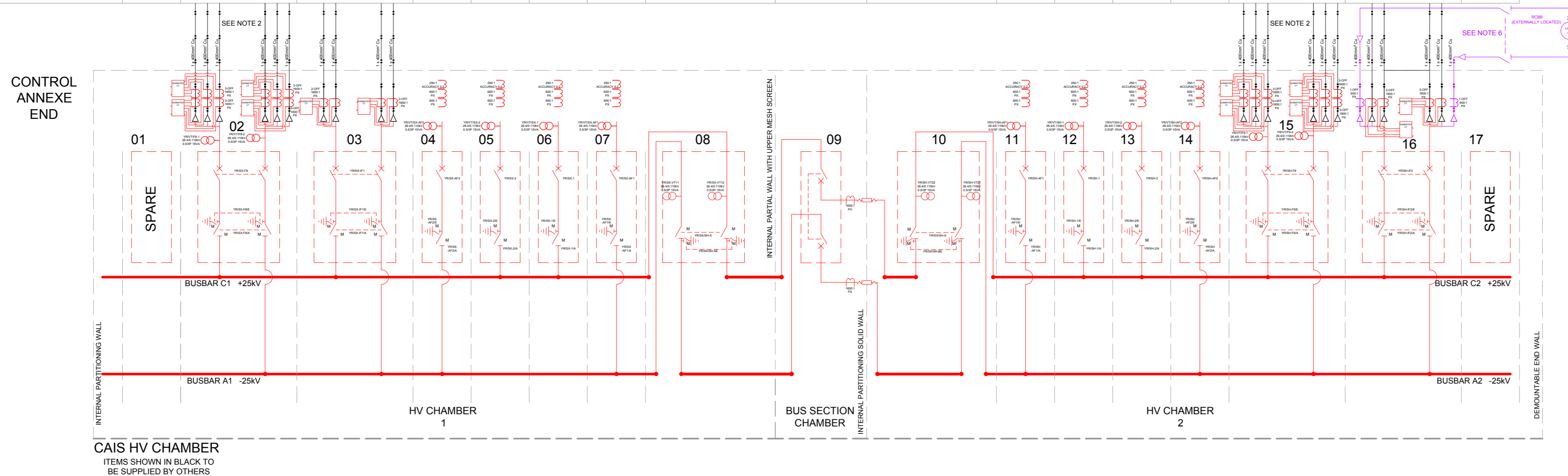
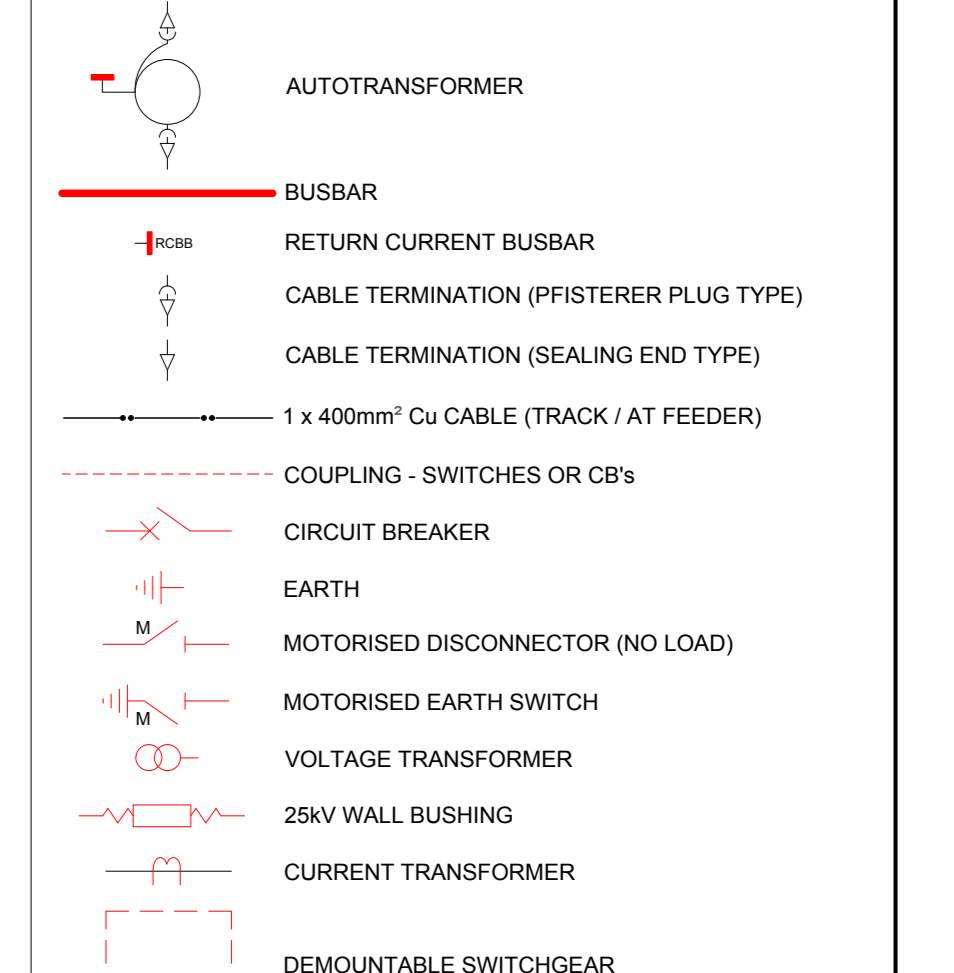


PANEL No.	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
APPLICATION	SPARE	INCOMING FEEDER	INDEPENDENT FEEDER	AUTO TRANSFORMER FEEDER	TRACK FEEDER	TRACK FEEDER	AUTO TRANSFORMER FEEDER	BUS ISOLATOR	BUS SECTION	BUS ISOLATOR	AUTO TRANSFORMER FEEDER	TRACK FEEDER	TRACK FEEDER	AUTO TRANSFORMER FEEDER	INCOMING FEEDER	INDEPENDENT FEEDER	SPARE
MAIN SWITCH		2-off Vacuum Circuit Breakers FSKII+ Double Pole 2000A	2-off Vacuum Circuit Breakers FSKII+ Double Pole 2000A	1-off Vacuum Circuit Breaker FSKII+ Single Pole 1250A	1-off Vacuum Circuit Breaker FSKII+ Single Pole 1250A	1-off Vacuum Circuit Breaker FSKII+ Single Pole 1250A	1-off Vacuum Circuit Breaker FSKII+ Single Pole 1250A		2-off Vacuum Circuit Breakers FSKII+ Double Pole 2000A		1-off Vacuum Circuit Breaker FSKII+ Single Pole 1250A	1-off Vacuum Circuit Breaker FSKII+ Single Pole 1250A	1-off Vacuum Circuit Breaker FSKII+ Single Pole 1250A	1-off Vacuum Circuit Breaker FSKII+ Single Pole 1250A	2-off Vacuum Circuit Breakers FSKII+ Double Pole 2000A	2-off Vacuum Circuit Breakers FSKII+ Double Pole 2000A	
3-POSITION SWITCH		2-off Motorised Double Disconnectors & Earth Switch 2000A	2-off Motorised Double Disconnectors & Earth Switch 2000A	1-off Motorised Single Disconnector & Earth Switch 1250A	1-off Motorised Single Disconnector & Earth Switch 1250A	1-off Motorised Single Disconnector & Earth Switch 1250A	1-off Motorised Single Disconnector & Earth Switch 1250A		2-off Motorised Double Disconnectors & Earth Switch 2000A		1-off Motorised Single Disconnector & Earth Switch 1250A	1-off Motorised Single Disconnector & Earth Switch 1250A	1-off Motorised Single Disconnector & Earth Switch 1250A	1-off Motorised Single Disconnector & Earth Switch 1250A	2-off Motorised Double Disconnectors & Earth Switch 2000A	2-off Motorised Double Disconnectors & Earth Switch 2000A	
DISTANCE PROTECTION C.T.		6-off 1600:1 PX	4-off 1600:1 PX	2-off 600:1 PX	2-off 600:1 PX	2-off 600:1 PX	2-off 600:1 PX			2-off 600:1 PX	2-off 600:1 PX	2-off 600:1 PX	2-off 600:1 PX	2-off 600:1 PX	6-off 1600:1 PX	4-off 1600:1 PX	
BUSBAR PROTECTION/OVERCURRENT C.T.		6-off 1600:1 PX (SEE NOTE 2)							2-off 1600:1 PX						6-off 1600:1 PX (SEE NOTE 2)	3-off 600:1 PX	
DIFFERENTIAL PROTECTION C.T.																	
METERING C.T.				1-off 250:1 / 0.2	1-off 250:1 / 0.2	1-off 250:1 / 0.2	1-off 250:1 / 0.2			1-off 250:1 / 0.2	1-off 250:1 / 0.2	1-off 250:1 / 0.2	1-off 250:1 / 0.2	1-off 250:1 / 0.2			
DUAL WOUND V.T.		2-off 26.4 / 0.110kV 0.50P 10VA		1-off 26.4 / 0.110kV 0.50P 10VA	1-off 26.4 / 0.110kV 0.50P 10VA	1-off 26.4 / 0.110kV 0.50P 10VA	1-off 26.4 / 0.110kV 0.50P 10VA	2-off 26.4 / 0.110kV 0.50P 10VA		1-off 26.4 / 0.110kV 0.50P 10VA	1-off 26.4 / 0.110kV 0.50P 10VA	1-off 26.4 / 0.110kV 0.50P 10VA	1-off 26.4 / 0.110kV 0.50P 10VA	1-off 26.4 / 0.110kV 0.50P 10VA	2-off 26.4 / 0.110kV 0.50P 10VA		
CIRCUITS DESIGNATION		YRSX-F8A YRSX-F8E YRSX-F8	YRSX-IF1A YRSX-IF1E YRSX-IF1	YRSX-AF2A YRSX-AF2E YRSX-AF2	YRSX-2A YRSX-2E YRSX-2	YRSX-1A YRSX-1E YRSX-1	YRSX-AF1A YRSX-AF1E YRSX-AF1	YRSX-SHA YRSX-SHA	YRSXSH	YRSX-SHB YRSX-SHB	YRSX-AF1A YRSX-AF1E YRSX-AF1	YRSX-1A YRSX-1E YRSX-1	YRSX-2A YRSX-2E YRSX-2	YRSX-AF2A YRSX-AF2E YRSX-AF2	YRSX-F8A YRSX-F8E YRSX-F8	YRSX-IF2A YRSX-IF2E YRSX-IF2	
INTELLIGENT ELECTRONIC DEVICE		1-off P44T	1-off P542 1-off P44T	2-off P44T	2-off P44T	2-off P44T	2-off P44T		1-off P44T		2-off P44T	2-off P44T	2-off P44T	2-off P44T	1-off P44T	1-off P143 1-off P143	
PALLET SLICE WIDTH	1200mm	2400mm	2400mm	1200mm	1200mm	1200mm	1200mm	2680mm	1890mm	2680mm	1200mm	1200mm	1200mm	1200mm	2400mm	2400mm	1200mm



CONTROL ANNEXE END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
	SPARE	INCOMING FEEDER	INDEPENDENT FEEDER	AUTO TRANSFORMER FEEDER	TRACK FEEDER	TRACK FEEDER	AUTO TRANSFORMER FEEDER	BUS ISOLATOR	BUS SECTION	BUS ISOLATOR	AUTO TRANSFORMER FEEDER	TRACK FEEDER	TRACK FEEDER	AUTO TRANSFORMER FEEDER	INCOMING FEEDER	INDEPENDENT FEEDER	SPARE
		YRSX-F8		YRSX-AF2	YRSX-2	YRSX-1	YRSX-AF1	YRSX-SHA	YRSXSH	YRSX-SHB	YRSX-AF1	YRSX-1	YRSX-2	YRSX-AF2	YRSX-F8	YRSX-IF2	

- Legend/Notes
- DRAWING BASED UPON NETWORK RAIL PROJECT: NORTH WEST ELECTRIFICATION TRACTION POWER SUPPLY STRATEGY  
DRAWING TITLE: INTERIM MAJOR FEEDING DIAGRAM  
DRAWING NUMBER: NHE\_000000-NR-LNW-00-RRA-W-000017  
REVISION: A01  
STATUS: APPROVED
  - 1600:1 CLASS PX DIFFERENTIAL PROTECTION CT'S AND OTHER INTERFACE ALARMS AND CONTROLS WILL BE ROUTED ACROSS THE NETWORK RAIL / NATIONAL GRID INTERFACE.
  - ALL FEEDER CABLES TO BE 400mm<sup>2</sup>
  - ALSO BASED UPON PHASE 5 CR-T:  
NHE\_132199-NR-MVL1-00-BRR-W-000012 AND HOIF SLD:  
NHE\_132199-144-000-EP5-DDR-W-000011 P03
  - PROVISION FOR FUTURE EQUIPMENT SHOWN IN PURPLE
  - CONFIRMATION OF WHETHER ISOLATOR IS NEEDED BETWEEN CIRCUIT BREAKER AND AUTOTRANSFORMER IF AUTOTRANSFORMER IS INSTALLED AT A LATER DATE



Rev	Date	Description of Revisions	Drawn	Chkd	Appr
C01	13/11/17	FOR AFC - FOR CONSTRUCTION	C.M	A.M	K.M
B05	25/07/17	UPDATED TO ID/IDR COMMENTS	C.M	A.M	K.M
B04	22/06/17	UPDATED TO INTERIM MFD/HOIF NHE_132199-144-000-EP5-DDR-E-000011 P03	C.M	A.M	K.M
B03	03/01/17	ANNEXE AND CIRCUIT DESIGNATIONS UPDATED	S.B.	A.M	K.M
B02.1	05/09/16	OVERCURRENT CT'S ADDED TO PANELS: 4, 7 & 11 - 14 PANELS 2 & 15 WIDTH CONFIRMED AS 2400mm	S.B.	B.Mc	A.M
B02	23/08/16	SLD UPDATED TO ALIGN WITH A02 MFD: NR/ME/TPSSL/W/MFD/0501 A02	S.B.	B.Mc	A.M
B01.1	13/06/16	Drawing Number Modified to align to ProjectWide Differential Protection CT's changed from 600 to 1600 on Panels 2,3,15 & 16. P143 added to Panels 7 to 10 Metering CT's changed to Busbar CT's on Panels 3 & 15. CT Qty's changed from 2-off to 4-off on Panels 3 & 15 CT Qty's changed from 2-off to 6-off on Panels 2 & 16	S.B.	B.Mc	A.M
B01	31/03/16	FORM B APPROVAL ISSUE	S.B.	B.Mc	A.M

FOR CONSTRUCTION

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London  
NW1 2DN

Contractor(s)

Switchgear & Substation Alliance Limited  
65/67 Newnam Street  
London  
W1T 3EQ

Project  
**NORTH WEST ELECTRIFICATION PROGRAMME PHASE 5.**

Drawing Title  
**HEYROD ATFS (YR) SLD.**

Designed	SHAWN.BOOTH	Signed	<i>SB</i>	Date	26/11/15
Drawn	SHAWN.BOOTH	Signed	<i>SB</i>	Date	08/12/15
Checked	BRIAN.MCKEAN	Signed	<i>Brian</i>	Date	31/03/16
Approved	ANDY MICHEL	Signed	<i>AM</i>	Date	31/03/16

Scale(s)	N/A	ELR & Mileage	
Alternative Reference		Sheet	1 of 1
Drawing Number	NHE_132199-47557-MVL3-00-DDR-E-000023	Revision	C01