Issue	Date	Modifications
1FA	07.03.23	FOR APPROVAL
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Concord ENVIRONMENTAL TECHNOLOGIES
CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Site: WALNUTS LEISURE CENTRE

Title: MCP1 BMS CONTROL PANEL

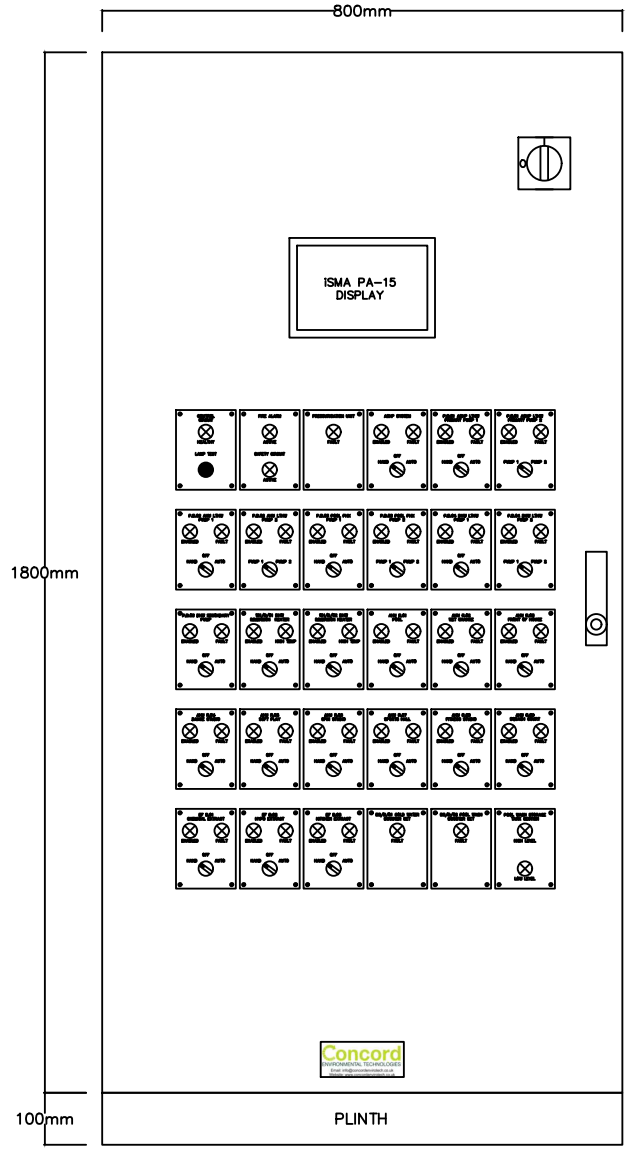
Client: HENSALL MECHANICAL SERVICES LTD

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Engr: CB
Chkd:

Sheet: 30 of 40
Drg: NWP00414 – MCP1
Issue: 2FA – FOR APPROVAL

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NOT TO SCALE



PANEL SIZE = 1800mm x 1800mm x 400mm

Concord ENVIRONMENTAL TECHNOLOGIES

CDC HOUSE,
3 THE STABLES
WASSELL GROVE LANE
HAGLEY
STOURBRIDGE
DY9 9JH

Issue	Date	Modifications
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Site: WALNUTS LEISURE CENTRE

Title: MCP1 BMS CONTROL PANEL

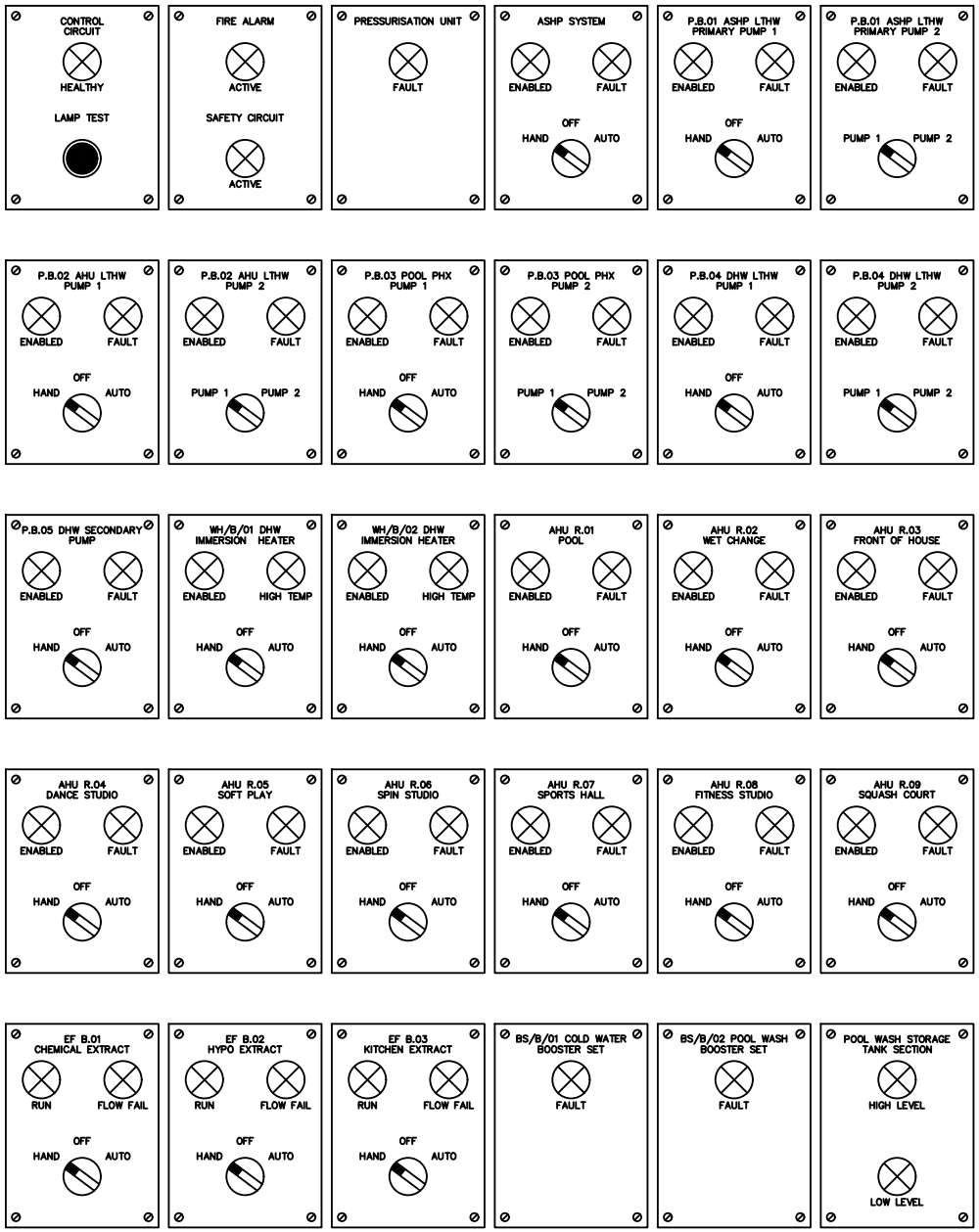
Client: HENSALL MECHANICAL SERVICES LTD

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Chkd:

Sheet: 39 of 40
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NOT TO SCALE



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SECTION 7

7

Testing, commissioning and certificates

Documents 7.1 to 7.12 are in this volume, each exactly as received and checked.

7.1

Trane Tracer SC+ heat pump sequencer commissioning report

The following 10 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Trane Tracer SC+ heat pump sequencer commissioning report.pdf`
Pages	10

Trane UK Limited
Lawrence House - Jays Close - Basingstoke
Hampshire, UK RG22 4LT
Ph: +44 (0) 8457165162 Fax +44 (0) 1256306001

www.trane.com

Report #: Giuseppe Riccardi 3.69205003

Job #: 88673
Customer Ord.: 10488673
Cust. Ref. 10488673SC+, Model SC+

Building name	Elmwood Leisure Centre	Customer company	Hensall Mechanical Services Ltd
Building addr.	Market Gale Road	Customer Nr	NA
Building city	Elmwood	Job completed?	Yes
Building #	10465800	Must produce a quotation?	No

Risk Evaluation	Extra PPE required (specify which ones)	Ergonomic (lifting, position, constrains)	Low
	-	Fall	Low
		Confined spaces	Low

Reason of call	TMS Commissioning
Unit & plant status on tech arrival	Unit Stopped
Unit & plant status on tech leaving	Unit Running

Repair description

First Start-Up according to the manufacturer's instructions. The detailed description of activities and related results are described in annex, where you can find the technical advice provided by Trane, which you must follow carefully for a safe, reliable and profitable use of your machine.

Technician name	Date	Trav. Start	Job start	Job end	Travel end	Pause	Job & travel	Travel mil.	Overnight
Giuseppe Riccardi	05/05/2026	6:00	8:00	16:30	18:00		12:00	80	No
	06/05/2026	6:00	8:00	16:30	18:00		12:00	80	No
	07/05/2026	7:00	8:00	16:30	18:00		11:00	80	No
	08/05/2026	7:00	8:00	16:30	18:00		11:00	80	No
	11/05/2026	7:00	8:00	16:30	18:00	-	11:00	80	No
	02/06/2026	8:00	10:00	16:00	17:00	-	9:00	80	No
	-	-	-	-	-	-	-	-	-
Adarsh Ravi	07/05/2026	06:30	08:00	16:30	17:00	-	10:30	150	No
	08/05/2026	06:30	08:00	16:00	17:00	-	10:30	150	No
	11/05/2026	06:30	08:00	16:00	17:30	-	11:00	150	No
-	02/06/2026	06:30	08:30	16:00	18:00	-	11:30	150	No
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-

Suggested repair / upgrading

-

Emergency or Temporary Cooling requirement?

Trane Rental Services

26/05/2026



Trane UK Limited

Lawrence House - Jays Close - Basingstoke

Hampshire, UK RG22 4LT

Ph: +44 (0) 8457165162 Fax +44 (0) 1256306001

0

www.trane.com

Serial number	SC+

JOB SAFETY ASSESSMENT - EQUIPMENT

Job Site Name:	Elmwood Leisure Centre
Date:	08/05/2026
Performed By:	Giuseppe Riccardi
Job Number	**88673**

			Yes	No	N/A
Work Area and Material Handling	1.1	Is there a safe area for loading/unloading your vehicle?	X		
	1.2	Are the access to the unit and working area, free from slippery floor, debris, obstacles, holes etc...that may contribute to a slip, trip or fall ?	X		
	1.3	Is the working area provided with sufficient space, adequate lighting / noise level / ventilation / ambient temperature to perform the work?	X		
	1.4	The handling of materials and tools, to and from the working area, is safe.	X		
	1.5	If there is co-activity with other workers, the risks have been assessed and are under control.	X		
	1.6	If you are working as a lone worker, you have a mean to send an alert or the customer is visiting/contacting you frequenlty.	X		
	1.7	Overall, the access to the unit and work area, are free from high risk.	X		
Fire Safety and Emergency	2.1	In an emergency situation there is a clear escape route with the necessary emergency lighting available.	X		
	2.2	There are fire extinguishers readily available around the equipment or at least within 30m of the working area.	X		
	2.3	If you perform "Hot Work" (brazing, welding, grinding, etc) have you completed a hot work permit ?	X		
	2.4	Overall, this job can be completed without high risk from fire safety and emergency readiness.	X		
Work at Height	3.1	All steps, platforms, ladders, scaffolding are safe and have been fully inspected prior to use.	X		
	3.2	Will you be working at an height below 1.2 meters and more than 2 meters of an unprotected edge.	X		
	3.3	If the use of a safety harness is required, you have the relevant training, equipment and an appropriate anchor point available.	X		
	3.4	Roofs and ceiling voids are provided with safe walkways or other access and all skylights are secured with fixed safety devices to prevent fall through	X		
	3.5	Overall, this job can be completed without high risk from working at heights.	X		
Confined Spaces	4.1	Overall, this job can be completed without accessing a designated Confined Space.	X		
Electrical Safety and LoTo	5.1	The work on the unit can be done with the power OFF.	X		
	5.2	If yes, the equipment can be isolated to work safely and you have a full LoTo kit.	X		
	5.3	If no: your work is limited to inspection, test, troubleshooting and measurement of live parts.	X		
	5.4	If you work on live electricity, you have and wear all the company's required electrical PPE and arc flash kit to work safely on or near energised components.	X		
	5.5	All of your electrical leads or appliances, have been inspected for defects or damages prior to use.	X		
	5.6	Overall, you can perform safely your work on or near energised electrical systems.	X		
Tools Equipment and PPE	6.1	All the power tools have been carefully inspected and are safe to be used: electrical cords, guarding, etc	X		
	6.2	You have, ready at hand, all the necessary PPE to perform the planned tasks at this job site. All the PPE are clean, not expired and in good condition.	X		
	6.3	Overall, all the tools, equipment and PPE you will be using have been inspected and are safe to use.	X		
Hazardous Substances	7.1	If you are using chemicals, hazardous substances, dangerous goods (e.g. Lubricants, oils, refrigerants, aerosols, etc), you have all the necessary compatible tools and PPE to handle them in a safe way.	X		
	7.2	If you are working with units running on specific refrigerant (A2L, B2L, A2, B2, A1 or B1), you have the necessary training, equipment and PPE to perform your job safely.	X		
	7.3	You have access to all up to date SDS for all hazardous substances used by Trane on site or present in the unit.	X		
	7.4	Overall, you can safely perform your task with all the hazardous substances you will be working with .	X		

12:00:00 AM

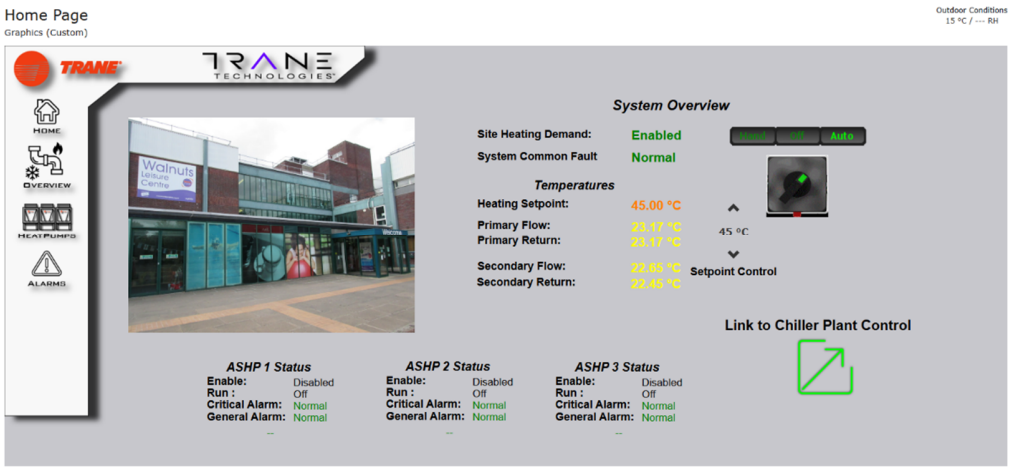
Trane UK Limited
Head Office
Lawrence House, A1 Viables Industrial Estate
Basingstoke, Hampshire, RG22 4LT, UK

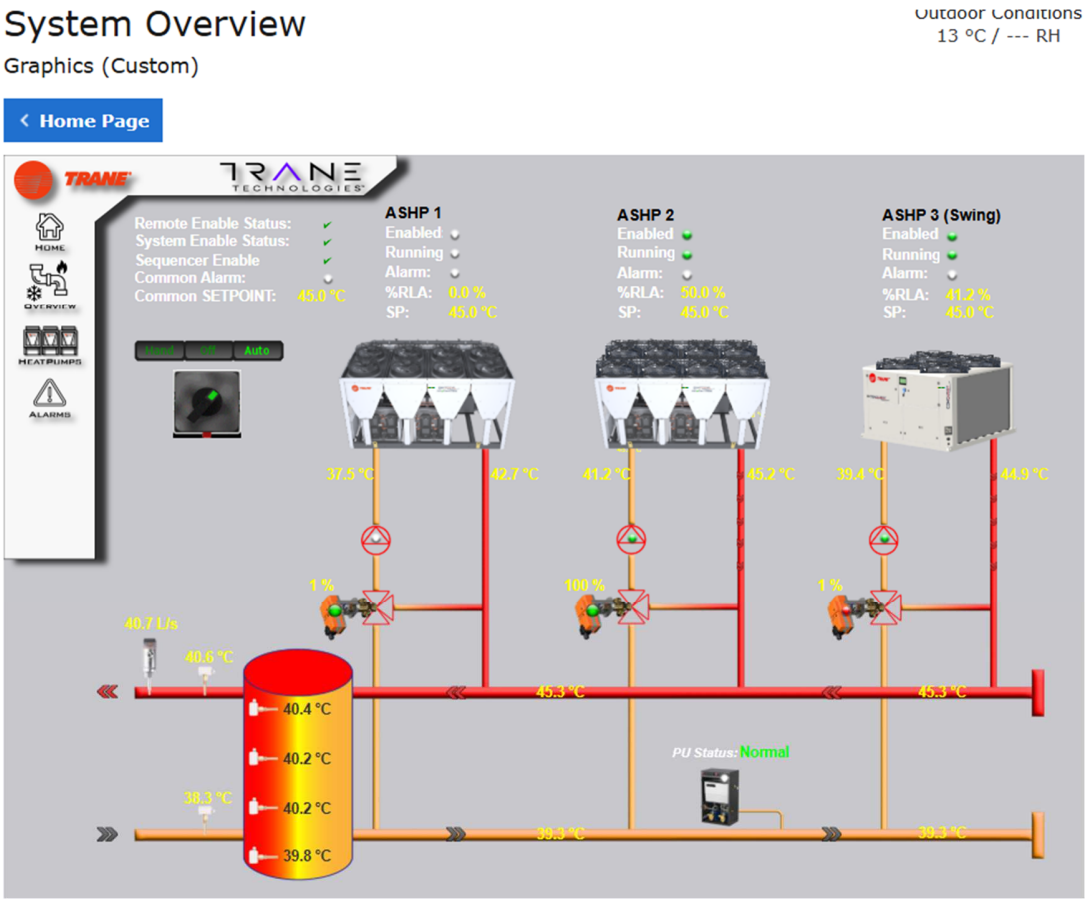
Tel: 08457 165 162
www.trane.co.uk
www.tranetechnologies.com

Building Name / Address Elmwood Leisure Centre	**Job Number** 10488673	**Date** 08/05/2026
Contact Information Vince Swinney	**Trane Technician** Giuseppe Riccardi	**Department** Trane Controls
Reason Of Visit Controls Commissioning	**Main Control Unit Model – I/O Model** SC + TMS	**IP Address** 192.168.2.10
Job Completed? ☒ **Yes** ☐ **No – Describe:**	**Must Produce Quotation?** ☐ **Yes** ☒ **No - Describe:**	

Work Carried out:

- Commissioning:
  - External Wiring test "point to point" and correct terminal location.
  - Power test (240v and 24vac).
  - Lan Network setup and testing.
  - Firmware update + License + Software.
  - Assets IDs assignment.
  - Air source heat pumps (ASHP) are installed in the system.
  - Data points handed over to the site BMS team.
  - **Software strategy and functionality tested**:
    - Communication with ASHPs.
    - Availability and lockouts.
    - Local & remote enable.
    - Hand & Auto switch.
    - Add & Subtract Request (on Temperature or Flow).
    - ASHP Sequencing and rotation.
    - Maintenance mode and availability.
    - Alarm handling & Common alarms.
    - ASHP Setpoint Assignment.
    - HTG Low pressure Alarm.
    - ASHPs 3-port valve control.





System Overview.

Lawrence House,
A1 Viables Industrial Estate
Basingstoke, Hants, RG22 4LT, UK

www.trane.co.uk
www.tranetechnologies.com
Tel: 08457 165 162

Completion Certificate – Trane Controls

Elmwood Leisure Centre - 10488673

Description of Tasks

Commissioning and testing of Trane sequencer panel for 2x CXAF & 1x CXAX ASHPs.

All fault/staging tests completed successfully, units are now under automatic control.

Set up user HMI with custom graphics and tested operation.

Credentials for Tracer Synchrony (HMI) User: Engineer / Password: Chilled#1

Configured site for remote connection and tested connection for remote monitoring.

Completed customer handover and demonstration of system operation.

Tasks	Completed	Not completed	Remarks
Demonstration of operation	☒	☐	
Instruction in HMI operation	☒	☐	
Shown equipment location	☒	☐	
Overrides and/or resets demonstrated	☒	☐	
All Trane equipment left in automatic mode	☒	☐	
All inputs/outputs tested	☒	☐	
Signals to/from 3rd party systems tested	☒	☐	

Exclusions

Note: *The following have not been completed due to Trane (include dates to complete where possible)*

Note: *The following have not been completed due to others (instruction / order required for further visits to complete)*

- 3-port valve Actuator at the chiller 3 is faulty, IP rate: IP54, faulty feedback signal.

Sign Off

Date – 02-06-2026

02/06/2026

Trane Engineer
Name: Giuseppe Riccardi
Signature: GR

Customer Representative
Name: Vince Swinney
Signature: V Swinney

Trane UK Limited
1A Jays Close, Viables Industrial Estate
BasingstokeRG22 4LT

Tel.: 01256 306058
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www.tranetechnologies.com

Tracer SC
COMMISSIONING CHECKLIST

PROJECT NAME: Elmwood Leisure Centre 10488673

SC NAME OR ID:	(NAME ON SC+)	**NETWORK #:**	
ROTARY SWITCH ADDRESS:	SWITCH 1 (X1): 1 SWITCH 2 (X10): 0 SWITCH 3 (X100): 0	**LOCATION:**	(EX. BASEMENT PLANT ROOM)
		SERIAL #:	E25F11324

NOTE: SECTION TO BE COMPLETED IN BACNET/IP CONFIGURATION ONLY			
IP CONFIGURATION	**CONFIGURED AS BBMD** **NO**		
IP ADDRESS:	192.168.1.10 / 192.168.2.10	**SUBNET MASK:**	255.255.255.0 / 255.255.255.0
GATEWAY ADDRESS:	192.168.1.1 / 192.168.2.1	**UDP PORT #:**	47808

STATUS LEGEND:	✓	= Checked and working properly
	F	= Checked and NOT working properly
	-	= Not Applicable

INSTALLATION AND COMPONENTS

DETAILS	STATUS	COMMENTS
Control panels (enclosure rating, ambient temperatures, accessibility)	✓	
Control unit wiring (use of recommended cable, insulation, conduit)	✓	
Control inputs wiring (use of recommended cable, terminals tight)	✓	
Control communication wiring (type, shielding, terminations, conduit)	✓	
Control LAN (Ethernet) wiring (type, conduit)	✓	
Control phone line	-	
Respect of local electrical code	✓	
Control input (type, location, range, accessibility)	✓	
Identification labels/tags (equipment, panels, devices, wiring)	✓	

VERIFICATION		
DETAILS	**STATUS**	**COMMENTS**
UCM and system programmed	✓	
Rotary Switches controlled and recorded	✓	
Database programming completed and downloaded	✓	
Processor and 7 segment LED Normal	✓	
Communication LED Normal	✓	
Communication established to all devices	✓	
Neuron ID assigned to all Lontalk devices		
Date and time set	✓	
RAM, NVRAM and Processor Idle Time Normal	✓	
Sequence of operation verified	✓	
Third party BACNet devices communicating	-	
Graphics completed	✓	
Alarm points verified	✓	
Trending completed	✓	

Trane UK Limited
1A Jays Close, Viables Industrial Estate
BasingstokeRG22 4LT

Tel.: 01256 306058
www.trane.co.uk
www.tranetechnologies.com

Final Acceptance

DATE: 02-06-2026

Customer Authority:	David Rushbrook	**TRANE Representative:**	Giuseppe Riccardi Controls Technician
	Signature, Position		Signature, Position

Trane UK Limited
1A Jays Close, Viables Industrial Estate
BasingstokeRG22 4LT

Tel.: 01256 306058
www.trane.co.uk
www.tranetechnologies.com

XM70 EXPANSION MODULE
COMMISSIONING CHECKLIST

PROJECT NAME: Elmwood Leisure Centre 10488673

EXTENSION OF:	SC+		
ROTARY SWITCH ADDRESS:	SWITCH 1 (X1): 1 SWITCH 2 (X10): 0 SWITCH 3 (X100): 0	**LOCATION:**	PLANT ROOM
		SERIAL #:	

STATUS LEGEND:	✓	= Checked and working properly
	F	= Checked and NOT working properly
	-	= Not Applicable

INSTALLATION AND COMPONENTS

DETAILS	STATUS	COMMENTS
Control panels (enclosure rating, ambient temperatures, accessibility)	✓	
Control unit wiring (use of recommended cable, insulation, conduit)	✓	
Control inputs and outputs wiring (use of recommended cable, terminals tight)	✓	
Control communication wiring (type, shielding, terminations, conduit)	✓	
Respect of local electrical code	✓	
Control valves (location, type, piping)	-	
Control actuators (type, size, normal position)	-	

Control sensors (type, location, range, accessibility)	✓	
Identification labels/tags (equipment, panels, devices, wiring)	✓	

POINT TO POINT					
	TAG	POINT TYPE	POINT NAME	STATUS	COMMENTS
UNIVERSAL INPUTS	UI1	BI	System Enable from Site BMS	✓	
	UI2	BI	Switch - System Enable Hand	✓	
	UI3	BI	Switch - System Enable Auto	✓	
	UI4	BI	Fire Alarm	-	NOT IN USE / LINKED
	UI5	BI	Alarm - LTHW Pressurization Unit Low Pressure	✓	
	UI6	AI	Temperature - LTHW Common Flow	✓	
	UI7	AI	Temperature - LTHW Common Return	✓	
	UI8	AI	Temperature - LTHW Buffer Top	✓	
ANALOG OUTPUTS / UNIVERSAL INPUTS	AO1/ UI9	AO	Temperature - LTHW Buffer Middle Top	✓	
	AO2/ UI10	AO	Temperature - LTHW Buffer Middle Bottom	✓	
	AO3/ UI11	AO	Temperature - LTHW Buffer Bottom	✓	
	AO4/ UI12	AO	Temperature - LTHW Secondary Flow	✓	
	AO5/ UI13	AO	Temperature - LTHW Secondary Return	✓	
	AO6/ UI14	AO	Flow Rate - Secondary Flow Rate	✓	
BINARY OUTPUTS	BO1	BO	Lamp - LTHW System Enabled	✓	
	BO2	BO	Lamp - System Common Alarm	✓	
	BO3	BO	Lamp - Sequencer Alarm	✓	
	BO4				

7.2

Ashton water balancing record, thermal store circuit

The following 4 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton water balancing record, thermal store circuit.pdf`
Pages	4

RJ Ashton Commissioning Ltd
Kellett Street Works • Fellery Street
Chorley • Lancashire • PR7 1EL
Tel: 01257 262 683 • Fax: 01257 262 687
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	thermal store
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensalls
Consultant	n/a

System Balance Acceptance

Signed: David Rushbrook **For:** _____ **Date:** _____

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	thermal store
Client	Hensalls



COMMISSIONING REPORT

We were requested to perform the commissioining of this system.

Pumps set at 45 hz to obtain these flowrates.

These pumps serve the thermal storage in the basement plantroom.

Instruments Used			
Instrument	Poddymeter	**Serial №**	w7433

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	thermal store
Client	Hensalls



PLANT INFORMATION & TEST DATA: DIRECT DRIVE

Pump Data

Pump Ref:	thermal store	**Pump Size**	n/s
Manufacturer	xylem	**Serial №**	n/s
Pump Type	hydrovar	**Model №**	n/s

Motor Data

Manufacturer	lowara	**Serial №**	53A15VB01
Motor Type	PLM411	**Model №**	PLM411
Motor Rating	N/S KW	**Frame №**	PLM411
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	8.11 Amps

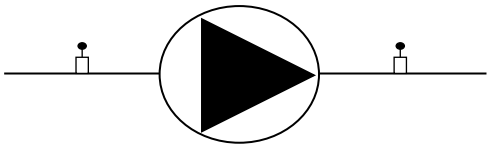
Starter Data

Manufacturer	n/a	**Starter Type**	n/a

Design Specifications

Design Volume	27.310 l/s	**Working Head**	2945 kPa
		Motor Speed	1455 RPM

Pump Pressure Profile



Units: kPa

Test Results

Inverter Setting	45.0	Hz
Tested Volume	29.787	l/s
% of Design	109	%
Suction	2.50	kPa
Discharge	3.50	kPa
Working Head	1.00	kPa
Closed Head	N/A	kPa
Motor Speed	direct	RPM
Running Current	others	Amps

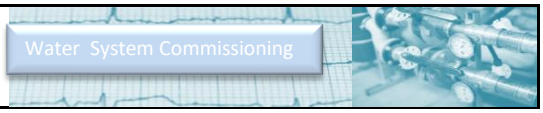
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	thermal store
Client	Hensalls



WATER TERMINAL BALANCE

Design							Tested				
Valve Reference	**Manufacturer**	**Type**	**Size mm**	**Kv**	**Volume l/s**	**Pressure Drop ΔP kPa**	**Pressure Drop ΔP kPa**	**Volume l/s**	**% of Design**	**Valve Setting T/O**	**Comments**
MAIN	Peglar	955	150	468.0	27.310	4.41	5.25	29.787	109	f/o	

Comments * denotes flowrates set via belimo controller as no drvs are fitted. System designed to control with belimos.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	A

7.3

Domestic water: post-disinfection microbiological results

The following 2 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	`HEN0203-DWS-WH2`
Asset	Domestic water
Provided by	RJ Ashton Group (Ashton LLP)
Source file	`Post-disinfection microbiological results, 7th of May 2026.pdf`
Pages	2

eurofins

Client: R J Ashton
Kellet Street Works
Fellery Street
Chorley
PR7 1EL
UNITED KINGDOM

Certificate Code: AR-26-RP-025651-01
Page Number: Page 1 of 2
Job Ref: EUAA71-00241298
Date Received: 08/05/2026
PO reference: 250571
Reported On: 11/05/2026
Reported By: Michael Smith

Certificate of Analysis

Client	Hensalls	**Date Taken**	07/05/2026
Project Reference	250571	**Site**	Elmwood LC
Taken By	TW		

Sample Number	Sample Information	Aerobic Plate Count 37°C [2 days] cfu/ml MW3	Aerobic Plate Count 22°C [3 days] cfu/ml MW3	Total Coliforms cfu/100 ml MW10	Escherichia coli cfu/100 ml MW10	Pseudomonas aeruginosa cfu/100 ml MW4
689-2026-00088509 **PASS**	Description: Plantroom Cleaners Sink Cold Sample Ref: 1 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 11:40AM Reference Number: 1 Time sample taken: ND Temperature (°C): ND	None Detected	None Detected	None Detected	None Detected	None Detected
689-2026-00088510 **PASS**	Description: Plantroom Cleaners Sink Hot Sample Ref: 3 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 11:40AM Reference Number: 3 Time sample taken: ND Temperature (°C): ND	None Detected	None Detected	None Detected	None Detected	None Detected
689-2026-00088511 **PASS**	Description: Kitchen Sink Cold Sample Ref: 5 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 11:40AM Reference Number: 5 Time sample taken: ND Temperature (°C): ND	None Detected	None Detected	None Detected	None Detected	None Detected

Client	Hensalls	**Date Taken**	07/05/2026
Project Reference	250571	**Site**	Elmwood LC
Taken By	TW		

Sample Number	Sample Information	Aerobic Plate Count 37°C [2 days] cfu/ml MW3	Aerobic Plate Count 22°C [3 days] cfu/ml MW3	Total Coliforms cfu/100 ml MW10	Escherichia coli cfu/100 ml MW10	Pseudomonas aeruginosa cfu/100 ml MW4
689-2026-00088512 **PASS**	Description: Shower 7 Blended Sample Ref: 7 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 11:37AM Reference Number: 7 Time sample taken: ND Temperature (°C): ND	None Detected	None Detected	None Detected	None Detected	None Detected
689-2026-00088513 **PASS**	Description: 1st FL6 Toilet 3 Blended Sample Ref: 9 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 11:40AM Reference Number: 9 Time sample taken: ND Temperature (°C): ND	None Detected	None Detected	None Detected	None Detected	None Detected

Microbiological and Legionella samples that cannot be shown to have been tested within 24 hours and 48 hours respectively of sampling have exceeded accepted stability and the validity of the results may be affected.
Where Matrix is "Not Declared" or the date or time of sampling is not provided, then the validity of the results may be affected.
The laboratory is not responsible for the data provided by the customers. The data provided may affect the validity of the results.

Comments, opinions, grades and interpretations herein are outside the scope of accreditation. Pass/Fail criteria where shown are based on specifications as agreed with Client or Eurofins general limits and do not take into account measurement of uncertainty, unless stated.

Unless otherwise stated, all results are expressed on a sample as received basis.
This certificate of analysis shall not be reproduced except in full, without the written permission of the laboratory.
Grade Key: 'R' = out of specification, 'A' = Elevated count according to specifications, 'G' = within specification.

Key: cfu colony forming units
< denotes less than
> denotes greater than
~ estimated value

Eurofins Water Hygiene Testing UK Limited
The Technical Centre
Wickham Road
Grimsby
DN31 3SL

T +44 (0) 1472 868700
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Reg Office:
i54 Business Park
Valiant Way
Wolverhampton
WV9 5GB
Registered No: 09805380

9658

7.4

Post-disinfection Legionella results, 7th of May 2026

The following 2 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Post-disinfection Legionella results, 7th of May 2026.pdf`
Pages	2

eurofins

Client: **R J Ashton**
Kellet Street Works
Fellery Street
Chorley
PR7 1EL
UNITED KINGDOM

Certificate Code: **AR-26-RP-027410-01**
Page Number: **Page 1 of 2**
Job Ref: **EUAA71-00241323**
Date Received: **08/05/2026**
PO reference: **250571**
Reported On: **18/05/2026**
Reported By: **Michael Smith**

Certificate of Analysis

Client	Hensalls	**Date Taken**	07/05/2026
Project Reference	250571	**Site**	Elmwood LC
Taken By	TW		

Sample Number	Sample Information	Legionella cfu/1000 ml MW28
689-2026-00088617 **PASS**	Description: 1st FL6 Toilet 3 Blended Sample Ref: 10 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 3:51PM Reference Number: 10 Time sample taken: ND Temperature (°C): ND	Not Detected
689-2026-00088613 **PASS**	Description: Plantroom Cleaners Sink Cold Sample Ref: 2 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 3:45PM Reference Number: 2 Time sample taken: ND Temperature (°C): ND	Not Detected
689-2026-00088614 **PASS**	Description: Plantroom Cleaners Sink Hot Sample Ref: 4 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 3:45PM Reference Number: 4 Time sample taken: ND Temperature (°C): ND	Not Detected
689-2026-00088615 **PASS**	Description: Kitchen Sink Cold Sample Ref: 6 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 3:45PM Reference Number: 6 Time sample taken: ND Temperature (°C): ND	Not Detected

Client	Hensalls	**Date Taken**	07/05/2026
Project Reference	250571	**Site**	Elmwood LC
Taken By	TW		

Sample Number	Sample Information	Legionella cfu/1000 ml MW28
689-2026-00088616 **PASS**	Description: Shower 7 Blended Sample Ref: 8 Matrix: Drinking Water (Non Regulatory) Testing commenced: 08/05/2026 3:45PM Reference Number: 8 Time sample taken: ND Temperature (°C): ND	Not Detected

Microbiological and Legionella samples that cannot be shown to have been tested within 24 hours and 48 hours respectively of sampling have exceeded accepted stability and the validity of the results may be affected.
Where Matrix is "Not Declared" or the date or time of sampling is not provided, then the validity of the results may be affected.
The laboratory is not responsible for the data provided by the customers. The data provided may affect the validity of the results.

Comments, opinions, grades and interpretations herein are outside the scope of accreditation. Pass/Fail criteria where shown are based on specifications as agreed with Client or Eurofins general limits and do not take into account measurement of uncertainty, unless stated.

Unless otherwise stated, all results are expressed on a sample as received basis.
This certificate of analysis shall not be reproduced except in full, without the written permission of the laboratory.
Grade Key: 'R' = out of specification, 'A' = Elevated count according to specifications, 'G' = within specification.

Key: cfu colony forming units
< denotes less than
> denotes greater than
~ estimated value

Eurofins Water Hygiene Testing UK Limited
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Grimsby
DN31 3SL

T +44 (0) 1472 868700
www.eurofins.co.uk

Reg Office:
i54 Business Park
Valiant Way
Wolverhampton
WV9 5GB
Registered No: 09805380

9658

7.5

Ashton water balancing record, constant temperature circuit

The following 5 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton water balancing record, constant temperature circuit.pdf`
Pages	5

RJ Ashton Commissioning Ltd
Kellett Street Works • Fellery Street
Chorley • Lancashire • PR7 1EL
Tel: 01257 262 683 • Fax: 01257 262 687
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	Constant Temp
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensalls
Consultant	n/a

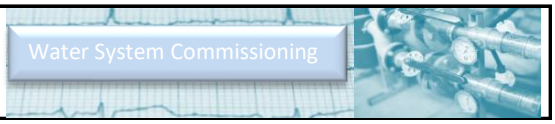
System Balance Acceptance

Signed: David Rushbrook **For:** _____ **Date:** _____

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Engineer	Glyn Whitcombe	**Date**	08/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	Constant Temp
Client	Hensalls



COMMISSIONING REPORT

We were requested to perform the commissioining of this system.

Pumps set @ 50 hz to obtain these flowrates.

There is no commissioning sets fitted, so we set the pic valves and recorded the main commissioing station.

Instruments Used			
Instrument	Poddymeter	**Serial №**	w7433

Engineer	Glyn Whitcombe	**Date**	08/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	Constant Temp
Client	Hensalls



PLANT INFORMATION & TEST DATA: DIRECT DRIVE

Pump Data

Pump Ref:	Contstant temp	**Pump Size**	n/s
Manufacturer	xylem	**Serial №**	130630450
Pump Type	Direct	**Model №**	Direct

Motor Data

Manufacturer	xylem	**Serial №**	13040141
Motor Type	110dh2	**Model №**	160B
Motor Rating	15 KW	**Frame №**	160B
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	23.00 Amps

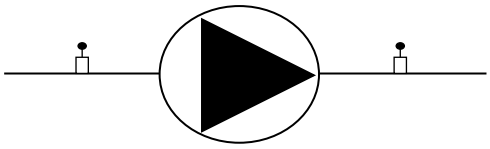
Starter Data

Manufacturer	n/a	**Starter Type**	n/a

Design Specifications

Design Volume	17.915 l/s	**Working Head**	2945 kPa
		Motor Speed	1455 RPM

Pump Pressure Profile



Units: kPa

Test Results

Inverter Setting	50.0	Hz
Tested Volume	19.715	l/s
% of Design	110	%
Suction	3.00	kPa
Discharge	5.00	kPa
Working Head	2.00	kPa
Closed Head	N/A	kPa
Motor Speed	direct	RPM
Running Current	others	Amps

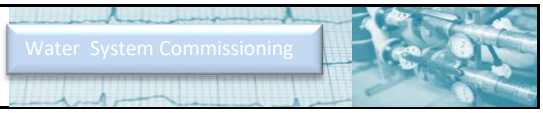
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	08/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	Constant Temp
Client	Hensalls



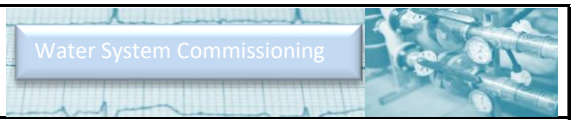
WATER TERMINAL BALANCE

Design							Tested				
Valve Reference	**Manufacturer**	**Type**	**Size mm**	**Kv**	**Volume l/s**	**Pressure Drop ΔP kPa**	**Pressure Drop ΔP kPa**	**Volume l/s**	**% of Design**	**Valve Setting T/O**	**Comments**
MAIN	Peglar	955	150	468.0	17.915	1.90	2.30	19.715	110	f/o	

Comments * denotes flowrates set via belimo controller as no drvs are fitted. System designed to control with belimos.

Engineer	Glyn Whitcombe	**Date**	08/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	Constant Temp
Client	Hensalls



PIC VALVE 2 WATER TERMINAL BALANCE

Design					Tested			
Valve Reference	**Size MM**	**Brand**	**Volume L/s**	**Pressure Drop ΔP kPA**	**SET @**	**VOLUMES**	**%**	**Comments**
AHU 1	**80**	**SIEMENS**	**7.694**	**N/A**	**3.5**	**7.6945**	**100**	
AHU 2	**50**	**SIEMENS**	**2.106**	**N/A**	**3.4**	**2.1060**	**100**	
AHU 3	**32**	**SIEMENS**	**0.73**	**N/A**	**2.9**	**0.7300**	**100**	
AHU 4	**20**	**SIEMENS**	**0.21**	**N/A**	**2.3**	**0.2100**	**100**	
AHU 5	**25**	**SIEMENS**	**0.37**	**N/A**	**1.4**	**0.3700**	**100**	
AHU 6	**20**	**SIEMENS**	**0.18**	**N/A**	**0.7**	**0.1800**	**100**	
AHU 7	**65**	**SIEMENS**	**5.42**	**N/A**	**3.4**	**5.4200**	**100**	
AHU 8	**32**	**SIEMENS**	**0.67**	**N/A**	**2.4**	**0.6700**	**100**	
AHU 9	**32**	**SIEMENS**	**0.53**	**N/A**	**1.9**	**0.5300**	**100**	

Comments

None.

Engineer	Glyn Whitcombe	**Date**	08/05/2026	**Revision**	A

7.6

Ashton water balancing record, plate heat exchanger circuit

The following 4 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton water balancing record, plate heat exchanger circuit.pdf`
Pages	4

RJ Ashton Commissioning Ltd
Kellett Street Works • Fellery Street
Chorley • Lancashire • PR7 1EL
Tel: 01257 262 683 • Fax: 01257 262 687
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	PHXS
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensalls
Consultant	n/a

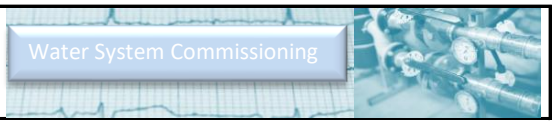
System Balance Acceptance

Signed: David Rushbrook **For:** _____ **Date:** _____

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Engineer	Glyn Whitcombe	**Date**	08/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	PHXS
Client	Hensalls



COMMISSIONING REPORT

We were requested to perform the commissioining of this system.

Pumps set at 45 hz to obtain these flowrates.

This system serves the PHX in the basement plantroom.

Instruments Used			
Instrument	Poddymeter	**Serial №**	w7433

Engineer	Glyn Whitcombe	**Date**	08/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	PHXS
Client	Hensalls



PLANT INFORMATION & TEST DATA: DIRECT DRIVE

Pump Data

Pump Ref:	PHXS	**Pump Size**	n/s
Manufacturer	Lowara	**Serial №**	n/s
Pump Type	direct	**Model №**	n/s

Motor Data

Manufacturer	xylem	**Serial №**	20240528
Motor Type	ESM 90R	**Model №**	ESM 90R
Motor Rating	3 KW	**Frame №**	ESM 90R
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	5.20 Amps

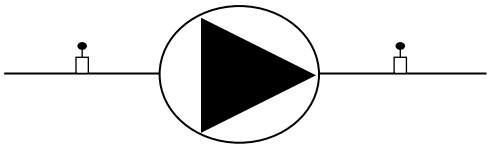
Starter Data

Manufacturer	n/a	**Starter Type**	n/a

Design Specifications

Design Volume	7.600 l/s	**Working Head**	2945 kPa
		Motor Speed	1455 RPM

Pump Pressure Profile



Units: kPa

Test Results

Inverter Setting	45.0	Hz
Tested Volume	7.667	l/s
% of Design	101	%
Suction	3.80	kPa
Discharge	4.20	kPa
Working Head	0.40	kPa
Closed Head	N/A	kPa
Motor Speed	direct	RPM
Running Current	others	Amps

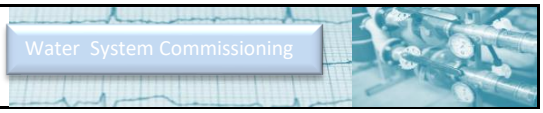
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	08/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	PHXS
Client	Hensalls



WATER TERMINAL BALANCE

Design							Tested				
Valve Reference	**Manufacturer**	**Type**	**Size mm**	**Kv**	**Volume l/s**	**Pressure Drop ΔP kPa**	**Pressure Drop ΔP kPa**	**Volume l/s**	**% of Design**	**Valve Setting T/O**	**Comments**
MAIN	Peglar	955	80	138.0	7.600	3.93	4.00	7.667	101	f/o	

Comments * denotes flowrates set via belimo controller as no drvs are fitted. System designed to control with belimos.

Engineer	Glyn Whitcombe	**Date**	08/05/2026	**Revision**	A

7.7

Ashton water balancing record, ASHP 0.01 to 0.03

The following 3 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton water balancing record, ASHP 0.01 to 0.03.pdf`
Pages	3

RJ Ashton Commissioning Ltd
Kellett Street Works • Fellery Street
Chorley • Lancashire • PR7 1EL
Tel: 01257 262 683 • Fax: 01257 262 687
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	ASHPS 1 - 3
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	N/A

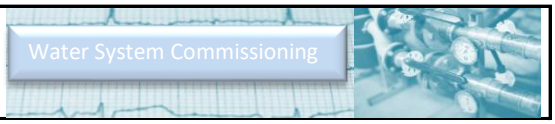
System Balance Acceptance

Signed: David Rushbrook **For:** _____ **Date:** _____

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Engineer	Glyn Whitcombe	**Date**	12/05/2026	**Revision**	B

Project	Elmwood Leisure Centre - Elmwood
System	ASHPS 1 - 3
Client	Hensall



COMMISSIONING REPORT

We were requested to perform the commissioining of this system.

Pumps set at 30.00 Hz to obtain these flowrates on ASHP 1 and 2 only. They were set to 28 Hz on ASHP 3.

The pumps are fitted internally to the ASHPs.

Instruments Used			
Instrument	Poddymeter	**Serial №**	w7433

Engineer	Glyn Whitcombe	**Date**	12/05/2026	**Revision**	B

Project	Elmwood Leisure Centre - Elmwood
System	ASHPS 1 - 3
Client	Hensall



WATER TERMINAL BALANCE

Design							Tested				
Valve Reference	**Manufacturer**	**Type**	**Size mm**	**Kv**	**Volume l/s**	**Pressure Drop ΔP kPa**	**Pressure Drop ΔP kPa**	**Volume l/s**	**% of Design**	**Valve Setting T/O**	**Comments**
ASHP 01	Peglar	955	150	468.0	13.200	1.03	1.25	14.534	110	F/O	
ASHP 02	Peglar	955	150	468.0	13.200	1.03	1.20	14.241	108	F/O	
ASHP 03	Peglar	955	65	104.0	2.500	0.75	0.90	2.741	110	F/O	3-port open
ASHP 03	Peglar	955	65	104.0	2.500	0.75	1.00	2.889	116	F/O	3-port 50%
ASHP 03	Peglar	955	65	104.0	2.500	0.75	0.80	2.584	103	F/O	3-port open ASHP 2 on

Comments

Engineer	Glyn Whitcombe	**Date**	12/05/2026	**Revision**	B

7.8

Domestic water: flushing record and sentinel outlet temperatures at handover (hot 50 °C or above, cold below 20 °C)

The following 4 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-DWS-WH4
Asset	Domestic water
Provided by	RJ Ashton Group (Ashton LLP)
Source file	Ashton DHWS balancing and outlet temperature record.pdf
Pages	4

RJ Ashton Commissioning Ltd
Kellett Street Works • Fellery Street
Chorley • Lancashire • PR7 1EL
Tel: 01257 262 683 • Fax: 01257 262 687
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	DHWS
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensalls
Consultant	tbc

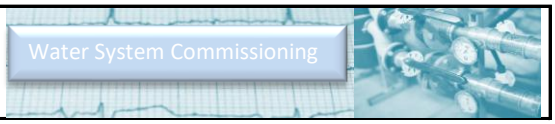
System Balance Acceptance

Signed: David Rushbrook **For:** _____ **Date:** _____

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	DHWS
Client	Hensalls



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensalls.

The system was commissioned in accordance with the relevant guides.

The pumps for this system are located in level 00 (lower ground) boilerhouse and serves the DHWS throughout the building.

The motor speed was set via internal speed controller to achive the required return temps, the pumps was set at speed 3.

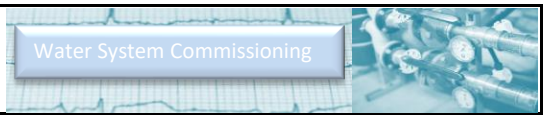
The return temps were set using the automatic tempreture balancing valves.

The tap temps were set using the mixing valve fitted within the tap.

Instruments Used			
Instrument	Poddymeter	**Serial №**	w7433

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	DHWS
Client	Hensalls



DHWS TEMPERATURE BALANCE

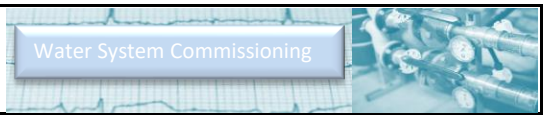
Design			Test							
Location	Return Loop Temp °C	Outlet Temp °C	Basin/ Shower/ Sink	Outlet Temp °C	Return Loop Temp °C	BCWS Temp °C	Anti Scold	Within 30 secs? Y/N	Valve Setting	Comments
recep wc	55	40	sink	40	55	mixer	pass	y	auto	
recep access wc	55	40	sink	39	55	mixer	pass	y	auto	
first aid	55	40	sink	39	55	mixer	pass	y	auto	
kitchen servery	55	55	sink	55	55	16	n/a	y	auto	
kitchen	55	42	hwb	41	55	mixer	pass	y	auto	
kitchen	55	42	sink	55	n/a	14	pass	y	auto	
kitchen	55	42	sink	55	n/a	13	pass	y	auto	
kitchen	55	42	dish	55	n/a	12	pass	y	auto	
community wc	55	42	sink	55						piped wrong
community wc	55	42	sink	55						piped wrong
soft play wc	55	41	sink	39	55	mixer	pass	y	auto	
soft play wc	55	41	sink	39	55	mixer	pass	y	auto	
1st floor										
wc	55	41	sink	40	55	mixer	pass	y	auto	
ac ceess	55	41	sink	41	55	mixer	pass	y	auto	
wc	55	41	sink	40	55	mixer	pass	y	auto	
	55	41	shower	41	55	mixer	pass	y	auto	
	55	41	shower	41	55	mixer	pass	y	auto	
	55	41	shower	41	55	mixer	pass	y	auto	
	55	41	shower	42	55	15	pass	y	auto	
	55	41	sink	42	55	mixer	pass	y	auto	
	55	41	sink	41	55	mixer	pass	y	auto	
	55	41	shower	40	55	mixer	pass	y	auto	
	55	41	shower	41	55	mixer	pass	y	auto	
	55	41	shower	40	55	12	pass	y	auto	
	55	41	sink	41	55	mixer	pass	y	auto	
male dry change	55	41	sink	41	55	mixer	pass	y	auto	
	55	41	sink	40	55	mixer	pass	y	auto	
	55	41	shower	40	55	mixer	pass	y	auto	
	55	41	shower	40	55	mixer	pass	y	auto	
	55	41	shower	40	55	mixer	mixer	y	auto	

Comments

None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	A

Project	Elmwood Leisure Centre - Elmwood
System	DHWS
Client	Hensalls



DHWS TEMPERATURE BALANCE

Design			Test							
Location	Return Loop Temp °C	Outlet Temp °C	Basin/ Shower/ Sink	Outlet Temp °C	Return Loop Temp °C	BCWS Temp °C	Anti Scold	Within 30 secs? Y/N	Valve Setting	Comments
male change	55	42	sink	42	55	mixer	pass	y	auto	
male change	55	42	sink	41	55	mixer	pass	y	auto	
male change	55	42	sink	42	55	mixer	pass	y	auto	
access change	55	42	sink	41	55	15	pass	y	auto	
access change	55	42	sink	40	55	15	pass	y	auto	
female change	55	42	sink	40	55	mixer	pass	y	auto	
female change	55	42	sink	41	55	mixer	pass	y	auto	
female change	55	42	sink	41	55	mixer	pass	y	auto	
female change	55	42	sink	42	55	mixer	pass	y	auto	
change shower 1	55	41	shower	41	55	mixer	pass	y	auto	
change shower 2	55	41	shower	41	55	mixer	pass	y	auto	
change shower 3	55	41	shower	41	55	mixer	pass	y	auto	
change shower 4	55	41	shower	41	55	mixer	pass	y	auto	
change shower 5	55	41	shower	41	55	mixer	pass	y	auto	
change shower 6	55	41	shower	41	55	mixer	pass	y	auto	
change shower 7	55	41	shower	41	55	mixer	pass	y	auto	
change shower 8	55	41	shower	41	55	mixer	pass	y	auto	
change shower 9	55	41	shower	41	55	mixer	pass	y	auto	
change shower 10	55	41	shower	41	55	mixer	pass	y	auto	
change shower 11	55	41	shower	41	55	mixer	pass	y	auto	
change places	55	41	shower	42	55	15	pass	y	auto	
female dry change	55	41	sink	42	55	mixer	pass	y	auto	
female dry change	55	41	sink	41	55	mixer	pass	y	auto	
female dry change	55	41	shower	40	55	mixer	pass	y	auto	
female dry change	55	41	shower	41	55	mixer	pass	y	auto	
female dry change	55	41	shower	40	55	12	pass	y	auto	
male dry change	55	41	sink	41	55	mixer	pass	y	auto	
male dry change	55	41	sink	41	55	mixer	pass	y	auto	
male dry change	55	41	sink	40	55	mixer	pass	y	auto	
male dry change	55	41	shower	40	55	mixer	pass	y	auto	
male dry change	55	41	shower	40	55	mixer	pass	y	auto	
male dry change	55	41	shower	40	55	mixer	mixer	y	auto	

Comments

None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	A

7.9

Heating: pre-commission cleaning, flushing and water treatment certificate (BSRIA BG 29), with laboratory water analysis

The following page is the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-HTG-WH
Asset	Heating
Provided by	RJ Ashton Group (Ashton LLP)
Source file	Closed system microbiological results, 24th of April 2026.pdf
Pages	1

eurofins

Client: **R J Ashton**
Kellet Street Works
Fellery Street
Chorley
PR7 1EL
UNITED KINGDOM

Certificate Code: **AR-26-RP-023038-01**
Page Number: **Page 1 of 1**
Job Ref: **EUAA71-00239001**
Date Received: **25/04/2026**
PO reference:
Reported On: **30/04/2026**
Reported By: **Michael Smith**

Certificate of Analysis

Client	Hensalls	**Date Taken**	24/04/2026
Project Reference	-	**Site**	Elmwood LC
Taken By	TW		

Sample Number	Sample Information	Aerobic Plate Count 30°C [3 days] cfu/ml MW3	Pseudomonas 30 °C cfu/ml MW32	Sulphate Reducing Bacteria (5 day x 4) /ml MW26
689-2026-00079417 **PASS**	Description: AHU 1 Sample Ref: 2 Matrix: Process Water Testing commenced: 25/04/2026 11:59AM Reference Number: 2 Time sample taken: ND Temperature (°C): ND	None Detected	<5	Not Detected*
689-2026-00079418 **PASS**	Description: ASHP 1 Sample Ref: 4 Matrix: Process Water Testing commenced: 25/04/2026 11:59AM Reference Number: 4 Time sample taken: ND Temperature (°C): ND	None Detected	<5	Not Detected*

* Indicates the Parameter is not included in the UKAS accreditation schedule for the laboratory

Microbiological and Legionella samples that cannot be shown to have been tested within 24 hours and 48 hours respectively of sampling have exceeded accepted stability and the validity of the results may be affected.
Where Matrix is "Not Declared" or the date or time of sampling is not provided, then the validity of the results may be affected.
The laboratory is not responsible for the data provided by the customers. The data provided may affect the validity of the results.

Comments, opinions, grades and interpretations herein are outside the scope of accreditation. Pass/Fail criteria where shown are based on specifications as agreed with Client or Eurofins general limits and do not take into account measurement of uncertainty, unless stated.

Unless otherwise stated, all results are expressed on a sample as received basis.
This certificate of analysis shall not be reproduced except in full, without the written permission of the laboratory.
Grade Key: 'R' = out of specification, 'A' = Elevated count according to specifications, 'G' = within specification.

Key: cfu colony forming units
< denotes less than
> denotes greater than
~ estimated value

7.10

Trane commissioning visit report 12th of May 2026, ASHP 0.01 and 0.02

The following 2 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Trane commissioning visit report 12th of May 2026, ASHP 0.01 and 0.02.pdf`
Pages	2

Trane UK Limited
Lawrence House
Viables Industrial Estate
A1 Jays Close
Basingstoke, Hampshire, UK
RG22 4LT

Phone: +44 (0) 8457 165 162 | Fax +44 (0) 1256 306 001

www.trane.com

Commissioning Report

Unit Information

Building Name:	Elmwood Leisure Centre	**Customer Company:**	Hensall Ltd
Building:	Elmwood Leisure Centre	**Customer:**	drushbrook@hensall.com

Date:	12th May 2026	**Further Work Required:**	NO
		F-Gas Compliant:	YES

Job Number	43NA875	**Chiller Name**	ASHP 1, 2
Model Number	2 x CXAF 150	**Serial Number**	ELJ01864, ELJ01863
		Refrigerant Charge	R454B – 54 KG, 54 KG

Report

Please see Louis Bowtel previous documentation regarding the customers Installation and findings.

Attended site to finalise the commissioning and give the customer a partial sign off to 2 x CXAF air-source heat pump machines.

This was not previously possible due to incomplete sequencer Installation and flow validation.

I was Informed that the sequencer was now complete with only a return visit required to finalise the graphics to the Interface.

To validate flow more accurately, I run machines up to gain 40'C LTHW system temperature.

Liaised with Vincent from Hensall who organised a water commissioning engineer, to assist with flow validation to both machines.
He confirmed (110%) design flow rate of 13.2 Litres per second through each machine with the LTHW pumps fixed at 30 Hz.
Also confirming flow wasn't reduced in both control scenarios of Duty, Standby and Duty, Duty.

Taking Into consideration the three-way bypass valve, which can mix leaving water back on the return of each machine (This to help with cold water startups) We confirmed the flow would not go below the design minimum of 11.2 Litres per second.
To improve temperature and flow control, I adjusted the minimum valve position from 50% to 60%, with a wider temperature deadband of 15'C. This to ensure appropriate flow rate and desired temperatures during machine sequencing.
This was all completed via the machines Elmwood_WSHP_1_Valve_Control program.

Whilst design flow rates were confirmed, I taught both IFM flow sensors a high and low percentage. This so accurate flow percentage could be recorded. I calculated 30% was below the design minimum, with both sensors flow trip point set to this level.

I also added a new program TMS_Llid_Flow_Conversion to both machines so a percentage of flow could be recorded to help with future monitoring and fault finding.

On the request of the customer, I left the Trane sequencer on Hand mode so both machines we continue to run via its own control.
Whilst on site I also liaised with the customers own controls engineer who confirmed their primary high-level interface was not yet communicating with our sequencer. He mentioned further support from Trane controls may be needed to make sure Integration is complete.

Due to project on-going, I would suggest maintenance visits, so any future problems can be identified quickly and if required covered by factory warranty.

Trane UK Limited
Lawrence House
Viables Industrial Estate
A1 Jays Close
Basingstoke, Hampshire, UK
RG22 4LT

Phone: +44 (0) 8457 165 162 | Fax +44 (0) 1256 306 001

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Recommendations

- **ASHP – 3, CXAX - ELJ01853 Is not commissioned. Parts are required in relation to the hydraulic check valve. Machine to be commissioned whilst flow rate in confirmed and validated.**
- **ASHP – 1, CXAF - ELJ01864 required a new compressor overload.**
- **Sequencer – Completion to display graphics and customer Integration.**

Trane technicians will be returning Friday 15th May and Monday 18th May

Job Timings

Technician Name	Date	Travel Start	Job Start	Job End	Travel End	Pause	Total Hours	Overnight
Jon Fairbourne								

Jon Fairbourne
Lead Service Technician (UK South East)
Trane
07795014142
Jon.fairbourne@trane.com

Customer Name:	**Customer Signature:**
Date: Click or tap to enter a date.	**Position:**

7.11

ASHP 0.03 commissioning records

The following 38 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-ASHP003-CC
Asset	ASHP 0.03
Provided by	Trane UK Ltd
Source file	Trane start-up and F-gas report, ASHP 0.03.pdf
Pages	38

Trane UK Limited
Lawrence House - Jays Close - Basingstoke
Hampshire, UK RG22 4LT
Ph: +44 (0) 8457165162 Fax +44 (0) 1256306001

www.trane.com

Report #: Jon Fairbourne 3.693481722

Job #: 43NA875
Customer Ord.: -
Serial nr ELJ01853, Model CXAX035

Building name	Elmwood Leisure Centre
Building addr.	Market Gale, Elmwood
Building city	Kent, EL6 4QT
Building #	Elmwood Leisure Centre

Customer company	Hensall Mechanical Services Ltd
Customer Nr	NA
Job completed?	Yes
Must produce a quotation?	No

Risk Evaluation	Extra PPE required (specify which ones)
	AS PER JSA

Ergonomic (lifting, position, constrains)	Average
Fall	Average
Confined spaces	Average

Reason of call	Start the unit
Unit & plant status on tech arrival	Unit Stopped
Unit & plant status on tech leaving	Unit Running

Refrigerant type	R454B			
Refrigerant charge, kg	10	10	-	-
Complies with FGAS	Yes			
	This unit has been leak checked in accordance with f-gas regulations and there were no leaks found.			

Job description

First Start-Up according to the manufacturer's instructions. The detailed description of activities and related results are described in annex, where you can find the technical advice provided by Trane, which you must follow carefully for a safe, reliable and profitable use of your machine.

Technician name	Date	Trav. Start	Job start	Job end	Travel end	Pause	Job & travel	Travel mil.	Overnight
Jon Fairbourne	20/05/2026	7:00	8:00	15:00	16:00		9:00	10	No
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-

Unit starts & Unit run hour						
	Cmpr A	Cmpr B	Cmpr C	Cmpr D	Cmpr E	Cmpr F
Starts	-	-	-	-	-	-
Hours	-	-	-	-	-	-

Serial # of the refrigerant / recovery / reclaim cylinders used	-	-	-	-	-	-	
	-	-	-	-	-	-	

Suggested repair / upgrading

Installation is only partly acceptable, unit can be started, but Customer have to perform the modifications described in "Installation Remarks"

27/05/2026

Hensall Mechanical Services

Trane UK Limited

Lawrence House - Jays Close - Basingstoke

Hampshire, UK RG22 4LT

Ph: +44 (0) 8457165162 Fax +44 (0) 1256306001

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Report #: Jon Fairbourne 3.693481722

Job Number -

Job #: 43NA875

Customer Ord.: -

Building name	Elmwood Leisure Centre	Customer company	Hensall Mechanical Services Ltd
Building #	Elmwood Leisure Centre	Customer Nr	NA

F-Gas Unit Booklet, Regulation (EU) n° 573/2024 of the EU Parliament and of the Council - Cust. Reference ASHP 3

Data of Company responsible for Unit or Plant Maintenance

Name	Hensall Mechanical Services Ltd	Address	Eggborough
Phone		Email	
Fax		Activity	

Plant or Device data

Unit Model	CXAX035			Serial number			ELJ01853
Building city	Kent, EL6 4QT			Refrigerant type	R454B	GWP	#N/A
Refrigerant charge, kg	ckt 1	10.00	ckt 2	10.00	ckt 3	-	ckt 4	-
Tons CO2 equivalent								

Maintenance company references

Name & Role (1)			Jon Fairbourne Certif. Tech.
Tech's Certification #			5.50031E+11
Company	Trane UK Limited	VAT #	GB 354 779609
Company's Certification #			REF1011421
Date of last intervention (by Trane)			Pls See previous report
Date of first intervention (by Trane, including StartUp)			Pls See previous report

Results of checks

Is The Machine Leak Free?		Yes	
Leak detection system installed?	No	Date of last checkout	N.A.
One or more leaks repaired:	No	Date of leak repair	-

Repair description

There are leaks requiring unit stoppage, to be repaired within (3):	
Next leak control to be carried out within:	27/05/2027
Serial number, Type and sensitivity of leak detector used	#0, 0
Date of last control of detector sensitivity	

Recovery of Controlled Fluids (Retrofit or Disposed)

Refrigerant movement details	Refriger.	ckt 1	ckt 2	ckt 3	ckt 4
Refrigerant transferred to bottles [kg]					
Refrigerant re-charged into unit [kg]					
Refrigerant to be disposed [kg]					
Refrigerant topping supplied by Trane [kg]					
Refrigerant topping supplied by Customer [kg]					
Reason for topping refrigerant		-	-	-	-
Pressure test: bars - minutes		-	-	-	-
Vacuum standing test: microns - minutes		-	-	-	-

Oil and waste records

Oil reclaimed, lts		-	-	-	-
New oil , lts		-	-	-	-
Waste has been grouped for later disposal?					Not Applicable

Note 1 Name of Maintenance company responsible for Unit or Plant

Note 2

Note 3 Leak greater than 10% of circuit charge must be repaired within 30 days, unit must be stopped until repair.

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Hampshire, UK RG22 4LT

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www.trane.com

Serial number	ELJ01853

JOB SAFETY ASSESSMENT - EQUIPMENT

Job Site Name:	Elmwood Leisure Centre
Date:	26/05/2026
Performed By:	Jon Fairbourne
Job Number	**43NA875**

			Yes	No	N/A
Work Area and Material Handling	1.1	Is there a safe area for loading/unloading your vehicle?	X		
	1.2	Are the access to the unit and working area, free from slippery floor, debris, obstacles, holes etc...that may contribute to a slip, trip or fall ?	X		
	1.3	Is the working area provided with sufficient space, adequate lighting / noise level / ventilation / ambient temperature to perform the work?	X		
	1.4	The handling of materials and tools, to and from the working area, is safe.	X		
	1.5	If there is co-activity with other workers, the risks have been assessed and are under control.	X		
	1.6	If you are working as a lone worker, you have a mean to send an alert or the customer is visiting/contacting you frequenlty.	X		
	1.7	Overall, the access to the unit and work area, are free from high risk.	X		
Fire Safety and Emergency	2.1	In an emergency situation there is a clear escape route with the necessary emergency lighting available.	X		
	2.2	There are fire extinguishers readily available around the equipment or at least within 30m of the working area.	X		
	2.3	If you perform "Hot Work" (brazing, welding, grinding, etc) have you completed a hot work permit ?	X		
	2.4	Overall, this job can be completed without high risk from fire safety and emergency readiness.	X		
Work at Height	3.1	All steps, platforms, ladders, scaffolding are safe and have been fully inspected prior to use.	X		
	3.2	Will you be working at an height below 1.2 meters and more than 2 meters of an unprotected edge.	X		
	3.3	If the use of a safety harness is required, you have the relevant training, equipment and an appropriate anchor point available.	X		
	3.4	Roofs and ceiling voids are provided with safe walkways or other access and all skylights are secured with fixed safety devices to prevent fall through	X		
	3.5	Overall, this job can be completed without high risk from working at heights.	X		
Confined Spaces	4.1	Overall, this job can be completed without accessing a designated Confined Space.	X		
Electrical Safety and LoTo	5.1	The work on the unit can be done with the power OFF.	X		
	5.2	If yes, the equipment can be isolated to work safely and you have a full LoTo kit.	X		
	5.3	If no: your work is limited to inspection, test, troubleshooting and measurement of live parts.	X		
	5.4	If you work on live electricity, you have and wear all the company's required electrical PPE and arc flash kit to work safely on or near energised components.	X		
	5.5	All of your electrical leads or appliances, have been inspected for defects or damages prior to use.	X		
	5.6	Overall, you can perform safely your work on or near energised electrical systems.	X		
Tools Equipment and PPE	6.1	All the power tools have been carefully inspected and are safe to be used: electrical cords, guarding, etc	X		
	6.2	You have, ready at hand, all the necessary PPE to perform the planned tasks at this job site. All the PPE are clean, not expired and in good condition.	X		
	6.3	Overall, all the tools, equipment and PPE you will be using have been inspected and are safe to use.	X		
Hazardous Substances	7.1	If you are using chemicals, hazardous substances, dangerous goods (e.g. Lubricants, oils, refrigerants, aerosols, etc), you have all the necessary compatible tools and PPE to handle them in a safe way.	X		
	7.2	If you are working with units running on specific refrigerant (A2L, B2L, A2, B2, A1 or B1), you have the necessary training, equipment and PPE to perform your job safely.	X		
	7.3	You have access to all up to date SDS for all hazardous substances used by Trane on site or present in the unit.	X		
	7.4	Overall, you can safely perform your task with all the hazardous substances you will be working with .	X		

Found all okay

TRANE®

Cooling and Heating
Systems and Services

UNIT START UP REPORT

CONQUEST

CGAX / CXAX



BUILDING NAME	Elmwood Leisure Centre
BUILDING ADDRESS	Market Gale Road,Elmwood,BR2 4QT,United Kingdom
CUSTOMER	Henshall
UNIT MODEL	CXAX035SELN
CUST. REFERENCE	ASHP 3
SERIAL NUMBER	ELJ01853
REFRIGERANT TYPE [SEE OWU]	R454B
EVAPORATOR TYPE	Brzaed Plate heat exchanger
CONDENSER TYPE	Copper, Aluminium, Fin & Tube
BUILDING NR	
TRANE EQUIPMENT SALES ORDER	43NA875
TECHNICIAN NAME	Louis Bowtell
UNIT STARTED ON	29/04/2026
UNIT DELIVERED ON	
UNIT WARRANTY EXPIRES ON	

1. PRE-STARTUP OPERATIONS

CHILLED WATER LOOP		Design Values		Actual Values	
Inlet and outlet gauges, with proper reading scale	Y	8.1	kPa		kPa
Vibration eliminators installed	Y				
Thermometer water inlet	Y				
Thermometer water outlet	Y				
Strainer	Y				
Volume of water circuit			m3		
Water pump operated by chiller control	Y				
Flow control switch is operative	Y		%		
Actual glycol type and %			%		%

CONDENSER COOLING

Check for fans sense of rotation	Y
Free circulation of cooling air	Y

ELECTRICAL POWER SUPPLY CIRCUIT

		Unit off		Unit on	
L 1 - L 2	Y	421	V	419	V
L 2 - L 3	Y	420	V	417	V
L 3 - L 1	Y	419	V	418	V
Control power Supply Volts	Y	114	V	114	V
Control modules power supply	Y	28	V	28	V
Fuse Disconnect Switch or Circuit Breaker Available	Y	YES		NO	
Check main disconnect switch aux contact operations	Y				
Main Power wiring cross-section size			mm²		
Type of power supply cables		SWA			

2. CHECKS AND SETTINGS OF CHILLER UNIT

UNIT ASSEMBLY

		Ckt 1		Ckt 2
Holding Charge Check		Y		Y
Chiller foundation	Pad	Y	Spring	

COMPRESSOR

	Ckt 1	Ckt 2
Oil level [4th of sightglass]	Y	Y
Oil Acidity Test		
Oil and refrigerant valves are open or throttled as needed.?		
Wiring connection have been tightened?	Y	Y

STARTER PANEL

Wiring connection have been tightened?			Y			Y		
Compressor thermic setting	*17*	(A)	22	(A)	17	(A)	22	(A)
Pump thermic setting	*10*	(A)	*10*	(A)				
Relay operating Control								
Relay testing and starting								

REFRIGERANT CIRCUIT

Refrigerant charge, kg	R454B		*10*	kg	*10*	kg
Leaks search			Y		Y	

CONTROL PANEL

Wiring connection have been tightened?			Y			

Customer supplied wirings are clearly identified and comply with Trane indications in terms of type, size, voltage, position

LP Pressure Switch (CH532-CH530)			-3.3	C	-3.3	C
Check and set HP switch, 1st stage			41	Bar	41	Bar
Check and set HP switch, 2st stage				Bar		Bar
Fan Pressure Switch Control				Bar		Bar
Check and set UCM			Y			
Dry-Run Starter			Y			

MOTOR INSULATION (NEVER APPLY MEGGER TO MACHINES UNDER VACUUM)

	1A		1B		1C		2A		2B		2C	
Terminal stud 1 vs grd	*>1000*	MΩ	*>1000*	MΩ		MΩ	*>1000*	MΩ	*>1000*	MΩ		MΩ
Terminal stud 2 vs grd	*>1000*	MΩ	*>1000*	MΩ		MΩ	*>1000*	MΩ	*>1000*	MΩ		MΩ
Terminal stud 3 vs grd	*>1000*	MΩ	*>1000*	MΩ		MΩ	*>1000*	MΩ	*>1000*	MΩ		MΩ

NAMEPLATE DATA

	CMPR 1A	CMPR 2B
Type	Scroll	Scroll
Serial number	QL2507164036	QL2507164034
Volt	380V-415V	380V-415V
IN		
KW	22KW	22KW
CYC		

	CMPR 1B	CMPR E
Type	Scroll	
Serial number	RB2507286970	
Volt	380V-415V	
IN		
KW	36kw	
CYC		

	CMPR 2A	CMPR F
Type	Scroll	
Serial number	RB2507286975	
Volt	380V-415V	
IN		
KW	36	
CYC		

	PUMP 1	PUMP 2
Type	Grundfos	Grundfos
Serial number	2186	2189
Volt	380V-415V	380V-415V
IN		
KW	1.25	1.25

3. CHILLER OPERATING PARAMETERS

Operating Mode	

				Ckt 1			Ckt 2		
				A1	A2	A3	B1	B2	B3
Voltage	L 1 - L 2		(V)	418	418		417	418	
	L 2 - L 3		(V)	417	416		416	416	
	L 3 - L 1		(V)	416	419		416	416	
Motor Amps		L1	(A)	11	15		11	15	
		L2	(A)	11	15		11	15	
		L3	(A)	11	15		11	15	
Heating Entering Temp°C				37.1			37.2		
Heating Leaving Temp°C				42.3			43.4		
Evaporating Temp°C				0.9			0.8		
Refrigerant Suction Pressure (Bar)				6.48			6.38		
Air Supply Temp°C				21.7			22.1		
Air Leaving Temp°C				?			?		
EEV Position %				87%			83%		
Suction Superheat°C				8.7			8.4		
Condensing Temp°C				47.1			48.2		
Refrigerant Condenser Pressure (Bar)				25.5			25.4		
Discharge Temp Comp°C				93			90		
Subcooling°K				?			?		
Discharge Superheat°C				46			42		
Compressor Hour				01:46	01:42	-	01:17	01:21	-
Compressor Starts				6	6	-	6	6	-

CONDENSER FAN CURRENT (AMPS)

	C1	C2			
PH1 (A)	1.8	1.8			
PH2 (A)	1.8	1.8			
PH3 (A)	1.8	1.8			

PUMP CURRENT (AMP)

	P1	P2
PH1 (A)	1.6	1.6
PH2 (A)	1.6	1.6
PH3 (A)	1.6	1.6

4. SPECIFIC REMARKS ABOUT THIS REFRIGERATION MACHINE.
IMPORTANT REMARKS

The commissioning has been performed by a qualified Trane Technician, who thoroughly checked control and safeties of this equipment, and who has ensured the smooth operation of the refrigeration unit. In order to maintain this level of operations, a proper maintenance must be ensured by qualified personnel, as per recommendations by the Installation, Operation and Maintenance Manual ...

IOM N°

...that you received from Trane, and as per Maintenance Guide indications. It is also reccomended to have a Trane Technician to perform an "Extended Start" Inspection between 500p and 1000 hours of operation.

SPECIAL REMARKS ABOUT INSTALLATION

PLEASE SEE ATTACHED

CONCLUSIONS:

☐ **INSTALLATION IS ACCEPTABLE AND UNIT CAN BE OPERATED WITHOUT RESERVES.**

Chiller can be put into service.

☐ **INSTALLATION IS PARTIALLY ACCCEPTABLE, UNIT CAN BE OPERATED, BUT THE CUSTOMER HAVE TO CARRY OUT TEH MODIFICATION DESCRIBED IN NOTES.**

Chiller can be put into service, but Customer must perform those modifications described in "Special remarks about Installation".

☐ **INSTALLATION IS NOT ACCEPTABLE SINCE DO NOT COMPLIES WITH IOM MANUAL RECEIVED BY CUSTOMER: UNIT CANNOT BE OPERATED UNDER TRANE RESPONSABILITY.**

Chiller CANNOT be put into service under Trane's responsabily due to current installation status.

Wednesday, May 20, 2026
04:01:35 PM

Chiller Service Report

Prepared for: Elmwood Leisure Centre

Technician:	Jon Fairbourne
Chiller Name:	ASHP 3
Model Number:	CXAX035E1BB1BXCXX2X BA3BXXBXXXA4AXX7BXX4 X4XXD1XXXXX
Serial Number:	ELJ01853
Job Name:	Elmwood Leisure Centre
Work Order Number:	
Location:	
Sales Office Name:	
Sales Order Number:	43NA875
Sales Office Address:	
Sales Office Phone Number:	
Customer Name:	
Customer Address:	
Customer Phone Number:	

Notes: Commissioning, Circuit 1 Running 100%

Chiller Status

Chiller Modes

Top Level Mode	**Running**	Sub Level Mode 4
Sub Level Mode 1	**Maximum Capacity**	Sub Level Mode 5
Sub Level Mode 2	**Hot Water Control**	Sub Level Mode 6
Sub Level Mode 3		

Circuit 1 Modes

Top Level Mode Ckt1	**Running**	Sub Level Mode 4 Ckt1
Sub Level Mode 1 Ckt1	**Compressor A Running**	Sub Level Mode 5 Ckt1
Sub Level Mode 2 Ckt1	**Compressor B Running**	Sub Level Mode 6 Ckt1
Sub Level Mode 3 Ckt1		

Circuit 2 Modes

Top Level Mode Ckt2	**Stopped**	Sub Level Mode 4 Ckt2

Sub Level Mode 1 Ckt2	**Compressor Sump Heater On**	Sub Level Mode 5 Ckt2
Sub Level Mode 2 Ckt2	**Front Panel Circuit Lockout**	Sub Level Mode 6 Ckt2
Sub Level Mode 3 Ckt2		

Diagnostic Modes

Chiller Mode at Time of Last Diagnostic	Circuit 1 Sub Mode at Time of Last Diag.
Chiller Sub Mode 1 at Time of Last Diag	Circuit 1 Sub Mode at Time of Last Diag.
Chiller Sub Mode 2 at Time of Last Diag	Circuit 1 Sub Mode at Time of Last Diag.
Chiller Sub Mode 3 at Time of Last Diag	Circuit 2 Mode at Time of Last Diag.
Chiller Sub Mode 4 at Time of Last Diag	Circuit 2 Sub Mode at Time of Last Diag.
Chiller Sub Mode 5 at Time of Last Diag	Circuit 2 Sub Mode at Time of Last Diag.
Chiller Sub Mode 6 at Time of Last Diag	Circuit 2 Sub Mode at Time of Last Diag.
Circuit 1 Mode at Time of last Diag.	Circuit 2 Sub Mode at Time of Last Diag.
Circuit 1 Sub Mode at Time of Last Diag.	Circuit 2 Sub Mode at Time of Last Diag.
Circuit 1 Sub Mode at Time of Last Diag.	Circuit 2 Sub Mode at Time of Last Diag.
Circuit 1 Sub Mode at Time of Last Diag.	

Chiller

BAS Demand Limit Setpoint	**100 %**	Outdoor Air Temperature	**21.64 °C**
BAS Chilled Water Setpoint	**7 °C**	Power Up Delay Inhibit:	**00:00 Min:Sec**
BAS Hot Water Setpoint	**45 °C**	Setpoint Source	**Front Panel**
BAS Hot Water Command	**On**	Unit Running Status	**On**
BAS Evap Water Pump Speed Setpt	**100 %**	Unit Running Powered Indicator	**On**
Evaporator Water Pump Request BAS	**Auto**	Evaporator Water Flow Status	**Flow**
Active Chilled Water Setpoint	**7 °C**	Evaporator Pump Off Delay Timer	**00:00 Min:Sec**
Active Hot Water Setpoint	**45 °C**	Evaporator Water Pump Command	**On**
Active Hot Water Command	**On**	Evaporator Water Pump Output Status	**On**
Active Demand Limit Setpoint	**100 %**	Evaporator Water Flow Switch	**Flow**
Active Evap Water Pump Speed Setpt	**100 %**	Evaporator Entering Water Temperature	**37.17 °C**
Arbitrated Chilled Water Setpoint	**7 °C**	Evaporator Leaving Water Temperature	**42.61 °C**
Arbitrated Hot Water Setpoint	**45 °C**	Low Evaporator Water Temp Cutout	**3 °C**
Capacity Control Softload Time	**900 Sec**	Auxiliary Chilled Water Setpoint	**7 °C**
Front Panel Chilled Water Setpoint	**7 °C**	Auxiliary Hot Water Setpoint	**45 °C**
Front Panel Hot Water Setpoint	**45 °C**	External Chilled Water Setpoint	**------**
Front Panel Hot Water Command	**On**	External Hot Water Setpoint	**------**
Actual Degrees of Chilled Water Reset	**0 °C**	External Hot Water Command	**Off**
Desired Degrees of Reset	**0 °C**	External Demand Limit Setpoint	**------**
Total Degrees of Hot Water Reset	**0 °C**	Maximum Capacity Relay	**Inactive**

HWR Actual Degrees of Reset	**0 °C**	Evap Water Freeze Avoid Request Relay	**Open**
HWR Desired Degrees of Reset	**0 °C**	Max Restart Time Remaining	**0**
High Hot Water Temperature Limit Reset	**0 °C**	Evaporator Water Pump Command Pump 1	**Off**
Chiller Last Service	**05/20/2026 12:57:00 PM**	Evaporator Water Pump Command Pump 2	**On**
Chiller Load Command	**50 %**	Evap Inverter 1 Run Command	**On**
Chiller Running Time	**02:09 Hr:Min**	Evaporator Water Pump Running Time Pump 1	**02:33 Hr:Min**
Chiller Service Time Remaining	**5999 Hr**	Evaporator Water Pump Running Time Pump 2	**01:34 Hr:Min**
Cooling Low Ambient Lockout	**Enable**	Evaporator Water Pump Speed Command	**100 %**
Cooling Low Ambient Lockout Temperature	**-10 °C**	Evap Water Pump 1 Last Service	**05/13/2025 07:40:21 AM**
Heating Low Ambient Lockout	**Enable**	Evap Water Pump 1 Service Time Remaining	**19998 Hr**
Heating Low Ambient Lockout Temperature	**-18 °C**	Evap Water Pump 2 Last Service	**05/13/2025 07:27:28 AM**
Defrost Entry Approach Temp	**------**	Evap Water Pump 2 Service Time Remaining	**19999 Hr**
Front Panel Demand Limit Setpoint	**100 %**	Evaporator Pump Command: Unit Off	**Auto**
Discharge Temp HWR Current Value	**0 °C**	Evaporator Pump Command: Unit On	**Auto**

Evaporator Circuit 1

Evaporator Approach Temperature Ckt1	**------**	Running Powered Indicator Ckt1	**On**
Compressor Suction Refrigerant Temp Ckt1	**11.13 °C**	Service Pumpdown Status Ckt1	**Inactive**
Compressor Suction Superheat Ckt1	**8.666 °C**	Low Refrigerant Temperature Integral Ckt1	**------**
Active Superheat Setpoint Ckt1	**5 °C**	EXV Command (%) Ckt1	**85.47 %**
Evaporator Refrigerant Pressure Ckt1	**687.8 kPaG**	EXV Command (steps) Ckt1	**2136 steps**
Evaporator Saturated Rfgt Temp Ckt1	**2.464 °C**	EXV Maximum Steps Ckt1	**------**
External Circuit Lockout Status Ckt1	**Not Locked Out**	EXV Percent Open Ckt1	**85.48 %**
Front Panel Circuit Lockout Ckt1	**Not Locked Out**	EXV Position Steps Ckt1	**2137 steps**
Running Indicator Ckt1	**On**	EXV Flow Coefficient Ckt1	**83.08 %**

Evaporator Circuit 2

Evaporator Approach Temperature Ckt2	**------**	Running Powered Indicator Ckt2	**Off**
Compressor Suction Refrigerant Temp Ckt2	**16.45 °C**	Service Pumpdown Status Ckt2	**Inactive**
Compressor Suction Superheat Ckt2	**0.185 °C**	Low Refrigerant Temperature Integral Ckt2	**------**
Active Superheat Setpoint Ckt2	**5 °C**	EXV Command (%) Ckt2	**0 %**
Evaporator Refrigerant Pressure Ckt2	**1090.4 kPaG**	EXV Command (steps) Ckt2	**0 steps**
Evaporator Saturated Rfgt Temp Ckt2	**16.265 °C**	EXV Maximum Steps Ckt2	**------**
External Circuit Lockout Status Ckt2	**Not Locked Out**	EXV Percent Open Ckt2	**0 %**
Front Panel Circuit Lockout Ckt2	**Locked Out**	EXV Position Steps Ckt2	**0 steps**
Running Indicator Ckt2	**Off**	EXV Flow Coefficient Ckt2	**0**

Condenser Circuit 1

Condenser Refrigerant Pressure Ckt1	**2568.6 kPaG**	Air Flow Ckt1	**100 %**
Condenser Saturated Rfgt Temp Ckt1	**47.603 °C**	Air Flow Goal Ckt1	**100 %**
Differential Refrigerant Pressure Ckt1	**1880.8 kPaD**	Condenser Fan Board 1 Relay 1 Ckt1	**On**
Active Discharge Pressure Limit Setpoint	**85 %**	Condenser Fan Board 1 Relay 3 Ckt1	**On**
Condenser Temperature Target Ckt1	**------**	Defrost Active Ckt1	**Inactive**
Evaporator Temperature Target Ckt1	**17.484 °C**	Warm-Up Cycle Ignore Time Ckt1	**188 Min**
Fan Control Air Flow Goal Ckt1	**100 %**	Fan Speed Ckt1	**1060 rpm**
Fan Control Feedforward Flow Estimate Ckt1	**0 %**	Minimum Fan Speed	**100 rpm**
Predicted Condensing Temp Ckt1	**2.482 °C**	Maximum Fan Speed	**1060 rpm**

Condenser Circuit 2

Condenser Refrigerant Pressure Ckt2	**2120.2 kPaG**	Air Flow Ckt2	**0 %**
Condenser Saturated Rfgt Temp Ckt2	**39.92 °C**	Air Flow Goal Ckt2	**0 %**
Differential Refrigerant Pressure Ckt2	**1029.8 kPaD**	Condenser Fan Board 1 Relay 1 Ckt2	**Off**
Active Discharge Pressure Limit Setpoint	**85 %**	Condenser Fan Board 1 Relay 3 Ckt2	**Off**
Condenser Temperature Target Ckt2	**------**	Defrost Active Ckt2	**Inactive**
Evaporator Temperature Target Ckt2	**17.727 °C**	Warm-Up Cycle Ignore Time Ckt2	**173 Min**
Fan Control Air Flow Goal Ckt2	**0 %**	Fan Speed Ckt2	**0 rpm**
Fan Control Feedforward Flow Estimate Ckt2	**------**	Minimum Fan Speed	**100 rpm**
Predicted Condensing Temp Ckt2	**7.5 °C**	Maximum Fan Speed	**1060 rpm**

Motor 1A

Restart Inhibit Time Cprsr1A	**00:00 Min:Sec**	Motor Avail To Start Indicator Cprsr1A	**No**
Motor Run Command Cprsr1A	**True**		

Motor 1B

Restart Inhibit Time Cprsr1B	**00:00 Min:Sec**	Motor Avail To Start Indicator Cprsr1B	**No**
Motor Run Command Cprsr1B	**True**		

Motor 2A

Restart Inhibit Time Cprsr2A	**00:00 Min:Sec**	Motor Avail To Start Indicator Cprsr2A	**Yes**
Motor Run Command Cprsr2A	**False**		

Motor 2B

Restart Inhibit Time Cprsr2B	**00:00 Min:Sec**	Motor Avail To Start Indicator Cprsr2B	**Yes**
Motor Run Command Cprsr2B	**False**		

Compressor 1A

Differential Refrigerant Pressure Ckt1	**1880.8 kPaD**	Running Status Cprsr1A	**On**

Compressor Involute Press Diff Ckt1	**381.3 kPaD**	Running Time Cprsr1A	**01:46 Hr:Min**
Evaporator Refrigerant Pressure Ckt1	**687.8 kPaG**	Starts Cprsr1A	**6**
Compressor Discharge Temperature Ckt1	**92.11 °C**	Last Service Cprsr1A	**05/20/2026 12:57:10 PM**
Front Panel Compressor Lockout Cprsr1A	**Not Locked Out**	Service Time Remaining % Cprsr1A	**99.99 %**

Compressor 1B

Front Panel Compressor Lockout Cprsr1B	**Not Locked Out**	Starts Cprsr1B	**6**
Running Status Cprsr1B	**On**	Last Service Cprsr1B	**05/20/2026 12:59:20 PM**
Running Time Cprsr1B	**01:42 Hr:Min**	Service Time Remaining % Cprsr1B	**100 %**

Compressor 2A

Differential Refrigerant Pressure Ckt2	**1029.8 kPaD**	Running Status Cprsr2A	**Off**
Compressor Involute Press Diff Ckt2	**-1234.62 kPaD**	Running Time Cprsr2A	**01:06 Hr:Min**
Evaporator Refrigerant Pressure Ckt2	**1090.4 kPaG**	Starts Cprsr2A	**5**
Compressor Discharge Temperature Ckt2	**39.9 °C**	Last Service Cprsr2A	**05/20/2026 01:53:40 PM**
Front Panel Compressor Lockout Cprsr2A	**Not Locked Out**	Service Time Remaining % Cprsr2A	**100 %**

Compressor 2B

Front Panel Compressor Lockout Cprsr2B	**Not Locked Out**	Starts Cprsr2B	**5**
Running Status Cprsr2B	**Off**	Last Service Cprsr2B	**05/20/2026 01:53:40 PM**
Running Time Cprsr2B	**01:12 Hr:Min**	Service Time Remaining % Cprsr2B	**100 %**

Chiller Setpoints

Feature Settings

Cooling Low Ambient Lockout	**Enable**	High Evaporator Water Temp Cutout	**55 °C**
Cooling Low Ambient Lockout Temperature	**-10 °C**	Limit Relay Filter Time	**1200 Sec**
Heating Low Ambient Lockout	**Enable**	Low Evaporator Water Temp Cutout	**3 °C**
Heating Low Ambient Lockout Temperature	**-18 °C**	Low Refrigerant Temperature Cutout	**-3.333 °C**
Evaporator Water Pump Off Delay	**1 Min**	Maximum Capacity Relay Filter Time	**1200 Sec**

Level 4 Gains and Start Sequence

Air Flow Damping Coefficient	**10 %**	Part-Load Efficiency Optimization Enable	**Enable**
Antifreeze Heater Evap Soft Threshold Temp	**2.222 °C**	Part-Load Efficiency Setpt Settling Time	**300 Sec**
Compressor Minimum On Time	**2 Min**	Part-Load Eff Adjustment Offset Ckt1	**0 kPaD**
Compressor Minimum On Time In Defrost	**10 Sec**	Part-Load Eff Adjustment Offset Ckt2	**0 kPaD**
Condenser Fan Startup Delta Temperature	**2.5 °C**	Part-Load Eff Adjustment Factor Ckt1	**1**

Condenser Size Adjustment Factor Ckt1	**1**	Part-Load Eff Adjustment Factor Ckt2	**1**
Condenser Size Adjustment Factor Ckt2	**1**	Loss of Charge Detection	**Disable**
Cooling Open Loop Dryout Percent	**70 %**	Loss of Charge Detection Flow Ratio	**1.75**
Cooling Open Loop Dryout Return Percent	**90 %**	Restart Inhibit Diagnostic	**Disable**
Cooling EXV Off Cycle Position Setpoint	**7 %**	Restart Inhibit Free Starts	**2**
Cooling Pre-Position Interval Percent	**65 %**	Restart Inhibit Start To Start Time	**10 Min**
Cooling Start Closed Loop Percent	**110 %**	Compressor Suction Superheat Setpt Ckt1	**6 °C**
Heating EXV Off Cycle Position Setpoint	**7 %**	Compressor Suction Superheat Setpt Ckt2	**6 °C**
Heating Max Fan Speed Correction	**Disable**	Heating Superheat Setpoint Ckt1	**5 °C**
Heating Max Fan Speed Correction Limit	**80 %**	Heating Superheat Setpoint Ckt2	**5 °C**
Heating Max Fan Speed Correction Min Air Temp	**5 °C**	Superheat Setpoint Slew Rate	**1 °C**
Heating Max Fan Speed Correction Max Air Temp	**12 °C**	Superheat Integral Gain	**0.05**
Heating Open Loop Dryout Percent	**65 %**	Superheat Proportional Gain	**2**
Heating Open Loop Dryout Return Percent	**70 %**	Superheat Derivative Gain	**5**
Heating Pre-Position Interval Percent	**30 %**	Suction Temperature Filter Multiplier	**0**
Heating Start Closed Loop Percent	**60 %**	Heating Superheat Integral Gain	**0.03**
Discharge Temperature Filter Initial Value	**37.78 °C**	Heating Superheat Proportional Gain	**3**
Discharge Temperature Filter Time Constant	**50 Sec**	Heating Superheat Derivative Gain	**10**
Discharge Temp HWR Unload Offset	**4 °C**	Heating Suction Temperature Filter Multiplier	**3**
Discharge Temp Trip Level	**140 °C**	Warm-Up Cycle Enable	**Enable**
Discharge Temp Unload Level	**136 °C**	Warm-Up Cprsr Staging High Condensing Timer	**120 Sec**
Discharge Temp Hold Level	**120 °C**	Warm-Up Cprsr Staging Low Condensing Timer	**50 Sec**
Defrost Equalization Pressure Level	**300 kPaD**	Water Flow Est Min Temp Diff Setpoint	**8.89 °C**
Estimated Discharge Temperature Offset	**-2.78 °C**	Water Flow Est Min Water Flow Setpoint	**50 %**
Estimated Water Flow Protection Enable	**Enable**	Water Flow Est Temp Diff Adj Setpoint	**0 °C**
Estimated Discharge Temp Trip Level	**134 °C**	Optimal Sump Heater Control	**Enable**
Estimated Discharge Temp Unload Level	**132 °C**	Low Ambient Heating Superheat Reset Minimum	**-1.5 °C**
Estimated Discharge Temp Hold Level	**115 °C**	Evap Lvg Water Temp Staging Step Deadband	**1 °C**
Evap Wtr Loop Freeze Avoid Type	**Adaptive**	High Hot Water Temperature Limit Enable	**Enable**
Evap Wtr Loop Freeze Avoid Temp Margin	**2 °C**	High Hot Water Temperature Limit X1	**-15 °C**
Evap Wtr Loop Freeze Avoid Time Constant	**10 Min**	High Hot Water Temperature Limit X2	**10 °C**
Evap Wtr Loop Freeze Avoid Pump Max Off	**300 Min**	High Hot Water Temperature Limit Y1	**41 °C**
Evap Water Flow Loss Debounce Time	**1 Sec**	High Hot Water Temperature Limit Y2	**60 °C**

Evaporator Water Pump Speed Maximum	**100 %**	Warm-Up Cycle Ignore Timer Type	**Adaptive**
Evaporator Water Pump Speed Minimum	**60 %**	Warm-Up Cycle Ignore Time at Min Approach	**480 Min**
EXV Position For Pressure Equalization	**50 %**	Warm-Up Cycle Ignore Time at Max Approach	**60 Min**
EXV Pre-Position Hold Time	**0 Sec**	Warm-Up Cycle Ignore Max Approach	**30 °C**
EXV Pre-Position Setpoint	**90 %**	EXV Transition To Close Loop Max Delay Time	**60 Sec**
Fan Control Diff Pressure Setpoint	**830 kPaD**	Low Pressure Cutout Setpoint	**133.6 kPaG**
Fan Control Minimum Pressure Ratio Setpoint	**1.5**	Reversed Pressure Drop Ckt1	**400 kPaD**
Fan Control Minimum Sat Suction Temperature Setpoint	**-2.5 °C**	Reversed Pressure Drop Ckt2	**400 kPaD**
Fan Control Staging Integral Gain	**1**	Non-Reversed Pressure Drop Ckt1	**100 kPaD**
Fan Staging Deadband	**2.5 °C**	Non-Reversed Pressure Drop Ckt2	**100 kPaD**
Fan Staging Time Constant	**6 Sec**	Defrost Exit Limit Timer	**60 Sec**
Low Pressure Ratio Ignore Time Setting	**30 Sec**	Defrost Inter-Circuit Time Delay	**60 Sec**
Low Suction Pressure Limit Buffer	**20 kPaD**	Defrost Start Ignore Time	**600 Sec**
Low Suction Pressure Limit Decay Rate	**2 kPaD**	Sat Suction Temp Dryout Corr Factor	**1.0**
Low Suction Superheat Trip Time Heating	**180 Sec**	Superheat Control Feed Forward Gain	**0.9**
Inverted Water Temp Diagnostic Severity	**Normal Shutdown**	Superheat Control Feed Back Gain	**1.0**
Operational Pumpdown Enable	**Enable**	EXV Low Pressure Limit Max Factor	**2.0**
Operational Pumpdown Term Sat Temp	**-17.778 °C**	EXV Low Pressure Limit Slew Rate	**0.1**
Op Pumpdown Cond Term Pressure	**90 %**	EXV Low Pressure Limit Prop Band	**50 kPaD**
Part-Load Efficiency Integral Gain	**0.02**		

Chiller

Auxiliary Chilled Water Setpoint	**7 °C**	Front Panel Evap Water Pump Speed Setpt	**100 %**
Auxiliary Hot Water Setpoint	**45 °C**	Ext Chilled/Hot Water Setpoint Enable	**Disable**
Capacity Control Softload Time	**900 Sec**	External Circuit Lockout Enable	**Enable**
Chilled Water Reset Type	**Disable**	External Demand Limit Setpoint Enable	**Disable**
Hot Water Reset Type	**Disable**	Front Panel Chilled Water Setpoint	**7 °C**
Chiller Service Enable	**Disable**	Front Panel Hot Water Command	**On**
Chiller Service Interval Setpoint	**6000 Hr**	Front Panel Hot Water Setpoint	**45 °C**
Compressor Service Enable	**Disable**	Front Panel Demand Limit Setpoint	**100 %**
Compressor Target Trip Setpoint	**50 %**	Local Atmospheric Pressure	**101.4 kPaA**
Circuit Staging	**Balanced**	Outdoor Air Maximum Reset	**2.778 °C**
Compressor Staging	**Balanced**	Outdoor Air Reset Ratio	**10 %**
Condenser Pressure Limit Hold Setpoint	**85 %**	Outdoor Air Start Reset	**32.222 °C**
Condenser Pressure Limit Unload Setpoint	**95 %**	Discharge Temp HWR Enable	**Enable**
Cooling Design Delta Temp (Waterside)	**5 °C**	Discharge Temp HWR Offset	**1.5 °C**
Heating Design Delta Temp (Waterside)	**7 °C**	Discharge Temp HWR Ignore Time	**300 Sec**
Defrost Entry Approach Min Ambient Temp	**10 °C**	Discharge Temp HWR Hold Time	**1800 Sec**

Defrost Entry Approach Max Ambient Temp	**23 °C**	Discharge Temp HWR Slew Rate	**3 °C**
Defrost Maximum Ambient Setpoint	**16 °C**	HWR Outdoor Air Maximum Reset	**2.778 °C**
Defrost Termination Setpoint	**78 %**	HWR Outdoor Air Reset Ratio	**20 %**
Defrost Drying Time	**9 Sec**	HWR Outdoor Air Start Reset	**10 °C**
Maximum Defrost Time	**7 Min**	Power-Up Start Delay	**105 Sec**
Minimum Time Between Defrost Cycles	**20 Min**	Reference Water Temp Difference PAF	**1.07**
Maximum Time Between Defrost Cycles	**1440 Min**	Reset Chiller Service Time	**No**
BAS Maximum Defrost Time Delay	**5 Min**	Reset Evap Water Pump 1 Service Time	**No**
Front Panel Cooling Differential to Start	**2.5 °C**	Reset Evap Water Pump 2 Service Time	**No**
Front Panel Cooling Differential to Stop	**2.5 °C**	Return Water Maximum Reset	**2.778 °C**
Front Panel Heating Differential to Start	**3.5 °C**	Return Water Reset Ratio	**50 %**
Front Panel Heating Differential to Stop	**3.5 °C**	Return Water Start Reset	**5.556 °C**
Evap Flow Overdue Wait Time	**1200 Sec**	Setpoint Source	**Front Panel**
Evap Wtr Loop Freeze Avoid Pump Cntrl	**Enable**	Compressor Staging Deadband Adjustment	**0 °C**
Evap Water Pump Service Enable	**Disable**	Water Pump Service Interval Setpoint	**20000 Hr**

Circuit 1

Reset Service Time Cprsr1A	**No**	Reset Service Time Cprsr1B	**No**

Circuit 2

Reset Service Time Cprsr2A	**No**	Reset Service Time Cprsr2B	**No**

Level 4 Timers

Chiller Running Time Set	**02:09 Hr:Min**	Set Cprsr2B Run Time	**01:12 Hr:Min**
Set Cprsr1A Run Time	**01:46 Hr:Min**	Set Cprsr2B Starts	**5**
Set Cprsr1A Starts	**6**	Evap Pump 1 Run Time Setpoint	**02:33 Hr:Min**
Set Cprsr1B Run Time	**01:42 Hr:Min**	Evap Pump 1 Starts Count Setpoint	**16**
Set Cprsr1B Starts	**6**	Evap Pump 2 Run Time Setpoint	**01:34 Hr:Min**
Set Cprsr2A Run Time	**01:06 Hr:Min**	Evap Pump 2 Starts Count Setpoint	**18**
Set Cprsr2A Starts	**5**		

Device List

Antifreeze Heater Relays	Evaporator Leaving Water Temperature Sensor
Compressor 1A 1B 2A 2B Run Command Relays	Evaporator Water Flow Proving and Phase Protection Input
Compressor 1A and 1B Fault Inputs	Evaporator Water Pump Inverter Speed Output, Frequency and Setpoint Input
Compressor 2A and 2B Fault Inputs	External Auto/Stop and Emergency Stop Inputs
Condenser Fan Analog Speed Outputs, Circuits 1 and 2	External Chilled Hot Water Setpoint, Demand Limit Setpoint and % Capacity Output
Condenser Fans Speed Enable, and Reversing Valve, Circuit 1	External Circuit Lockout Inputs,Circuit 1 and 2
Condenser Fans Speed Enable, and Reversing Valve, Circuit 2	External Heat and Auxiliary Temperature Setpoint Command Inputs
Discharge Pressure Transducer Circuit 1 (0-700 psia)	High Pressure Cutout
Discharge Pressure Transducer Circuit 2 (0-700 psia)	Operating Status Programmable Relays Module 1

Discharge Refrigerant Temperature Sensor Ckt1	Optimal Sump Heater Relays, Circuits 1 and 2
Discharge Refrigerant Temperature Sensor Ckt2	Outdoor Air Temperature Sensor
Electronic Expansion Valve, Circuit 1	Suction Pressure Transducer Circuit 1 (0-700 psia)
Electronic Expansion Valve, Circuit 2	Suction Pressure Transducer Circuit 2 (0-700 psia)
Evap Pump Fault Inputs	Suction Temperature Sensor Circuit 1
Evap Water Pump Relays (single inverter, dual pumps)	Suction Temperature Sensor Circuit 2
Evaporator Entering Water Temperature Sensor	

Alarms and Events

Date	Time	Active / Historic	Description	Target	Severity	Persistence
05/20/2026	11:17	Historic	Evaporator Water Flow Lost Lockout	Chiller	Immediate Shutdown	Latching
05/20/2026	11:14	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/20/2026	11:14	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/20/2026	11:12	Historic	Evaporator Water Flow Lost - Pump2	Chiller	Warning	Nonlatching
05/20/2026	11:12	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/20/2026	10:24	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/20/2026	10:24	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/15/2026	08:20	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/11/2026	07:47	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/08/2026	08:16	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/08/2026	07:44	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/07/2026	09:46	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/06/2026	14:20	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/06/2026	10:50	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/05/2026	15:22	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
04/29/2026	12:49	Historic	Evaporator Pump 2 Fault	Chiller	Immediate Shutdown	Nonlatching
05/13/2025	08:49	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/13/2025	08:49	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/13/2025	08:00	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/13/2025	08:00	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/13/2025	07:56	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/13/2025	07:56	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/13/2025	07:36	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:34	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:33	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:32	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:31	Historic	Comm Loss: Compressor Fault Input	Compressor 2B	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Compressor Fault Input	Compressor 2A	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: High Pressure Cutout Switch	Circuit 2	Immediate Shutdown	Latching

05/13/2025	07:31	Historic	Comm Loss: Suction Temperature	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Suction Pressure Transducer	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Discharge Pressure Transducer	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: External Ckt Lockout	Circuit 2	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Discharge Temperature Sensor	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Compressor Fault Input	Compressor 1B	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Compressor Fault Input	Compressor 1A	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: High Pressure Cutout Switch	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Suction Temperature	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Suction Pressure Transducer	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Discharge Pressure Transducer	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: External Ckt Lockout	Circuit 1	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Discharge Temperature Sensor	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Pump Inv1 Fault Input	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Pump Inv1 Freq Feedback	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Auxiliary Setpoint Command	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Ext Chilled/Hot Water Setpoint	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: External Hot Water Command	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Programmable Relay Board 1	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Ext Demand Limit Setpoint	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Emergency Stop Feedback Input	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: External Auto/Stop	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Leaving Water Temp	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Entering Water Temp	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evaporator Water Flow Switch	Chiller	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Phase Protection Fault Input	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Outdoor Air Temperature	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Reversing Valve	Circuit 2	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Reversing Valve	Circuit 1	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evaporator Antifreeze Heater	Chiller	Warning	Latching

05/13/2025	07:31	Historic	Comm Loss: Fan Board 1 Relay 1	Circuit 2	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evaporator Water Pump 2 Relay	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evaporator Water Pump 1 Relay	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Fan Inverter Speed Command	Circuit 2	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Fan Inverter Speed Command	Circuit 1	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Fan Board 1 Relay 1	Circuit 1	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Run Command Compressor B	Compressor 2B	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Run Command Compressor A	Compressor 2A	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Run Command Compressor B	Compressor 1B	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Run Command Compressor A	Compressor 1A	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Sump Heater	Circuit 2	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Sump Heater	Circuit 1	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Percent Capacity Output	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Water Pump Inverter Speed	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Pump Inv1 Run Command	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:30	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:29	Historic	Comm Loss: Compressor Fault Input	Compressor 2B	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Compressor Fault Input	Compressor 2A	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: High Pressure Cutout Switch	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Suction Temperature	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Suction Pressure Transducer	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Discharge Pressure Transducer	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: External Ckt Lockout	Circuit 2	Warning	Latching
05/13/2025	07:29	Historic	Comm Loss: Discharge Temperature Sensor	Circuit 2	Immediate Shutdown	Latching

05/13/2025	07:29	Historic	Comm Loss: Compressor Fault Input	Compressor 1B	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Compressor Fault Input	Compressor 1A	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: High Pressure Cutout Switch	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Suction Temperature	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Suction Pressure Transducer	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Discharge Pressure Transducer	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: External Ckt Lockout	Circuit 1	Warning	Latching
05/13/2025	07:29	Historic	Comm Loss: Discharge Temperature Sensor	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Evap Pump Inv1 Fault Input	Chiller	Warning	Latching
05/13/2025	07:29	Historic	Comm Loss: Evap Pump Inv1 Freq Feedback	Chiller	Normal Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Auxiliary Setpoint Command	Chiller	Warning	Latching

Tracer TU Configuration

Version	**Version - 12.0.212**

PC Environment

Operating System	**Microsoft Windows 11 Enterprise**
System Architecture	**x64**
Operating System Version	**6.2**

TU Display Units

Unit System	**SI**
Pressure Units	**kPa**

Date and Time

Time Format	**12-Hour**
Date Format	**MMDDYYYY**
Date Separator	**Slash (/)**
Date and Time	**05/20/2026 04:01:35 PM**
Time Zone	**(UTC+01:00) Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London**
Daylight Saving Time	**Enabled**

Protocol

Bacnet MSTP

Enabled	**False**
Baud Rate	**76800**

Bacnet Wireless

Enabled	**False**

Bacnet IP

Enabled	**True**
UDP Port	**47808**
BBMD Enabled	**False**
Link	**link1**

Network Number	**2**

Bacnet Settings

Device ID	**2003**
Rotary Dial Setting	**3**
Bacnet segment timeout	**5000**
Bacnet APDU timeout	**10000**
Bacnet APDU retries	**3**

Modbus TCP

Enabled	**False**

Modbus RTU

Enabled	**False**
Address	**3 (Default Address)**
Baud Rate	**19200**
Parity	**Even**
Stop Bits	**1**

LON

U60 Module	**Disconnected**
Neuron ID	**00.00.00.00.00.00**
Link Status	**Invalid**

Chiller Configuration

Controller

Connected To	**Local USB**	Build Part Number	**62000856-2.00.0001**
Firmware Version	**2.00.0001**	Boot Part Number	**-**
Application Part Number	**-**	Unit Sales Order Number	**43NA875**
Hardware Serial Number	**E24H03837**	Unit Model Number	**CXAX035E1B B1BXCXX2XB A3BXXBXXXA 4AXX7BXX4X 4XXD1XXXXX**
Hardware Part Number	**X13651678-01**	Unit Serial Number	**ELJ01853**

Options

Compressor Staging Pattern (for 2 cprsr circuits)	**A,AB**	Evaporator Water Pumps	**Dual Pump Variable Speed**
Energy Meter	**Not Installed**	Antifreeze Heater Control	**Installed w/ Software Thermostat Control**
External Circuit Lockout	**Installed**	Liquid Line Isolation Service Valve	**Not Installed**
External Setpoint Package	**2 - 10 Vdc**	Evaporator Water Flow Estimation	**Installed**
Programmable Status Relays (STAT)	**One Relay Card Installed**	Phase Monitor Protection	**Installed**
Generic Monitoring Package	**Not Installed**	Fan Fault Inputs	**Not Installed**
Noise Reduction Request	**Not Installed**	Optimal Sump Heater Control	**Installed**
Heat Recovery	**No Heat Recovery**	Flow Proving Type	**Low Voltage Paddle**
Variable Primary Flow	**No Variable Primary Flow**		

Options Setup

Cooling EXV Selection Circuit 1	**SER-F and X13650736-13 or greater**	External Hot Water Setpoint Minimum Temperature	**25 °C**

Cooling EXV Selection Circuit 2	**SER-F and X13650736-13 or greater**	External Hot Water Setpoint Maximum Temperature	**70 °C**
Minimum VFD Fan Speed	**100 RPM**	Module 1 Programmable Status Relay 1 (J2-1,2,3)	**Evaporator Freeze Avoidance Request**
Cooling Maximum VFD Fan Speed	**1060 RPM**	Module 1 Programmable Status Relay 2 (J2-4,5,6)	**Maximum Capacity**
Heating Maximum VFD Fan Speed	**1060 RPM**	Module 1 Programmable Status Relay 3 (J2-7,8,9)	**Compressor Running**
External Chilled Water Setpoint Minimum Temperature	**1.1 °C**	Module 1 Programmable Status Relay 4 (J2-10,11,12)	**Latching Alarm**
External Chilled Water Setpoint Maximum Temperature	**20 °C**		

Symbio 800

Unit Model (MODL)	**CXAX**

Design

Number of Circuits	**2 (TWO)**	Manufacturing Location	**Charmes**

General

Number of Compressors, Circuit 1	**2 (TWO)**	Refrigerant Type	**R454B**
Number of Compressors, Circuit 2	**2 (TWO)**	High Pressure Cutout Reference	**4100 kPa (gauge)**
Evaporator Application (EVLT)	**Standard**	Condenser Fan Arrangement per Circuit	**One Variable Speed Fan**

Compressor 1A

Compressor 1A Nameplate Frequency, Volt	**50Hz, 400V**	Compressor 1A Size	**DSH090**

Compressor 1B

Compressor 1B Nameplate Frequency, Volt	**50Hz, 400V**	Compressor 1B Size	**DSH120**

Compressor 2A

Compressor 2A Nameplate Frequency, Volt	**50Hz, 400V**	Compressor 2A Size	**DSH090**

Compressor 2B

Compressor 2B Nameplate Frequency, Volt	**50Hz, 400V**	Compressor 2B Size	**DSH120**

Signed: _____

Date: _____

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Wednesday, May 20, 2026
04:12:58 PM

Chiller Service Report

Prepared for: Elmwood Leisure Centre

Technician:	Jon Fairbourne
Chiller Name:	ASHP 3
Model Number:	CXAX035E1BB1BXCXX2X BA3BXXBXXXA4AXX7BXX4 X4XXD1XXXXX
Serial Number:	ELJ01853
Job Name:	Elmwood Leisure Centre
Work Order Number:	
Location:	
Sales Office Name:	
Sales Order Number:	43NA875
Sales Office Address:	
Sales Office Phone Number:	
Customer Name:	
Customer Address:	
Customer Phone Number:	

Notes: Commissioning, Circuit 2 Running 100%

Chiller Status

Chiller Modes

Top Level Mode	**Running**	Sub Level Mode 4
Sub Level Mode 1	**Maximum Capacity**	Sub Level Mode 5
Sub Level Mode 2	**Hot Water Control**	Sub Level Mode 6
Sub Level Mode 3		

Circuit 1 Modes

Top Level Mode Ckt1	**Stopped**	Sub Level Mode 4 Ckt1
Sub Level Mode 1 Ckt1	**Compressor Sump Heater On**	Sub Level Mode 5 Ckt1
Sub Level Mode 2 Ckt1	**Front Panel Circuit Lockout**	Sub Level Mode 6 Ckt1
Sub Level Mode 3 Ckt1		

Circuit 2 Modes

Top Level Mode Ckt2	**Running**	Sub Level Mode 4 Ckt2	
Sub Level Mode 1 Ckt2	**Compressor B Running**	Sub Level Mode 5 Ckt2	
Sub Level Mode 2 Ckt2	**Compressor A Running**	Sub Level Mode 6 Ckt2	
Sub Level Mode 3 Ckt2			

Diagnostic Modes

Chiller Mode at Time of Last Diagnostic		Circuit 1 Sub Mode at Time of Last Diag.	
Chiller Sub Mode 1 at Time of Last Diag		Circuit 1 Sub Mode at Time of Last Diag.	
Chiller Sub Mode 2 at Time of Last Diag		Circuit 1 Sub Mode at Time of Last Diag.	
Chiller Sub Mode 3 at Time of Last Diag		Circuit 2 Mode at Time of Last Diag.	
Chiller Sub Mode 4 at Time of Last Diag		Circuit 2 Sub Mode at Time of Last Diag.	
Chiller Sub Mode 5 at Time of Last Diag		Circuit 2 Sub Mode at Time of Last Diag.	
Chiller Sub Mode 6 at Time of Last Diag		Circuit 2 Sub Mode at Time of Last Diag.	
Circuit 1 Mode at Time of last Diag.		Circuit 2 Sub Mode at Time of Last Diag.	
Circuit 1 Sub Mode at Time of Last Diag.		Circuit 2 Sub Mode at Time of Last Diag.	
Circuit 1 Sub Mode at Time of Last Diag.		Circuit 2 Sub Mode at Time of Last Diag.	
Circuit 1 Sub Mode at Time of Last Diag.			

Chiller

BAS Demand Limit Setpoint	**100 %**	Outdoor Air Temperature	**19.59 °C**
BAS Chilled Water Setpoint	**7 °C**	Power Up Delay Inhibit:	**00:00 Min:Sec**
BAS Hot Water Setpoint	**45 °C**	Setpoint Source	**Front Panel**
BAS Hot Water Command	**On**	Unit Running Status	**On**
BAS Evap Water Pump Speed Setpt	**100 %**	Unit Running Powered Indicator	**On**
Evaporator Water Pump Request BAS	**Auto**	Evaporator Water Flow Status	**Flow**
Active Chilled Water Setpoint	**7 °C**	Evaporator Pump Off Delay Timer	**00:00 Min:Sec**
Active Hot Water Setpoint	**45 °C**	Evaporator Water Pump Command	**On**
Active Hot Water Command	**On**	Evaporator Water Pump Output Status	**On**
Active Demand Limit Setpoint	**100 %**	Evaporator Water Flow Switch	**Flow**
Active Evap Water Pump Speed Setpt	**100 %**	Evaporator Entering Water Temperature	**37.12 °C**
Arbitrated Chilled Water Setpoint	**7 °C**	Evaporator Leaving Water Temperature	**42.57 °C**
Arbitrated Hot Water Setpoint	**45 °C**	Low Evaporator Water Temp Cutout	**3 °C**
Capacity Control Softload Time	**900 Sec**	Auxiliary Chilled Water Setpoint	**7 °C**
Front Panel Chilled Water Setpoint	**7 °C**	Auxiliary Hot Water Setpoint	**45 °C**
Front Panel Hot Water Setpoint	**45 °C**	External Chilled Water Setpoint	**------**
Front Panel Hot Water Command	**On**	External Hot Water Setpoint	**------**
Actual Degrees of Chilled Water Reset	**0 °C**	External Hot Water Command	**Off**
Desired Degrees of Reset	**0 °C**	External Demand Limit Setpoint	**------**
Total Degrees of Hot Water Reset	**0 °C**	Maximum Capacity Relay	**Inactive**

HWR Actual Degrees of Reset	**0 °C**	Evap Water Freeze Avoid Request Relay	**Open**
HWR Desired Degrees of Reset	**0 °C**	Max Restart Time Remaining	**0**
High Hot Water Temperature Limit Reset	**0 °C**	Evaporator Water Pump Command Pump 1	**Off**
Chiller Last Service	**05/20/2026 12:57:00 PM**	Evaporator Water Pump Command Pump 2	**On**
Chiller Load Command	**50 %**	Evap Inverter 1 Run Command	**On**
Chiller Running Time	**02:21 Hr:Min**	Evaporator Water Pump Running Time Pump 1	**02:33 Hr:Min**
Chiller Service Time Remaining	**5999 Hr**	Evaporator Water Pump Running Time Pump 2	**01:45 Hr:Min**
Cooling Low Ambient Lockout	**Enable**	Evaporator Water Pump Speed Command	**100 %**
Cooling Low Ambient Lockout Temperature	**-10 °C**	Evap Water Pump 1 Last Service	**05/13/2025 07:40:21 AM**
Heating Low Ambient Lockout	**Enable**	Evap Water Pump 1 Service Time Remaining	**19998 Hr**
Heating Low Ambient Lockout Temperature	**-18 °C**	Evap Water Pump 2 Last Service	**05/13/2025 07:27:28 AM**
Defrost Entry Approach Temp	**------**	Evap Water Pump 2 Service Time Remaining	**19999 Hr**
Front Panel Demand Limit Setpoint	**100 %**	Evaporator Pump Command: Unit Off	**Auto**
Discharge Temp HWR Current Value	**0 °C**	Evaporator Pump Command: Unit On	**Auto**

Evaporator Circuit 1

Evaporator Approach Temperature Ckt1	**------**	Running Powered Indicator Ckt1	**Off**
Compressor Suction Refrigerant Temp Ckt1	**15.06 °C**	Service Pumpdown Status Ckt1	**Inactive**
Compressor Suction Superheat Ckt1	**-0.6 °C**	Low Refrigerant Temperature Integral Ckt1	**------**
Active Superheat Setpoint Ckt1	**5 °C**	EXV Command (%) Ckt1	**0 %**
Evaporator Refrigerant Pressure Ckt1	**1069.6 kPaG**	EXV Command (steps) Ckt1	**0 steps**
Evaporator Saturated Rfgt Temp Ckt1	**15.66 °C**	EXV Maximum Steps Ckt1	**------**
External Circuit Lockout Status Ckt1	**Not Locked Out**	EXV Percent Open Ckt1	**0 %**
Front Panel Circuit Lockout Ckt1	**Locked Out**	EXV Position Steps Ckt1	**0 steps**
Running Indicator Ckt1	**Off**	EXV Flow Coefficient Ckt1	**0 %**

Evaporator Circuit 2

Evaporator Approach Temperature Ckt2	**------**	Running Powered Indicator Ckt2	**On**
Compressor Suction Refrigerant Temp Ckt2	**10.55 °C**	Service Pumpdown Status Ckt2	**Inactive**
Compressor Suction Superheat Ckt2	**8.237 °C**	Low Refrigerant Temperature Integral Ckt2	**------**
Active Superheat Setpoint Ckt2	**5 °C**	EXV Command (%) Ckt2	**77.09 %**
Evaporator Refrigerant Pressure Ckt2	**684 kPaG**	EXV Command (steps) Ckt2	**1927 steps**
Evaporator Saturated Rfgt Temp Ckt2	**2.313 °C**	EXV Maximum Steps Ckt2	**------**
External Circuit Lockout Status Ckt2	**Not Locked Out**	EXV Percent Open Ckt2	**77.08 %**
Front Panel Circuit Lockout Ckt2	**Not Locked Out**	EXV Position Steps Ckt2	**1927 steps**
Running Indicator Ckt2	**On**	EXV Flow Coefficient Ckt2	**72.68**

Condenser Circuit 1

Condenser Refrigerant Pressure Ckt1	**2060.8 kPaG**	Air Flow Ckt1	**0 %**
Condenser Saturated Rfgt Temp Ckt1	**38.826 °C**	Air Flow Goal Ckt1	**0 %**
Differential Refrigerant Pressure Ckt1	**991.2 kPaD**	Condenser Fan Board 1 Relay 1 Ckt1	**Off**
Active Discharge Pressure Limit Setpoint	**85 %**	Condenser Fan Board 1 Relay 3 Ckt1	**Off**
Condenser Temperature Target Ckt1	**------**	Defrost Active Ckt1	**Inactive**
Evaporator Temperature Target Ckt1	**17.684 °C**	Warm-Up Cycle Ignore Time Ckt1	**179 Min**
Fan Control Air Flow Goal Ckt1	**0 %**	Fan Speed Ckt1	**0 rpm**
Fan Control Feedforward Flow Estimate Ckt1	**------**	Minimum Fan Speed	**100 rpm**
Predicted Condensing Temp Ckt1	**2.774 °C**	Maximum Fan Speed	**1060 rpm**

Condenser Circuit 2

Condenser Refrigerant Pressure Ckt2	**2594.4 kPaG**	Air Flow Ckt2	**100 %**
Condenser Saturated Rfgt Temp Ckt2	**48.012 °C**	Air Flow Goal Ckt2	**100 %**
Differential Refrigerant Pressure Ckt2	**1910.4 kPaD**	Condenser Fan Board 1 Relay 1 Ckt2	**On**
Active Discharge Pressure Limit Setpoint	**85 %**	Condenser Fan Board 1 Relay 3 Ckt2	**On**
Condenser Temperature Target Ckt2	**------**	Defrost Active Ckt2	**Inactive**
Evaporator Temperature Target Ckt2	**17.938 °C**	Warm-Up Cycle Ignore Time Ckt2	**173 Min**
Fan Control Air Flow Goal Ckt2	**100 %**	Fan Speed Ckt2	**1060 rpm**
Fan Control Feedforward Flow Estimate Ckt2	**0 %**	Minimum Fan Speed	**100 rpm**
Predicted Condensing Temp Ckt2	**2.354 °C**	Maximum Fan Speed	**1060 rpm**

Motor 1A

Restart Inhibit Time Cprsr1A	**00:00 Min:Sec**	Motor Avail To Start Indicator Cprsr1A	**Yes**
Motor Run Command Cprsr1A	**False**		

Motor 1B

Restart Inhibit Time Cprsr1B	**00:00 Min:Sec**	Motor Avail To Start Indicator Cprsr1B	**Yes**
Motor Run Command Cprsr1B	**False**		

Motor 2A

Restart Inhibit Time Cprsr2A	**00:00 Min:Sec**	Motor Avail To Start Indicator Cprsr2A	**No**
Motor Run Command Cprsr2A	**True**		

Motor 2B

Restart Inhibit Time Cprsr2B	**00:00 Min:Sec**	Motor Avail To Start Indicator Cprsr2B	**No**
Motor Run Command Cprsr2B	**True**		

Compressor 1A

Differential Refrigerant Pressure Ckt1	**991.2 kPaD**	Running Status Cprsr1A	**Off**

Compressor Involute Press Diff Ckt1	**-1234.28 kPaD**	Running Time Cprsr1A	**01:47 Hr:Min**
Evaporator Refrigerant Pressure Ckt1	**1069.6 kPaG**	Starts Cprsr1A	**6**
Compressor Discharge Temperature Ckt1	**46.29 °C**	Last Service Cprsr1A	**05/20/2026 12:57:10 PM**
Front Panel Compressor Lockout Cprsr1A	**Not Locked Out**	Service Time Remaining % Cprsr1A	**99.99 %**

Compressor 1B

Front Panel Compressor Lockout Cprsr1B	**Not Locked Out**	Starts Cprsr1B	**6**
Running Status Cprsr1B	**Off**	Last Service Cprsr1B	**05/20/2026 12:59:20 PM**
Running Time Cprsr1B	**01:43 Hr:Min**	Service Time Remaining % Cprsr1B	**100 %**

Compressor 2A

Differential Refrigerant Pressure Ckt2	**1910.4 kPaD**	Running Status Cprsr2A	**On**
Compressor Involute Press Diff Ckt2	**418.14 kPaD**	Running Time Cprsr2A	**01:17 Hr:Min**
Evaporator Refrigerant Pressure Ckt2	**684 kPaG**	Starts Cprsr2A	**6**
Compressor Discharge Temperature Ckt2	**95.37 °C**	Last Service Cprsr2A	**05/20/2026 01:53:40 PM**
Front Panel Compressor Lockout Cprsr2A	**Not Locked Out**	Service Time Remaining % Cprsr2A	**100 %**

Compressor 2B

Front Panel Compressor Lockout Cprsr2B	**Not Locked Out**	Starts Cprsr2B	**6**
Running Status Cprsr2B	**On**	Last Service Cprsr2B	**05/20/2026 01:53:40 PM**
Running Time Cprsr2B	**01:21 Hr:Min**	Service Time Remaining % Cprsr2B	**100 %**

Chiller Setpoints

Feature Settings

Cooling Low Ambient Lockout	**Enable**	High Evaporator Water Temp Cutout	**55 °C**
Cooling Low Ambient Lockout Temperature	**-10 °C**	Limit Relay Filter Time	**1200 Sec**
Heating Low Ambient Lockout	**Enable**	Low Evaporator Water Temp Cutout	**3 °C**
Heating Low Ambient Lockout Temperature	**-18 °C**	Low Refrigerant Temperature Cutout	**-3.333 °C**
Evaporator Water Pump Off Delay	**1 Min**	Maximum Capacity Relay Filter Time	**1200 Sec**

Level 4 Gains and Start Sequence

Air Flow Damping Coefficient	**10 %**	Part-Load Efficiency Optimization Enable	**Enable**
Antifreeze Heater Evap Soft Threshold Temp	**2.222 °C**	Part-Load Efficiency Setpt Settling Time	**300 Sec**
Compressor Minimum On Time	**2 Min**	Part-Load Eff Adjustment Offset Ckt1	**0 kPaD**
Compressor Minimum On Time In Defrost	**10 Sec**	Part-Load Eff Adjustment Offset Ckt2	**0 kPaD**
Condenser Fan Startup Delta Temperature	**2.5 °C**	Part-Load Eff Adjustment Factor Ckt1	**1**

Condenser Size Adjustment Factor Ckt1	**1**	Part-Load Eff Adjustment Factor Ckt2	**1**
Condenser Size Adjustment Factor Ckt2	**1**	Loss of Charge Detection	**Disable**
Cooling Open Loop Dryout Percent	**70 %**	Loss of Charge Detection Flow Ratio	**1.75**
Cooling Open Loop Dryout Return Percent	**90 %**	Restart Inhibit Diagnostic	**Disable**
Cooling EXV Off Cycle Position Setpoint	**7 %**	Restart Inhibit Free Starts	**2**
Cooling Pre-Position Interval Percent	**65 %**	Restart Inhibit Start To Start Time	**10 Min**
Cooling Start Closed Loop Percent	**110 %**	Compressor Suction Superheat Setpt Ckt1	**6 °C**
Heating EXV Off Cycle Position Setpoint	**7 %**	Compressor Suction Superheat Setpt Ckt2	**6 °C**
Heating Max Fan Speed Correction	**Disable**	Heating Superheat Setpoint Ckt1	**5 °C**
Heating Max Fan Speed Correction Limit	**80 %**	Heating Superheat Setpoint Ckt2	**5 °C**
Heating Max Fan Speed Correction Min Air Temp	**5 °C**	Superheat Setpoint Slew Rate	**1 °C**
Heating Max Fan Speed Correction Max Air Temp	**12 °C**	Superheat Integral Gain	**0.05**
Heating Open Loop Dryout Percent	**65 %**	Superheat Proportional Gain	**2**
Heating Open Loop Dryout Return Percent	**70 %**	Superheat Derivative Gain	**5**
Heating Pre-Position Interval Percent	**30 %**	Suction Temperature Filter Multiplier	**0**
Heating Start Closed Loop Percent	**60 %**	Heating Superheat Integral Gain	**0.03**
Discharge Temperature Filter Initial Value	**37.78 °C**	Heating Superheat Proportional Gain	**3**
Discharge Temperature Filter Time Constant	**50 Sec**	Heating Superheat Derivative Gain	**10**
Discharge Temp HWR Unload Offset	**4 °C**	Heating Suction Temperature Filter Multiplier	**3**
Discharge Temp Trip Level	**140 °C**	Warm-Up Cycle Enable	**Enable**
Discharge Temp Unload Level	**136 °C**	Warm-Up Cprsr Staging High Condensing Timer	**120 Sec**
Discharge Temp Hold Level	**120 °C**	Warm-Up Cprsr Staging Low Condensing Timer	**50 Sec**
Defrost Equalization Pressure Level	**300 kPaD**	Water Flow Est Min Temp Diff Setpoint	**8.89 °C**
Estimated Discharge Temperature Offset	**-2.78 °C**	Water Flow Est Min Water Flow Setpoint	**50 %**
Estimated Water Flow Protection Enable	**Enable**	Water Flow Est Temp Diff Adj Setpoint	**0 °C**
Estimated Discharge Temp Trip Level	**134 °C**	Optimal Sump Heater Control	**Enable**
Estimated Discharge Temp Unload Level	**132 °C**	Low Ambient Heating Superheat Reset Minimum	**-1.5 °C**
Estimated Discharge Temp Hold Level	**115 °C**	Evap Lvg Water Temp Staging Step Deadband	**1 °C**
Evap Wtr Loop Freeze Avoid Type	**Adaptive**	High Hot Water Temperature Limit Enable	**Enable**
Evap Wtr Loop Freeze Avoid Temp Margin	**2 °C**	High Hot Water Temperature Limit X1	**-15 °C**
Evap Wtr Loop Freeze Avoid Time Constant	**10 Min**	High Hot Water Temperature Limit X2	**10 °C**
Evap Wtr Loop Freeze Avoid Pump Max Off	**300 Min**	High Hot Water Temperature Limit Y1	**41 °C**
Evap Water Flow Loss Debounce Time	**1 Sec**	High Hot Water Temperature Limit Y2	**60 °C**

Evaporator Water Pump Speed Maximum	**100 %**	Warm-Up Cycle Ignore Timer Type	**Adaptive**
Evaporator Water Pump Speed Minimum	**60 %**	Warm-Up Cycle Ignore Time at Min Approach	**480 Min**
EXV Position For Pressure Equalization	**50 %**	Warm-Up Cycle Ignore Time at Max Approach	**60 Min**
EXV Pre-Position Hold Time	**0 Sec**	Warm-Up Cycle Ignore Max Approach	**30 °C**
EXV Pre-Position Setpoint	**90 %**	EXV Transition To Close Loop Max Delay Time	**60 Sec**
Fan Control Diff Pressure Setpoint	**830 kPaD**	Low Pressure Cutout Setpoint	**133.6 kPaG**
Fan Control Minimum Pressure Ratio Setpoint	**1.5**	Reversed Pressure Drop Ckt1	**400 kPaD**
Fan Control Minimum Sat Suction Temperature Setpoint	**-2.5 °C**	Reversed Pressure Drop Ckt2	**400 kPaD**
Fan Control Staging Integral Gain	**1**	Non-Reversed Pressure Drop Ckt1	**100 kPaD**
Fan Staging Deadband	**2.5 °C**	Non-Reversed Pressure Drop Ckt2	**100 kPaD**
Fan Staging Time Constant	**6 Sec**	Defrost Exit Limit Timer	**60 Sec**
Low Pressure Ratio Ignore Time Setting	**30 Sec**	Defrost Inter-Circuit Time Delay	**60 Sec**
Low Suction Pressure Limit Buffer	**20 kPaD**	Defrost Start Ignore Time	**600 Sec**
Low Suction Pressure Limit Decay Rate	**2 kPaD**	Sat Suction Temp Dryout Corr Factor	**1.0**
Low Suction Superheat Trip Time Heating	**180 Sec**	Superheat Control Feed Forward Gain	**0.9**
Inverted Water Temp Diagnostic Severity	**Normal Shutdown**	Superheat Control Feed Back Gain	**1.0**
Operational Pumpdown Enable	**Enable**	EXV Low Pressure Limit Max Factor	**2.0**
Operational Pumpdown Term Sat Temp	**-17.778 °C**	EXV Low Pressure Limit Slew Rate	**0.1**
Op Pumpdown Cond Term Pressure	**90 %**	EXV Low Pressure Limit Prop Band	**50 kPaD**
Part-Load Efficiency Integral Gain	**0.02**		

Chiller

Auxiliary Chilled Water Setpoint	**7 °C**	Front Panel Evap Water Pump Speed Setpt	**100 %**
Auxiliary Hot Water Setpoint	**45 °C**	Ext Chilled/Hot Water Setpoint Enable	**Disable**
Capacity Control Softload Time	**900 Sec**	External Circuit Lockout Enable	**Enable**
Chilled Water Reset Type	**Disable**	External Demand Limit Setpoint Enable	**Disable**
Hot Water Reset Type	**Disable**	Front Panel Chilled Water Setpoint	**7 °C**
Chiller Service Enable	**Disable**	Front Panel Hot Water Command	**On**
Chiller Service Interval Setpoint	**6000 Hr**	Front Panel Hot Water Setpoint	**45 °C**
Compressor Service Enable	**Disable**	Front Panel Demand Limit Setpoint	**100 %**
Compressor Target Trip Setpoint	**50 %**	Local Atmospheric Pressure	**101.4 kPaA**
Circuit Staging	**Balanced**	Outdoor Air Maximum Reset	**2.778 °C**
Compressor Staging	**Balanced**	Outdoor Air Reset Ratio	**10 %**
Condenser Pressure Limit Hold Setpoint	**85 %**	Outdoor Air Start Reset	**32.222 °C**
Condenser Pressure Limit Unload Setpoint	**95 %**	Discharge Temp HWR Enable	**Enable**
Cooling Design Delta Temp (Waterside)	**5 °C**	Discharge Temp HWR Offset	**1.5 °C**
Heating Design Delta Temp (Waterside)	**7 °C**	Discharge Temp HWR Ignore Time	**300 Sec**
Defrost Entry Approach Min Ambient Temp	**10 °C**	Discharge Temp HWR Hold Time	**1800 Sec**

Defrost Entry Approach Max Ambient Temp	**23 °C**	Discharge Temp HWR Slew Rate	**3 °C**
Defrost Maximum Ambient Setpoint	**16 °C**	HWR Outdoor Air Maximum Reset	**2.778 °C**
Defrost Termination Setpoint	**78 %**	HWR Outdoor Air Reset Ratio	**20 %**
Defrost Drying Time	**9 Sec**	HWR Outdoor Air Start Reset	**10 °C**
Maximum Defrost Time	**7 Min**	Power-Up Start Delay	**105 Sec**
Minimum Time Between Defrost Cycles	**20 Min**	Reference Water Temp Difference PAF	**1.07**
Maximum Time Between Defrost Cycles	**1440 Min**	Reset Chiller Service Time	**No**
BAS Maximum Defrost Time Delay	**5 Min**	Reset Evap Water Pump 1 Service Time	**No**
Front Panel Cooling Differential to Start	**2.5 °C**	Reset Evap Water Pump 2 Service Time	**No**
Front Panel Cooling Differential to Stop	**2.5 °C**	Return Water Maximum Reset	**2.778 °C**
Front Panel Heating Differential to Start	**3.5 °C**	Return Water Reset Ratio	**50 %**
Front Panel Heating Differential to Stop	**3.5 °C**	Return Water Start Reset	**5.556 °C**
Evap Flow Overdue Wait Time	**1200 Sec**	Setpoint Source	**Front Panel**
Evap Wtr Loop Freeze Avoid Pump Cntrl	**Enable**	Compressor Staging Deadband Adjustment	**0 °C**
Evap Water Pump Service Enable	**Disable**	Water Pump Service Interval Setpoint	**20000 Hr**

Circuit 1

Reset Service Time Cprsr1A	**No**	Reset Service Time Cprsr1B	**No**

Circuit 2

Reset Service Time Cprsr2A	**No**	Reset Service Time Cprsr2B	**No**

Level 4 Timers

Chiller Running Time Set	**02:21 Hr:Min**	Set Cprsr2B Run Time	**01:21 Hr:Min**
Set Cprsr1A Run Time	**01:47 Hr:Min**	Set Cprsr2B Starts	**6**
Set Cprsr1A Starts	**6**	Evap Pump 1 Run Time Setpoint	**02:33 Hr:Min**
Set Cprsr1B Run Time	**01:43 Hr:Min**	Evap Pump 1 Starts Count Setpoint	**16**
Set Cprsr1B Starts	**6**	Evap Pump 2 Run Time Setpoint	**01:45 Hr:Min**
Set Cprsr2A Run Time	**01:17 Hr:Min**	Evap Pump 2 Starts Count Setpoint	**18**
Set Cprsr2A Starts	**6**		

Device List

Antifreeze Heater Relays	Evaporator Leaving Water Temperature Sensor
Compressor 1A 1B 2A 2B Run Command Relays	Evaporator Water Flow Proving and Phase Protection Input
Compressor 1A and 1B Fault Inputs	Evaporator Water Pump Inverter Speed Output, Frequency and Setpoint Input
Compressor 2A and 2B Fault Inputs	External Auto/Stop and Emergency Stop Inputs
Condenser Fan Analog Speed Outputs, Circuits 1 and 2	External Chilled Hot Water Setpoint, Demand Limit Setpoint and % Capacity Output
Condenser Fans Speed Enable, and Reversing Valve, Circuit 1	External Circuit Lockout Inputs,Circuit 1 and 2
Condenser Fans Speed Enable, and Reversing Valve, Circuit 2	External Heat and Auxiliary Temperature Setpoint Command Inputs
Discharge Pressure Transducer Circuit 1 (0-700 psia)	High Pressure Cutout
Discharge Pressure Transducer Circuit 2 (0-700 psia)	Operating Status Programmable Relays Module 1

Discharge Refrigerant Temperature Sensor Ckt1	Optimal Sump Heater Relays, Circuits 1 and 2
Discharge Refrigerant Temperature Sensor Ckt2	Outdoor Air Temperature Sensor
Electronic Expansion Valve, Circuit 1	Suction Pressure Transducer Circuit 1 (0-700 psia)
Electronic Expansion Valve, Circuit 2	Suction Pressure Transducer Circuit 2 (0-700 psia)
Evap Pump Fault Inputs	Suction Temperature Sensor Circuit 1
Evap Water Pump Relays (single inverter, dual pumps)	Suction Temperature Sensor Circuit 2
Evaporator Entering Water Temperature Sensor	

Alarms and Events

Date	Time	Active / Historic	Description	Target	Severity	Persistence
05/20/2026	11:17	Historic	Evaporator Water Flow Lost Lockout	Chiller	Immediate Shutdown	Latching
05/20/2026	11:14	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/20/2026	11:14	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/20/2026	11:12	Historic	Evaporator Water Flow Lost - Pump2	Chiller	Warning	Nonlatching
05/20/2026	11:12	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/20/2026	10:24	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/20/2026	10:24	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/15/2026	08:20	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/11/2026	07:47	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/08/2026	08:16	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/08/2026	07:44	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/07/2026	09:46	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/06/2026	14:20	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/06/2026	10:50	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/05/2026	15:22	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
04/29/2026	12:49	Historic	Evaporator Pump 2 Fault	Chiller	Immediate Shutdown	Nonlatching
05/13/2025	08:49	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/13/2025	08:49	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/13/2025	08:00	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/13/2025	08:00	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/13/2025	07:56	Historic	Evaporator Water Flow Lost - Pump1	Chiller	Warning	Nonlatching
05/13/2025	07:56	Historic	Evaporator Water Flow Lost	Chiller	Immediate Shutdown	Nonlatching
05/13/2025	07:36	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:34	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:33	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:32	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:31	Historic	Comm Loss: Compressor Fault Input	Compressor 2B	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Compressor Fault Input	Compressor 2A	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: High Pressure Cutout Switch	Circuit 2	Immediate Shutdown	Latching

05/13/2025	07:31	Historic	Comm Loss: Suction Temperature	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Suction Pressure Transducer	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Discharge Pressure Transducer	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: External Ckt Lockout	Circuit 2	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Discharge Temperature Sensor	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Compressor Fault Input	Compressor 1B	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Compressor Fault Input	Compressor 1A	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: High Pressure Cutout Switch	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Suction Temperature	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Suction Pressure Transducer	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Discharge Pressure Transducer	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: External Ckt Lockout	Circuit 1	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Discharge Temperature Sensor	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Pump Inv1 Fault Input	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Pump Inv1 Freq Feedback	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Auxiliary Setpoint Command	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Ext Chilled/Hot Water Setpoint	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: External Hot Water Command	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Programmable Relay Board 1	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Ext Demand Limit Setpoint	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Emergency Stop Feedback Input	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: External Auto/Stop	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Leaving Water Temp	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Entering Water Temp	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evaporator Water Flow Switch	Chiller	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Phase Protection Fault Input	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Outdoor Air Temperature	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Reversing Valve	Circuit 2	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Reversing Valve	Circuit 1	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evaporator Antifreeze Heater	Chiller	Warning	Latching

05/13/2025	07:31	Historic	Comm Loss: Fan Board 1 Relay 1	Circuit 2	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evaporator Water Pump 2 Relay	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evaporator Water Pump 1 Relay	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Fan Inverter Speed Command	Circuit 2	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Fan Inverter Speed Command	Circuit 1	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Fan Board 1 Relay 1	Circuit 1	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Run Command Compressor B	Compressor 2B	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Run Command Compressor A	Compressor 2A	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Run Command Compressor B	Compressor 1B	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Run Command Compressor A	Compressor 1A	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Sump Heater	Circuit 2	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Sump Heater	Circuit 1	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Percent Capacity Output	Chiller	Warning	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Water Pump Inverter Speed	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Evap Pump Inv1 Run Command	Chiller	Normal Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:31	Historic	Comm Loss: Electronic Expansion Valve	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:30	Historic	MP: Reset Has Occurred	Platform	Warning	Nonlatching
05/13/2025	07:29	Historic	Comm Loss: Compressor Fault Input	Compressor 2B	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Compressor Fault Input	Compressor 2A	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: High Pressure Cutout Switch	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Suction Temperature	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Suction Pressure Transducer	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Discharge Pressure Transducer	Circuit 2	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: External Ckt Lockout	Circuit 2	Warning	Latching
05/13/2025	07:29	Historic	Comm Loss: Discharge Temperature Sensor	Circuit 2	Immediate Shutdown	Latching

05/13/2025	07:29	Historic	Comm Loss: Compressor Fault Input	Compressor 1B	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Compressor Fault Input	Compressor 1A	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: High Pressure Cutout Switch	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Suction Temperature	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Suction Pressure Transducer	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Discharge Pressure Transducer	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: External Ckt Lockout	Circuit 1	Warning	Latching
05/13/2025	07:29	Historic	Comm Loss: Discharge Temperature Sensor	Circuit 1	Immediate Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Evap Pump Inv1 Fault Input	Chiller	Warning	Latching
05/13/2025	07:29	Historic	Comm Loss: Evap Pump Inv1 Freq Feedback	Chiller	Normal Shutdown	Latching
05/13/2025	07:29	Historic	Comm Loss: Auxiliary Setpoint Command	Chiller	Warning	Latching

Tracer TU Configuration

Version	**Version - 12.0.212**

PC Environment

Operating System	**Microsoft Windows 11 Enterprise**
System Architecture	**x64**
Operating System Version	**6.2**

TU Display Units

Unit System	**SI**
Pressure Units	**kPa**

Date and Time

Time Format	**12-Hour**
Date Format	**MMDDYYYY**
Date Separator	**Slash (/)**
Date and Time	**05/20/2026 04:12:58 PM**
Time Zone	**(UTC+01:00) Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London**
Daylight Saving Time	**Enabled**

Protocol

Bacnet MSTP

Enabled	**False**
Baud Rate	**76800**

Bacnet Wireless

Enabled	**False**

Bacnet IP

Enabled	**True**
UDP Port	**47808**
BBMD Enabled	**False**
Link	**link1**

Network Number	**2**

Bacnet Settings

Device ID	**2003**
Rotary Dial Setting	**3**
Bacnet segment timeout	**5000**
Bacnet APDU timeout	**10000**
Bacnet APDU retries	**3**

Modbus TCP

Enabled	**False**

Modbus RTU

Enabled	**False**
Address	**3 (Default Address)**
Baud Rate	**19200**
Parity	**Even**
Stop Bits	**1**

LON

U60 Module	**Disconnected**
Neuron ID	**00.00.00.00.00.00**
Link Status	**Invalid**

Chiller Configuration

Controller

Connected To	**Local USB**	Build Part Number	**62000856-2.00.0001**
Firmware Version	**2.00.0001**	Boot Part Number	**-**
Application Part Number	**-**	Unit Sales Order Number	**43NA875**
Hardware Serial Number	**E24H03837**	Unit Model Number	**CXAX035E1B B1BXCXX2XB A3BXXBXXXA 4AXX7BXX4X 4XXD1XXXXX**
Hardware Part Number	**X13651678-01**	Unit Serial Number	**ELJ01853**

Options

Compressor Staging Pattern (for 2 cprsr circuits)	**A,AB**	Evaporator Water Pumps	**Dual Pump Variable Speed**
Energy Meter	**Not Installed**	Antifreeze Heater Control	**Installed w/ Software Thermostat Control**
External Circuit Lockout	**Installed**	Liquid Line Isolation Service Valve	**Not Installed**
External Setpoint Package	**2 - 10 Vdc**	Evaporator Water Flow Estimation	**Installed**
Programmable Status Relays (STAT)	**One Relay Card Installed**	Phase Monitor Protection	**Installed**
Generic Monitoring Package	**Not Installed**	Fan Fault Inputs	**Not Installed**
Noise Reduction Request	**Not Installed**	Optimal Sump Heater Control	**Installed**
Heat Recovery	**No Heat Recovery**	Flow Proving Type	**Low Voltage Paddle**
Variable Primary Flow	**No Variable Primary Flow**		

Options Setup

Cooling EXV Selection Circuit 1	**SER-F and X13650736-13 or greater**	External Hot Water Setpoint Minimum Temperature	**25 °C**

Cooling EXV Selection Circuit 2	**SER-F and X13650736-13 or greater**	External Hot Water Setpoint Maximum Temperature	**70 °C**
Minimum VFD Fan Speed	**100 RPM**	Module 1 Programmable Status Relay 1 (J2-1,2,3)	**Evaporator Freeze Avoidance Request**
Cooling Maximum VFD Fan Speed	**1060 RPM**	Module 1 Programmable Status Relay 2 (J2-4,5,6)	**Maximum Capacity**
Heating Maximum VFD Fan Speed	**1060 RPM**	Module 1 Programmable Status Relay 3 (J2-7,8,9)	**Compressor Running**
External Chilled Water Setpoint Minimum Temperature	**1.1 °C**	Module 1 Programmable Status Relay 4 (J2-10,11,12)	**Latching Alarm**
External Chilled Water Setpoint Maximum Temperature	**20 °C**		

Symbio 800

Unit Model (MODL)	**CXAX**

Design

Number of Circuits	**2 (TWO)**	Manufacturing Location	**Charmes**

General

Number of Compressors, Circuit 1	**2 (TWO)**	Refrigerant Type	**R454B**
Number of Compressors, Circuit 2	**2 (TWO)**	High Pressure Cutout Reference	**4100 kPa (gauge)**
Evaporator Application (EVLT)	**Standard**	Condenser Fan Arrangement per Circuit	**One Variable Speed Fan**

Compressor 1A

Compressor 1A Nameplate Frequency, Volt	**50Hz, 400V**	Compressor 1A Size	**DSH090**

Compressor 1B

Compressor 1B Nameplate Frequency, Volt	**50Hz, 400V**	Compressor 1B Size	**DSH120**

Compressor 2A

Compressor 2A Nameplate Frequency, Volt	**50Hz, 400V**	Compressor 2A Size	**DSH090**

Compressor 2B

Compressor 2B Nameplate Frequency, Volt	**50Hz, 400V**	Compressor 2B Size	**DSH120**

Signed: _____

Date: _____

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P B.02 commissioning certificate

The following page is the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-PB02-CC
Asset	P B.02
Provided by	TPS Ltd
Source file	TPS commissioning sheet, P B.02 AHU constant temperature pumps.pdf
Pages	1

Commissioning / Maintenance Report

Customer:	TPS
Site address:	Elmwood Leisure Centre, BR2
Engineer:	Tom Sparling
Date of visit:	27/10/25

Pump Data	
Site ref:	AHU CT Pump
Description of Unit:	Twin head Lowara set
Model No:	LNTEX 100-280
Serial No.:	20250512

Inverter Data	
Site ref:	
Description of Unit:	
Model No:	
Serial No.:	

Condition Inspection	
Visual inspection of condition	Pass
Inspection of control efficiency & smooth operation of pumps	Pass
Inspection of condition of adjacent area	Pass

Visual checks	
Check mechanical seal for leaks	Pass
Check the direction of rotation	Pass
Check Mechanical connections	Pass
Check electrical connections	Pass
Check Motor / pump coupling	Pass
Check Pulleys and belts	N/A
Grease Motor bearings	N/A

Controls/Parameters		
Control Mode	Constant	Pressure
Set Point	2.0	Bar

Comments
All ok.