

P & I Design Ltd

Process Instrumentation Consultancy & Design

2 Reed Street, Gladstone Industrial Estate,
Thornaby, TS17 7AF, United Kingdom.
Tel. +44 (0)1642 617444 Fax. +44 (0)1642 616447
Web Site: www.pidesign.co.uk

IMMINGHAM STORAGE CO LTD

WEST TERMINAL

No.9 SWITCHROOM PLC PANEL

SITE PLC

GREENERGY REMOTE I/O

DOCUMENTATION MANUAL

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	20.10.10	D. Smith	MM	MM	Original Issue	
B	18.06.13	D. Smith	MM	MM	General Update	Document No.
C	19.03.15	D. Smith	MM	MM	General Update	SI158001_MNL
C	19.05.15	D. Smith	MM	MM	General Update	
						Page 1 of 4

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Contents

1. Register Control System
2. PLC Drawings and Schedules
3. Greenergy Modbus Network Drawings
4. Cable Schedules
5. Site Gates
6. Greenergy Trace Heating Panel Drawings
7. Manufacturers' Data
CAL9500P Controller
Carlo Gavazzi – Energy Meter



Section 1
Register Control System



Register Control System

<u>Register No</u>	<u>Description</u>	<u>Issue</u>
SI158001_REG	Drawing Register	D
SI158002_REG	Report Register	C



CLIENT:

Immingham Storage Co Ltd
West Terminal

ISSUE	DATE	BY	CHKD	APPD	CLIENT REF.
A	20.10.10	DS	MM	MM	
B	18.06.13	DS	MM	MM	P & I REF.
C	19.05.15	DS	MM	MM	SI158002_REG

SHT 1 OF 1

REPORT NO	REVISION	DATE	DESCRIPTION
ISSUE	0 A B C D E		
SI158001_SCH	A B C	27.03.15	Remote I/O Schedule
SI158002_SCH	C	28.06.10	Utilities – Trace Heating Cable Schedule
SI158003_SCH	A	28.06.10	Greenenergy – Trace Heating Cable Schedule
SI002109_SCH	C	19.04.13	Site PLC I/O Schedule

CLIENT:
 Immingham Storage Co Ltd
 West Terminal

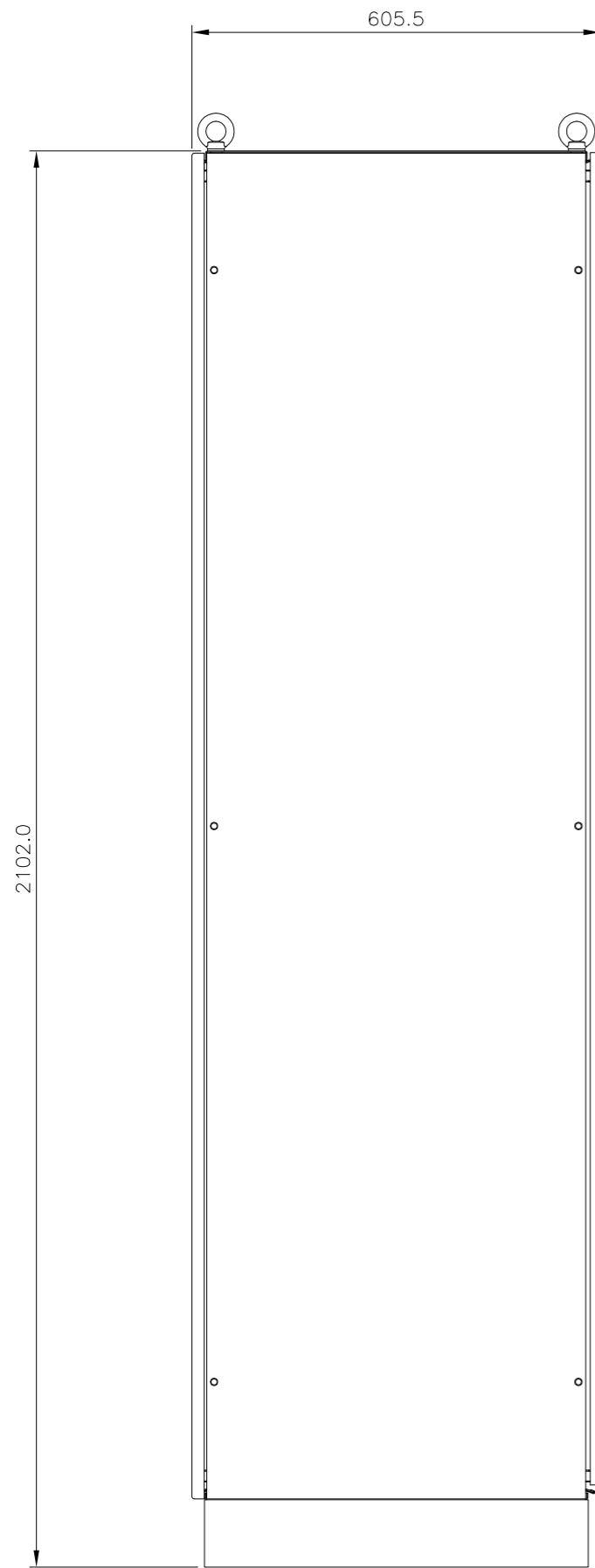
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A	20.10.10	DS	MM	MM	
B	18.06.13	DS	MM	MM	P & I REF.
C	03.03.15	DBF	MM	MM	SI158001_REG
D	19.05.15	DS	MM	MM	

SHT 1 OF 1

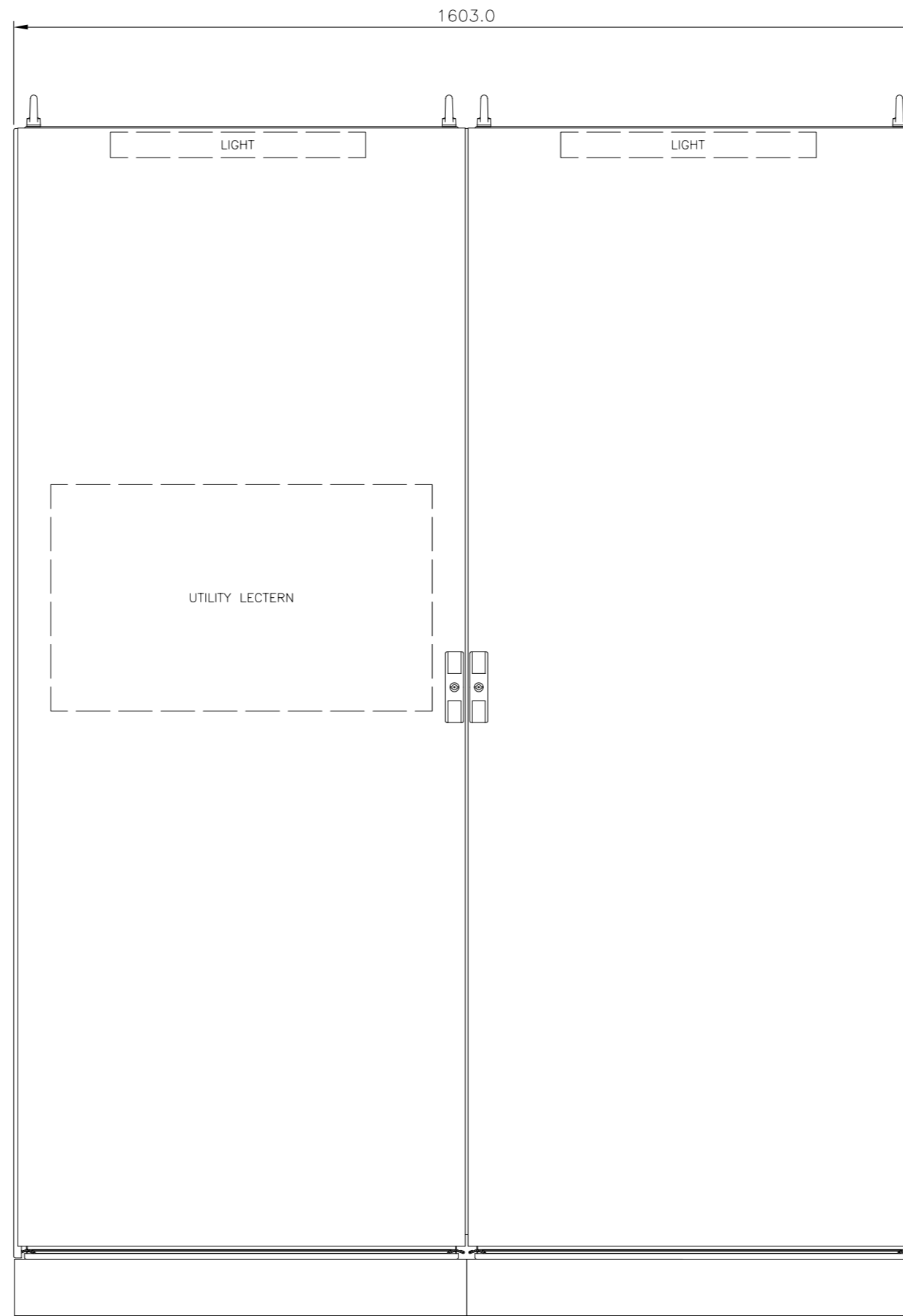
DRAWING NO	REVISION					DESCRIPTION
	ISSUE 0	A	B	C	D	
SI158001_DWG		C				PLC Panel External Layout
SI158002_DWG		D	G	H	I	PLC Panel Internal Layout
SI158003_DWG		D	G	H	I	PLC Logic Panel Drawing 1: Power Distribution
SI158004_DWG		A	D	E		PLC Logic Panel Drawing 2: Digital Inputs
SI158005_DWG		A				PLC Logic Panel Drawing 3
SI158006_DWG		A				PLC Logic Panel Drawing 4
SI158007_DWG		A				PLC Logic Panel Drawing 5
SI158008_DWG		A	C	D	E	PLC Logic Panel Drawing 8
SI158009_DWG		A				PLC Logic Panel Drawing 7
SI158010_DWG		A	B	C	D	PLC Panel External Layout
SI158011_DWG		A			B	PLC Logic Panel Drawing 9
SI158012_DWG		A				PLC Logic Panel Drawing 10
SI158013_DWG		A				PLC Logic Panel Drawing 11
SI158014_DWG		A				PLC Logic Panel Drawing 12
SI158020_DWG		C				Trace Heating Panel – Communication Network Overview
SI158021_DWG		B				Trace Heating Panel – Communication Network Overview

Section 2
PLC Drawings and Schedules





SIDE ELEVATION







FRONT ELEVATION

ENCLOSURE	RITTAL TS8
	ENCLOSURE 8806.500
	SIDE PANEL 8106.235
	PLINTH FRONT 8601.800
	PLINTH SIDE 8601.060
ACCESSORIES	LECTERN TS4638.800
PAINt FINISH PROTECTION	RAL 7035
	IP55
LABELS	W/B/W TRAFFOLITE
CABLE INCOMING	TOP ENTRY
CABLE OUTGOING	TOP EXIT
SUPPLY	230Vac 50hz

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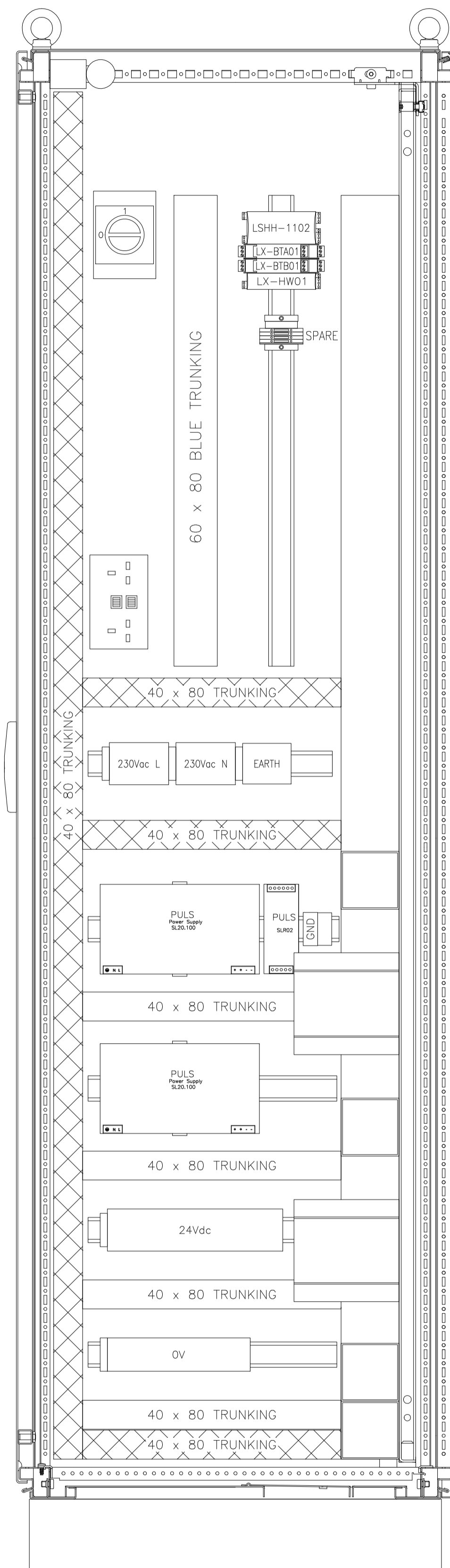
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	20/05/08	P.P.	P.P.	M.M.	D.B.F	M.M. D.R.R ISSUED FOR TENDER
B	03/06/08	P.P.	P.P.	M.M.	M.M. M.M.	ISSUED FOR CONSTRUCTION
C	01/09/10	P.P.	P.P.	M.M.	M.M.	DRAWING TITLE REVISED

PLANT	IMMINGHAM STORAGE Co - WEST TERMINAL
TITLE	No.9 SWITCHROOM - PLC PANEL EXTERNAL LAYOUT
 	 
CLIENT DRG. No.	P&I DRG No. SI158001_DWG

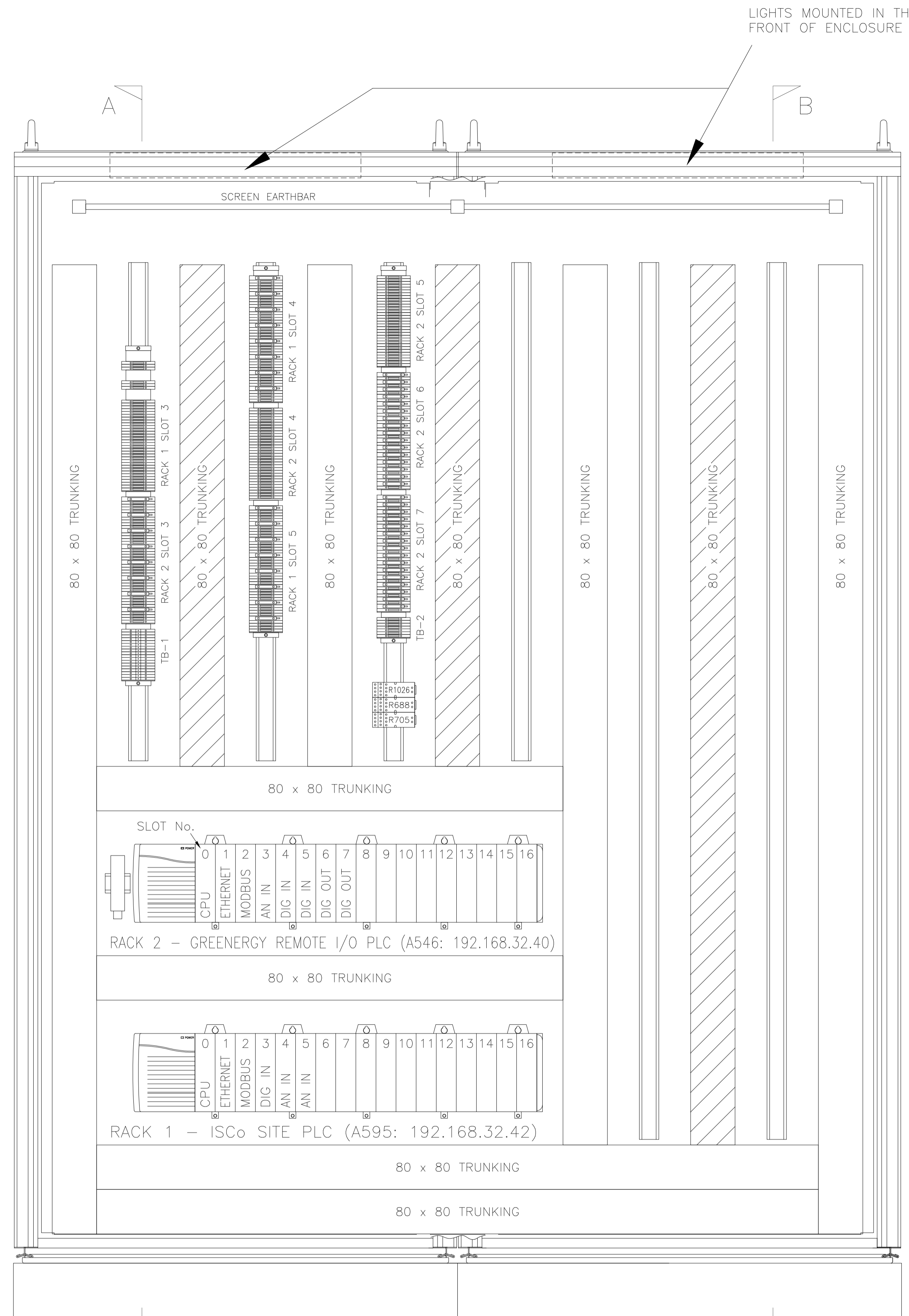


IMMINGHAM STORAGE CO. LTD.
 IMMINGHAM WEST TOWN,
 WEST RIVERSIDE,
 IMMINGHAM DOCK,
 IMMINGHAM,
 SOUTH HUMBERSIDE
 DN40 2PD

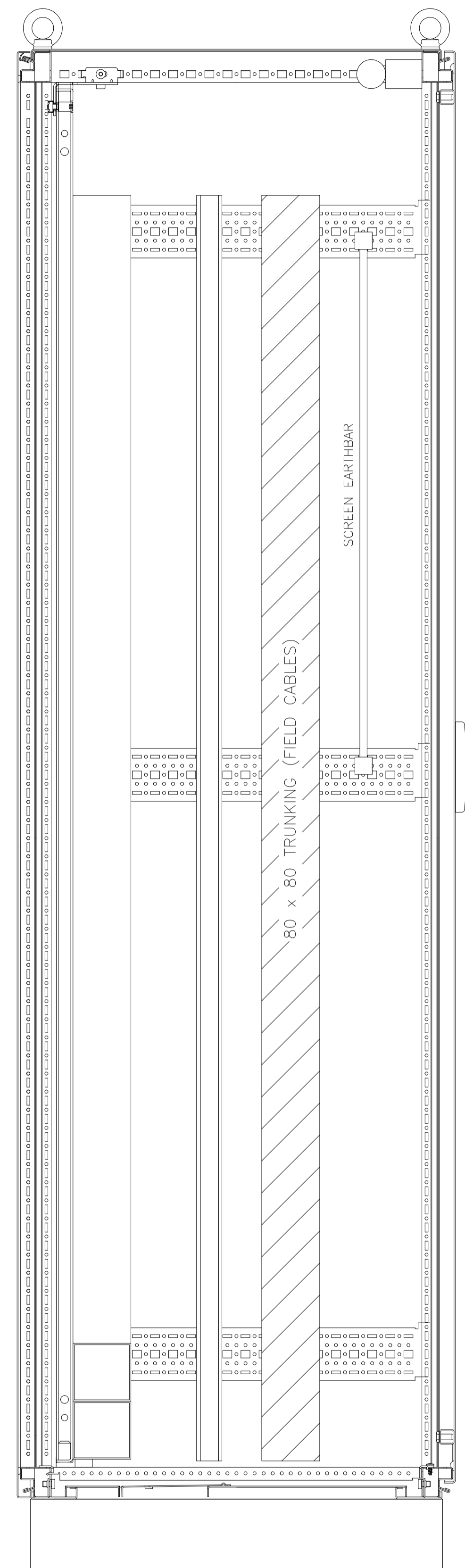
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VIEW ON A-A



VIEW ON BACK PLATE



VIEW ON B-B

LIGHTS MOUNTED IN THE FRONT OF ENCLOSURE

NOTES

TERMINAL BLOCKS

TB	QTY	DESCRIPTION
TB-L	10	ASK1/35 (Weidmuller 0376760000)
TB-N	10	ASK1/35 (Weidmuller 0376760000)
TB-E	10	EK2.5/35 (Weidmuller 0661060000)
TB-24V	30	ASK1/35 (Weidmuller 0376760000)
TB-0V	30	SAKR/35 (Weidmuller 0172160000)
RACK 1 SLOT 3	32	WTR 2.5 (Weidmuller 1855610000)
RACK 1 SLOT 4	8	WSI 6 (Weidmuller 1011000000)
	32	WTR 2.5 (Weidmuller 1855610000)
RACK 1 SLOT 5	8	WSI 6 (Weidmuller 1011000000)
	32	WTR 2.5 (Weidmuller 1855610000)
RACK 2 SLOT 3	8	WSI 6 (Weidmuller 1011000000)
	32	WTR 2.5 (Weidmuller 1855610000)
RACK 2 SLOT 4	32	WTR 2.5 (Weidmuller 1855610000)
RACK 2 SLOT 5	32	WTR 2.5 (Weidmuller 1855610000)
RACK 2 SLOT 6	16	WSI 6 (Weidmuller 1011000000)
	16	WTR 2.5 (Weidmuller 1855610000)
RACK 2 SLOT 7	16	WSI 6 (Weidmuller 1011000000)
	16	WTR 2.5 (Weidmuller 1855610000)
TB-1	18	WDU 2.5 (Weidmuller 1020000000)
TB-2	7	WDU 2.5 (Weidmuller 1020000000)

WIRING DETAILS

DESCRIPTION

ELECTRICAL	440V / 240V AC:
SIZE:	n/a
COLOUR:	n/a
INSTRUMENT	230Vdc SUPPLIES:
SIZE:	Suitably Rated with Minimum 0.5mm ²
COLOUR:	Live (Brown) / Neutral (Blue) / Earth (Green/Yellow)
INSTRUMENT	110Vdc SUPPLIES:
SIZE:	n/a
COLOUR:	n/a
24V DC SUPPLIES:	
SIZE:	Suitably Rated with Minimum 0.5mm ²
COLOUR:	Positive (Red) / 0V (Black)
DIGITAL SWITCHED AC:	
SIZE:	n/a
COLOUR:	n/a
DIGITAL SWITCHED DC:	
SIZE:	0.5mm ²
COLOUR:	White
ANALOGUE:	
SIZE:	0.5mm ²
COLOUR:	Grey
CRIMPS:	
TYPE:	Bootlace or Twin Grip Insulated
FERRULES:	
TYPE:	Heat Shrink Thermal Printed Sleeves

	TRUNKING - FIELD CABLES (24Vdc)
	TRUNKING - 230Vdc
	TRUNKING - PANEL WIRING (24Vdc)

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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION		
H	27/10/14	D.B.F	P.P.	D.B.F	M.M.	M.M.	A	20/05/08	P.P.	P.P.	M.M.	D.B.F	M.M.	D.R.R	ISSUED FOR TENDER
I	05/05/15	D.B.F	P.P.	D.B.F		M.M.	B	03/06/08	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	ISSUED FOR CONSTRUCTION
							C	01/09/10	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	SECOND PLC RACK FITTED
							D	19/10/10	D.B.F	D.A.Y	M.M.	M.M.	M.M.	M.M.	AI ADDED (SI158)
							E	02/12/10	P.P.	P.P.	D.B.F	D.B.F	M.M.	M.M.	AI ADDED RACK 1 SLOT 4 (SI320)
							F	27/03/13	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	DI ADDED RACK 1 SLOT 5 (SI502)
							G	19/04/13	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	AS BUILT

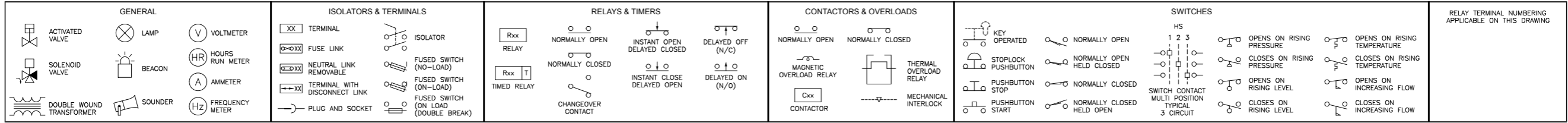
PLANT: IMMINGHAM STORAGE Co - WEST TERMINAL
 TITLE: No.9 SWITCHROOM - 9PLC001 PLC PANEL INTERNAL LAYOUT

inter terminals
 Immingham Storage Co Ltd
 Immingham West Terminal
 West Riverside
 Immingham Dock
 Immingham
 N.E. Lincolnshire DN40 2DU

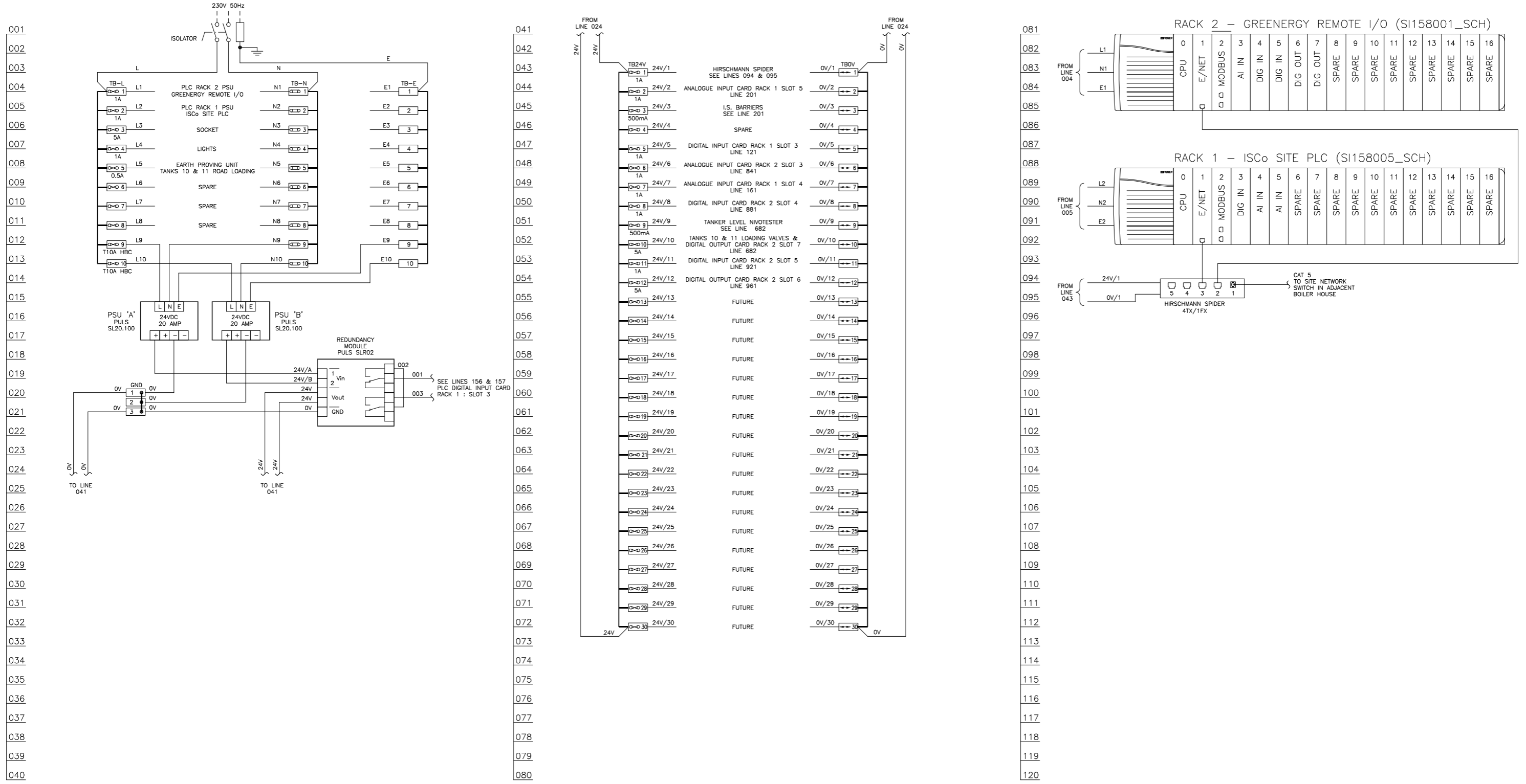
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SHEET 1 OF 1
 CLIENT DRG. No. P&I DRG No. SI158002_DWG

LEGEND OF GRAPHICAL SYMBOLS (ALL CONTACTS SHOWN IN THE DE-ENERGISED STATE)



POWER DISTRIBUTION



LAST NUMBER USED : 003
 SPARE TO : 029

LAST NUMBER USED : 030
 SPARE TO : 059

- NOTES
- 1) TB-L : 10-off WEIDMULLER ASK1/35
 - 2) TB-N : 10-off WEIDMULLER ASK1/35
 - 3) TB-E : 10-off WEIDMULLER EK2.5/35
 - 4) TB24V : 30-off WEIDMULLER ASK1/35
 - 5) TBOV : 30-off WEIDMULLER SAKR/35

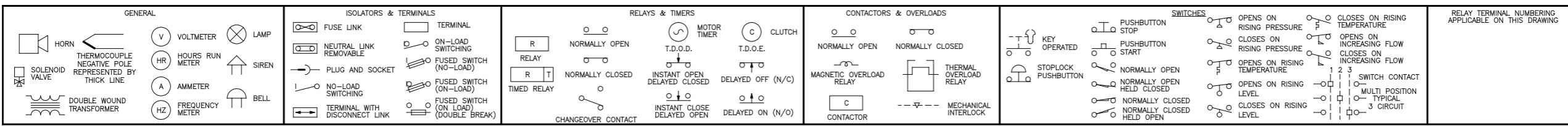
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H	27/10/14	D.B.F	P.P.	D.B.F	D.B.F	M.M.	M.M.	AS BUILT - SI374 PROJECT	A	20/05/08	P.P.	P.P.	M.M.	D.B.F	M.M.	D.R.R	ISSUED FOR TENDER
I	01/05/15	P.P.	P.P.	D.B.F	M.M.	AS BUILT - SI502 PROJECT	B	03/06/08	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	M.M.	M.M.	ISSUED FOR CONSTRUCTION
							C	01/09/10	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	M.M.	M.M.	SECOND PLC RACK ADDED
							D	19/10/10	D.B.F	D.A.Y	M.M.	M.M.	M.M.	M.M.	M.M.	M.M.	AI ADDED (SI150)
							E	02/12/10	P.P.	P.P.	D.B.F	D.B.F	M.M.	M.M.	M.M.	M.M.	AI ADDED RACK 1 SLOT 4 (SI320)
							F	26/03/13	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	M.M.	M.M.	DI ADDED RACK 1 SLOT 5 (SI502)
							G	19/04/13	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	M.M.	M.M.	AS BUILT

PLANT: IMMINGHAM STORAGE Co. - WEST TERMINAL
 TITLE: No.9 SWITCHROOM - PLC LOGIC PANEL DRAWING 1 : POWER DISTRIBUTION

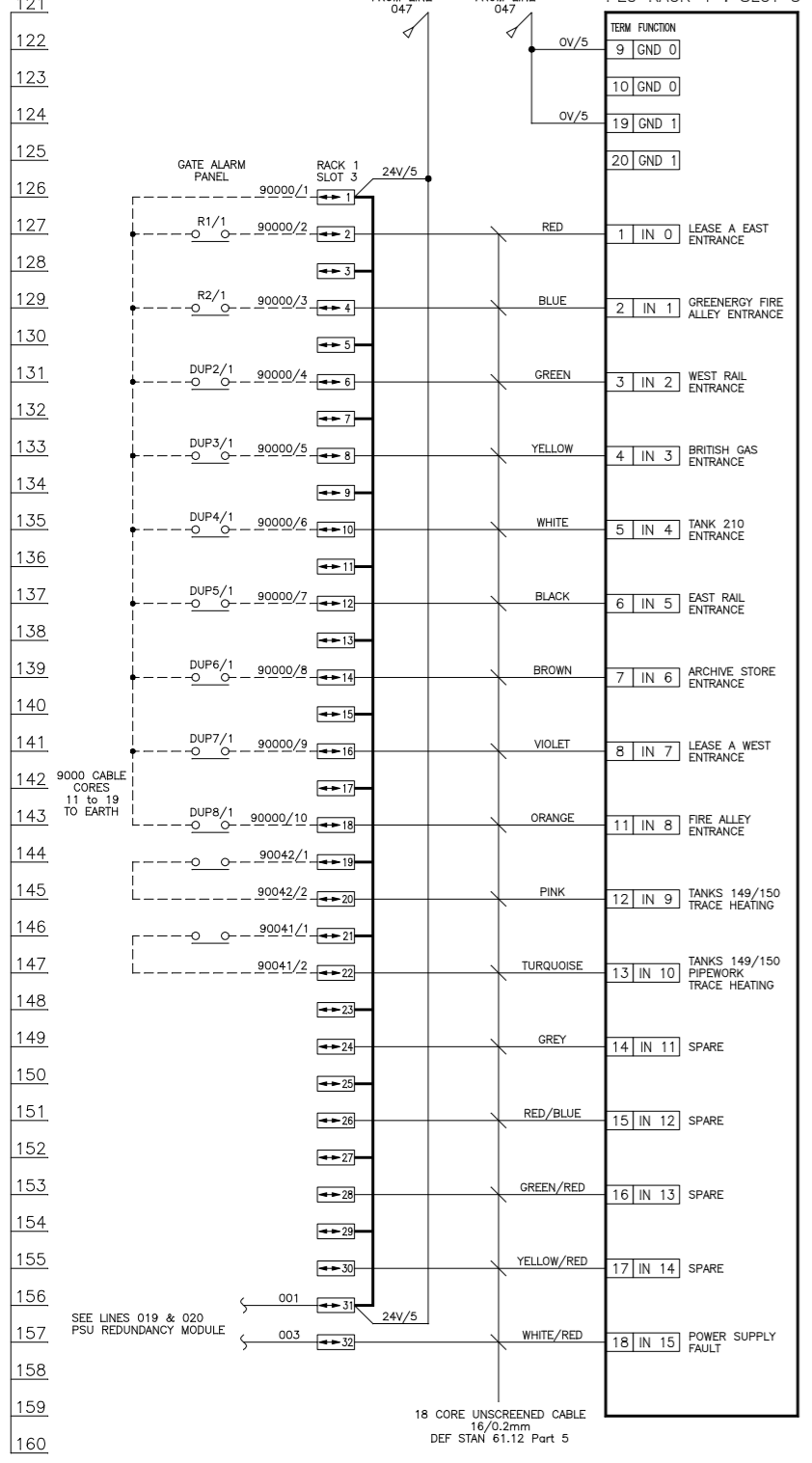
inter terminals
 Immingham Storage Co Ltd
 Immingham West Terminal
 West Riverside
 Immingham Dock
 Immingham
 N.E. Lincolnshire DN40 2DU

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SHEET 1 OF 1
 CLIENT DRG. No. P&I DRG No. SI158003_DWG

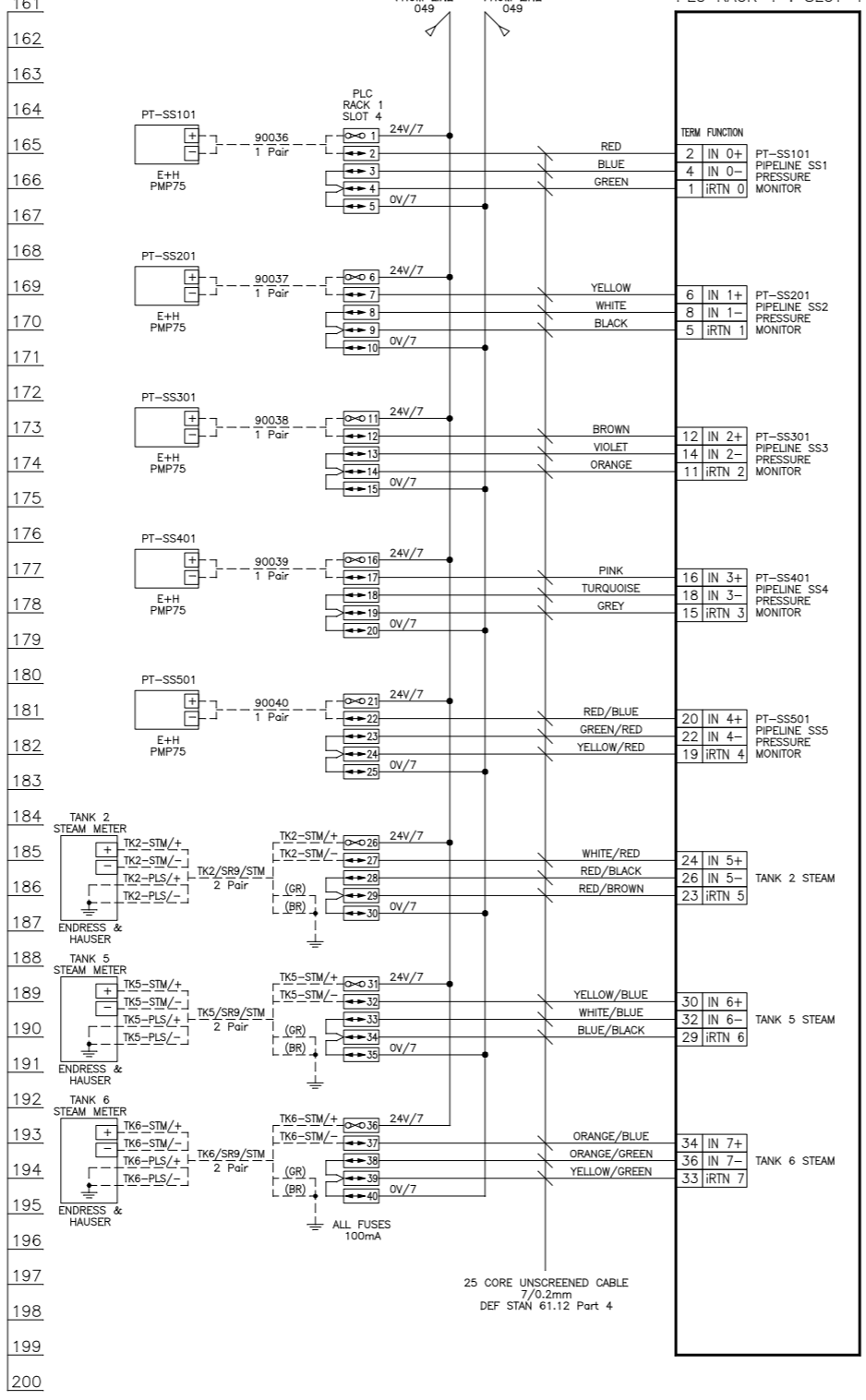


DIGITAL INPUT CARD
1756-IB16
PLC RACK 1 : SLOT 3



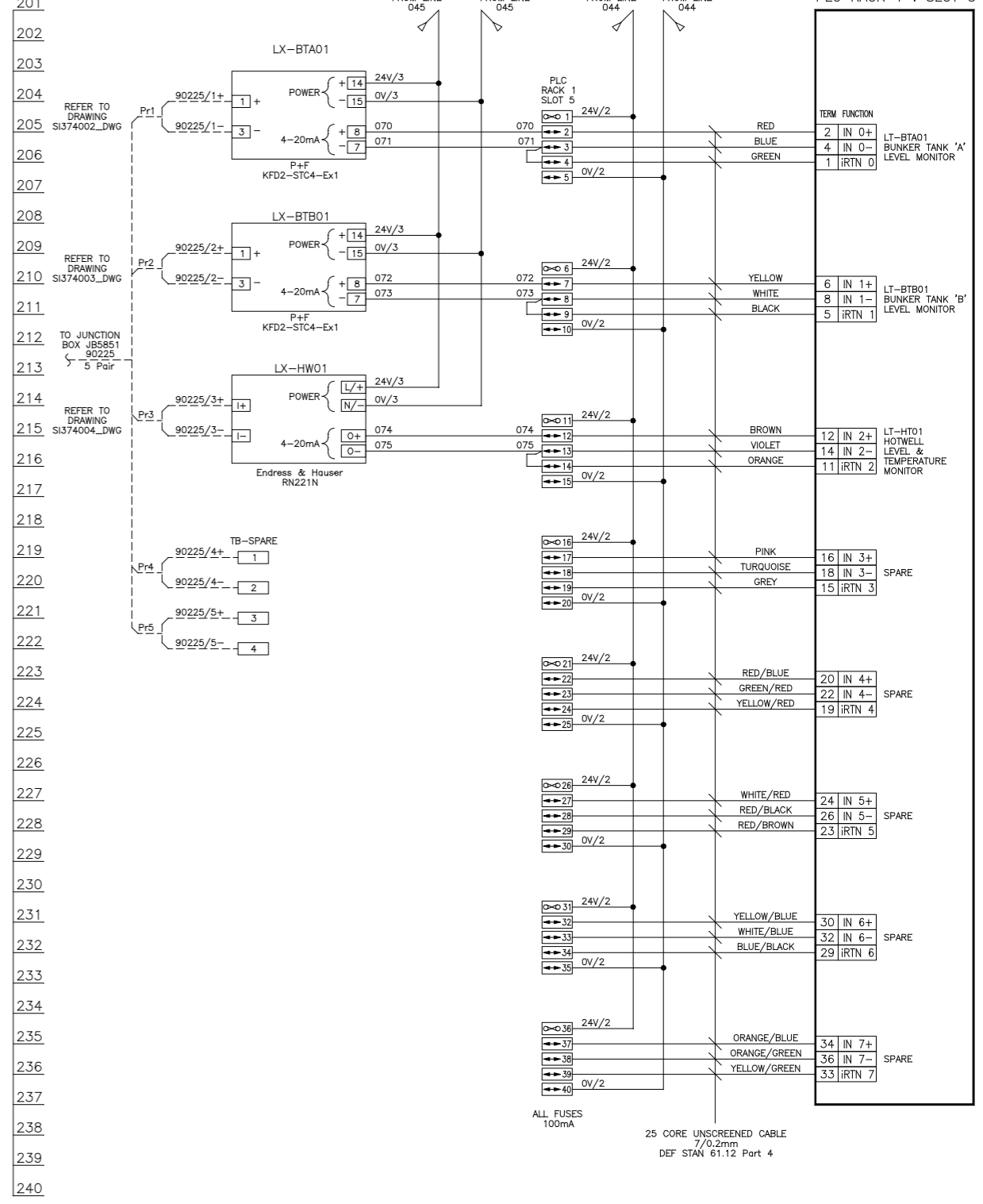
LAST NUMBER USED : xxx
SPARE TO : xxx

ANALOGUE INPUT CARD
1756-IF8H
PLC RACK 1 : SLOT 4



LAST NUMBER USED : xxx
SPARE TO : xxx

ANALOGUE INPUT CARD
1756-IF8H
PLC RACK 1 : SLOT 5



LAST NUMBER USED : 075
SPARE TO : 089

NOTES

1) RACK 1 SLOT 3 : WEIDMULLER WTR 2.5 (1855610000)
 2) RACK 1 SLOT 4 : WEIDMULLER WSI 6 (1011000000)
 3) RACK 1 SLOT 5 : WEIDMULLER WSL 6 (1011000000)

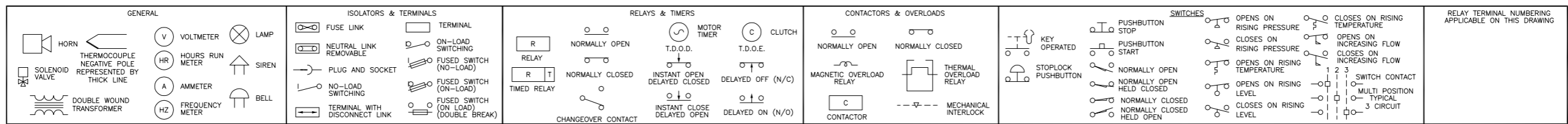
32-off (1855610000) WEIDMULLER
 8-off (1011000000) WEIDMULLER
 8-off (1011000000) WEIDMULLER

WTR 2.5 (1855610000)
 WTR 2.5 (1855610000)



REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	
A	02/09/10	P.P.	P.P.	M.M.	M.M.	M.M.	ISSUED FOR CONSTRUCTION
B	02/12/10	P.P.	P.P.	D.B.F.	D.B.F.	M.M.	AI CARD ADDED TO SLOT 4
C	26/03/13	P.P.	P.P.	M.M.	M.M.	M.M.	DI CARD ADDED TO SLOT 5
D	19/04/13	P.P.	P.P.	M.M.	M.M.	M.M.	AS BUILT
E	27/10/14	D.B.F.	P.P.	D.B.F.	M.M.	M.M.	AS BUILT - SI374 PROJECT

PLANT	IMMINGHAM STORAGE Co. - WEST TERMINAL
TITLE	No.9 SWITCHROOM - PLC LOGIC PANEL DRAWING 2
CLIENT DRG. No.	P&I Design Ltd IMMINGHAM STORAGE Co. Ltd, WEST RIVERSIDE, IMMINGHAM DOCK, IMMINGHAM, N.E. LINCOLNSHIRE, DN40 2QU
	Tel. 01642 617444 www.pidesign.co.uk
	SHEET 1 OF 1
	P&I DRG No. SI158004_DWG



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RESERVED FOR FUTURE PLC CARD
RACK 1 SLOT 6

LAST NUMBER USED : xxx
SPARE TO : xxx

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RESERVED FOR FUTURE PLC CARD
RACK 1 SLOT 7

LAST NUMBER USED : xxx
SPARE TO : xxx

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RESERVED FOR FUTURE PLC CARD
RACK 1 SLOT 8

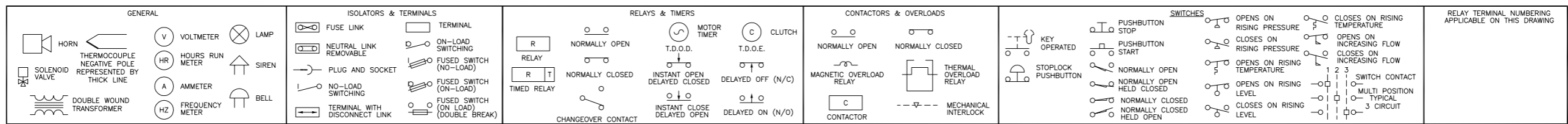
LAST NUMBER USED : xxx
SPARE TO : xxx

NOTES
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2) RACK 1 SLOT 7 :
3) RACK 1 SLOT 8 :

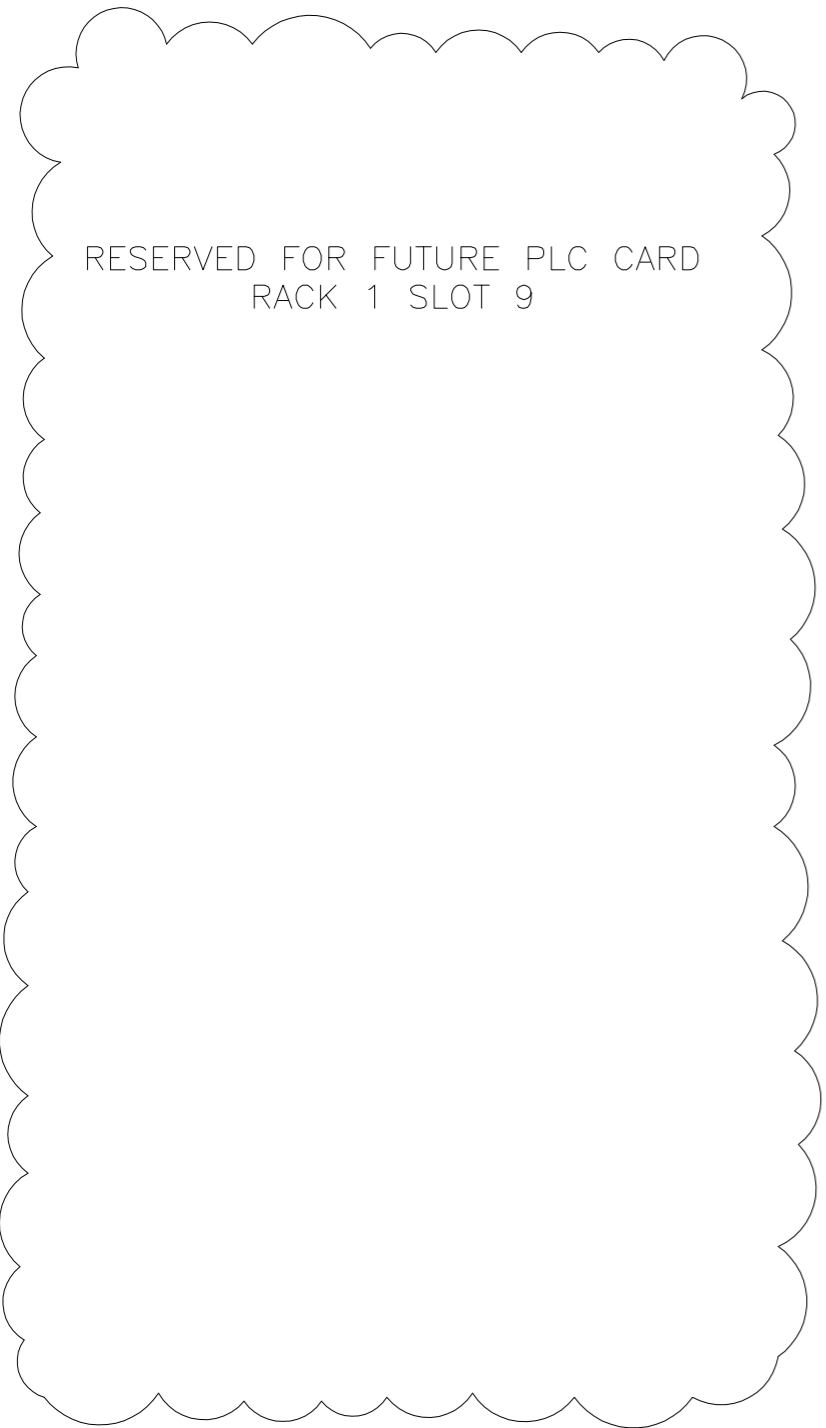


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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/09/10	P.P.	P.P.	M.M.	M.M.	ISSUED FOR CONSTRUCTION

PLANT	IMMINGHAM STORAGE Co. - WEST TERMINAL
TITLE	No.9 SWITCHROOM - PLC LOGIC PANEL
DRAWING 3 :	
	IMMINGHAM STORAGE CO. LTD. IMMINGHAM WEST TOWN, WEST RIVERSIDE, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE DN40 2PD
	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
SHEET 1 OF 1	
CLIENT DRG. No.	P&I DRG No. SI158005_DWG

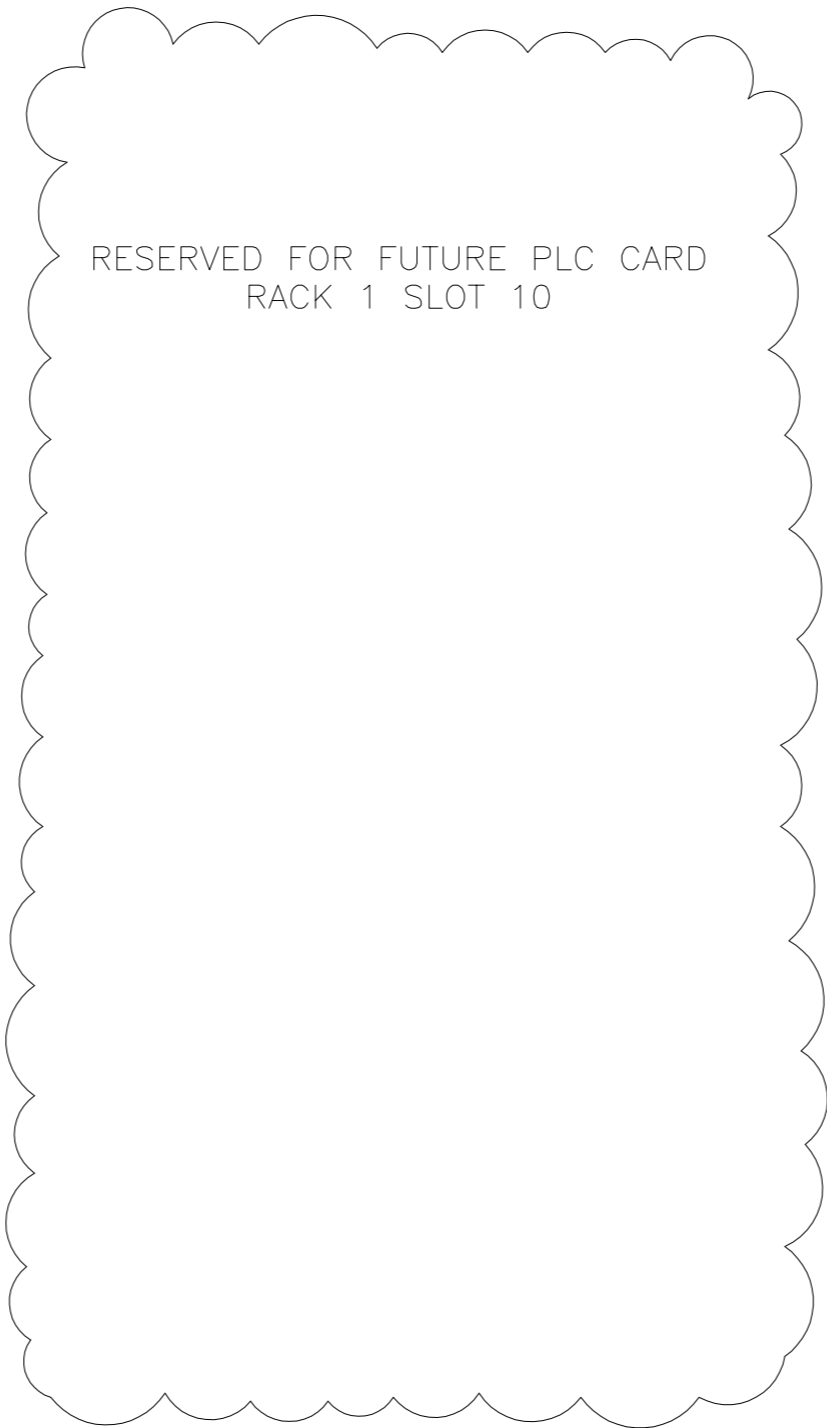


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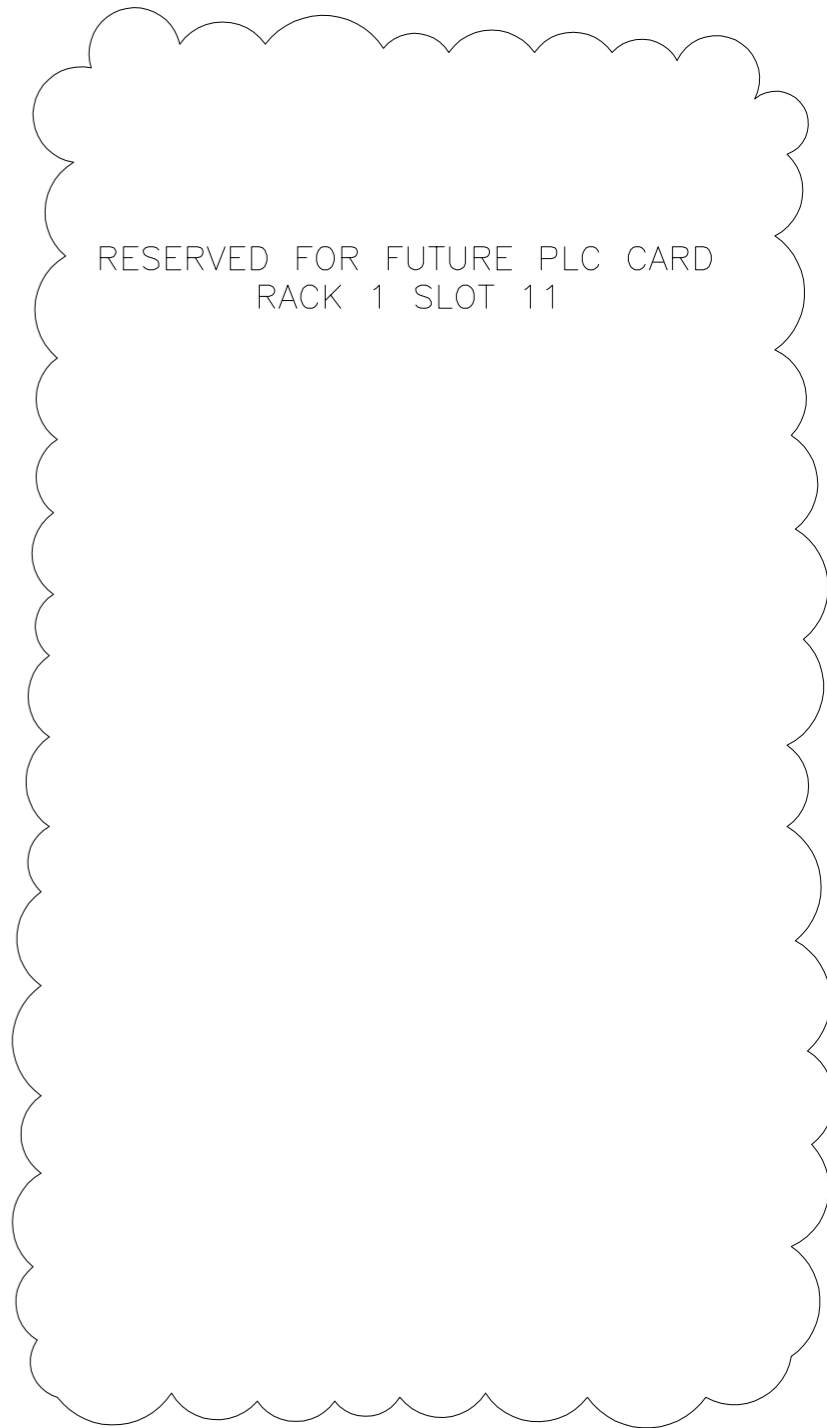
LAST NUMBER USED : xxx
SPARE TO : xxx

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LAST NUMBER USED : xxx
SPARE TO : xxx

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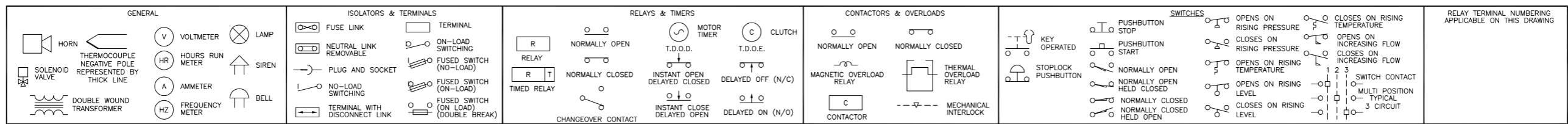
LAST NUMBER USED : xxx
SPARE TO : xxx

NOTES
 1) RACK 1 SLOT 9 :
 2) RACK 1 SLOT 10 :
 3) RACK 1 SLOT 11 :



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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/09/10	P.P.	P.P.	M.M.	M.M.	ISSUED FOR CONSTRUCTION

PLANT	IMMINGHAM STORAGE Co. - WEST TERMINAL
TITLE	No.9 SWITCHROOM - PLC LOGIC PANEL
DRAWING 4 :	
IMMINGHAM STORAGE CO. LTD. IMMINGHAM WEST TOWN, WEST RIVERSIDE, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE DN40 2PD	
P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk	
SHEET	1 OF 1
CLIENT DRG. No.	P&I DRG No. SI158006_DWG



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RESERVED FOR FUTURE PLC CARD
RACK 1 SLOT 12

LAST NUMBER USED : xxx
SPARE TO : xxx

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RESERVED FOR FUTURE PLC CARD
RACK 1 SLOT 13

LAST NUMBER USED : xxx
SPARE TO : xxx

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RESERVED FOR FUTURE PLC CARD
RACK 1 SLOT 14

LAST NUMBER USED : xxx
SPARE TO : xxx

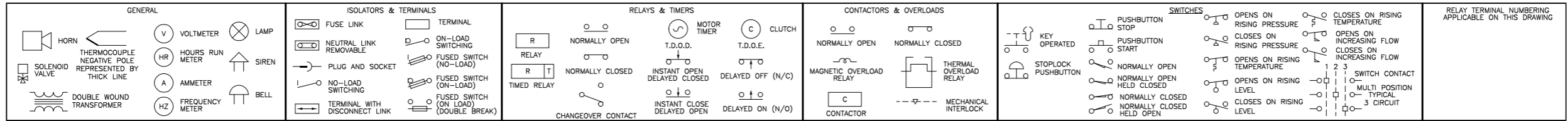
NOTES
 1) RACK 1 SLOT 12 :
 2) RACK 1 SLOT 13 :
 3) RACK 1 SLOT 14 :



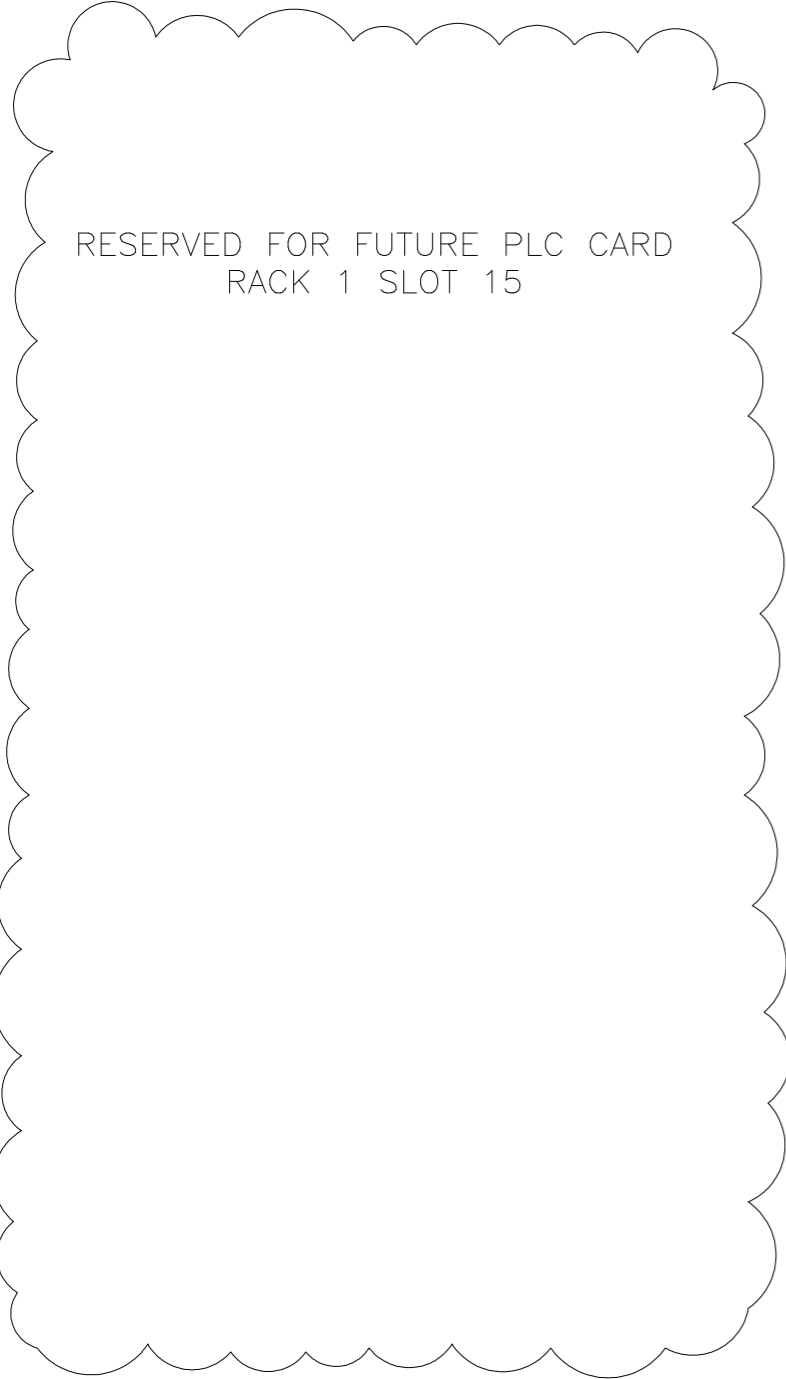
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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/09/10	P.P.	P.P.	M.M.	M.M.	ISSUED FOR CONSTRUCTION

PLANT	IMMINGHAM STORAGE Co. - WEST TERMINAL
TITLE	No.9 SWITCHROOM - PLC LOGIC PANEL
DRAWING 5 :	
IMMINGHAM STORAGE CO. LTD. IMMINGHAM WEST TOWN, WEST RIVERSIDE, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE DN40 2PD	
P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk	
SHEET	1 OF 1
CLIENT DRG. No.	P&I DRG No. SI158007_DWG

LEGEND OF GRAPHICAL SYMBOLS (ALL CONTACTS SHOWN IN THE DE-ENERGISED STATE)

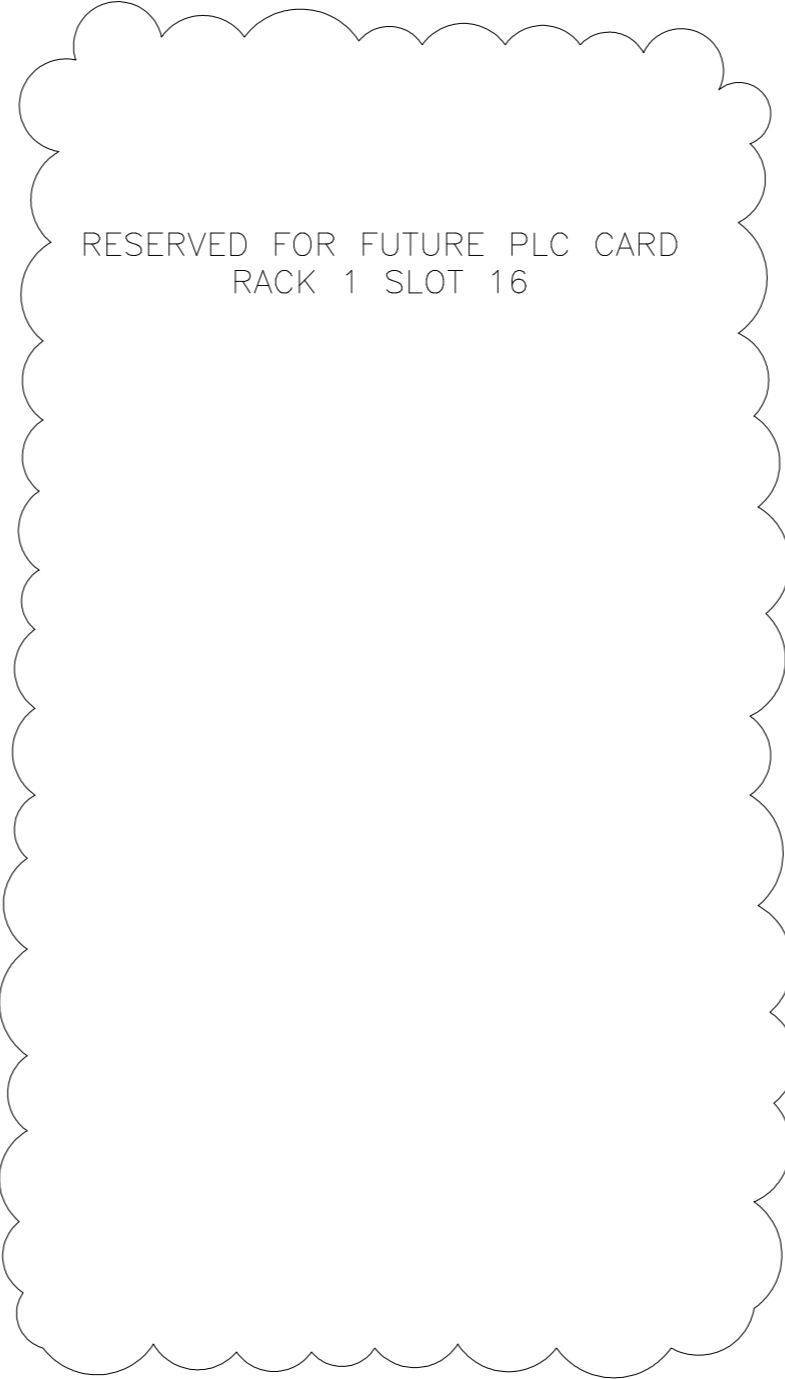


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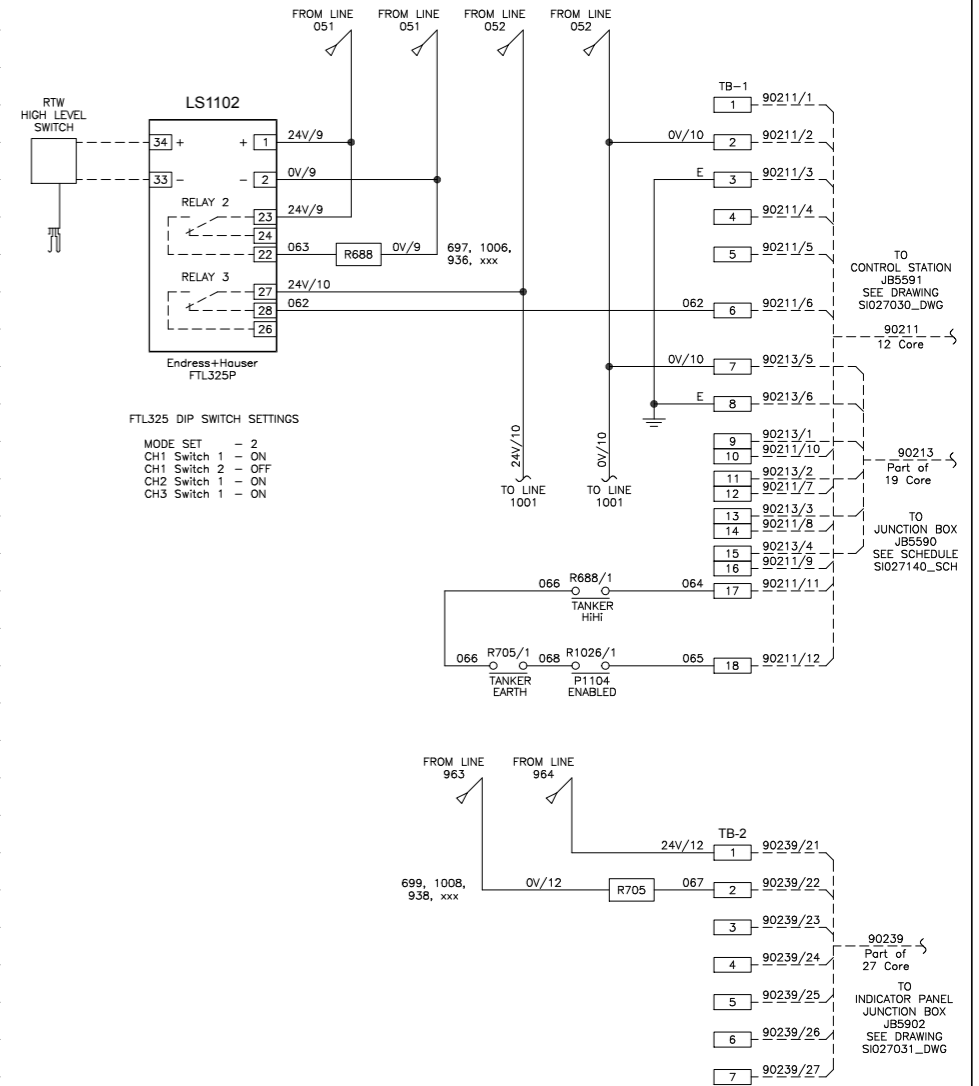
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LAST NUMBER USED : xxx
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LAST NUMBER USED : 068
SPARE TO : 069

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED								PLANT	
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION		IMMINGHAM STORAGE Co. - WEST TERMINAL	
A	02/09/10	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	ISSUED FOR CONSTRUCTION	
B	27/03/13	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	NIVOTESTER ADDED	
C	19/04/13	P.P.	P.P.	M.M.	M.M.	M.M.	M.M.	AS BUILT	
D	11/11/14	ISCO	P.P.	M.M.	M.M.	M.M.	M.M.	PUMP INTERLOCK ADDED	
E	05/05/15	D.B.F	P.P.	D.B.F	M.M.	M.M.	M.M.	AS BUILT - SIS02 PROJECT	
								CLIENT DRG. No.	P&I DRG No. SI158008_DWG

PLANT TITLE: No.9 SWITCHROOM - PLC LOGIC PANEL DRAWING 6 :

inter terminals

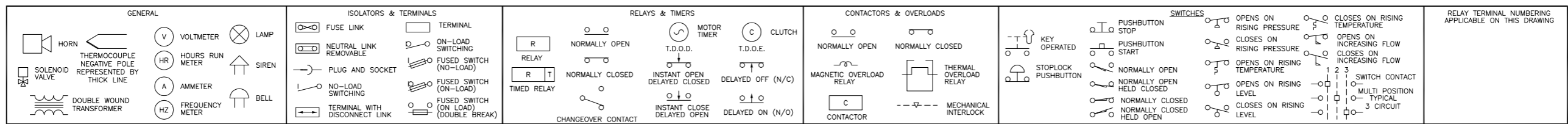
Immingham Storage Co Ltd
Immingham West Terminal
West Riverside
Immingham Dock
Immingham
N.E. Lincolnshire DN40 2QU

P & I DESIGN

P & I Design Ltd
Tel. 01642 617444
www.pidesign.co.uk

SHEET 1 OF 1

LEGEND OF GRAPHICAL SYMBOLS (ALL CONTACTS SHOWN IN THE DE-ENERGISED STATE)



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SPARE TO : xxx

LAST NUMBER USED : xxx
SPARE TO : xxx

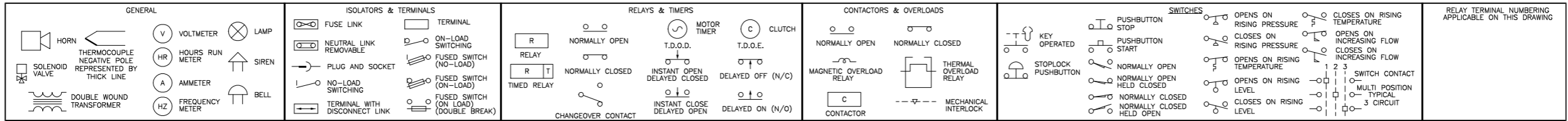
LAST NUMBER USED : xxx
SPARE TO : xxx

NOTES
1)



IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/09/10	P.P.	P.P.	M.M.	M.M.	ISSUED FOR CONSTRUCTION

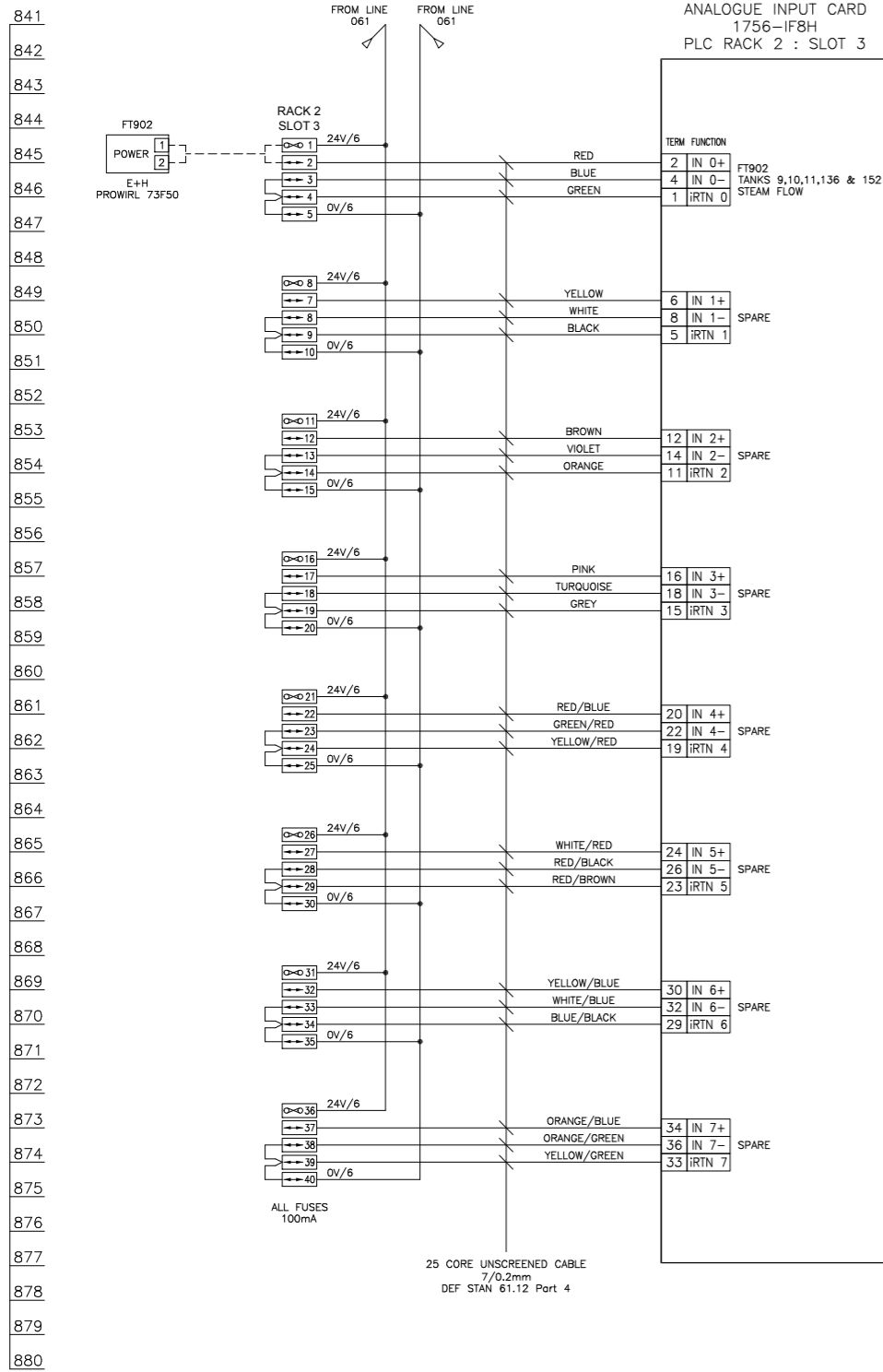
PLANT	IMMINGHAM STORAGE Co. - WEST TERMINAL
TITLE	No.9 SWITCHROOM - PLC LOGIC PANEL
DRAWING 7 :	
	IMMINGHAM STORAGE CO. LTD. IMMINGHAM WEST TOWN, WEST RIVERSIDE, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE DN40 2PD
	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
SHEET 1 OF 1	
CLIENT DRG. No.	P&I DRG No. SI158009_DWG



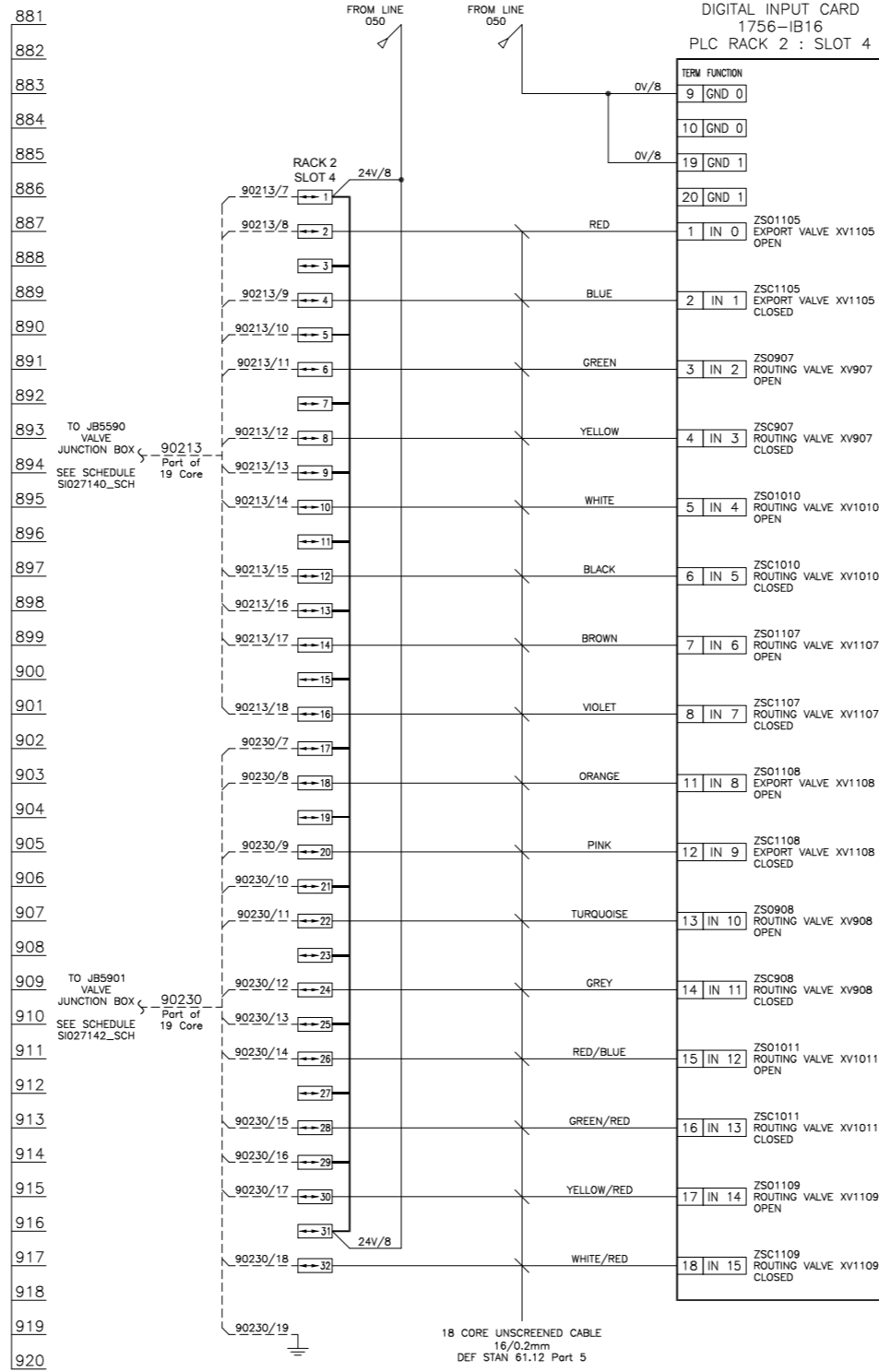
PLC RACK 2 - SLOT 3

PLC RACK 2 - SLOT 4

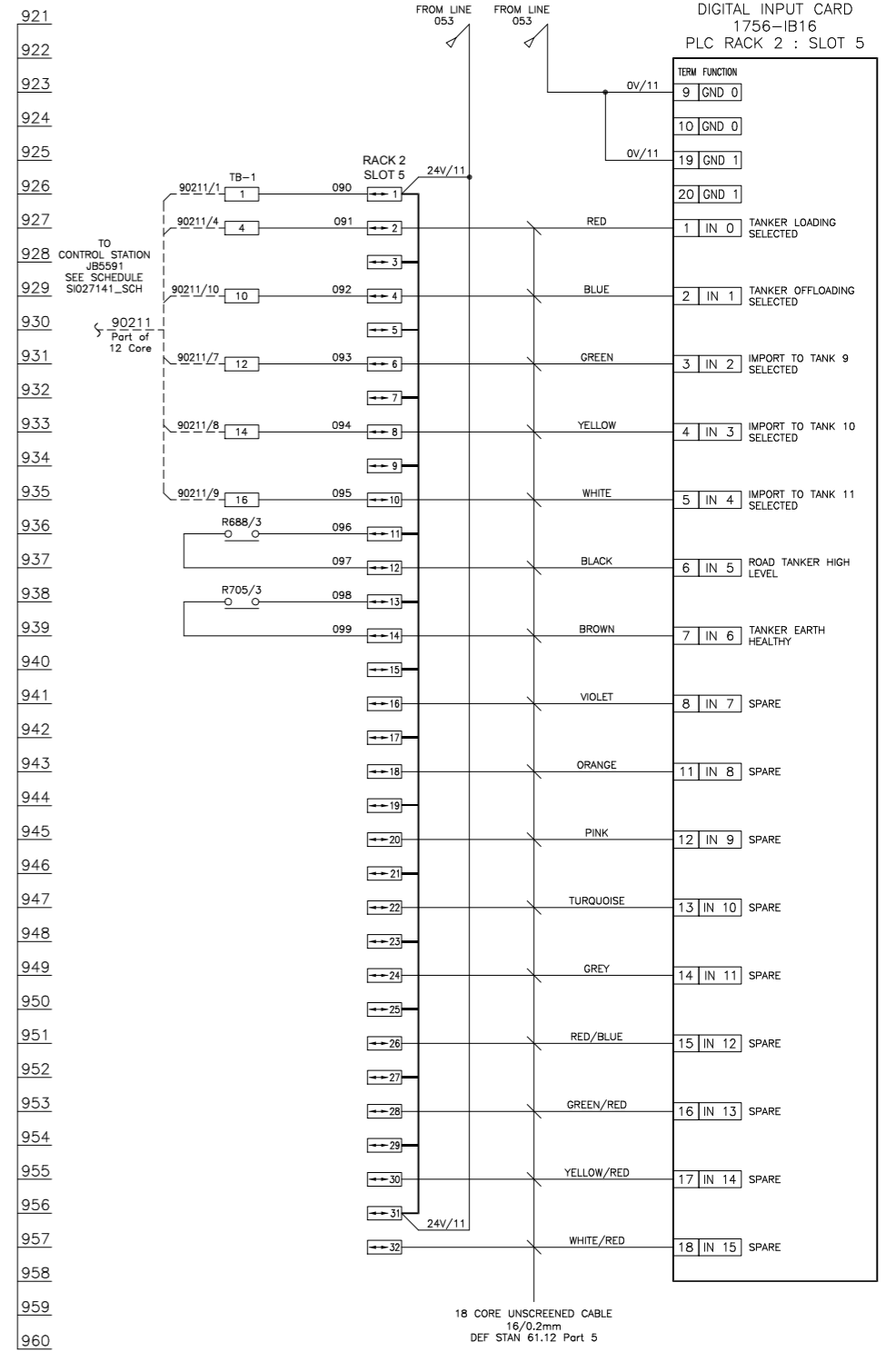
PLC RACK 2 - SLOT 5



LAST NUMBER USED : xxx
SPARE TO : xxx



LAST NUMBER USED : xxx
SPARE TO : xxx



LAST NUMBER USED : 099
SPARE TO : 109

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	19/10/10	D.B.F	D.A.Y	M.M.	M.M.	ISSUED FOR CONSTRUCTION
B	19/04/13	P.P.	P.P.	M.M.	M.M.	AS BUILT
C	11/11/14	P.P.	P.P.	M.M.	M.M.	VALVE TAG NUMBER REVISED
D	05/05/15	D.B.F	P.P.	D.B.F	M.M.	AS BUILT - S1502 PROJECT

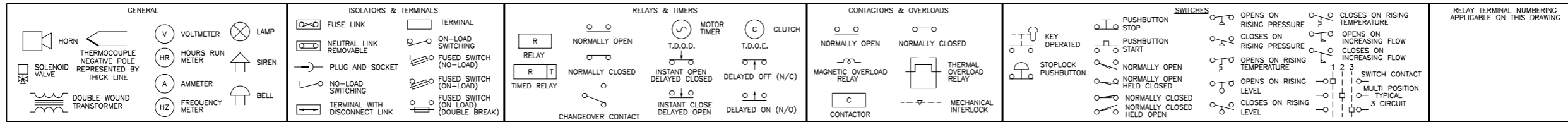
PLANT: IMMINGHAM STORAGE Co. - WEST TERMINAL
TITLE: No.9 SWITCHROOM - PLC LOGIC PANEL
DRAWING 8 : ANALOGUE INPUTS

inter terminals
Immingham Storage Co Ltd
Immingham West Terminal
West Riverside
Immingham Dock
Immingham
N.E. Lincolnshire DN40 2QU

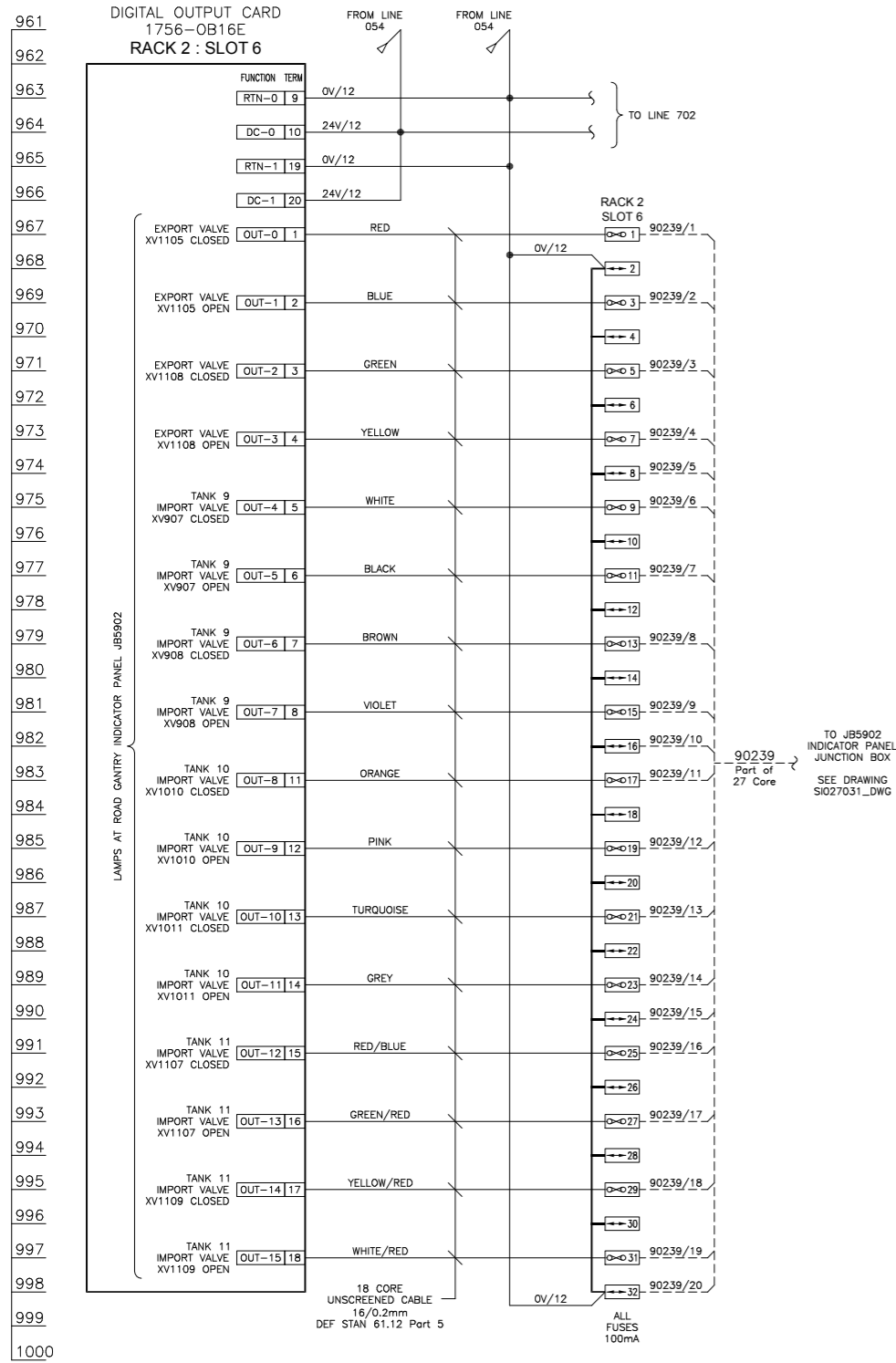
P & I Design Ltd
Tel. 01642 617444
www.pidesign.co.uk

SHEET 1 OF 1
CLIENT DRG. No. P&I DRG No. S158010_DWG

LEGEND OF GRAPHICAL SYMBOLS (ALL CONTACTS SHOWN IN THE DE-ENERGISED STATE)

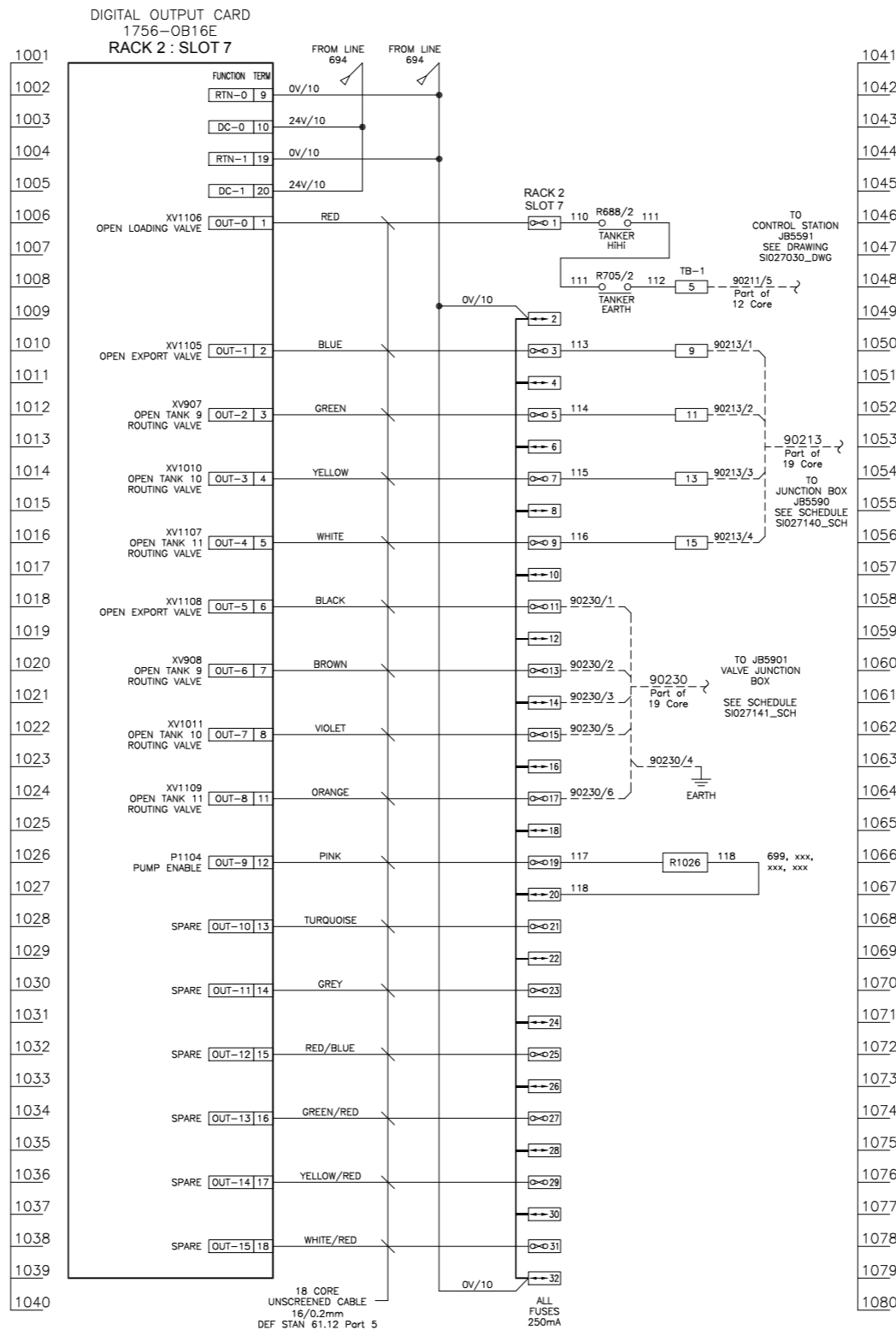


PLC RACK 2 - SLOT 6



LAST NUMBER USED : xxx
 SPARE TO : xxx

PLC RACK 2 - SLOT 7

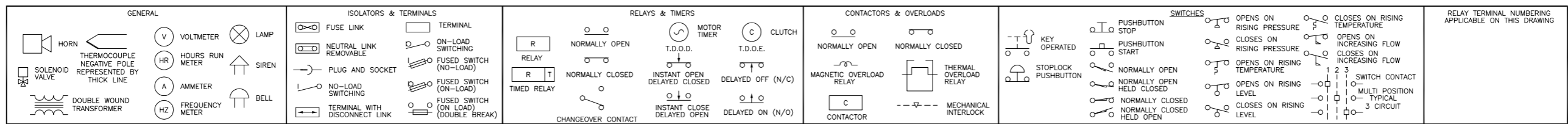


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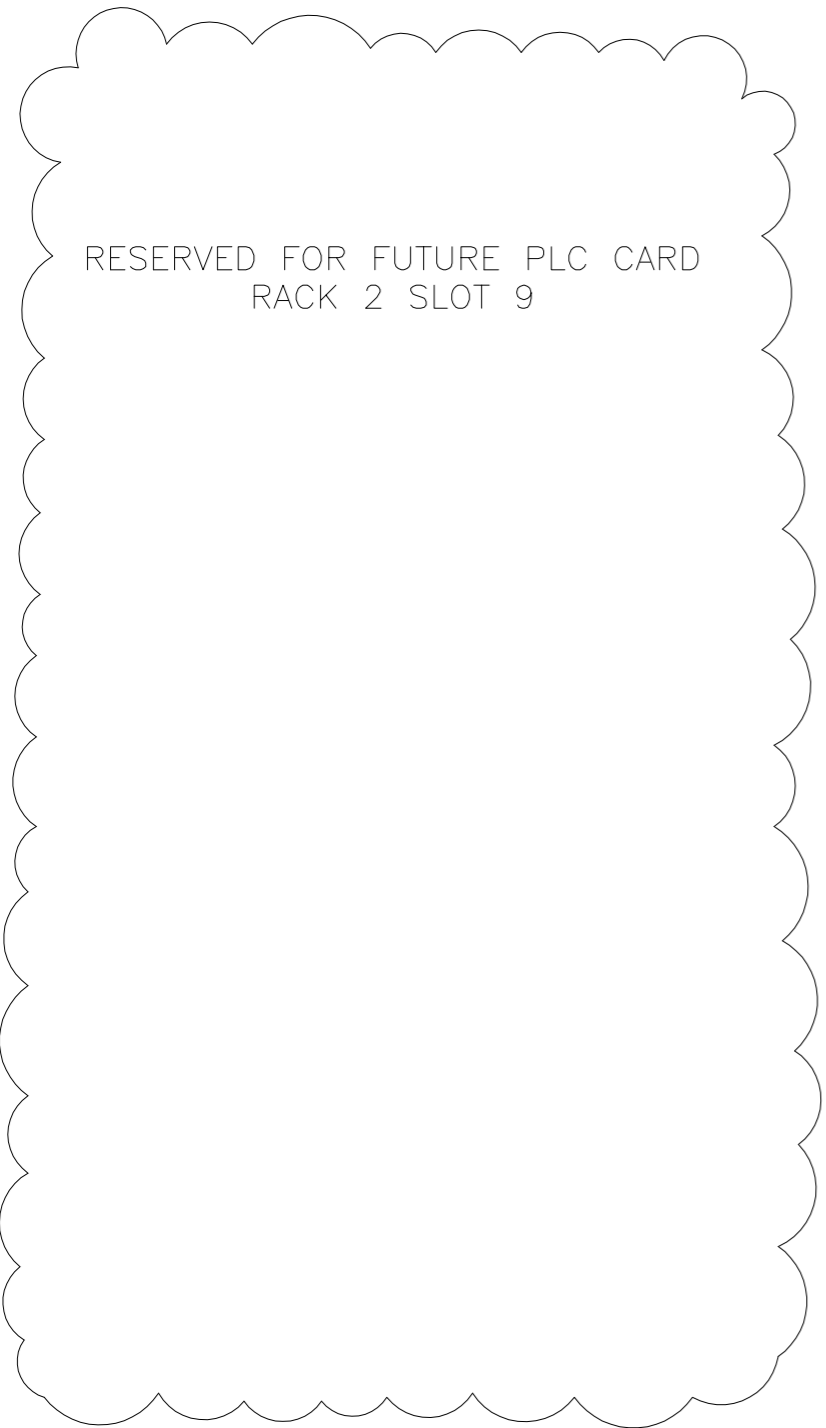


LAST NUMBER USED : xxx
 SPARE TO : xxx

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED							PLANT	IMMINGHAM STORAGE Co. - WEST TERMINAL		
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	TITLE	No.9 SWITCHROOM - PLC LOGIC PANEL		
A	19/10/10	D.B.F	D.A.Y	M.M.	M.M.	M.M.	ISSUED FOR CONSTRUCTION	DRAWING 9 :		
B	05/05/15	D.B.F	P.P.	D.B.F	M.M.	M.M.	AS BUILT - SISO2 PROJECT			
							Immingham Storage Co Ltd Immingham West Terminal West Riverside Immingham Dock Immingham N.E. Lincolnshire DN40 2QU		Tel. 01642 617444 www.pidesign.co.uk	
							CLIENT DRG. No.		P&I DRG. No. S1158011_DWG	
							SHEET 1 OF 1			

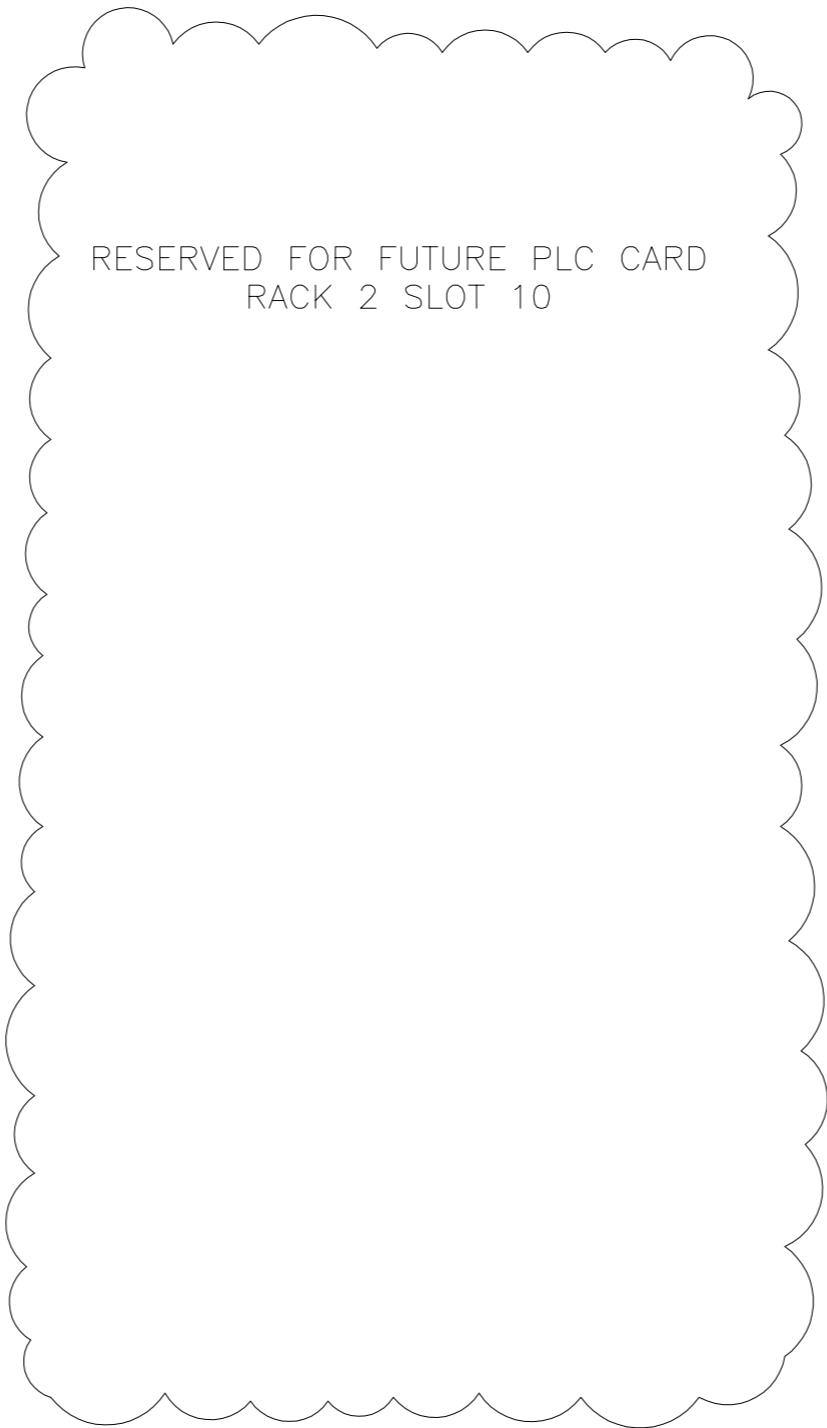


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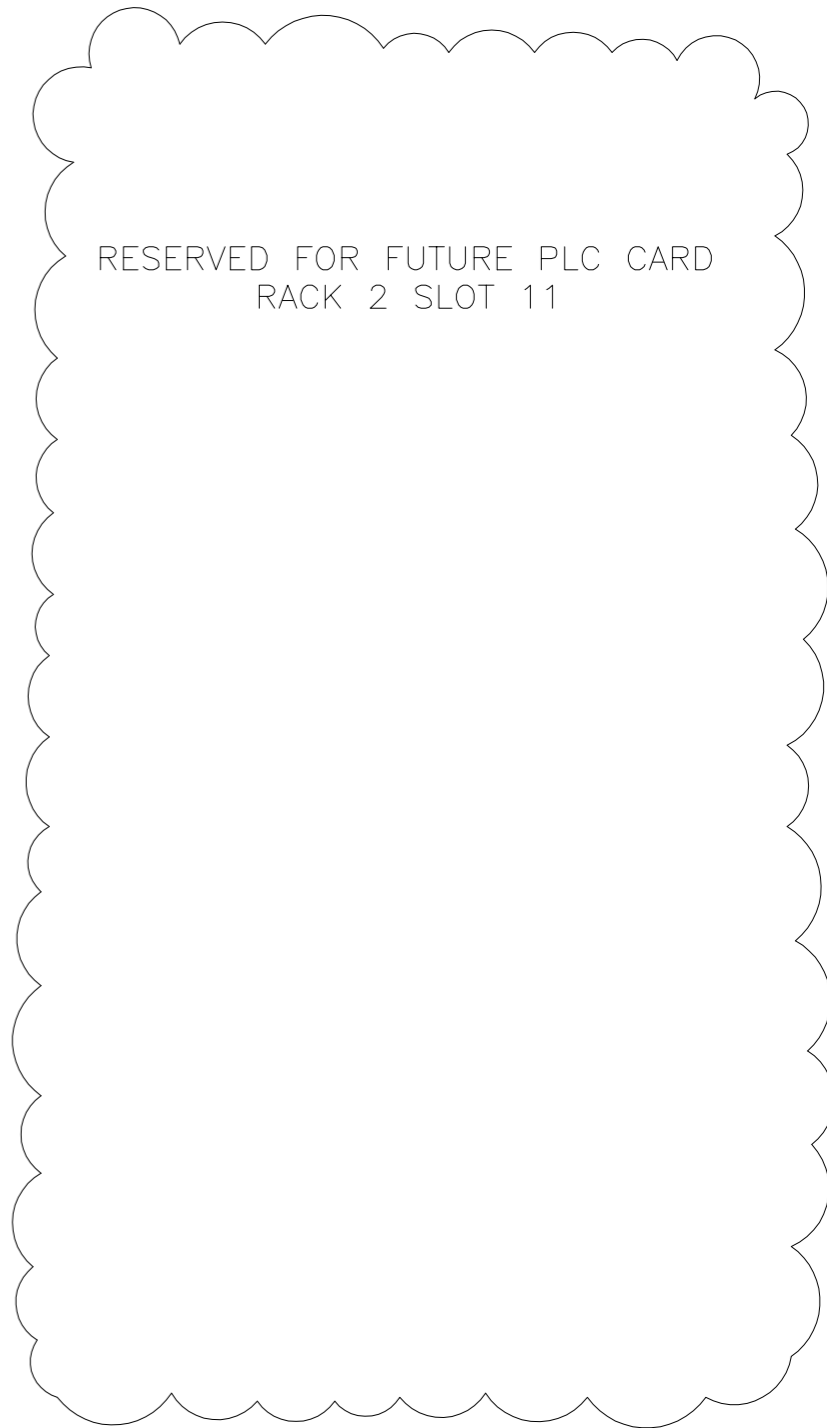
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SPARE TO : xxx

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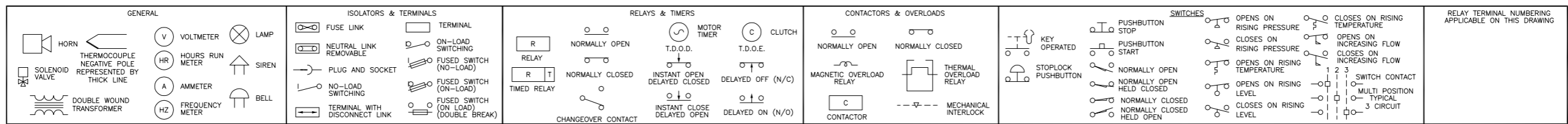
LAST NUMBER USED : xxx
SPARE TO : xxx

NOTES
 1) RACK 2 SLOT 9 :
 2) RACK 2 SLOT 10 :
 3) RACK 2 SLOT 11 :



IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	19/10/10	D.B.F	D.A.Y	M.M.	M.M.	ISSUED FOR CONSTRUCTION

PLANT	IMMINGHAM STORAGE Co. - WEST TERMINAL
TITLE	No.9 SWITCHROOM - PLC LOGIC PANEL DRAWING 10 :
<small>IMMINGHAM STORAGE CO. LTD. IMMINGHAM WEST TOWN, WEST RIVERSIDE, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE DN40 2PD</small>	<small>P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk</small>
CLIENT DRG. No.	P&I DRG No. SI158012_DWG
SHEET 1 OF 1	



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RESERVED FOR FUTURE PLC CARD
RACK 2 SLOT 12

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RESERVED FOR FUTURE PLC CARD
RACK 2 SLOT 13

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RESERVED FOR FUTURE PLC CARD
RACK 2 SLOT 14

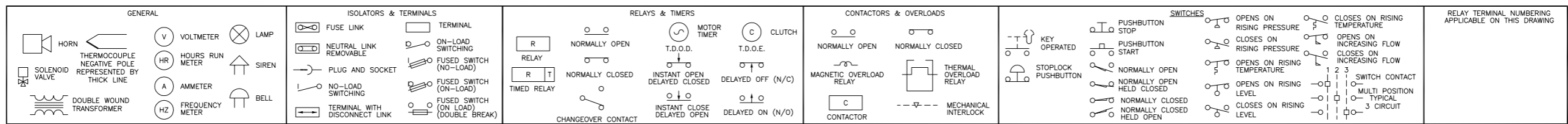
LAST NUMBER USED : xxx
SPARE TO : xxx

NOTES
 1) RACK 2 SLOT 12 :
 2) RACK 2 SLOT 13 :
 3) RACK 2 SLOT 14 :

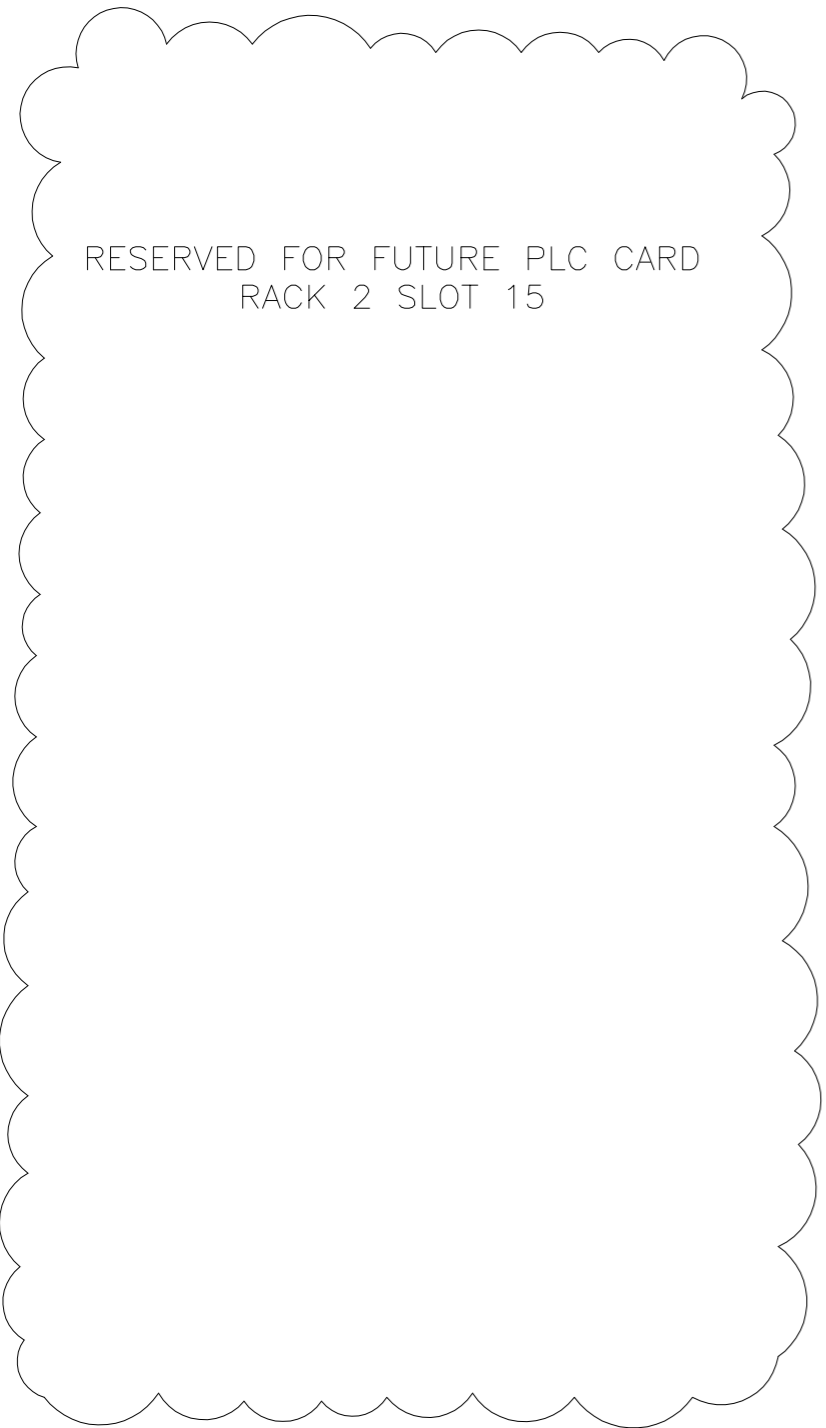


IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/09/10	P.P.	P.P.	M.M.	M.M.	ISSUED FOR CONSTRUCTION

PLANT	IMMINGHAM STORAGE Co. - WEST TERMINAL
TITLE	No.9 SWITCHROOM - PLC LOGIC PANEL DRAWING 11 :
<small>IMMINGHAM STORAGE CO. LTD. IMMINGHAM WEST TOWN, WEST RIVERSIDE, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE DN40 2PD</small>	<small>P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk</small>
CLIENT DRG. No.	P&I DRG No. SI158013_DWG
SHEET 1 OF 1	

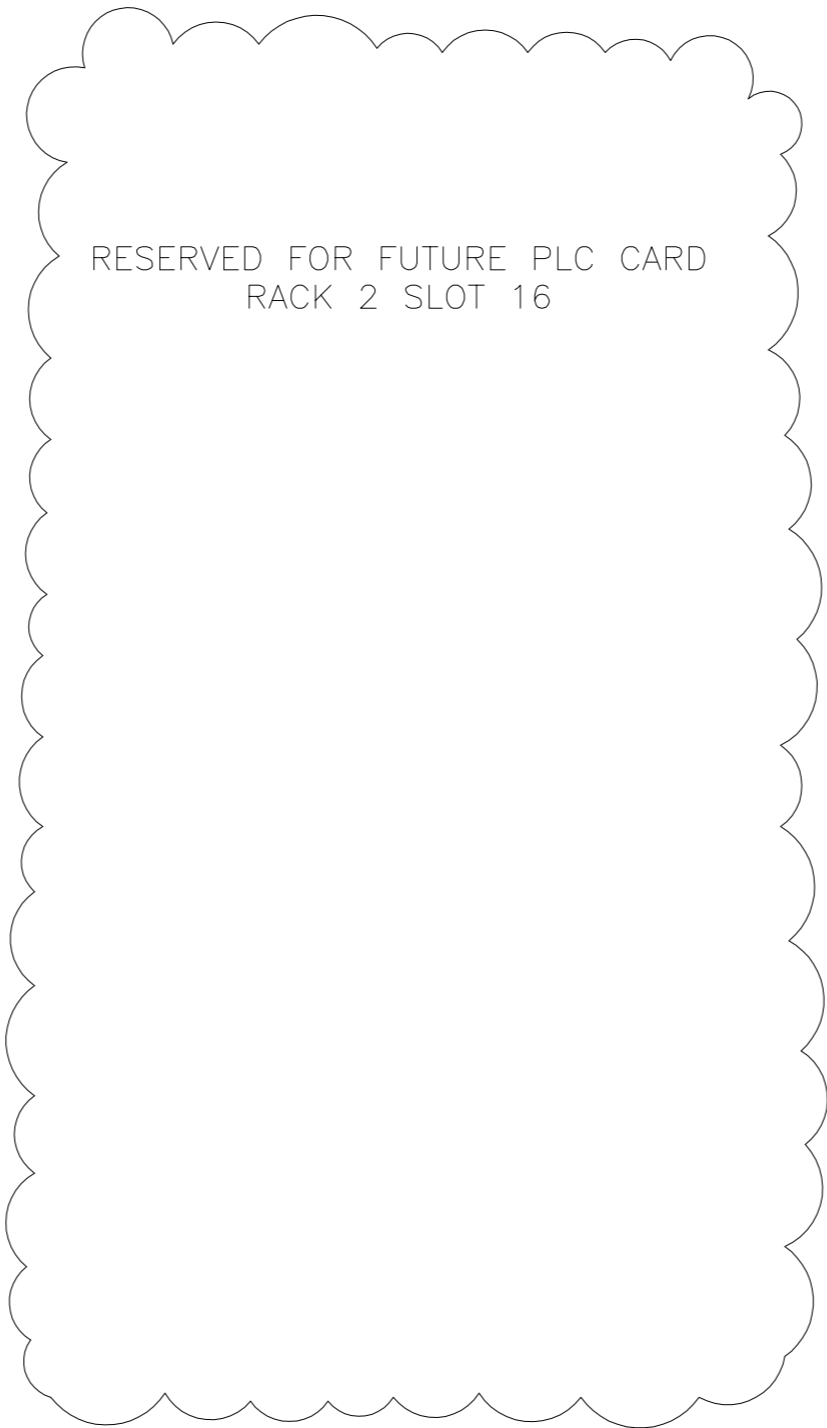


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SPARE TO : xxx

NOTES
 1) RACK 2 SLOT 15 :
 2) RACK 2 SLOT 16 :
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IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/09/10	P.P.	P.P.	M.M.	M.M.	ISSUED FOR CONSTRUCTION

PLANT	IMMINGHAM STORAGE Co. - WEST TERMINAL
TITLE	No.9 SWITCHROOM - PLC LOGIC PANEL DRAWING 12 :
	IMMINGHAM STORAGE CO. LTD. IMMINGHAM WEST TOWN, WEST RIVERSIDE, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE DN40 2PD
	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
SHEET	1 OF 1
CLIENT DRG. No.	P&I DRG No. SI158014_DWG

P & I Design Ltd

Process Instrumentation Consultancy & Design

2 Reed Street, Gladstone Industrial Estate,
Thornaby, TS17 7AF, United Kingdom.
Tel. +44 (0) 1642 617444 Fax. +44 (0) 1642 616447
Web Site: www.pidesign.co.uk

IMMINGHAM STORAGE COMPANY LTD

WEST TERMINAL

No 9 SWITCHROOM

GREENERGY PLC

REMOTE I/O SCHEDULE

APPLICATION No A546

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	19.10.10	D.B.Faulkner	MM	MM	Original Issue	
B	19/04/13	P. Potter	MM	MM	Dig In Card Added - SI502 Project	Document No.
C	27/03/15	C.Dales	MM	MM	I/O Added – T9,10,11 RL Upgrade	SI158001_SCH
						Page 1 of 5

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Contents

1.	I/O LAYOUT.....	3
2	LOCAL I/O.....	4
2.1	Analogue Inputs.....	4
2.2	Digital Inputs.....	5
2.3	Digital Outputs.....	6

Revision History

Rev A – Original Issue

Rev B – Digital Input Card Added to Slot 4

Rev C – Digital Input Card Added to Slot 5. Digital Output Card Added to Slot 6 & 7



I/O LAYOUT

PLC Rack 2

PSU	CPU	ENET	MODBUS	AN IN HART	DIG IN	DIG IN	DIG OUT	DIG OUT	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE
	SLOT 0	SLOT 1	SLOT 2	SLOT 3	SLOT 4	SLOT 5	SLOT 6	SLOT 7	SLOT 8	SLOT 9	SLOT 10	SLOT 11	SLOT 12	SLOT 13	SLOT 14	SLOT 15	SLOT 16
RACK 1756-A17																	



2 LOCAL I/O

2.1 Analogue Inputs

Rack 2 Slot 3 (Hart)

ADDRESS	TAG	TYPE	RANGE	SERVICE
I:03.0	FT902	4 - 20 mA	0 to 2000 kg/hr	Tanks 9, 10, 11, 136 & 152 Steam
PV	N/A	Hart	Kg/hr	Primary process variable (PV) → 4 – 20mA Input
SV	TI902	Hart	°C	Second process variable (SV) → Temperature
TV	N/A	Hart	Kg/hr	Third process variable (TV) → Mass flow
FV	FQ902	Hart	KG	Fourth process variable (FV) → Totalizer 1
I:03.1	Spare	4 – 20 mA		
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →
I:03.2	Spare	4 – 20 mA		
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →
I:03.3	Spare	4 – 20 mA		
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →
I:03.4	Spare	4 – 20 mA		
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →
I:03.5	Spare	4 – 20 mA		
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →
I:03.6	Spare	4 – 20 mA		
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →
I:03.7	Spare	4 – 20 mA		
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →



2.2 Digital Inputs

Rack 2 Slot 4

ADDRESS	TAG	TYPE	RANGE	SERVICE
I:4.0	ZSO1105	Open	N/A	Road Export Valve XV1105 Open
I:4.1	ZSC1105	Closed	N/A	Road Export Valve XV1105 Closed
I:4.2	ZSO907	Open	N/A	Tank 9 Routing Valve XV907 Open
I:4.3	ZSC907	Closed	N/A	Tank 9 Routing Valve XV907 Closed
I:4.4	ZSO1010	Open	N/A	Tank 10 Routing Valve XV1010 Open
I:4.5	ZSC1010	Closed	N/A	Tank 10 Routing Valve XV1010 Closed
I:4.6	ZSO1107	Open	N/A	Tank 11 Routing Valve XV1107 Open
I:4.7	ZSC1107	Closed	N/A	Tank 11 Routing Valve XV1107 Closed
I:4.8	ZSO1108	Open	N/A	Road Export Valve XV1108 Open
I:4.9	ZSC1108	Closed	N/A	Road Export Valve XV1108 Closed
I:4.10	ZSO908	Open	N/A	Tank 9 Routing Valve XV908 Open
I:4.11	ZSC908	Closed	N/A	Tank 9 Routing Valve XV908 Closed
I:4.12	ZSO1011	Open	N/A	Tank 10 Routing Valve XV1011 Open
I:4.13	ZSC1011	Closed	N/A	Tank 10 Routing Valve XV1011 Closed
I:4.14	ZSO1109	Open	N/A	Tank 11 Routing Valve XV1109 Open
I:4.15	ZSC1109	Closed	N/A	Tank 11 Routing Valve XV1109 Closed

Rack 2 Slot 5

ADDRESS	TAG	TYPE	RANGE	SERVICE
I:5.0	TKR_Loading	Selected	N/A	Tanker Loading Selected
I:5.1	TKR_Offloading	Selected	N/A	Tanker Offloading Selected
I:5.2	T09_Selected	Selected	N/A	Import To Tank 9 Selected
I:5.3	T10_Selected	Selected	N/A	Import To Tank 10 Selected
I:5.4	T11_Selected	Selected	N/A	Import To Tank 11 Selected
I:5.5	LSHH1102	Healthy	N/A	Road Tanker High Level
I:5.6	RTW	Healthy	N/A	Road Tanker Earth Healthy
I:5.7	Spare	-	-	Spare
I:5.8	Spare	-	-	Spare
I:5.9	Spare	-	-	Spare
I:5.10	Spare	-	-	Spare
I:5.11	Spare	-	-	Spare
I:5.12	Spare	-	-	Spare
I:5.13	Spare	-	-	Spare
I:5.14	Spare	-	-	Spare



2.3 Digital Outputs

Rack 2 Slot 6

ADDRESS	TAG	TYPE	RANGE	SERVICE
O:6.0	ZSO1105_L	Status	N/A	Road Export Valve XV1105 Open Status
O:6.1	ZSC1105_L	Status	N/A	Road Export Valve XV1105 Closed Status
O:6.2	ZSO1108_L	Status	N/A	Road Export Valve XV1108 Open Status
O:6.3	ZSC1108_L	Status	N/A	Road Export Valve XV1108 Closed Status
O:6.4	ZSO907_L	Status	N/A	Tank 9 Routing Valve Open XV907 Open Status
O:6.5	ZSC907_L	Status	N/A	Tank 9 Routing Valve Open XV907 Closed Status
O:6.6	ZSO908_L	Status	N/A	Tank 9 Routing Valve Open XV908 Open Status
O:6.7	ZSC908_L	Status	N/A	Tank 9 Routing Valve Open XV908 Closed Status
O:6.8	ZSO1010_L	Status	N/A	Tank 10 Routing Valve Open XV1010 Open Status
O:6.9	ZSC1010_L	Status	N/A	Tank 10 Routing Valve Open XV1010 Closed Status
O:6.10	ZSO1011_L	Status	N/A	Tank 10 Routing Valve Open XV1011 Open Status
O:6.11	ZSC1011_L	Status	N/A	Tank 10 Routing Valve Open XV1011 Closed Status
O:6.12	ZSO1107_L	Status	N/A	Tank 11 Routing Valve Open XV1107 Open Status
O:6.13	ZSC1107_L	Status	N/A	Tank 11 Routing Valve Open XV1107 Closed Status
O:6.14	ZSO1109_L	Status	N/A	Tank 11 Routing Valve Open XV1109 Open Status
O:6.15	ZSC1109_L	Status	N/A	Tank 11 Routing Valve Open XV1109 Closed Status

Rack 2 Slot 7

ADDRESS	TAG	TYPE	RANGE	SERVICE
O:7.0	SV1106	Open	N/A	Road Export Valve XV1106 - Sov
O:7.1	SV1105	Open	N/A	Road Export Valve XV1105 - Sov
O:7.2	SV907	Open	N/A	Tank 9 Routing Valve XV907 - Sov
O:7.3	SV1010	Open	N/A	Tank 10 Routing Valve XV1010 - Sov
O:7.4	SV1107	Open	N/A	Tank 11 Routing Valve XV1107 – Sov
O:7.5	SV1108	Open	N/A	Road Export Valve XV1108 - Sov
O:7.6	SV908	Open	N/A	Tank 9 Routing Valve XV908 - Sov
O:7.7	SV1011	Open	N/A	Tank 10 Routing Valve XV1011 - Sov
O:7.8	SV1109	Open	N/A	Tank 11 Routing Valve XV1109 - Sov
O:7.9	P1104	Enable	N/A	P1104 Pump Enable
O:7.10	Spare	-	-	Spare
O:7.11	Spare	-	-	Spare
O:7.12	Spare	-	-	Spare
O:7.13	Spare	-	-	Spare
O:7.14	Spare	-	-	Spare
O:7.15	Spare	-	-	Spare



P & I Design Ltd

Process Instrumentation Consultancy & Design

2 Reed Street, Gladstone Industrial Estate,
Thornaby, TS17 7AF, United Kingdom.
Tel. +44 (0) 1642 617444 Fax. +44 (0) 1642 616447
Web Site: www.pidesign.co.uk

IMMINGHAM STORAGE COMPANY LTD

WEST TERMINAL

No 9 SWITCHROOM

SITE PLC I/O SCHEDULE

APPLICATION No A595

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	19.10.10	D.B.Faulkner	MM	MM	Original Issue	Document No. SI002109_SCH
B	08.11.12	D.B.Faulkner	MM	MM	Document Number Changed SI320/SI300 Modifications	
C	19/04/13	P. Potter	MM	MM	Steam Meters Added	
						Page 1 of 5

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Contents

1	REVISION HISTORY	2
2	I/O LAYOUT	3
3	LOCAL I/O	4
3.1	Analogue Inputs	4
3.2	Digital Inputs	5

1 REVISION HISTORY

Rev	Description
A	Original Issue
B	Document Number Changed Analogue Input Card Added to Slot 04 (SI320 Project) Trace Heating Alarms added (SI300 Project)
C	Steam Meters Added to Analogue Input Card Added - Slot 04



2 I/O LAYOUT

PSU	CPU	ENET	MODBUS	DIG IN	AI IN	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE
	SLOT 0	SLOT 1	SLOT 2	SLOT 3	SLOT 4	SLOT 5	SLOT 6	SLOT 7	SLOT 8	SLOT 9	SLOT 10	SLOT 11	SLOT 12	SLOT 13	SLOT 14	SLOT 15	SLOT 16
RACK 1756-A17																	



3 LOCAL I/O

3.1 Analogue Inputs

Rack 1 Slot 4

ADDRESS	TAG	TYPE	RANGE	SERVICE
I:04.0	PT-SS101	4 - 20 mA	0 to 16 BarG	Jetty Line SS1 Pressure Monitoring
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV	N/A	Hart		Second process variable (SV) →
TV	N/A	Hart		Third process variable (TV) →
FV	N/A	Hart		Fourth process variable (FV) →
I:04.1	PT-SS201	4 – 20 mA	0 to 16 BarG	Jetty Line SS2 Pressure Monitoring
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV	N/A	Hart		Second process variable (SV) →
TV	N/A	Hart		Third process variable (TV) →
FV	N/A	Hart		Fourth process variable (FV) →
I:04.2	PT-SS301	4 – 20 mA	0 to 16 BarG	Jetty Line SS3 Pressure Monitoring
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV	N/A	Hart		Second process variable (SV) →
TV	N/A	Hart		Third process variable (TV) →
FV	N/A	Hart		Fourth process variable (FV) →
I:04.3	PT-SS401	4 – 20 mA	0 to 16 BarG	Jetty Line SS4 Pressure Monitoring
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV	N/A	Hart		Second process variable (SV) →
TV	N/A	Hart		Third process variable (TV) →
FV	N/A	Hart		Fourth process variable (FV) →
I:04.4	PT-SS501	4 – 20 mA	0 to 16 BarG	Jetty Line SS5 Pressure Monitoring
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV	N/A	Hart		Second process variable (SV) →
TV	N/A	Hart		Third process variable (TV) →
FV	N/A	Hart		Fourth process variable (FV) →
I:04.5	TK2-STM	4 – 20 mA		Tank 2 Steam Meter
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →
I:04.6	TK5-STM	4 – 20 mA		Tank 5 Steam Meter
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →
I:04.7	TK6-STM	4 – 20 mA		Tank 6 Steam Meter
PV	N/A	Hart		Primary process variable (PV) → 4 – 20mA Input
SV		Hart		Second process variable (SV) →
TV		Hart		Third process variable (TV) →
FV		Hart		Fourth process variable (FV) →



3.2 Digital Inputs

Rack 1 Slot 3

ADDRESS	TAG	TYPE	RANGE	SERVICE
I:3.0	SG01	V.F.C	N/A	Lease A East Entrance
I:3.1	SG02	V.F.C	N/A	Greenergy Fire Alley
I:3.2	SG03	V.F.C	N/A	West Rail Entrance
I:3.3	SG04	V.F.C	N/A	British Gas Entrance
I:3.4	SG05	V.F.C	N/A	Tank 210 Entrance
I:3.5	SG06	V.F.C	N/A	East Rail Entrance
I:3.6	SG07	V.F.C	N/A	Archive Store Entrance
I:3.7	SG08	V.F.C	N/A	Lease A West Entrance
I:3.8	SG09	V.F.C	N/A	Fire Alley Entrance
I:3.9	THT14901	V.F.C	N/A	Tanks 149/150 Tank Trace Heating Healthy
I:3.10	THT14902	V.F.C	N/A	Tank 149/150 Pipeline Trace Heating Healthy
I:3.11		V.F.C	N/A	Spare
I:3.12		V.F.C	N/A	Spare
I:3.13		V.F.C	N/A	Spare
I:3.14		V.F.C	N/A	Spare
I:3.15		V.F.C	N/A	PLC Panel 24Vdc PSU



Section 3

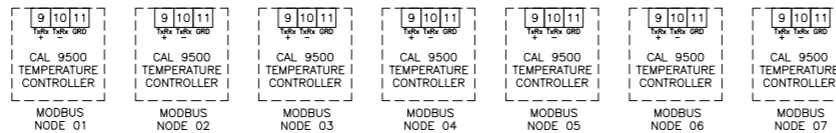
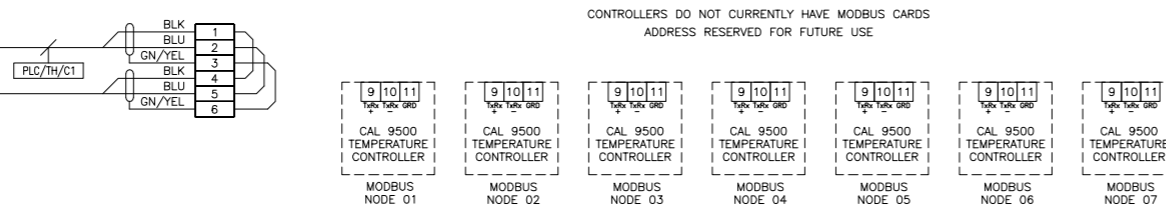
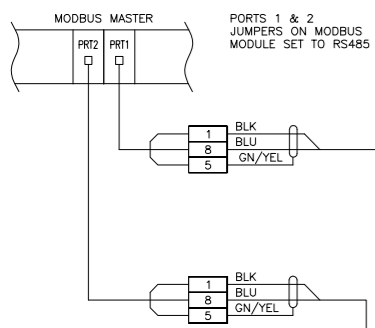
Greenergy Modbus Network Drawings



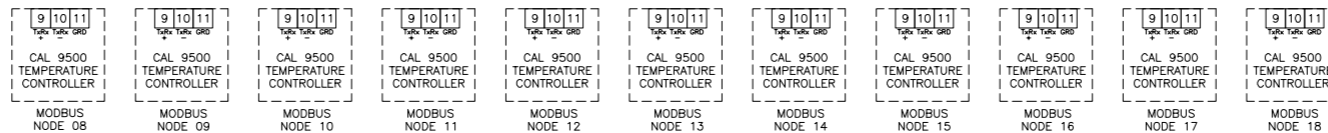
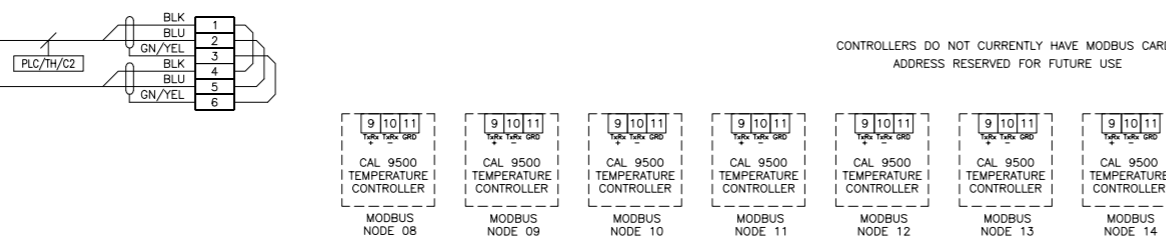
No.9 SWITCHROOM

PLC PANEL

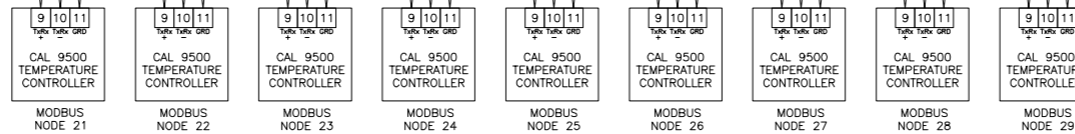
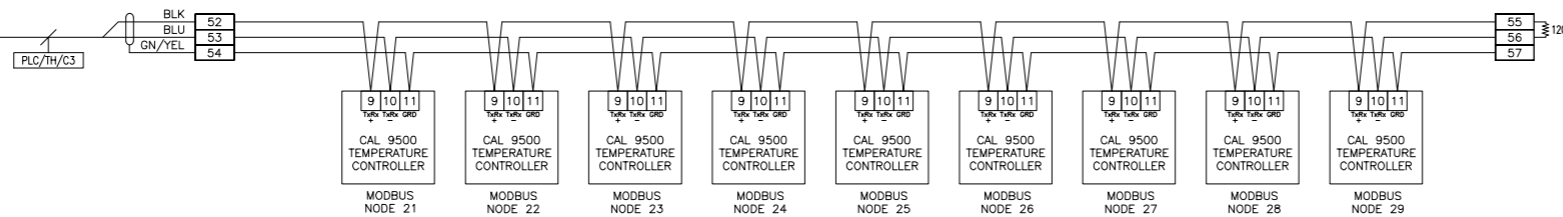
TRACE HEATING PANEL 01 - 7 WAY



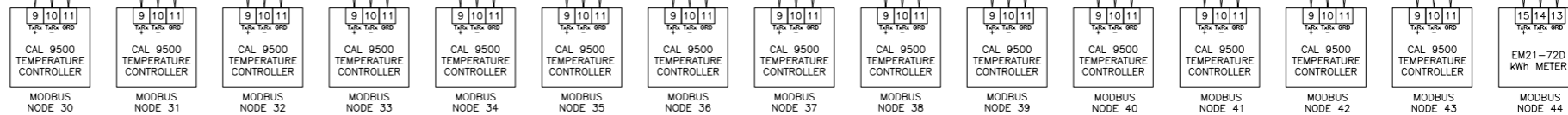
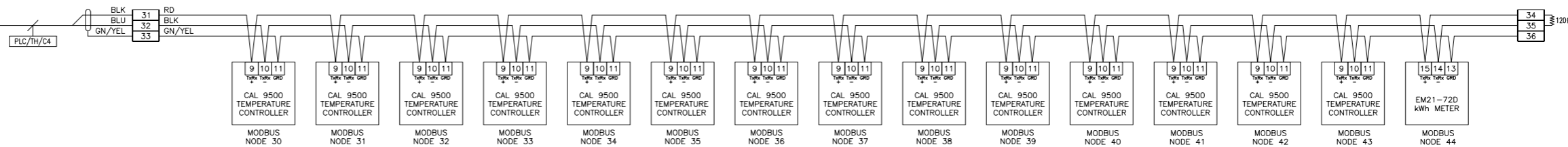
TRACE HEATING PANEL 02 - 11 WAY



TRACE HEATING PANEL 03 - 9 WAY



TRACE HEATING PANEL 04 - 14 WAY



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A	07/07/09	M.M	D.A.Y	D.R.R	D.R.R	M.M M.M ISSUED FOR TENDER
B	08/06/10	A.B	D.A.Y	M.M	D.R.R	M.M M.M FOR CONSTRUCTION
C	07/10/10	P.P.	P.P.	M.M	M.M	AS BUILT

PLANT	IMMINGHAM WEST STORAGE DEPOT - SWITCHROOM No.9
TITLE	TRACE HEATING PANEL - COMMUNICATION NETWORK OVERVIEW
CLIENT DRG. No.	P&I DRG No. SI158020_DWG

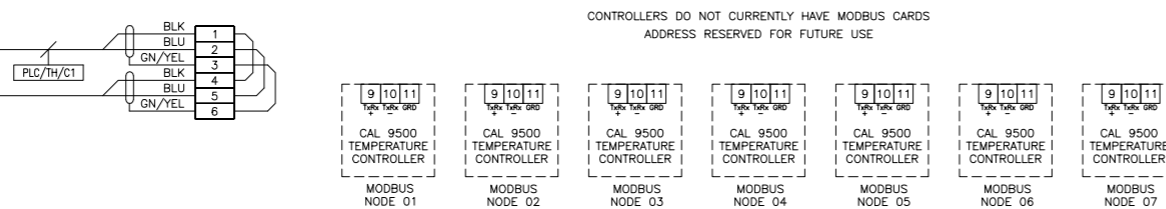
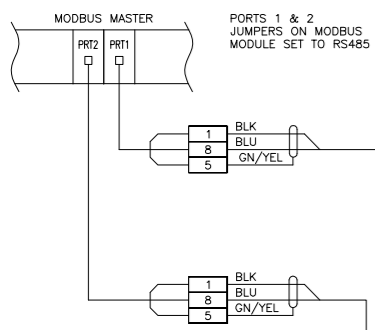
IMMINGHAM WEST STORAGE DEPOT
WEST RIVERSIDE,
IMMINGHAM DOCK,
IMMINGHAM,
SOUTH HUMBERSIDE
DN40 2PD

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Tel. 01642 617444
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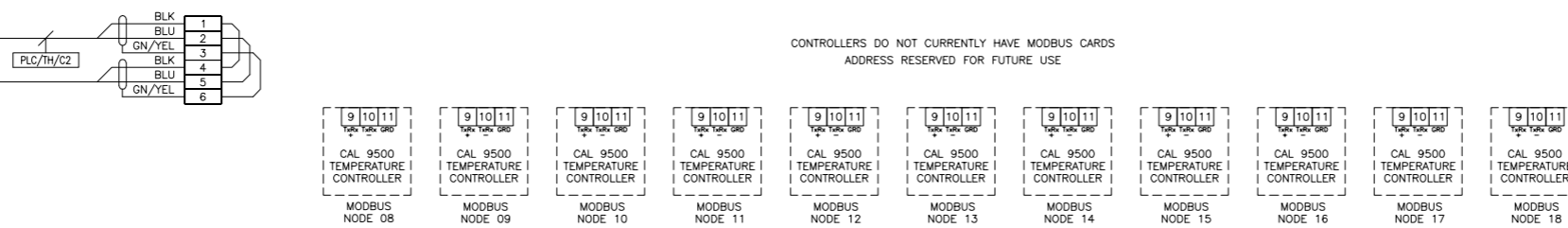
No.9 SWITCHROOM

PLC PANEL

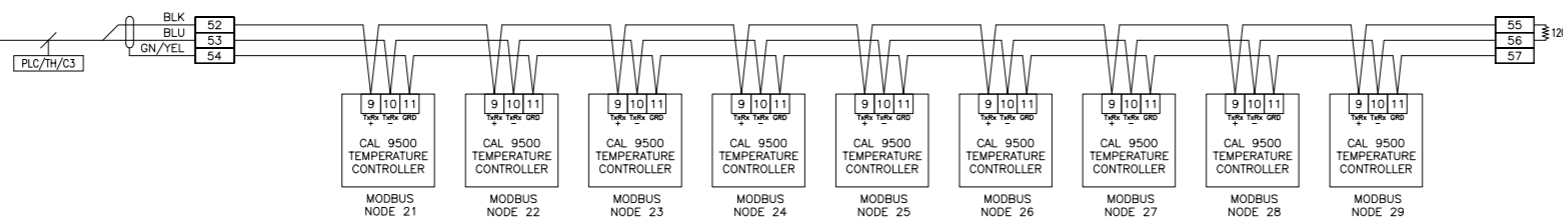
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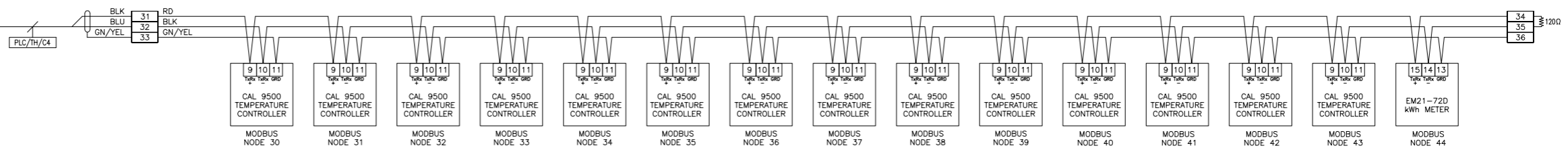
TRACE HEATING PANEL 02 - 11 WAY



TRACE HEATING PANEL 03 - 9 WAY



TRACE HEATING PANEL 04 - 14 WAY



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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	07/07/09	M.M	D.A.Y	D.R.R	D.R.R	M.M M.M ISSUED FOR TENDER
B	08/06/10	A.B	D.A.Y	M.M	D.R.R	M.M M.M FOR CONSTRUCTION
C	07/10/10	P.P.	P.P.	M.M	M.M	AS BUILT

PLANT	IMMINGHAM WEST STORAGE DEPOT - SWITCHROOM No.9
TITLE	TRACE HEATING PANEL - COMMUNICATION NETWORK OVERVIEW
CLIENT DRG. No.	P&I DRG No. SI158020_DWG

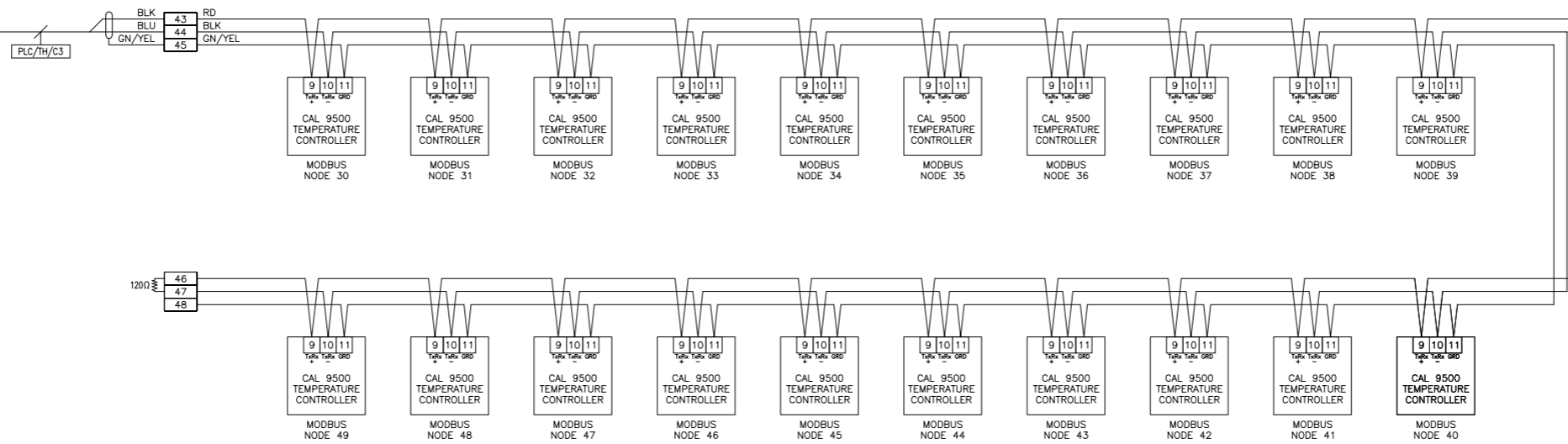
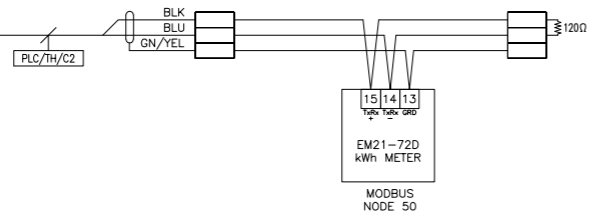
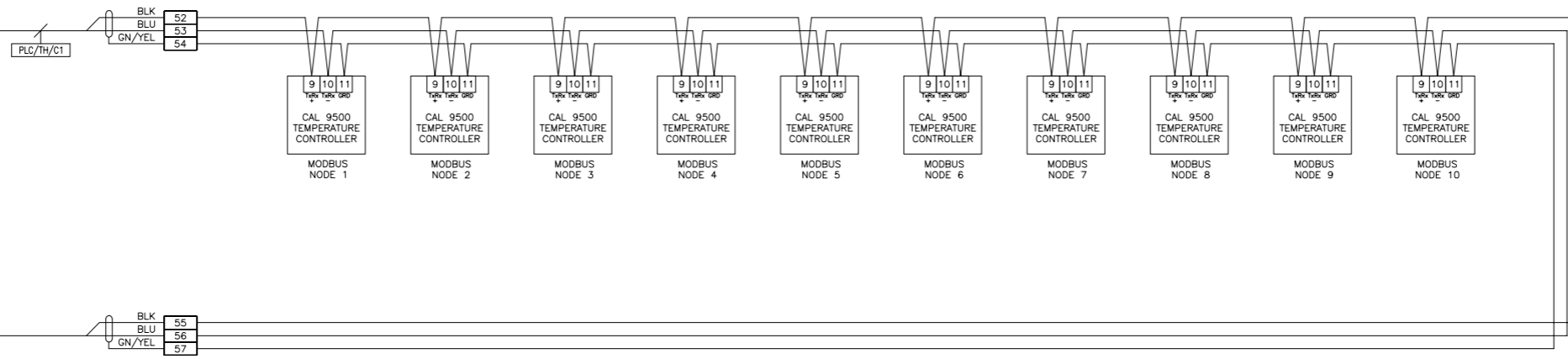
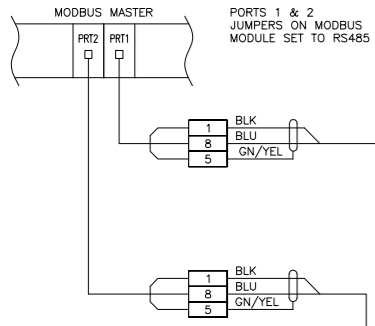
IMMINGHAM WEST STORAGE DEPOT - SWITCHROOM No.9
WEST RIVERSIDE,
IMMINGHAM DOCK,
IMMINGHAM,
SOUTH HUMBERSIDE
DN40 2PD

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Tel. 01642 617444
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PLC PANEL

TRACE HEATING PANEL 01 - 9 WAY

TRACE HEATING PANEL 02 - 20 WAY

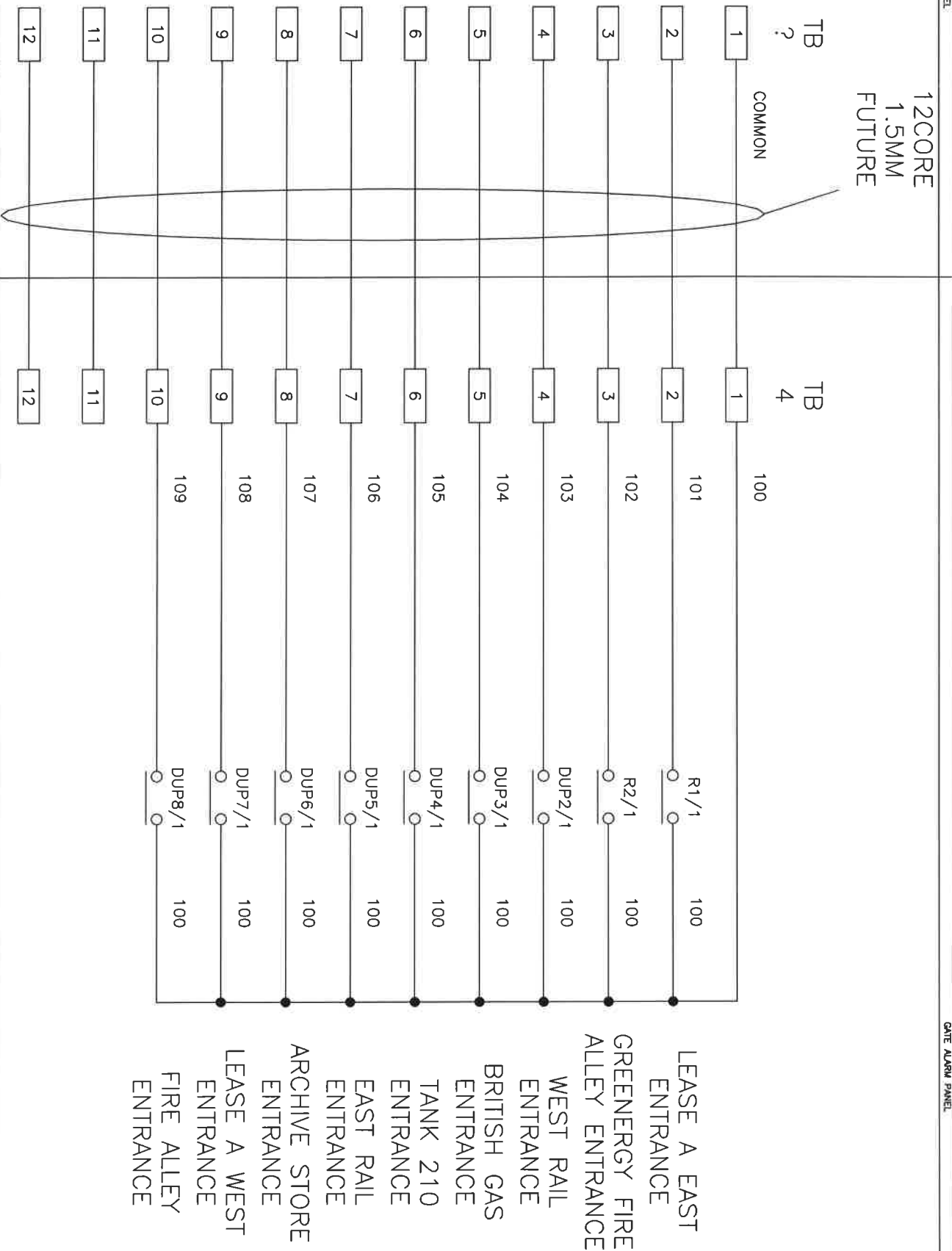


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A	08/06/10	A.B	D.A.Y	M.M	M.M	FOR CONSTRUCTION
B	07/10/10	P.P.	P.P.	M.M	M.M	AS BUILT

PLANT	IMMINGHAM WEST STORAGE DEPOT - SWITCHROOM No.8
TITLE	TRACE HEATING PANEL - COMMUNICATION NETWORK OVERVIEW
IMMINGHAM STORAGE CO. LTD. WEST RIVERSIDE, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE DN40 2PD	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
CLIENT DRG. No.	P&I DRG No. SI158021_DWG
SHEET 1 OF 1	

PLC PANEL FOR SCADA CONNECTIONS



IAN STARR (Electrical Services Ltd)
Meadow View
Waltham Road
Brigsley
North East Lincolnshire
DN37 0RQ
Tel/Fax: 01472 823507

Simon Storage West
West Riverside
Immingham Docks
Immingham
North East Lincolnshire
DN40 2QU
Tel: 01469 572615

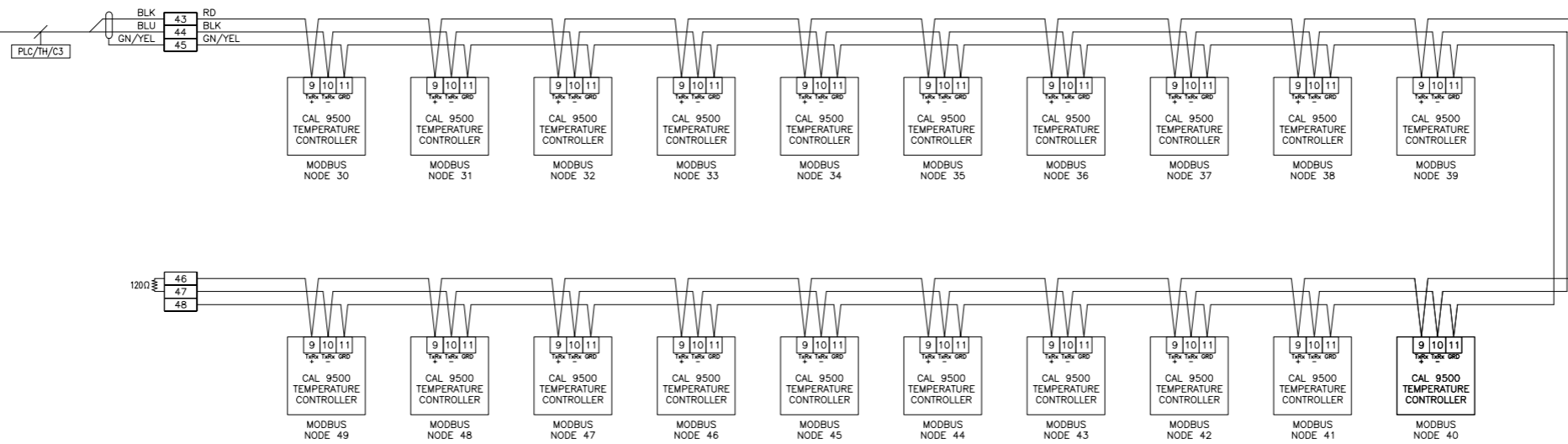
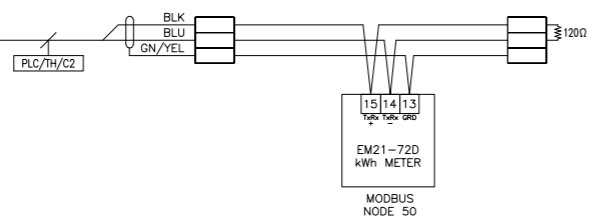
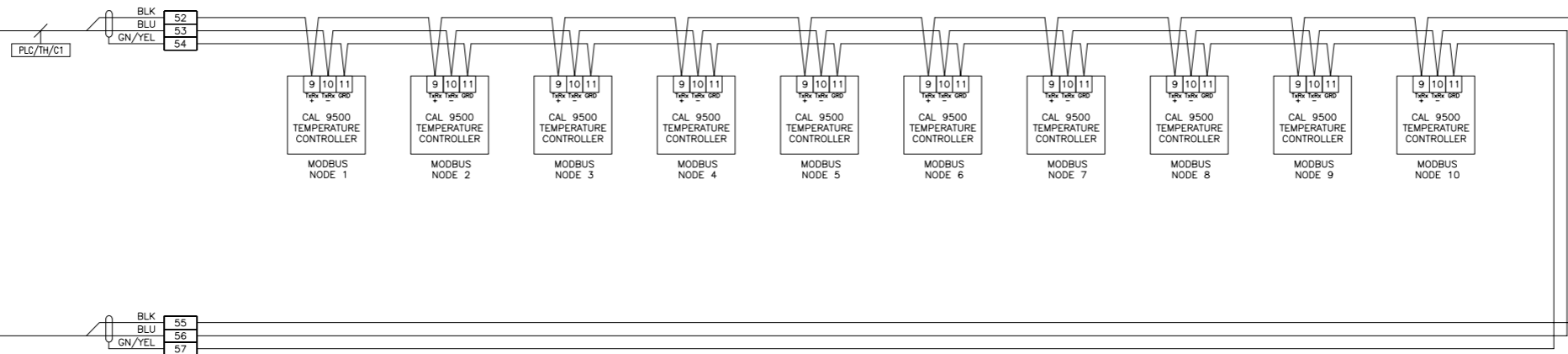
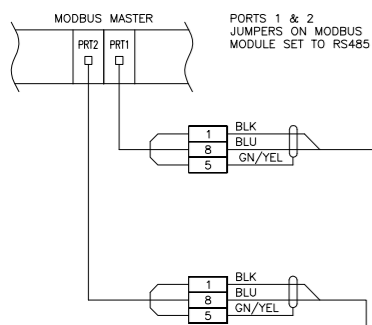
REV	DATE	BY	DRN	CHK'D	DESCRIPTION
	13-09-08	I.S.	A.J.	I.S.	NEW INSTALL

PUMPHOUSE 1
GATE ALARM PANEL TO SCADA
PLC PANEL SIGNAL INTERFACE
WIRING DIAGRAM

PLC PANEL

TRACE HEATING PANEL 01 - 9 WAY

TRACE HEATING PANEL 02 - 20 WAY



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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	08/06/10	A.B	D.A.Y	M.M	M.M	FOR CONSTRUCTION
B	07/10/10	P.P.	P.P.	M.M	M.M	AS BUILT

PLANT	IMMINGHAM WEST STORAGE DEPOT - SWITCHROOM No.8
TITLE	TRACE HEATING PANEL - COMMUNICATION NETWORK OVERVIEW
CLIENT DRG. No.	P&I DRG No. SI158021_DWG

IMMINGHAM STORAGE CO. LTD.
 IMMINGHAM WEST TOWNSHIP,
 WEST RIVERSIDE,
 IMMINGHAM DOCK,
 IMMINGHAM,
 SOUTH HUMBERSIDE
 DN40 2PD

P & I DESIGN
 P & I Design Ltd
 Tel. 01642 617444
 www.pidesign.co.uk

Section 4
Cable Schedules



INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX. LENGTH METRES	REMARKS
REFERENCE	TYPE	AREA mm ²	No.	FROM	GLAND TYPE	TO	GLAND TYPE		
PLC/PH1/5	J03	4.0	3 Core	No.1 Pumphouse DB (C60H Type C 32A MCB)		No.1 Pumphouse Utilities - PLC03		10	SI158003.CAL
PLC/PH1/BH	CAT5E_A	N/A	4 Pair	Bolier House Comms Panel		No.1 Pumphouse Utilities - PLC03		60	
PLC/TH/C1	E01	0.75	1 Pair	No.1 Pumphouse Utilities - PLC03 (Modbus Port 01)		Trace Heating Panel No.1 - TK 136 (7 Circuit)		8	
PLC/TH/C2	E01	0.75	1 Pair	9 Way Trace Heating Panel (Palm)		Trace Heating Panel No.2 - TK 11 (11 Circuit)		4	
PLC/TH/C3	E01	0.75	1 Pair	15 Way Trace Heating Panel (Tank 11/152)		Trace Heating Panel No.3 - TK 10/11 (9 Circuit)		5	
PLC/TH/C4	E01	0.75	1 Pair	No.1 Pumphouse Utilities - PLC03 (Modbus Port 02)		Trace Heating Panel No.4 - xxxxxxxxx (14 Circuit)		TBC	
TOTAL								87	

NOTES:
 1) Refer to P&I Design Cable Specifications for details on Cable Type.

-
 Denotes Cable Modified
-
 Denotes Cable Deleted
-
 Denotes Cable Added
-
 Future Cables

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED								PLANT	ISCo WEST - No.9 Switchroom
REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION	TITLE
A	11/06/08	DBF	DBF	MM	MM	MM	MM	For Construction	Utilities - Trace Heating Cable Schedule
B	07/06/09	DBF	DBF	MM	MM	MM	MM	Cable Tag Modifications	
C	28/06/10	AB	AB	MM		MM		For Construction	

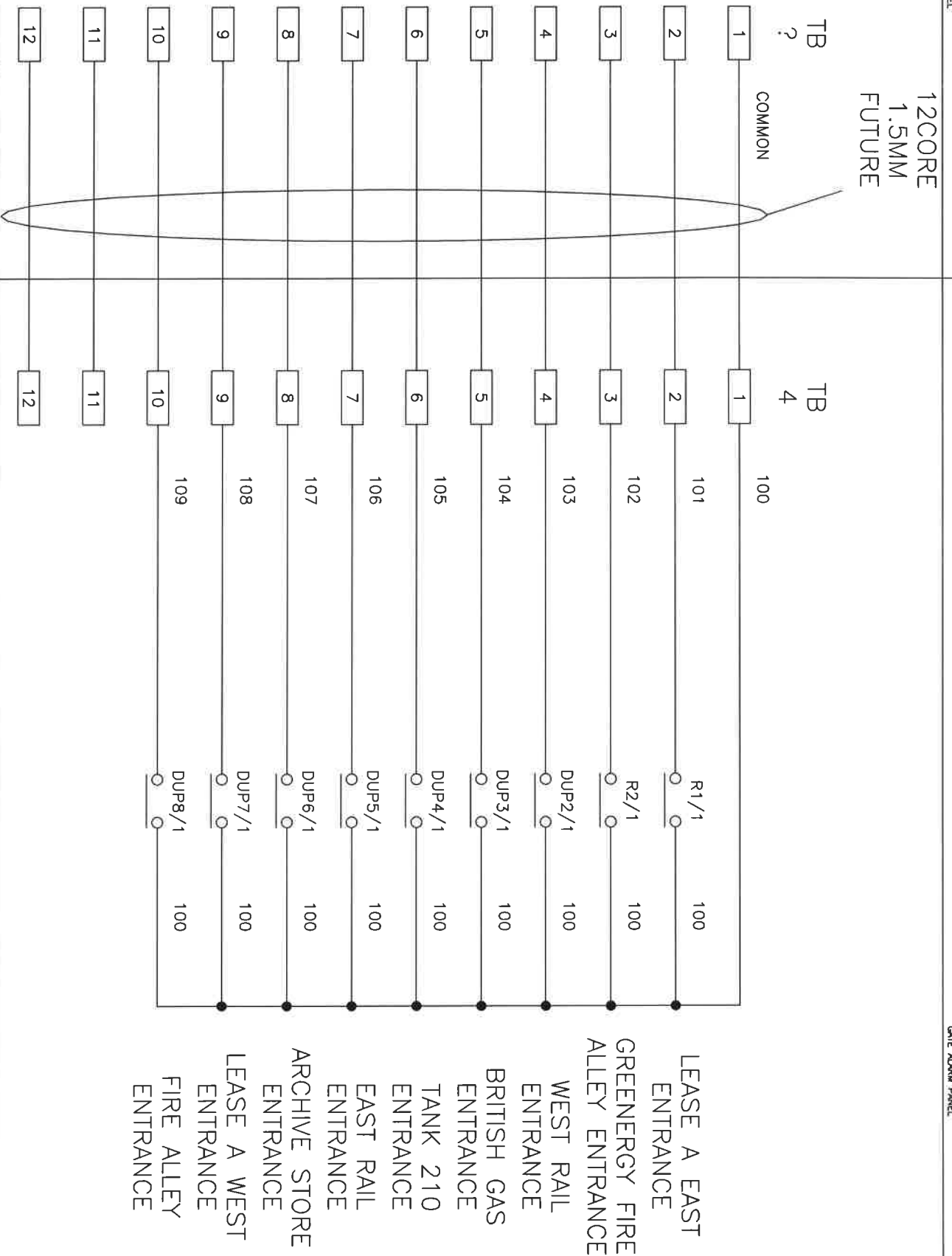
SHEET 1 OF 1
 CLIENT DRG No REF No. SI158002_SCH

Section 5

Site Gates



PLC PANEL FOR SCADA CONNECTIONS



IAN STARR (Electrical Services Ltd)
Meadow View
Waltham Road
Brigsley
North East Lincolnshire
DN37 0RQ
Tel/Fax: 01472 823507

Simon Storage West
West Riverside
Immingham Docks
Immingham
North East Lincolnshire
DN40 2QU
Tel: 01469 572615

REV	DATE	BY	DRN	CHK'D	DESCRIPTION
	13-09-08	I.S.	A.J.	I.S.	NEW INSTALL

PUMPHOUSE 1
GATE ALARM PANEL TO SCADA
PLC PANEL SIGNAL INTERFACE
WIRING DIAGRAM

Section 6

Greenergy Trace Heating Panel Drawings



Section 7

Manufacturers' Data

CAL9500P Controller
Carlo Gavazzi – Energy Meter

