P & I Design Ltd

Process Instrumentation Consultancy & Design

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INTER TERMINALS IMMINGHAM LTD

EAST TERMINAL

4 EAST RAIL LOADING I/E

DOCUMENTATION MANUAL

Rev	Date	By	Checked	Approved	Description
A	15.04.99	D.Smith	DRR	DRR	Original Issue
B	26.07.99	D.Smith	DRR	DRR	As Built
C	26.04.11	D.B.Faulkner	MM	MM	Mabanaft Modifications (SI760)
D	06.12.11	D. Smith	MM	MM	General Update
E	24.01.17	D. Smith	MM	MM	GOMC Batching System Update
F	12.06.17	D. Smith	MM	MM	Control Panel Layout Update

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Client Ref.

Document No.
SI039001_MNL

Contents

Register Control System

Register No	Description	Issue
SI039001_RGD	Drawing Register	E
SI039000_SPC	Specification Register	B
SI039001_REG	Report Register	C
SI039002_REG	PICAL Register	A

P & I Design Ltd. *Drawing Register*

CLIENT:
Inter Terminals Immingham Ltd
East Terminal

REV	DATE	BY	CHKD	APPD
A	15.4.99	AJH	DRR	DRR
B	06.07.99	AJH	DRR	DRR
C	06.12.11	DS	MM	MM
D	24.01.17	MM	PP	MM
E	12.06.17	DS	MM	MM

CLIENT REF.
4 East Rail Loading
P & I REF.
SI039001_RGD
SHT 1 **OF** 1

DRAWING NO	REV	DESCRIPTION
Drawings		
SI039001_DWG	F	4 East Rail Loading System Cable Overview
SI039002_DWG	F	4 East Rail Loading System Logic Drawing 1 (001 to 120)
SI039003_DWG	C	4 East Rail Loading System Logic Drawing 2 (121 to 240)
SI039004_DWG	C	4 East Rail Loading System Logic Drawing 3 (241 to 360)
SI039005_DWG	C	4 East Rail Loading System Logic Drawing 4 (361 to 480)
SI039006_DWG	C	4 East Rail Loading System Logic Drawing 5 (481 to 600)
SI039007_DWG	D	4 East Rail Loading System Logic Drawing 6 (601 to 720)
SI039008_DWG	D	4 East Rail Loading System Logic Drawing 7 (721 to 840)
SI039009_DWG	C	4E Rail Loading Offloding Pump 1 MCC Wiring
SI039012_DWG	F	4E Rail Loading MUX 1 & 2 Panel Loop Sheet
SI039013_DWG	F	4E Rail Loading MUX 3 & 4 Panel Loop Sheet
SI039014_DWG	E	4E Rail Loading Danload to PC Comms Diagram
SI039015_DWG	B	4E Rail Loading Mercury Keypad Comms Diagram
SI039016_DWG	F	4E Rail Loading Control Panel Layout
SI039017_DWG	A	Pump Local JB Terminal Arrangement
SI039018_DWG	A	DC Junction Box Layout
SI039019_DWG	A	AC Junction Box Layout
SI039020_DWG	D	Operators Control Panel Layout
SI039022_DWG	B	4 East Rail Loading System Logic Drawing 8 (841 to 960)
SI478006_DWG	I	P2-25 Pump MCC Diagram
SI760001_DWG	E	4E Rail Loading System – P2-25 JB Interconnection Details
SI760002_DWG	B	4E Rail Loading System – P5-12 JB Interconnection Details
SI760005_DWG	B	4E Rail Loading System – Tank 601, 602 & 603 Valve Loop Sheet
Schedules		
SI039100_SCH	E	4 East Rail Loading Cable Schedule
SI760001_SCH	A	4E Rail Loading Cable Schedule
SI760002_SCH	A	600 Series ROSOVs Cable Schedule
SI760100_SCH	B	4E Rail Loading trip Matrix

P & I Design Ltd.

Instrument Specification Register

CLIENT:
Immingham Storgae Co Ltd
ISCo East Terminal

ISSUE	DATE	BY	CHKD	APPD
A	09.04.99	AJH	DRR	DRR
B	25.04.11	DBF	MM	MM

CLIENT REF.
4 East Rail Loading
P & I REF.
SI039000_SPC
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P&I REF.	REVISION ISSUE 0	A	B	C	D	E	SUPPLIER	TAG No.	ITEM
SI039001_SPC		B					CEAG	N/A	Isolators
SI039002_SPC		A					Allen West	N/A	Loading Pump Stop/Start
SI039004_SPC		B					CEAG	N/A	Control Panel
SI039005_SPC		A					Allen West	N/A	ESD
SI039006_SPC		A					RS	N/A	Alarm Sounder
SI039007_SPC		A					J Hemy Systems	N/A	Junction Box
SI039008_SPC		A					J Hemy Systems	N/A	Junction Box
SI039009_SPC		A					RGS	XSV1	Actuator
SI039009_SPC		A					RGS	XSV2	Actuator
SI039009_SPC		A					RGS	XSV3	Actuator
SI039009_SPC		A					RGS	XSV4	Actuator
SI039009_SPC		A					RGS	XSV5	Actuator
SI039009_SPC		A					RGS	XSV6	Actuator
SI039009_SPC		A					RGS	XSV7	Actuator
SI039009_SPC		A					RGS	XSV8	Actuator
SI039009_SPC		A					RGS	XSV9	Actuator
SI039009_SPC		A					RGS	XSV10	Actuator
SI039009_SPC		A					RGS	XSV11	Actuator
SI039009_SPC		A					RGS	XSV12	Actuator
SI039010_SPC		A					Bartec	N/A	MUX Panel Heater
SI039011_SPC		A					Coutant Lambda	N/A	Power Supply
SI039012_SPC		A					MTL	N/A	MUX
SI039013_SPC		A					Mitsubishi	N/A	Main Processor
SI039014_SPC		B					CEAG	N/A	Isolator
SI039015_SPC		A					Armah	N/A	Control Panel
SI039016_SPC		A					Armah	N/A	Control Panel
SI039017_SPC		A					J Hemy Systems	N/A	Enclosure
SI760001_SPC			A				Endress & Hauser		LS2-25 P5-25 Low Suction Level Switch
SI760002_SPC			B				RGS	XSV1	Gantry North Siding Loading Point 1 Solenoid

P & I Design Ltd.

Instrument Specification Register

CLIENT:
Immingham Storgae Co Ltd
ISCo East Terminal

ISSUE	DATE	BY	CHKD	APPD
A	09.04.99	AJH	DRR	DRR
B	25.04.11	DBF	MM	MM

CLIENT REF.
4 East Rail Loading
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SI039000_SPC
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P&I REF.	REVISION ISSUE 0 A B C D E	SUPPLIER	TAG No.	ITEM
SI760002_SPC	B	RGS	XSV2	Gantry North Siding Loading Point 2 Solenoid
SI760002_SPC	B	RGS	XSV3	Gantry North Siding Loading Point 3 Solenoid
SI760002_SPC	B	RGS	XSV4	Gantry North Siding Loading Point 4 Solenoid
SI760002_SPC	B	RGS	XSV5	Gantry North Siding Loading Point 5 Solenoid
SI760002_SPC	B	RGS	XSV6	Gantry North Siding Loading Point 6 Solenoid
SI760002_SPC	B	RGS	XSV7	Gantry South Siding Loading Point 7 Solenoid
SI760002_SPC	B	RGS	XSV8	Gantry South Siding Loading Point 8 Solenoid
SI760002_SPC	B	RGS	XSV9	Gantry South Siding Loading Point 9 Solenoid
SI760002_SPC	B	RGS	XSV10	Gantry South Siding Loading Point 10 Solenoid
SI760002_SPC	B	RGS	XSV11	Gantry South Siding Loading Point 11 Solenoid
SI760002_SPC	B	RGS	XSV12	Gantry South Siding Loading Point 12 Solenoid
SI760002_SPC	B	RGS	XSVESD	Gantry ESD Solenoid

P & I Design Ltd. *Report Register*

CLIENT:	**ISSUE**	**DATE**	**BY**	**CHKD**	**APPD**	**CLIENT REF.**
Immingham Storage Co Ltd	A	09.04.99	AJH	DRR	DRR	4 East Rail Loading
ISCo East Terminal	B	06.07.99	AJH	DRR	DRR	**P & I REF.**
	C	26.04.11	DBF	MM	MM	SI039001_REG
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REPORT NO	**REVISION** **ISSUE 0 A B C D E**	**DATE**	**DESCRIPTION**
SI760001_RPT	B	08.09.10	4 East Rail Loading Modifications User Requirement Specification
SI760001_INS	A	30.09.10	4 East Rail Loading Modifications Installation Specification
SI760002_INS	A	02.12.10	600 Series ROSOVs Installation Specification

P & I Design Ltd. *Instrument Calibration Register*

CLIENT:
Immingham Storage Co Ltd
ISCo East Terminal

REV	DATE	BY	CHKD	APPD
A	24.12.10	DBF	MM	MM

CLIENT REF.
4 East Rail Loading
P & I REF.
SI039002_REG
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Cert No.	Tag. No.	Instrument Type	Service
LS2-25-0	LS2-25	Dry Run Protection	Pump P2-25 Protection

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IMMINGHAM STORAGE LTD

EAST TERMINAL

4 EAST RAIL LOADING MODIFICATIONS

INSTRUMENT/ELECTRICAL CONTROL SYSTEM

USER REQUIREMENT SPECIFICATION

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	19.08.10	D.B.Faulkner	MM	MM	Issued for Comments (P0100001_RPT_A)	
B	08.09.10	D.B.Faulkner	MM	MM	Client Comments Incorporated	Document No. **SI760001_RPT**
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Contents

Revision History

A Original issue as P0100001_RPT_A - 4 East Rail Loading System Modifications User Requirement Specification.

B Client comments incorporated following site meeting 02.09.10 to review P0100001_RPT_A - 4 East Rail Loading System Modifications User Requirement Specification.

1 INTRODUCTION

This report details the user requirement specification for the instrument / electrical control system modifications to the 4 East rail loading system located in the 4 East area at Immingham Storage Company's East Terminal.

The tanks within the scope of this project are

- Arcton tanks T615, T616 and T618
- 'Bund R tanks T601, T602 and T603

There will be 12 individually operable loading points covering the following systems

- 6 off 4 East rail loading north side
- 6 off 4 East rail loading south side

This report should be read in conjunction with SI760100_SCH - 4 East rail Loading Trip Matrix

2 INSTRUMENTATION AND CONTROL

The facility will be provided for each 4 East rail loading point to be operated from the gantry top. The system will be designed as a two man operation. No batching system or flowmeter will be provided; rail loading will be to mechanical dip only. It will be possible to simultaneously load multiple rail cars on each siding.

2.1 Valves

The loading actuated valves will be air to open, fail safe closed (spring return). Operation of an open/close selector switch from the gantry top will open and close the associated valve. Position feedback of the valve will be indicated by a local beacon mounted on the actuator. 4 East rail Loading ESD, site fire alarm, 4 East ESD or high level in any 4 East rail tanker will close all loading valves unconditionally.

NOTE - Following 4 East rail loading ESD, site fire alarm, 4 East ESD or high level in any 4 East rail tanker a reset (once systems healthy) will be required from the gantry control panel, 4 East rail loading actuated valves selected to open will automatically reopen.

An additional actuated common ESD valve will be located upstream of all loading points. The actuated ESD valve will be air to open, fail safe closed (spring return). Operation of an open/close selector switch local to the valve will open and close the ESD valve. Position feedback of the valve will be indicated by a local beacon mounted on the actuator. 4 East rail loading ESD, site fire alarm, 4 East ESD or high level in any 4 East rail tanker will close the ESD valve unconditionally. This valve is intended to be left open under normal operation and will exercise on weekly site fire alarm system testing.

No provision will be provided at 4 East rail gantry to operate delivery tank automated export valves on tanks 601, 602, 603, 615, 616 and 618. The export valve system will have no interface with 4 East rail loading.

2.2 Pumps

4 East rail loading pumps will be provided in bund R and the Arcton pump raft. P2-25 will deliver from bund R tanks 601, 602 and 603, P5-12 will deliver from Arcton tanks 615, 616 and 618. Each pump will be operated manually from the 4 East rail gantry. Start, stop and running indication will be provided on the gantry top via 3 control stations, one each at the buffer end, centre and the far end of the gantry. The pumps will be protected from low suction and high discharge temperature. P2-25 pump will be tripped by the 2 East ESD, 4 East ESD, site fire alarm system, 4 East rail loading ESD system or any 4 East rail car high level.

P5-12 pump is dual purpose, the pump can be selected to "4 East Rail Loading" or "Stripping" duty at the MCC compartment located in No.5 switchroom. In the "4 East Rail Loading" duty the start, stop and running indications located at the 4 East rail gantry will be active and the local and MCC start disabled, the pump will be tripped by the 2 East ESD, 4 East ESD, site fire alarm system, 4 East rail loading ESD system or any 4 East rail car high level. In "Stripping" duty the 4 East rail gantry start, stop and running indication will be disabled and the local start and MCC start will be active, the pump will be tripped by the 2 East ESD or site fire alarm system. The 4 East ESD, 4 East rail loading ESD and 4 East rail car high levels will not be active in "stripping" duty. The local stop and MCC stop will be active in both modes.

NOTE – Physical pipe routing will prevent P5-12 delivering to the 4 East rail gantry whilst selected to "stripping", however if the pump is physically lined up to 4 East rail gantry and selected to "stripping" it will start by operation of the local and MCC start pushbuttons, but be unable to be stopped at the 4 East rail gantry. Operational procedures and labelling will be put in place to prevent this.

No control system interlocking of the delivery pumps to prevent both running simultaneously will be provided.

P5-13 sump pump will be provided in the Arcton pump raft. The pump will be manually started and stop automatically on low level being detected or manual stop. The pump will be protected from high discharge temperature. No provision to start the pump from outside the pump raft will be provided. The pump will not be interlocked with the ESD system or the site fire alarm system.

2.3 Interfaces

The 4 East rail loading system will have the following interfaces.

4 East RAIL LOADING GANTRY

Gantry Local Open/close selector switches will be provided for each loading actuated valve and will be mounted on the gantry top. Valve position indication will be via visual beacons mounted on the valve actuator.
6 off 4 East rail loading ESD pushbuttons will be provided, located at each end of the gantry and in the centre on the ground floor and gantry top.
The following facilities will be provided on the local operator panel -

- A red lamp, illuminated when 4 East rail loading ESD, 4 East ESD or Site Fire Alarm is operated and required resetting.
- A red lamp, illuminated when a high level is detected.
- A horn activated when a 4 East rail loading ESD or high level is detected.
- A lamp test facility.
- A ESD/High level reset facility.
- A horn silence facility.

The following facilities will be provided at each end of the gantry and in the centre on the gantry top -

- 4 East rail loading pumps P2-25 and P5-12 start pushbuttons.
- 4 East rail loading pumps P2-25 and P5-12 momentary stop pushbuttons
- 4 East rail loading pumps P2-25 and P5-12 red lamps, illuminated when the pump is running.

4 EAST SWITCHROOM

Control Panel The following facilities will be provided -

- A 4 East rail loading ESD pushbutton.
- A red lamp, illuminated when 4 East rail loading ESD, 4 East ESD or Site Fire Alarm is operated and required resetting.
- An individual red lamp per loading point, illuminated when associated high level is detected.
- A lamp test facility.

3 EAST CONTROL ROOM

Annunciator "2 East ESD Operated" red window
"4 East ESD Operated" red window
"4 East Rail Gantry ESD Operated" red window
"Site Fire" red window

2.3 Interfaces Continued…

Radio System **"**2 East Emergency Shutdown", **"**4 East Emergency Shutdown", **"**4 East Rail Loading Emergency Shutdown", **"**Site Fire" broadcast on terminal radio system in line with other critical alarms.

SCADA No Provision

700 SWITCHROOM MCC

MCC No Provision for controls or indication at P2-25 MCC Compartment.

No.5 SWITCHROOM MCC

MCC The following facilities will be provided on the front of 4 East rail loading delivery pump P5-12 MCC compartment.

- Start pushbutton.
- Stay put stop pushbutton.
- A red lamp, illuminated when the pump is running.
- A green lamp, illuminated when the pump is stopped.
- An amber lamp, illuminated when the pump is in fault.
- An amber lamp, illuminated when the pump is low suction.
- An amber lamp, illuminated when the pump is high discharge temperature.
- Auto/off/manual selector switch.
- 4 East Rail Loading/Stripping selector switch.

The following facilities will be provided on the front of the Arcton pump raft sump pump P5-13 MCC compartment.

- Start pushbutton.
- Stay put stop pushbutton.
- A red lamp, illuminated when the pump is running.
- A green lamp, illuminated when the pump is stopped.
- An amber lamp, illuminated when the pump is in fault, sump low level or high discharge temperature.

BUND R PUMP RAFT

The following facilities will be provided located within 1 metre of the pumps -

- Loading pump P2-25 Start pushbutton and momentary stop pushbutton.

ARCTON PUMP RAFT

The following facilities will be provided located within 1 metre of the pumps -

- Loading pump P5-12 Start pushbutton and momentary stop pushbutton.
- Sump pump P5-13 Start pushbutton and stay put stop pushbutton.

P & I Design Ltd. — *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	07.04.99	AJH	DRR	DRR	FINA Rail Loading
	B	09.04.99	AJH	DRR	DRR	**P & I REF.** SI039001.SPC
						SHT 1 **OF** 3

ITEM:		Electrical Component	
GENERAL		Tag Number	See Sheet 2
		Service	Danload 240VAC Isolators
		Area Classification	Zone 1 IIB T3
UNIT		Type	Ex-Safety Switch (6-pole, 20A)
		Supply	240VAC
		Case	Glass fibre reinforced polyester
		Connections	Terminals
		Mounting	Surface
		Enclosure Class	IP66
		Electrical Classification	EEx ed IIC T6
OUTPUT		Type	
OPTIONS			Unit to be supplied with:- 1. 2 x 20mm entries (Bottom). 2. 1 x wall Mounting Kit
MANUFACTURERS DATA	B	Supplier	CEAG
		Model Number	2 off GHG 262 2601 R0005 (Isolator) 2 off GHG 610 1953 R0018 (Wall Mounting Kit)
DOCUMENTATION		See attached Documentation Specification	

TAG No.	SERVICE	RANGE	COMMENTS

N/A	Isolator to be fitted with tag:- "North Siding Danload Isolator"
N/A	Isolator to be fitted with tag:- "South Siding Danload Isolator"

CLIENT:
Simon Storage (Immingham East)

REV	DATE	BY	CHKD	APPD
A	07.04.99	AJH	DRR	DRR
B	09.04.99	AJH	DRR	DRR

CLIENT REF.
FINA Rail Loading
P & I REF.
SI039001.SPC
SHT 3 **OF** 3

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	1	c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

IMPORTANT NOTICE:
Vendors acceptance of this order is conditional on the provision of the Documentation.
Should the vendor not wish to supply the whole or part of the details herein requested, he shall state in writing any exceptions with the quotation or order acceptance.
P & I Design reserve the right to cancel any order where the documentation does not comply with P & I requirements. No item will be paid in full until documentation specified has been received.

P & I Design Ltd. — *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039002.SPC
SHT 1 **OF** 2

ITEM:	Electrical Component	
GENERAL	Tag Number	N/A
	Service	FINA DERV Rail Loading Pump Stop/Start
	Area Classification	Zone 1 IIB T3
UNIT	Type	Access Control Station
	Supply	240Vac
	Case	Base:Marine Bronze, Cover:Black Polyester
	Connections	Terminals
	Mounting	Surface
	Enclosure Class	IP66
	Electrical Classification	EExde
OUTPUT	Type	
OPTIONS		Unit to be supplied with:- 1 off Mushroom headed stop button labelled 'STOP'. 1 off Momentary pushbutton labelled 'START'. 1 x 20mm entry holes (bottom)
MANUFACTURERS DATA	Supplier	Allen West
	Model Number	NA203002A3F
DOCUMENTATION	See attached Documentation Specification	

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039002.SPC
SHT 2 **OF** 2

Documentation Requirement

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
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CLIENT:
Simon Storage (Immingham East)

REV	DATE	BY	CHKD	APPD
A	10/03/99	AJH	DRR	DRR
B	06/04/99	AJH	DRR	DRR

CLIENT REF.
FINA Rail Loading
P & I REF.
SI039004.SPC
SHT 1 **OF** 2

ITEM:		Electrical Component	
GENERAL		Tag Number	N/A
	B	Service	FINA DERV Rail Loading Operator Control Panel
		Area Classification	Zone 1 IIB T3
UNIT		Type	Control Unit c/w terminals, indicator lamps and switches.
		Supply	24VDC
		Case	Manufacturers Standard
		Connections	Terminals
		Mounting	Surface
		Enclosure Class	IP66
		Electrical Classification	EEx de IIC T6
OUTPUT	B	Type	Box to include 26 off SAK2.5 EEx'e' terminals and the following EEx'de' controls:-
			1 x Mushroom head stay-put-stop pushbutton 1N/O & 1N/C contact
			1 x 2-position selector switch, 1N/O contact in each position.
			3 x Momentary Pushbuttons 1N/O & 1N/C contact
	B		5 x Lamps, 24VDC (Red)
			1 x Lamp, 24VDC (Green)
	B		1 x Lamp, 24VDC (Amber)
			Enclosure to be drilled for the following gland entries:-
			1 x 25mm (bottom)
OPTIONS			For internal,external layout & label details see drawing SI039020.
MANUFACTURERS DATA		Supplier	CEAG
		Model Number	1 off GHG448 with built in components
DOCUMENTATION		See attached Documentation Specification	

Documentation Requirement

CLIENT:
Simon Storage (Immingham East)

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	10/03/99	AJH	DRR	DRR	FINA Rail Loading
B	06/04/99	AJH	DRR	DRR	**P & I REF.**
					SI039004.SPC
					SHT 2 **OF** 2

Item	Quantity	Description
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P & I Design Ltd. *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039005.SPC
SHT 1 **OF** 2

ITEM:	Electrical Component	
GENERAL	Tag Number	N/A
	Service	Loading System ESD
	Area Classification	Zone 1 IIB T3
UNIT	Type	Access Control Station
	Supply	24Vdc
	Case	Base:Marine Bronze, Cover:Black Polyester
	Connections	Terminals
	Mounting	Surface
	Enclosure Class	IP66
	Electrical Classification	EExde
OUTPUT	Type	
OPTIONS		Unit to be supplied with:- 1. 1 off Mushroom headed stop button labelled 'ESD'. Unit to be drilled for the following entries:- 1. 1 x 20mm (Bottom)
MANUFACTURERS DATA	Supplier	Allen West
	Model Number	3 Off NA101003F
DOCUMENTATION	See attached Documentation Specification	

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039005.SPC
SHT 2 **OF** 2

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	1	c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

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P & I Design Ltd. — *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039006.SPC
SHT 1 **OF** 2

ITEM:	Electrical Component	
GENERAL	Tag Number	N/A
	Service	Alarm Sounder
	Area Classification	Zone 1 IIB T3
UNIT	Type	Hazardous Area Audiable Sounder
	Supply	24Vdc
	Case	Aluminium Alloy
	Connections	Terminals
	Mounting	Surface
	Enclosure Class	IP67
	Electrical Classification	N/A
OUTPUT	Type	107 dB, 11 tone selectable
OPTIONS		
MANUFACTURERS DATA	Supplier	RS
	Model Number	627-598
DOCUMENTATION	See attached Documentation Specification	

Documentation Requirement

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039006.SPC
SHT 2 **OF** 2

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	1	c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

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P & I Design Ltd. *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039007.SPC
SHT 1 **OF** 2

ITEM:	Electrical Component	
GENERAL	Tag Number	N/A
	Service	FINA DERV DC JB
	Area Classification	Zone 1 IIB T3
UNIT	Type	Sheet Steel Enclosure
	Supply	24VDC
	Case	Zinc Sprayed (6mm gland plates)
	Connections	See OPTIONS
	Mounting	Surface
	Enclosure Class	IP66
	Electrical Classification	EEx'e'
OUTPUT	Type	24Vdc power & comms.

OPTIONS

Enclosure to be fitted with the following:-

1. 1 x Vertical row of 62 off SAK2.5 EEx'e' terminals.
2. 2 x Vertical rows of 50 off SAK2.5 EEx'e' terminals.
3. 2 x Earth rails & 55 ZB4 earth clamps.

Enclosure to be drilled for the following entries:-

1. 2 x 40mm. (Top)
2. 3 x 20mm, plugged. (Top)
3. 4 x 25mm. (Top)
4. 26 x 20mm, 4 plugged. (Bottom)

Enclosure to be fitted with the label:-
"FINA DERV RAIL LOADING DC JUNCTION BOX"

See drawing SI039018 for details

MANUFACTURERS DATA	Supplier	J Hemy Systems
	Model Number	KLIPPON TB13EEx'e'
DOCUMENTATION	See attached Documentation Specification	

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039007.SPC
SHT 2 **OF** 2

Documentation Requirement

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	1	c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

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P & I Design Ltd. *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039008.SPC
SHT 1 **OF** 2

ITEM:	Electrical Component	
GENERAL	Tag Number	N/A
	Service	FINA DERV AC JB
	Area Classification	Zone 1 IIB T3
UNIT	Type	Sheet Steel Enclosure
	Supply	240VAC
	Case	Zinc Sprayed (6mm gland plates)
	Connections	See OPTIONS
	Mounting	Surface
	Enclosure Class	IP66
	Electrical Classification	EEx'e'
OUTPUT	Type	240VAC

OPTIONS

Unit to be supplied with:-

1. 2 x vertical rows of 27 SAK2.5 EEx'e' terminals.

Unit to be drilled for the following entries:-

1. 11 x 20mm, 2 plugged. (Bottom)
2. 2 x 25mm. (Bottom)

Unit to be fitted with the label:-
"FINA DERV RAIL LOADING AC JUNCTION BOX"

See drawing SI039019 for details.

MANUFACTURERS DATA	Supplier	J Hemy Systems
	Model Number	TB11EEx'e'
DOCUMENTATION	See attached Documentation Specification	

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039008.SPC
SHT 2 **OF** 2

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	1	c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

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P & I Design Ltd. *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039009.SPC
SHT 1 **OF** 3

ITEM:	Solenoid Valve Direct	
GENERAL	Tag Number	See Sheet 2
	Service	See Sheet 2
	Area Classification	Zone 1 IIB T3
BODY	Type	Standard
	Number of Ways	3
	Action	Normally Closed : Spring Return
	Construction	Manufacturers Standard
	Connections: Size/Type	1/8″ / BSP screwed female
	Mounting	Direct Mounted
SOLENOID	Type	Flameproof
	Voltage	24v dc
	Enclosure Class	IP65
	Electrical Classification	EExd IIC T4
	Electrical Connection	20mm ET, Klippon Terminal Strip
OPTIONS		
PROCESS DATA	Fluid	Instrument Air
	Pressure Max.	80psig
	Oper. Diff. Max./Min.	80psi
	Temperature Oper.	Max. allowable ambient temp 65ºC
MANUFACTURERS DATA	Supplier	RGS
	Model Number	12 off EPA 100/Exd/TB
DOCUMENTATION	See Attached Documentation Specification	

TAG No.	SERVICE	RANGE	COMMENTS
XSV1	XCV1 Actuator		

XSV2	XCV2 Actuator
XSV3	XCV3 Actuator
XSV4	XCV4 Actuator
XSV5	XCV5 Actuator
XSV6	XCV6 Actuator
XSV7	XCV7 Actuator
XSV8	XCV8 Actuator
XSV9	XCV9 Actuator
XSV10	XCV10 Actuator
XSV11	XCV11 Actuator
XSV12	XCV12 Actuator

Documentation Requirement

Item	Quantity	Description

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039009.SPC
SHT 3 **OF** 3

1. **APPROVAL DOCUMENTATION**
To be supplied before manufacture commences

2. **GENERAL ARRANGEMENT DRAWING**
Cross-sectioned to show all details necessary for repair and maintenance purposes.

3. **MATERIALS TEST CERTIFICATES**
a. Mechanical.
b. Chemical analysis.

4. **ITEMISED PARTS LIST**
Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.

5. **RECOMMEND SPARES QUOTATION**
a. Two years service.
b. Commissioning only.

6. **INSTALLATION, OPERATING AND MAINTENANCE MANUALS**
To include calibration instructions where applicable.

7. **SOFTWARE**
a. Programming manual.
b. Operating manual.

8. **PRESSURE VESSELS**
Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.

9. **ELECTRICAL**
a. Schematic and circuit diagrams.
1 b. Certificates of conformity (to include EMC Directive 89/336/EEC).
1 c. Hazardous area certification.

10. **INSTRUMENTATION**
a. Certificates of conformity (to include EMC Directive 89/336/EEC).
b. Calibration certificates.
c. Hazardous area certification.

11. **SPECIAL REQUIREMENTS**
Year 2000 Certificate of Compliance

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P & I Design Ltd. *Instrument Specification*

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Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039010.SPC
SHT 1 **OF** 2

pITEM:	Electrical Component	
GENERAL	Tag Number	N/A
	Service	Field Mounted MUX Panel Heater
	Area Classification	Zone 1 IIB T3
UNIT	Type	Explosion Protected Mini Heater
	Supply	240VAC, 6W
	Case	Anodised Aluminium
	Connections	2 x Individual Conductors
	Mounting	Surface via 2 x 3.2mm ∅ holes.
	Enclosure Class	IP66
	Electrical Classification	EExd IIC T5
OUTPUT	Type	
OPTIONS		
MANUFACTURERS DATA	Supplier	BARTEC
	Model Number	2 off 27-2301-3806
DOCUMENTATION	See attached Documentation Specification	

Documentation Requirement

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039010.SPC
SHT 2 **OF** 2

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	1	c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

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P & I Design Ltd — *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	08.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039011.SPC
SHT 1 **OF** 2

ITEM:	Power Supply	
GENERAL	Tag Number	N/A
	Service	Logic Panel PSU
UNIT	Type	Switch Mode
	Supply	Single phase, 240VAC
	Case	Metal with fine ventilating grid
	Connections	Terminals
	Mounting	DIN rail
	Enclosure Class	N/A
OUTPUT	Type	Voltage
	Indication	LED's GREEN = 'Vout OK'. RED = 'Vout < 2v below SP' RED Flashes = 'Vout < approx. 14V'
	Output: Voltage	24Vdc
	Amperes	10A
	Channels	1
PROTECTION	Short Circuit	External Fuse
	Over Voltage	Internal Protection
	Over Current	Limit
OPTIONS		
MANUFACTURERS DATA	Supplier	Coutant Lambda
	Model Number	DRP 240-1
DOCUMENTATION	See Attached Documentation Specification	

P & I Design Ltd *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	08.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039011.SPC
SHT 2 **OF** 2

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
		c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

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P & I Design Ltd. *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039012.SPC
SHT 1 **OF** 2

ITEM:	Multiplexer System (Digital)		
GENERAL	Tag Number		N/A
	Service		North & South Siding MUX
	Area Classification		Zone 1 IIB T3
RECEIVER	Supply		24Vdc
	No. of Channels		16
	Contact Outputs :	Type	Relay (Energised when input 'closed')
		Rating	240V, 1A, 120VA, ac: 50V, 0.1A, 5W, dc.
	Indication Outputs :	Type	LED x 16
	Fault Outputs :	Type	MUX (LED & Relay), Highway (Relay)
	Housing : Material		Moulded Polycarbonate
	Enclosure Class		General Purpose
	Electrical Classification		Safe Area
	Electrical Connection		Terminals
	Mounting		DIN Rail
TRANSMITTER	Supply		Loop powered Via MTL 3052 Isolator
	No. of Channels		16
	Field Inputs :	Type	Contact Inputs
		Rating	'Closed' if > 2.1 mA, 'Open' if < 1.2mA
	Operating Range		0.5km typically
	Housing : Material		Moulded Polycarbonate
	Enclosure Class		IP67
	Electrical Classification		EExia IIC T6
	Electrical Connection		Terminals
	Mounting		DIN Rail

OPTIONS

MANUFACTURERS DATA	Supplier	MTL
	Model Number	4 off Reciever: MTL825B 4 off Transmitter: MTL821B 4 off Isolator: MTL3052
DOCUMENTATION	See attached Documentation Specification	

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039012.SPC
SHT 2 **OF** 2

Documentation Requirement

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	1	c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS**
	1	Year 2000 Certificate of Compliance

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CLIENT:	**REV**	**DATE**	**BY**	**CHKD**	**APPD**	**CLIENT REF.**
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039013.SPC
SHT 1 **OF** 3

ITEM:	PLC System (Compact) Main Processor	
GENERAL	Service	FINA DERV Rail Loading System
PLC SYSTEM	Type	Mitsubishi
	Power Supply	240VAC
	Current Consumption	150VA
	Ambient Conditions	0 to 55°C, 35 to 85%RH
	Ports	
	Number	1
	Type	RS485 Via Adaptor
	Mounting	DIN Rail
PROCESSOR	Memory Capacity (max.)	
	Internal :RAM	8K
	Submodule :RAM	N/A
	:EPROM	N/A
	:EEPROM	8K
	Execution time/1 statement	0.08μs
	Flags / Internal Relays	3072
	Registers / Data Areas	8000
	Timers	
	Number	256
	Range	0.1 to 3276.7
	Counters	
	Number	256
	Range	1 to 32767
	PID Control Loops	None
	Digital Inputs (max.)	256
	Digital Outputs (max.)	256
	Analog Inputs (max.)	None
	Analog Outputs (max.)	None
CONFIGURATION	Remote Programmer	Not Required
	PC software	Not Required

CLIENT:	**REV**	**DATE**	**BY**	**CHKD**	**APPD**	**CLIENT REF.**
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading
						P & I REF. SI039013.SPC
						SHT 2 **OF** 3

ITEM:	PLC System (Compact) Main Processor		
GENERAL	Service		FINA DERV Rail Loading System
I/O CAPACITY	INPUTS		
	Analogue:	No.	None
		Type	None
	Digital :	No.	64
		Type	24Vdc Sink
	OUTPUTS		
	Analogue:	No.	None
		Type	None
	Digital :	No.	64
		Type	Relay
	Connections		Screwed Terminals
OPTIONS			To include RS485 Comms module.
MANUFACTURERS DATA	Supplier		Mitsubishi
	Model Number		PLC - FX2N - 128 – MR COMMS – FX2N-485/bd
DOCUMENTATION	See Attached Documentation Specification		

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
		c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS**
	1	Year 2000 Certificate of Compliance

IMPORTANT NOTICE:

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Should the vendor not wish to supply the whole or part of the details herein requested, he shall state in writing any exceptions with the quotation or order acceptance.
P & I Design reserve the right to cancel any order where the documentation does not comply with P & I requirements. No item will be paid in full until documentation specified has been received.

P & I Design Ltd. *Instrument Specification*

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading
	B	09.04.99	AJH	DRR	DRR	**P & I REF.** SI039014.SPC
						SHT 1 **OF** 3

ITEM:		Electrical Component	
GENERAL		Tag Number	See Sheet 2
		Service	Mux Heater 240VAC Isolator
		Area Classification	Zone 1 IIB T3
UNIT		Type	Ex-Safety Switch (3-pole, 10A)
		Supply	240VAC
		Case	Glass fibre reinforced polyester
		Connections	Terminals
		Mounting	Surface
		Enclosure Class	IP66
		Electrical Classification	EEx ed IIC T6
OUTPUT		Type	
OPTIONS			Unit to be supplied with:- 1. 2 x 20mm entries (Bottom). 2. 1 x wall mounting kit
MANUFACTURERS DATA	B	Supplier	CEAG
		Model Number	1 off GHG 261 0005 R0005 (Isolator) 1 off GHG 610 1953 R001 (Wall Mounting Kit)
DOCUMENTATION		See attached Documentation Specification	

CLIENT:	**REV**	**DATE**	**BY**	**CHKD**	**APPD**	**CLIENT REF.**
Simon Storage (Immingham East)	A	09.04.99	AJH	DRR	DRR	FINA Rail Loading
	B	09.04.99	AJH	DRR	DRR	**P & I REF.**
						SI039014.SPC
						SHT 2 **OF** 3

N/A	Isolator to be fitted with tag:- "Mux Heaters Isolator"

CLIENT:
Simon Storage (Immingham East)

REV	DATE	BY	CHKD	APPD
A	09.04.99	AJH	DRR	DRR
B	09.04.99	AJH	DRR	DRR

CLIENT REF.
FINA Rail Loading
P & I REF.
SI039014.SPC
SHT 3 **OF** 3

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	1	c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

IMPORTANT NOTICE:
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CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	08.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039015.SPC
SHT 1 **OF** 3

ITEM	Control Panel	
GENERAL	Specification	See Specification PNL-##A2.SPC Manufacture of Instrument Control Cubicles & Panels
	Tag Number	N/A
	Service	FINA DERV Rail Loading Logic Panel
	Area Classification	Safe Area
MECHANICAL	Refer to Drawing Number	SI039016
	Type	RITTAL ES 5084.600
	Panel	
	IP Rating	55
	Dimensions	1000(W) x 1800(H) x 400(D) + 100(H) plinth.
	Colour	
	Internal	RAL7032
	External	RAL7032
	Mounting Plates	Unpainted Aluminium
	Plinth	Black
	Gland Plates	
	Location	Bottom
	Number	1
	Dimensions	875(W) x 275(D)
TERMINATION	Terminals	
	Type	
	DC Fused	N/A
	AC Fused	N/A
	DC Power Distribution	Klippon ASK1
	AC Power Distribution	Klippon ASK1
	Earth	EK2.5 & Earth Bars
	Digital Signals	Klippon SAKR
	Analogue Signals	N/A
	Thermocouples	N/A
	Screen Earth Bar	Screen Earth Bar & 20ZB4 Earth Clamps
	Crimps	
	Type	Twin Grip
	Ferrules	
	Type	Critchley Z type
	Tube fittings	
	Type	N/A
TUBE	Type	
	Size	
	Supply	N/A
	Input/Output	N/A

CLIENT:	**REV**	**DATE**	**BY**	**CHKD**	**APPD**	**CLIENT REF.**
Simon Storage (Immingham East)	A	08.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039015.SPC
SHT 2 **OF** 3

ITEM	Control Panel	
CABLE	Type	Stranded copper conductors to BS6231
	Electrical 440V/240V ac	
	Size	Suitably rated with minimum 2.5mm^2
	Colour	Phase Colours
	Instrument 240V ac Supplies	
	Size	Minimum 1.5mm^2
	Colour	
	Live	Brown
	Neutral	Blue
	Earth	Green/Yellow
	Instrument 110V ac Supplies	
	Size	Minimum 1.5mm^2
	Colour	
	Live	N/A
	Neutral	N/A
	Earth	N/A
	24V dc Supplies	
	Size	Suitably rated with minimum 1mm^2
	Colour	
	Positive	Red
	0V.	Black
	Digital switched ac	
	Size	1.5mm^2
	Colour	Brown
	Digital switched dc	
	Size	1.0mm^2
	Colour	White
	Analogue	
	Size	N/A
	Colour	N/A
	PLC I/O Multicore	
	No. of Cores	N/A
	Size	N/A
	Thermocouple Compensating	
	Type	N/A
	Size	N/A
OPTIONS		
MANUFACTURERS DATA	Supplier	Armah – RITTAL ES5084.600
DOCUMENTATION	See attached Documentation Specification	

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	08.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039015.SPC
SHT 3 **OF** 3

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
		c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

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CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	08.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039016.SPC
SHT 1 **OF** 3

ITEM	Control Panel	
GENERAL	Specification	See Specification PNL-##A2.SPC Manufacture of Instrument Control Cubicles & Panels
	Tag Number	N/A
	Service	FINA DERV Rail Loading Pump MCC
	Area Classification	Safe Area
MECHANICAL	Refer to Drawing Number	SI039009
	Type	TBA
	Panel	
	IP Rating	IP55
	Dimensions	TBA
	Colour	
	Internal	RAL7032
	External	RAL7032
	Mounting Plates	Unpainted Aluminium
	Plinth	N/A
	Gland Plates	
	Location	TBA
	Number	TBA
	Dimensions	TBA
TERMINATION	Terminals	
	Type	
	DC Fused	N/A
	AC Fused	GEC Redspot or equivalent
	DC Power Distribution	Klippon ASK1
	AC Power Distribution	Klippon ASK1
	Earth	EK2.5
	Digital Signals	Klippon SAKR
	Analogue Signals	N/A
	Thermocouples	N/A
	Screen Earth Bar	N/A
	Crimps	
	Type	Twin Grip
	Ferrules	
	Type	Critchley Z type
	Tube fittings	
	Type	N/A
TUBE	Type	
	Size	
	Supply	N/A
	Input/Output	N/A

CLIENT:	**REV**	**DATE**	**BY**	**CHKD**	**APPD**	**CLIENT REF.**
Simon Storage (Immingham East)	A	08.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039016.SPC
SHT 2 **OF** 3

ITEM	Control Panel	
CABLE	Type	Stranded copper conductors to BS6231
	Electrical 440V/240V ac	
	Size	Suitably rated with minimum 2.5mm^2
	Colour	Phase Colours
	Instrument 240V ac Supplies	
	Size	Minimum 1.5mm^2
	Colour	
	Live	Brown
	Neutral	Blue
	Earth	Green/Yellow
	Instrument 110V ac Supplies	
	Size	Minimum 1.5mm^2
	Colour	
	Live	N/A
	Neutral	N/A
	Earth	N/A
	24V dc Supplies	
	Size	Suitably rated with minimum 1mm^2
	Colour	
	Positive	Red
	0V.	Black
	Digital switched ac	
	Size	1.5mm^2
	Colour	Brown
	Digital switched dc	
	Size	1.0mm^2
	Colour	White
	Analogue	
	Size	N/A
	Colour	N/A
	PLC I/O Multicore	
	No. of Cores	N/A
	Size	N/A
	Thermocouple Compensating	
	Type	N/A
	Size	N/A
OPTIONS		
MANUFACTURERS DATA	Supplier	Armah – TBA
DOCUMENTATION	See attached Documentation Specification	

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	08.04.99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039016.SPC
SHT 3 **OF** 3

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
		c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

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CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	15/04/99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039017.SPC
SHT 1 **OF** 3

ITEM:	Electrical Component	
GENERAL	Tag Number	N/A
	Service	See Sheet 2
	Area Classification	Zone 1 IIB T3
UNIT	Type	Sheet Steel Enclosure
	Supply	240VAC & 24Vdc comms
	Case	Zinc sprayed (6mm gland plates)
	Connections	See OPTIONS
	Mounting	Surface
	Enclosure Class	IP66
	Electrical Classification	EEx'e' & 'i'
OUTPUT	Type	24Vdc

OPTIONS

Enclosure to be supplied with:-

1. 2 off SAK2.5 EEx'e' terminals
2. 1 off EK2.5 EEx'e' terminals
3. 1 off screen earth bar, with 25 ZB4 earth clamps.

Enclosure to be drilled & tapped for the following:-

1. 18 off 20mm entries (bottom)
2. 4 off 20mm entries, 2 plugged (top)

MANUFACTURERS DATA	Supplier	J HEMY SYSTEMS
	Model Number	2 off KLIPPON TB12EX

DOCUMENTATION See attached Documentation Specification

TAG No. **SERVICE** **RANGE** **COMMENTS**

Box 1 to be fitted with label:

MUX 1&2 PANEL

Box 2 to be fitted with label:

MUX 3&4 PANEL

Both panels to be fitted with labels indicating I.S. circuits together with the EEx'e' certification label.

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage (Immingham East)	A	15/04/99	AJH	DRR	DRR	FINA Rail Loading

P & I REF.
SI039017.SPC
SHT 3 **OF** 3

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION** To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING** Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES** a. Mechanical. b. Chemical analysis.
4.		**ITEMISED PARTS LIST** Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION** a. Two years service. b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS** To include calibration instructions where applicable.
7.		**SOFTWARE** a. Programming manual. b. Operating manual.
8.		**PRESSURE VESSELS** Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL** a. Schematic and circuit diagrams.
	1	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	1	c. Hazardous area certification.
10.		**INSTRUMENTATION** a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.		**SPECIAL REQUIREMENTS** Year 2000 Certificate of Compliance

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CLIENT:
Simon Storage
ISCO East

REV	DATE	BY	CHKD	APPD
A	09.09.10	DBF	MM	MM

CLIENT REF.

P & I REF.
SI760001_SPC
SHT 1 **OF** 2

ITEM:	Level Switch (Tuning Fork)		
GENERAL	Tag Number		LS2-25
	Service		Pump Dry Run Protection
	Area Classification		Zone 1 IIB T4
DETECTOR ELEMENT	Type		Vibrating Fork
	Location Classification		Zone 0 for wetted parts
	Material:	Wetted Parts	316L Stainless Steel
		Seals	n/a
	Connections:	Size	2"
		Type	Flanged
		Rating	ANSI 150
	Mounting:	Position	Vertical
		Probe Length	200mm
HOUSING	Material		Aluminium housing with separate connection compartment
	Enclosure Class		IP 66
	Electrical Classification		ATEX II 1/2 G EEx de IIC T6
	Certificate Reference		KEMA 00ATEX2035
	Electrical Connection		M20
TRANSMISSION	Type		Relay output
	Supply		19-253V ac, 19-55 Vdc
	Output		2 x Relay, SP Changeover
	Load		I max 6 Amps
	Action		De-energise on alarm (uncovered) & power failure
	Electrical Connection		Terminals
	Insert		FEL 54
OPTIONS	1)		Temperature Spacer
PROCESS DATA	Fluid		Light Oils
	Temperature Max./Min.		65°C / 0°C
	Temperature Normal.		Ambient
	Pressure Max./Min.		10 Barg / 0 Barg
	Pressure Normal.		Up to 10 Barg
	Specific Gravity		0.9
MANUFACTURERS DATA	Supplier		Endress & Hauser
	Model Number		FTL51–IAE2JB(200mm)4G7A
DOCUMENTATION	See Attached Documentation Specification		

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage	A	09.09.10	DBF	MM	MM	
ISCO East						**P & I REF.** SI760001_SPC
						SHT 2 **OF** 2

Documentation Requirement

Item	Quantity		Description
1.			**APPROVAL DOCUMENTATION**
	n/a		To be supplied before manufacture commences
2.			**GENERAL ARRANGEMENT DRAWING**
	n/a		Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.			**MATERIALS TEST CERTIFICATES**
	n/a	a.	Mechanical.
	n/a	b.	Chemical analysis.
4.			**ITEMISED PARTS LIST**
	n/a		Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.			**RECOMMEND SPARES QUOTATION**
	1	a.	Two years service.
	n/a	b.	Commissioning only.
6.			**INSTALLATION, OPERATING AND MAINTENANCE MANUALS**
			To include calibration instructions where applicable.
	1	a.	Paper Copy
	1	b.	Electronic copy (Preferably Adobe Acrobat)
7.			**SOFTWARE**
	n/a	a.	Programming manual.
	n/a	b.	Operating manual.
8.			**PRESSURE VESSELS**
	n/a		Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.			**ELECTRICAL**
	n/a	a.	Schematic and circuit diagrams.
	n/a	b.	Certificates of conformity (to include EMC Directive 89/336/EEC).
	n/a	c.	Hazardous area certification.
10.			**INSTRUMENTATION**
	1	a.	Certificates of conformity (to include EMC Directive 89/336/EEC).
	n/a	b.	Calibration certificates.
	1	c.	Hazardous area certification.
11.			**SPECIAL REQUIREMENTS**
	-		PFD Data for Safety Instrument Systems as defined in BS EN 61508 & BS EN 61511

IMPORTANT NOTICE:

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CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Immingham Storage Co Ltd	A	14/09/10	DBF	MM	MM	4 East Rail Gantry
ISCo East Terminal	B	23/12/10	DBF	MM	MM	**P & I REF.** SI760002_SPC
						SHT 1 **OF** 3

ITEM: Solenoid Valve Direct

GENERAL		Tag Number	See Sheet No. 2
		Service	See Sheet No. 2
		Area Classification	Zone 1 IIB T4
BODY		Type	Direct
		Number of Ways	3/2
		Action	Spring Return, Internal Pilot Air Feed
		Construction	Aluminium Body, Brass Jet, Stainless Steel Spring.
		Connections:Size/Type	1/8" BSP (0.06 Cv, 62 L/min)
		Mounting	Remote
SOLENOID		Type	Class F Coil
		Voltage	24 VDC
		Enclosure Class	IP66
		Electrical Classification	Ex II 2 G EExd IIC T6
	B	ATEX Certification	Baseefa 06 ATEX 0123
		Electrical Connection	M20 x 1.5
OPTIONS			No Options
PROCESS DATA		Fluid	Air
		Pressure Max.	8 Bar
		Oper. Diff. Max./Min.	3 to 8 Bar
		Temperature Oper.	Ambient
MANUFACTURERS DATA		Supplier	RGS
	B	Model Number	E13AX0D00BA

DOCUMENTATION See Attached Documentation Specification

CLIENT:	**REV**	**DATE**	**BY**	**CHKD**	**APPD**	**CLIENT REF.**
Immingham Storage Co Ltd	A	14/09/10	DBF	MM	MM	4 East Rail Gantry
ISCo East Terminal	B	23/12/10	DBF	MM	MM	**P & I REF.**
						SI760002_SPC
						SHT 2 **OF** 3

TAG No.	**SERVICE**	**COMMENTS**
XSV1	4 East Rail Gantry North Siding Loading Point 1	
XSV2	4 East Rail Gantry North Siding Loading Point 2	
XSV3	4 East Rail Gantry North Siding Loading Point 3	
XSV4	4 East Rail Gantry North Siding Loading Point 4	
XSV5	4 East Rail Gantry North Siding Loading Point 5	
XSV6	4 East Rail Gantry North Siding Loading Point 6	
XSV7	4 East Rail Gantry South Siding Loading Point 7	
XSV8	4 East Rail Gantry South Siding Loading Point 8	
XSV9	4 East Rail Gantry South Siding Loading Point 9	
XSV10	4 East Rail Gantry South Siding Loading Point 10	
XSV11	4 East Rail Gantry South Siding Loading Point 11	
XSV12	4 East Rail Gantry South Siding Loading Point 12	
XSVESD	4 East Rail Gantry ESD	

Revision History

Rev A	Original Issue
Rev B	ATEX Update

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Immingham Storage Co Ltd	A	14/09/10	DBF	MM	MM	4 East Rail Gantry
ISCo East Terminal	B	23/12/10	DBF	MM	MM	**P & I REF.**
						SI760002_SPC
						SHT 3 **OF** 3

Documentation Requirement

Item	Quantity	Description
1.		**APPROVAL DOCUMENTATION**
	n/a	To be supplied before manufacture commences
2.		**GENERAL ARRANGEMENT DRAWING**
	n/a	Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.		**MATERIALS TEST CERTIFICATES**
	n/a	a. Mechanical.
	n/a	b. Chemical analysis.
4.		**ITEMISED PARTS LIST**
	n/a	Cross-referenced with G.A. drawing(s) and illustrating manufacturers references for all proprietary items such as bearings, oilseals, mechanical seals, etc.
5.		**RECOMMEND SPARES QUOTATION**
	1	a. Two years service.
		b. Commissioning only.
6.		**INSTALLATION, OPERATING AND MAINTENANCE MANUALS**
		To include calibration instructions where applicable.
		1 a. Paper Copy
	1	b. Electronic copy (Preferably Adobe Acrobat)
7.		**SOFTWARE**
	n/a	a. Programming manual.
		n/a b. Operating manual.
8.		**PRESSURE VESSELS**
	n/a	Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.		**ELECTRICAL**
	n/a	a. Schematic and circuit diagrams.
	n/a	b. Certificates of conformity (to include EMC Directive 89/336/EEC).
	n/a	c. Hazardous area certification.
10.		**INSTRUMENTATION**
	1	a. Certificates of conformity (to include EMC Directive 89/336/EEC).
	n/a	b. Calibration certificates.
	1	c. Hazardous area certification.
11.	n/a	**SPECIAL REQUIREMENTS**

IMPORTANT NOTICE:

Vendors acceptance of this order is conditional on the provision of the Documentation.
Should the vendor not wish to supply the whole or part of the details herein requested, he shall state in writing any exceptions with the quotation or order acceptance.
P & I Design reserve the right to cancel any order where the documentation does not comply with P & I requirements. No item will be paid in full until documentation specified has been received.

###-FMB6.SPC

4 EAST
OPERATIONS OFFICE

INTER TERMINALS
COMPUTER SERVICES OFFICE

PRINTER ENCLOSURE

COMMUNICATIONS INTERFACE PANEL

SWITCHROOM
4 EAST

FIELD

RS422 I.S.

200A BUSBAR CHAMBER

EXISITNG SUPPLY

740900 (5 CORE)

M.C.C FINA DERV PUMP SOFT START

740902 (7 CORE)

740903 (4 CORE)

240V DB

740901 (3 CORE)

740994 (5 PAIR)

CONTROL PANEL

EARTH RODS (LIGHTNING)

INSTRUMENT CLEAN EARTH

740996

POLLING PC

RS422 I.S.

SAFE AREA

HAZARDOUS AREA

C40988 (5 PAIR)

740904 (2 PAIR)

JUNCTION BOX

740905 (4 CORE)

PRODUCT DELIVERY TEMPERATURE

TSH

740907 (3 CORE)

740906 (5 CORE)

JB EExe

740908 (5 CORE)

55kW

STOP/ START

NOTE 2

740909 (2 PAIR I.S.)

740910 (19 CORE)

740911 (7 CORE)

740912 (3 CORE)

740913 (7 CORE)

740914 (19 CORE)

740915 (2 PAIR I.S.)

740916 (2 PAIR)

JUNCTION BOX

ESD AT GANTRY TOP CENTRE

ESD AT GANTRY TOP CONTROL STATION END

ESD AT GANTRY TOP FAR END

40820 (2 CORE)

40821 (2 CORE)

40822 (2 CORE)

NORTH SIDING DANLOAD 240VAC ISOLATOR

MUX ANTI-CONDENSATION HEATER ISOLATOR

SOUTH SIDING DANLOAD 240VAC ISOLATOR

OPERATORS CONTROL PANEL

740917 (19 CORE)

ESD AT GANTRY BOTTOM CENTRE

ESD AT GANTRY BOTTOM CONTROL STATION END

ESD AT GANTRY BOTTOM FAR END

HORN

740997 (2 CORE)

740918 (2 CORE)

740919 (2 CORE)

740920 (2 CORE)

DC JUNCTION BOX

EExe

740921 (2 CORE)

740922 (2 CORE)

740923 (2 CORE)

740924 (2 CORE)

740925 (2 CORE)

740926 (2 CORE)

740931 (7 CORE)

740932 (3 CORE)

740933 (7 CORE)

AC JUNCTION BOX

EExe

740938 (2 CORE)

740939 (2 CORE)

740940 (2 CORE)

740941 (2 CORE)

740942 (2 CORE)

740943 (2 CORE)

XSV1 XSV2 XSV3 XSV7 XSV8 XSV9

MANUAL CONTROL

XV1 XCV1 XV2 XCV2 XV3 XCV3 XV7 XCV7 XV8 XCV8 XV9 XCV9

ZS O C H

LS 1 LS 2 LS 3 LS 7 LS 8 LS 9

740952 (2 PAIR I.S.) 740953 (2 PAIR I.S.) 740954 (1 PAIR I.S.) 740955 (2 PAIR I.S.) 740956 (2 PAIR I.S.) 740957 (1 PAIR I.S.) 740958 (2 PAIR I.S.) 740959 (2 PAIR I.S.) 740960 (1 PAIR I.S.) 740961 (2 PAIR I.S.) 740962 (2 PAIR I.S.) 740963 (1 PAIR I.S.) 740964 (2 PAIR I.S.) 740965 (2 PAIR I.S.) 740966 (1 PAIR I.S.) 740967 (2 PAIR I.S.) 740968 (2 PAIR I.S.) 740969 (1 PAIR I.S.)

NORTH SIDING

SOUTH SIDING

MUX 1 & 2 PANEL

HEATER

NOTE 1

740948 (3 CORE)

EExe

XSV4 XSV5 XSV6 XSV10 XSV11 XSV12

MANUAL CONTROL

XCV4 XV4 XCV5 XV5 XCV6 XV6 XCV10 XV10 XCV11 XV11 XCV12 XV12

LS 4 LS 5 LS 6 LS 10 LS 11 LS 12

740970 (1 PAIR I.S.) 740971 (2 PAIR I.S.) 740972 (2 PAIR I.S.) 740973 (1 PAIR I.S.) 740974 (2 PAIR I.S.) 740975 (2 PAIR I.S.) 740976 (1 PAIR I.S.) 740977 (2 PAIR I.S.) 740978 (2 PAIR I.S.) 740979 (1 PAIR I.S.) 740980 (2 PAIR I.S.) 740981 (2 PAIR I.S.) 740982 (1 PAIR I.S.) 740983 (2 PAIR I.S.) 740984 (2 PAIR I.S.) 740985 (1 PAIR I.S.) 740986 (2 PAIR I.S.) 740987 (2 PAIR I.S.)

NORTH SIDING

SOUTH SIDING

NOTE 1

HEATER

740949 (3 CORE)

MUX 3 & 4 PANEL

EExe

NOTES

1. VIA SAK2.5 EEx'e' TERMINALS
2. DECOMMISSIONED BATCHING SYSTEM.

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	18/02/99	D.R.R	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	EARTH RODS UPDATED
D	17/09/10	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	SI760 MODIFICATIONS
E	11/01/11	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	AS BUILT
F	24/01/17	P.P.	P.P.	M.M.		M.M.		AS BUILT – 16062 PROJECT

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM OVERVIEW

inter terminals
Inter Terminals Immingham Ltd
Immingham East Terminal
Immingham Dock Immingham
N.E. Lincolnshire
DN40 2QW

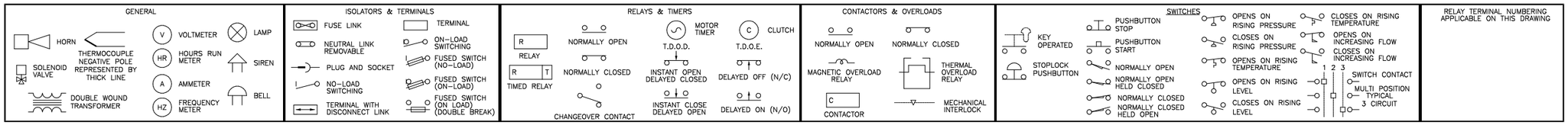
P & I DESIGN
P & I Design Ltd
Tel. 01642 617444
www.pidesign.co.uk

SHEET 1 OF 1

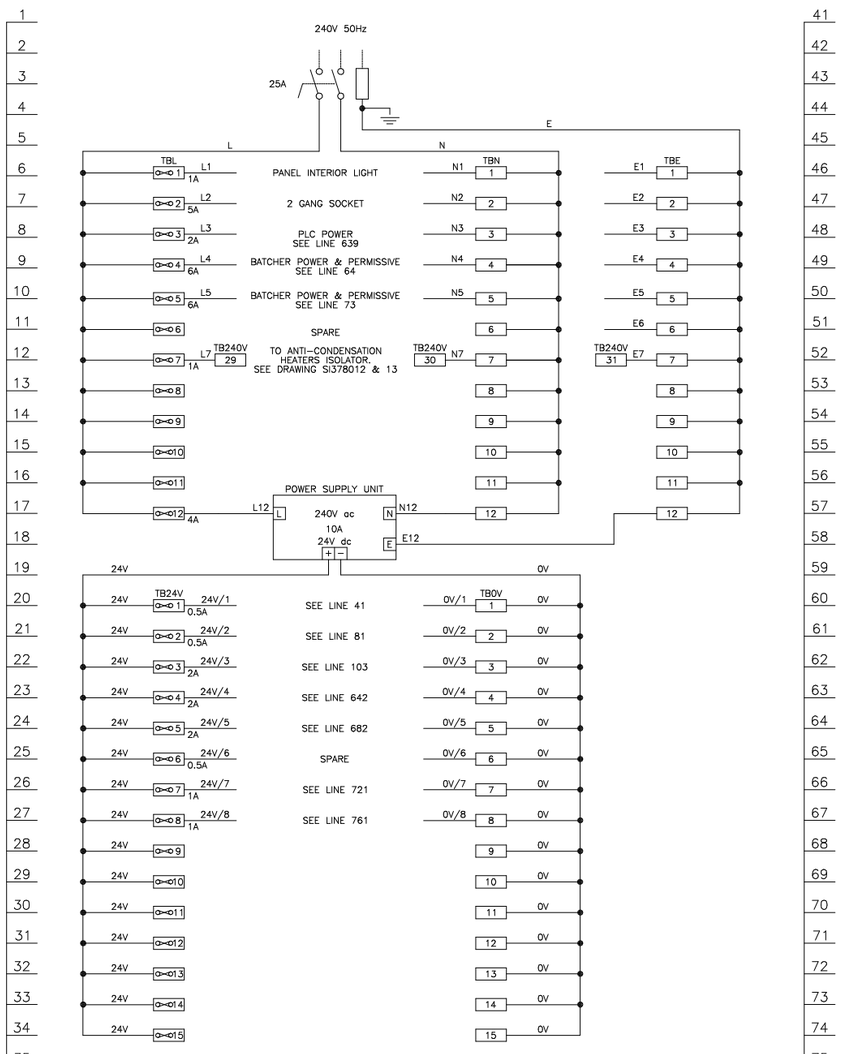
CLIENT DRG. No.

P&I DRG No. SI039001_DWG

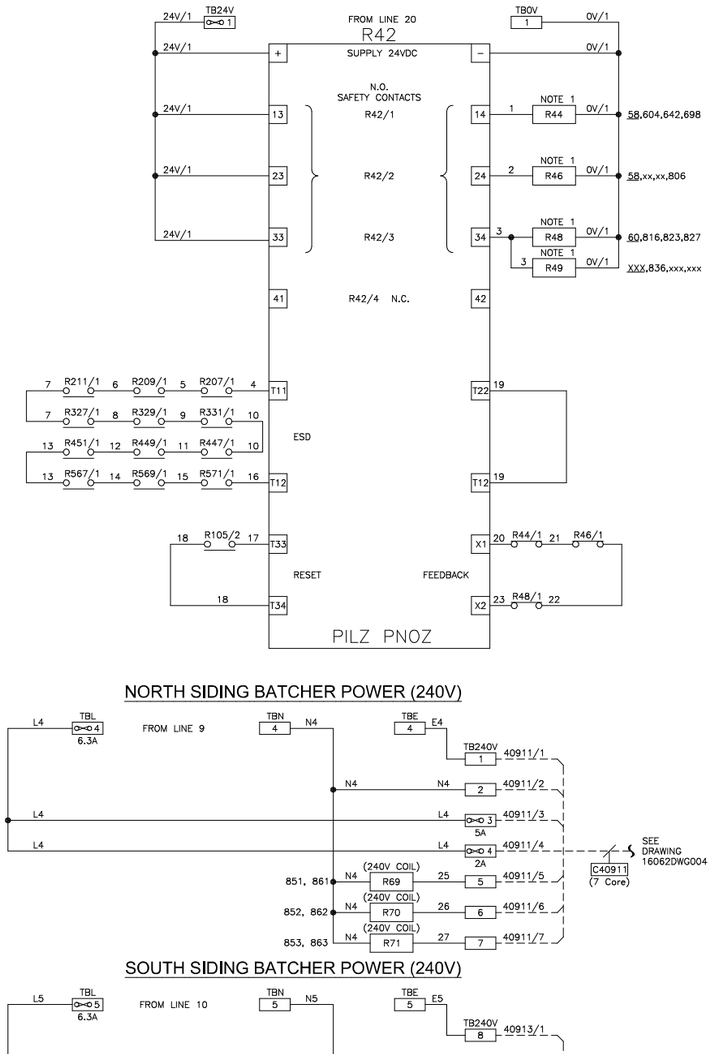
LEGEND OF GRAPHICAL SYMBOLS (ALL CONTACTS SHOWN IN THE DE-ENERGISED STATE)



POWER DISTRIBUTION



LEVEL

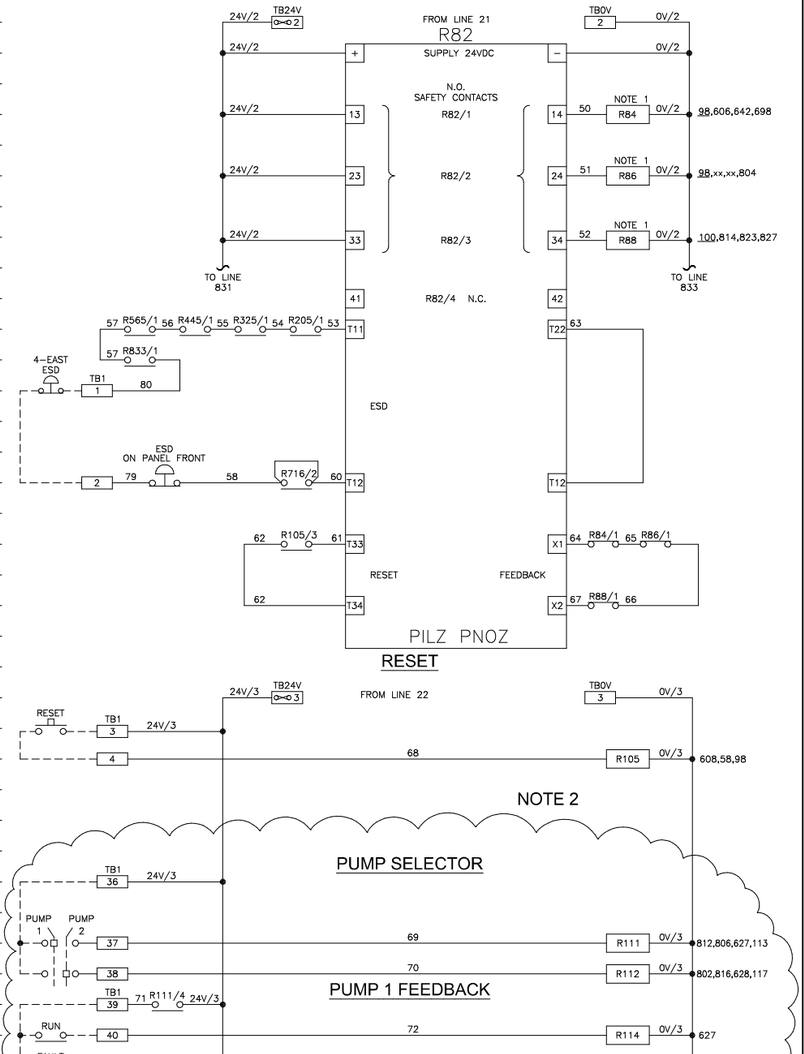


NORTH SIDING BATCHER POWER (240V)

SOUTH SIDING BATCHER POWER (240V)

LAST NUMBER USED: 32
SPARE TO: 49

ESD



RESET

LAST NUMBER USED: 80
SPARE TO: 99

NOTES
1. OMRON G7S-4A2B GUIDED CONTACT RELAY (RS260-4373)
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	01/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	PANEL TEST MODS
D	14/09/10	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	SI760 MODIFICATIONS
E	11/01/11	D.B.F	P.P.	D.B.F	D.B.F	M.M.	M.M.	AS BUILT
F	04/01/17	P.P.	P.P.	D.R.P		M.M.		AS BUILT – 16062 PROJECT

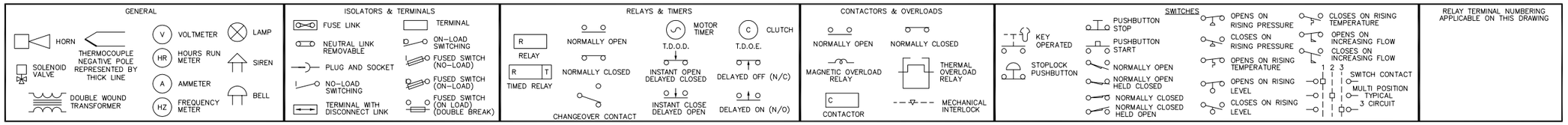
PLANT: INTER TERMINALS IMMINGHAM LTD - EAST TERMINAL
TITLE: 4-EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 1

inter terminals
Inter Terminals Immingham Ltd
Immingham East Terminal
Immingham Dock Immingham
N E Lincolnshire
DN40 2QW

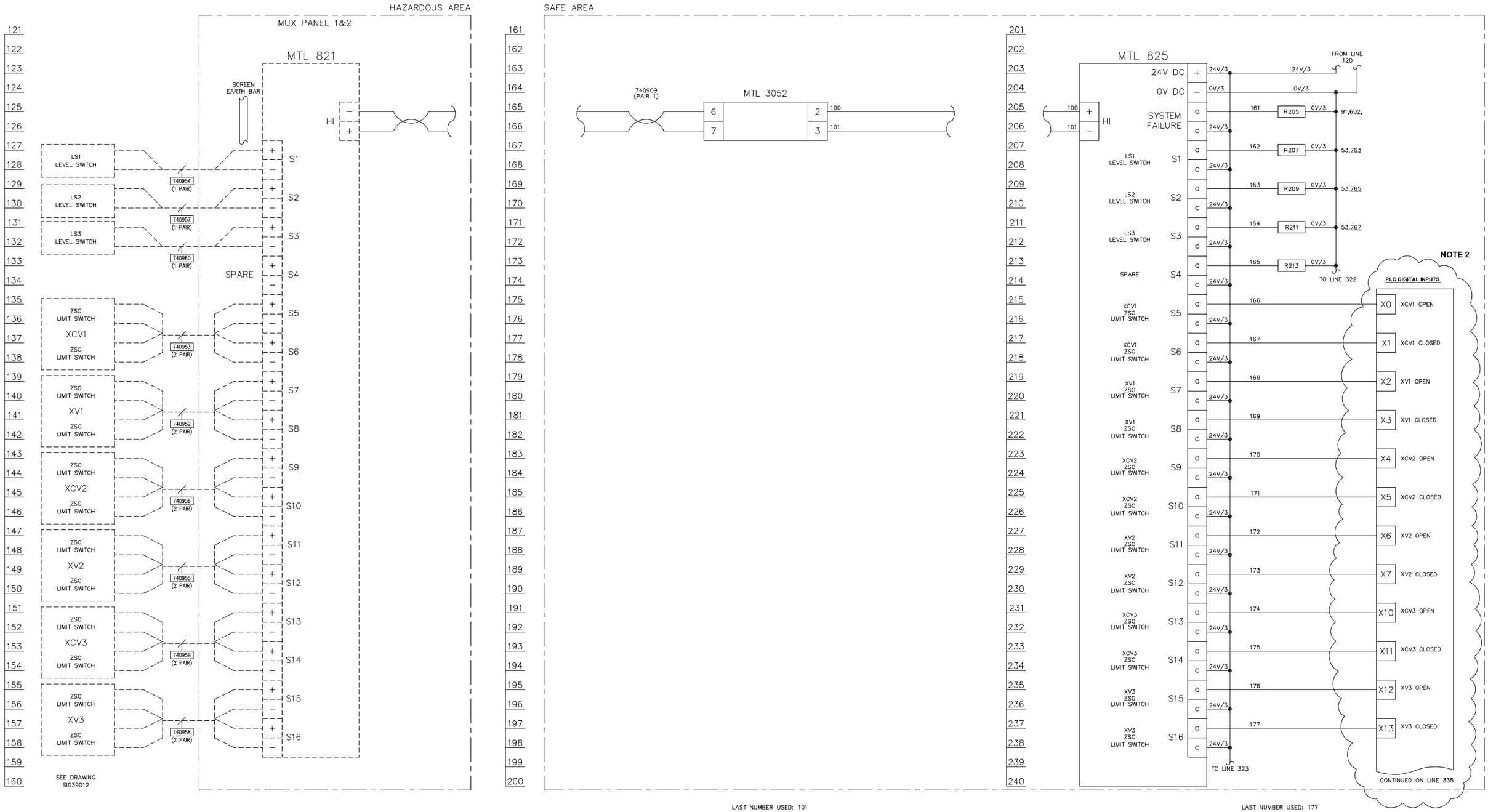
P & I Design Ltd
Tel. 01642 617444
www.pidesign.co.uk

SHEET 1 OF 1
CLIENT DRG. No.
P&I DRG No. SI039002_DWG

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



MUX 1 (NORTH SIDING)



NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

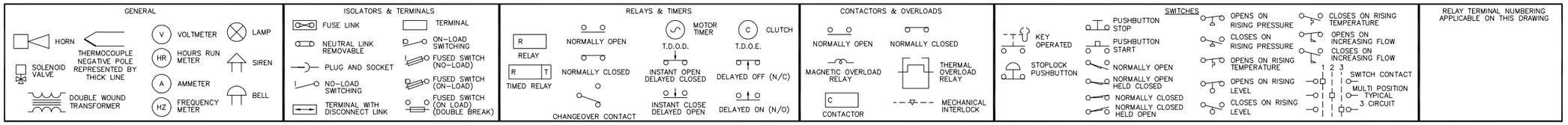
REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/07/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 2
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039003_DWG

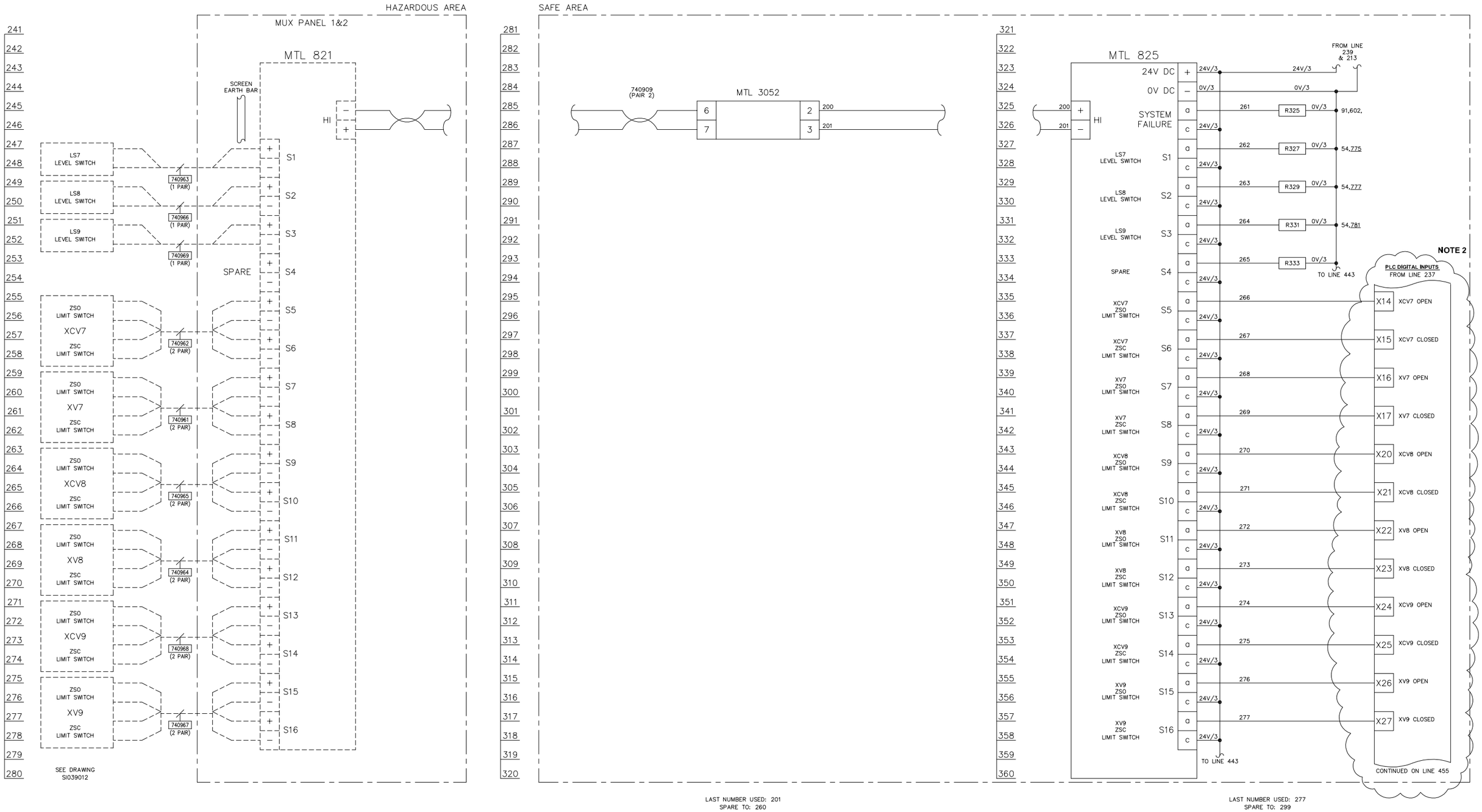
simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

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



MUX 2 (SOUTH SIDING)



LAST NUMBER USED: 201
SPARE TO: 260

LAST NUMBER USED: 277
SPARE TO: 299

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 3
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039004_DWG

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; V VOLTMETER; HR HOURS RUN METER; A AMMETER; HZ FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D. INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E. DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

MUX 3 (NORTH SIDING)

HAZARDOUS AREA

MUX PANEL 3&4

MTL 821

SCREEN EARTH BAR

HI

LS4 LEVEL SWITCH — 740970 (1 PAIR) — S1

LS5 LEVEL SWITCH — 740973 (1 PAIR) — S2

LS6 LEVEL SWITCH — 740976 (1 PAIR) — S3

SPARE — S4

ZSO LIMIT SWITCH / XCV4 / ZSC LIMIT SWITCH — 740971 (2 PAIR) — S5, S6

ZSO LIMIT SWITCH / XV4 / ZSC LIMIT SWITCH — 740972 (2 PAIR) — S7, S8

ZSO LIMIT SWITCH / XCV5 / ZSC LIMIT SWITCH — 740974 (2 PAIR) — S9, S10

ZSO LIMIT SWITCH / XV5 / ZSC LIMIT SWITCH — 740975 (2 PAIR) — S11, S12

ZSO LIMIT SWITCH / XCV6 / ZSC LIMIT SWITCH — 740977 (2 PAIR) — S13, S14

ZSO LIMIT SWITCH / XV6 / ZSC LIMIT SWITCH — 740978 (2 PAIR) — S15, S16

SEE DRAWING SI039013

SAFE AREA

740915 (PAIR 1) — MTL 3052 — 6 → 300, 7 → 301, 2 → 300, 3 → 301

MTL 825

300 (+) 301 (−) HI

24V DC (+) 24V/3 — FROM LINE 359 & 333

0V DC (−) 0V/3 — FROM LINE 359 & 333

SYSTEM FAILURE — a, c — 24V/3

LS4 LEVEL SWITCH — S1 — 361 — R445 — 0V/3 — 91,602,

LS5 LEVEL SWITCH — S2 — 362 — R447 — 0V/3 — 55,769

LS6 LEVEL SWITCH — S3 — 363 — R449 — 0V/3 — 55,771

SPARE — S4 — 364 — R451 — 0V/3 — 55,773

365 — R453 — 0V/3 — TO LINE 563

XCV4 ZSO LIMIT SWITCH — S5 — 366 — X30 XCV4 OPEN

XCV4 ZSC LIMIT SWITCH — S6 — 367 — X31 XCV4 CLOSED

XV4 ZSO LIMIT SWITCH — S7 — 368 — X32 XV4 OPEN

XV4 ZSC LIMIT SWITCH — S8 — 369 — X33 XV4 CLOSED

XCV5 ZSO LIMIT SWITCH — S9 — 370 — X34 XCV5 OPEN

XCV5 ZSC LIMIT SWITCH — S10 — 371 — X35 XCV5 CLOSED

XV5 ZSO LIMIT SWITCH — S11 — 372 — X36 XV5 OPEN

XV5 ZSC LIMIT SWITCH — S12 — 373 — X37 XV5 CLOSED

XCV6 ZSO LIMIT SWITCH — S13 — 374 — X40 XCV6 OPEN

XCV6 ZSC LIMIT SWITCH — S14 — 375 — X41 XCV6 CLOSED

XV6 ZSO LIMIT SWITCH — S15 — 376 — X42 XV6 OPEN

XV6 ZSC LIMIT SWITCH — S16 — 377 — X43 XV6 CLOSED

TO LINE 563

NOTE 2

P.L.C. DIGITAL INPUTS FROM LINE 357

CONTINUED ON LINE 575

LAST NUMBER USED: 301
SPARE TO: 360

LAST NUMBER USED: 377
SPARE TO: 399

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon — bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT: IMMINGHAM STORAGE Co. – EAST TERMINAL

TITLE: 4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 4

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

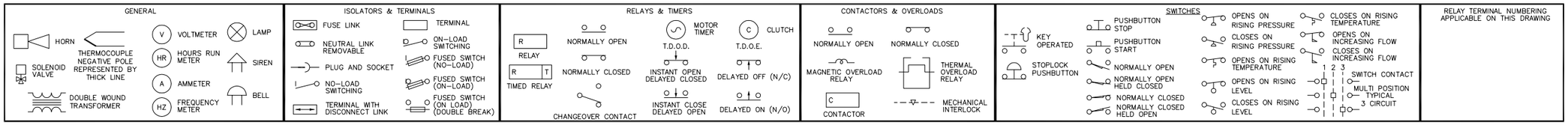
P & I DESIGN — P & I Design Ltd, Tel. 01642 617444, www.pidesign.co.uk

SHEET 1 OF 1

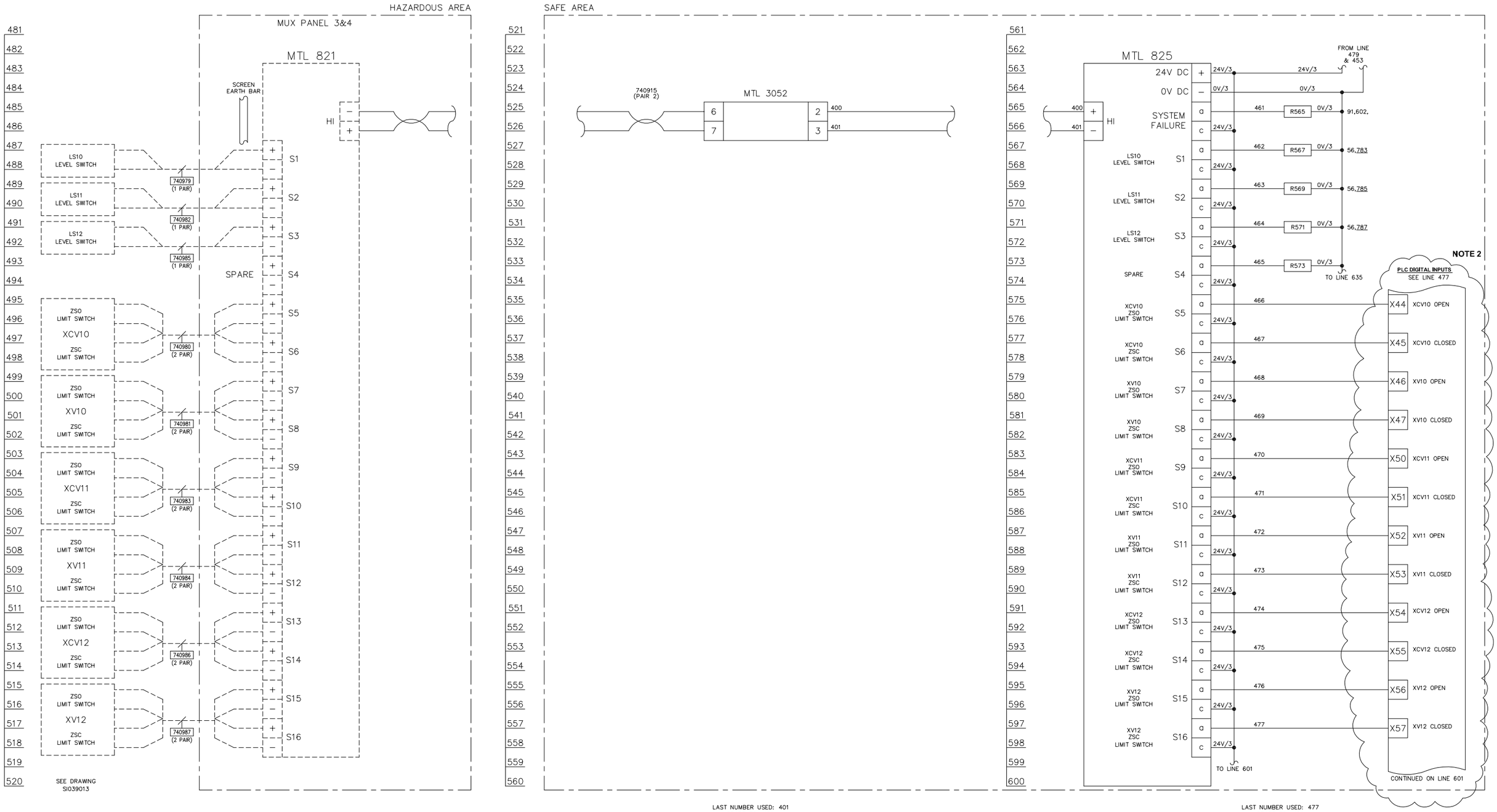
CLIENT DRG. No.

P&I DRG No. SI039005_DWG

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



MUX 4 (SOUTH SIDING)



LAST NUMBER USED: 401
SPARE TO: 460

LAST NUMBER USED: 477
SPARE TO: 499

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	11/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 5
	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
	P & I Design Ltd, Tel. 01642 617444, www.pidesign.co.uk
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039006_DWG

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER (V); HOURS RUN METER (HR); AMMETER (A); FREQUENCY METER (HZ); LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: RELAY (R); TIMED RELAY (R T); NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; CONTACTOR (C); MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

PLC DIGITAL INPUTS

FROM LINE 599

24V/3	R205/2 500 R325/2 501 R445/2 502 R565/2 503	X60	MUX HEALTHY
24V/3	R44/2 504	X61	LEVEL HEALTHY
24V/3	R86/2 505	X62	ESD HEALTHY
24V/3	R105/1 506	X63	RESET
24V/3	R70 515	X64	NORTH SIDING DANLOAD OUTPUT 3
24V/3	R71 516	X65	NORTH SIDING DANLOAD OUTPUT 4 (SPARE)
24V/3	R79 517	X66	SOUTH SIDING DANLOAD OUTPUT 3
24V/3	R80 518	X67	SOUTH SIDING DANLOAD OUTPUT 4 (SPARE)
24V/3	POLLING PC CONTROL / BATCHER STAND ALONE 519	X70	CONTROL MODE
24V/3	R833/3 520	X71	4-EAST RAIL GANTRY ESD
24V/3	HORN SILENCE TB1 5 24V/3 — 6 — 507	X72	HORN SILENCE
24V/3	LAMP TEST 7 24V/3 — 24V/3 LAMP TEST 508 — 8 — 508	X73	LAMP TEST
24V/3	9 — 10 — 509	X74	SPARE
24V/3	R111/3 510 R114/1 512 — R112/3 511 R118/1 512 — R115/1 513 — R119/1 513 — R116/1 514 — R120/1 514	X75 X76 X77	PUMP RUNNING; PUMP FAULT; SELECTED PUMP IN AUTO
24V/3		RUN	
FROM LINE 573 0V/3		0V 0V SS	
FROM LINE 8 L3 N3 E3		L N E	

NOTE 3

LAST NUMBER USED: 520
SPARE TO: 569

PLC DIGITAL OUTPUTS

FROM LINE 23 — COM1 571 R44/3 570 R84/3 24V/4 TB24V 4 — TB0V 4 — 0V/4 TB1 11

XSV 1	Y0	572	12
XSV 2	Y1	573	13
XSV 3	Y2	574	14
XSV 4	Y3	575	15
	COM2 571		0V/4 16
XSV 5	Y4	576	17
XSV 6	Y5	577	18
XSV 7	Y6	578	19
XSV 8	Y7	579	20
	COM3 571		0V/4 21
XSV 9	Y10	580	22
XSV 10	Y11	581	23
XSV 11	Y12	582	24
XSV 12	Y13	583	25

NOTE 3

NORTH DANLOAD PERMISSIVE 2	Y14	584	R674 0V/4	69,
SOUTH DANLOAD PERMISSIVE 2	Y15	585	R676 0V/4	78,
PUMP RUN RELAY	Y16	586	R678 0V/4	808,818
PUMP STOP RELAY	Y17	587	R680 0V/4	806,816

NOTE DE-ENERGISE TO STOP PUMP

NOTE 3

CONTINUED ON LINE 681

LAST NUMBER USED: 587
SPARE TO: 619

PLC DIGITAL OUTPUTS

FROM LINE 680

COM5 — 24V/5 — TB24V 5 — FROM LINE 24 — TB0V 5 0V/5 — TB1 26

CONTROL SYSTEM FAULT (MUX)	Y20	620	27 R
ESD OPERATED	Y21	621	28 R
LEVEL SWITCH OPERATED	Y22	622	29 R
DUTY PUMP RUNNING (FLASHES IF NOT IN AUTO OR IN FAULT)	Y23	623	30 G
MANUAL VALVE FAULT	Y24	624	31 R
HORN	Y25	625	32
DANLOAD IN AUTO	Y26	626	33 TO DC JB SEE DRAWINGS SI039010 SI039011 SI039012 SI039013
XSV ESD	Y27	634 — R44/4 635 R84/4 636	47 XSV ESD; 48
	COM6	24V/5	
POLLING PC COMMS FAILURE	Y30	628	34 R
CONTROL SYSTEM IN BATCHER STAND ALONE MODE	Y31	629	35 Y
PLC WATCHDOG	Y32	630 — NOTE 1 R706 T — 0V/5	716
	Y33	630 — 24V/5 — NOTE 2 R707 T — 0V/5	716
	Y34		
	Y35		
	Y36	24V/5 R706/1 631 R706/1 632 R716 0V/5	751,96

NOTE 3

CONTINUED ON LINE 721

LAST NUMBER USED: 636
SPARE TO: 679

NOTES
1. TIMER RELAY OMRON M3DE-M1 MODE A SET @ 1 SEC.
2. TIMER RELAY OMRON M3DE-M1 MODE D SET @ 1 SEC
3. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	PANEL TEST MODS
C	14/09/10	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	SI760 MODIFICATIONS
D	11/01/11	D.B.F	P.P.	M.M.		M.M.		AS BUILT

PLANT: IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE: 4-EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 6

simon — IMMINGHAM STORAGE Co Ltd., IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039007_DWG

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; V VOLTMETER; HR HOURS RUN METER; A AMMETER; HZ FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

PLC DIGITAL OUTPUTS

FROM LINE 720

24V/7 TB24V 7

FROM LINE 26

TB0V 7 0V/7

COM7	24V/7		
SPARE	Y40		
SPARE	Y41		
SPARE	Y42		
SPARE	Y43		
SPARE	Y44		
SPARE	Y45		
SPARE	Y46		
SPARE	Y47		
COM8	24V/7		
SYSTEM FAULT (OIC, MUX)	Y50	680	0V/7 R
ESD OPERATED	Y51	681	0V/7 R
LEVEL SWITCH OPERATED	Y52	682	0V/7 R
PUMP RUNNING (FLASHES)	Y53	683	0V/7 G
MANUAL VALVE FAULT	Y54	684	0V/7 R
		24V/7 R716/1	
WATCHDOG FAULT LAMP TEST OUTPUT	Y55	685	0V/7 R
POLLING PC COMMS FAILURE	Y56	686	0V/7 R
CONTROL SYSTEM IN BATCHER STAND ALONE MODE	Y57	687	0V/7 A

NOTE 2

CONTINUED ON LINE 761

LAST NUMBER USED: 687
SPARE TO: 749

PLC DIGITAL OUTPUTS

FROM LINE 760

24V/8 TB24V 8

FROM LINE 27

TB0V 8 0V/8

COM9	24V/8		
LS1 LEVEL HIGH LAMP TEST	Y60	24V/8 R207/2 750	750 0V/8 R
LS2 LEVEL HIGH LAMP TEST	Y61	24V/8 R209/2 751	751 0V/8 R
LS3 LEVEL HIGH LAMP TEST	Y62	24V/8 R211/2 752	752 0V/8 R
LS4 LEVEL HIGH LAMP TEST	Y63	24V/8 R447/2 753	753 0V/8 R
LS5 LEVEL HIGH LAMP TEST	Y64	24V/8 R449/2 754	754 0V/8 R
LS6 LEVEL HIGH LAMP TEST	Y65	24V/8 R451/2 755	755 0V/8 R
LS7 LEVEL HIGH LAMP TEST	Y66	24V/8 R327/2 756	756 0V/8 R
LS8 LEVEL HIGH LAMP TEST	Y67	24V/8 R329/2 757	757 0V/8 R
COM10	24V/8		
LS9 LEVEL HIGH LAMP TEST	Y70	24V/8 R331/2 758	758 0V/8 R
LS10 LEVEL HIGH LAMP TEST	Y71	24V/8 R567/2 759	759 0V/8 R
LS11 LEVEL HIGH LAMP TEST	Y72	24V/8 R569/2 760	760 0V/8 R
LS12 LEVEL HIGH LAMP TEST	Y73	24V/8 R571/2 761	761 0V/8 R
SPARE	Y74		
SPARE	Y75		
SPARE	Y76		
SPARE	Y77		

LAST NUMBER USED: 761
SPARE TO: 849

PUMP CONTROLS (240V)

PUMP 1

MCC COMPARTMENT SEE DRAWING SI378009

850	R112/1	851	850	TB240V 15	740902/1
850	R86/4		851	16	740902/2
			852	17	740902/3
852	R46/4	853 R680/1 854 R111/2 855		18	740902/4
			856	19	740902/5
856	R678/1		857	20	740902/6
			SPARE	21	740902/7

740902 (7 CORE)

740902/1	TB2 1
740902/2	2
740902/3	9
740902/4	10
740902/5	11
740902/6	12
740902/7	13

PUMP 2 (FUTURE)

NOTE 2

859	R111/1	858	859	TB240V 22
859	R88/2		858	23
			860	24
860	R48/2	861 R680/2 862 R112/2 863		25
			864	26
864	R678/2		865	27
			SPARE	28

P2-25 RAIL LOADING PUMP

868	R88/3	867 R48/3	866	TB1 49
			868	50

P5-12 RAIL LOADING PUMP

871	R88/4	870 R48/4	869	TB1 51
			871	52

4-EAST RAIL GANTRY ESD

ESD x7 ON RAIL GANTRY

FROM LINE 89	24V/2			TB1 53
			872	54
FROM LINE 89	0V/2	NOTE 1 R833	92,834,620	
	874	R833/2	873	55 ANNUNCIATOR
			874	56
	875	R49/2	873	
			875	57 ANNUNCIATOR

LAST NUMBER USED: 875
SPARE TO: 899

NOTES
1. OMRON G7S-4A2B GUIDED CONTACT RELAY (RS260-4373).
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

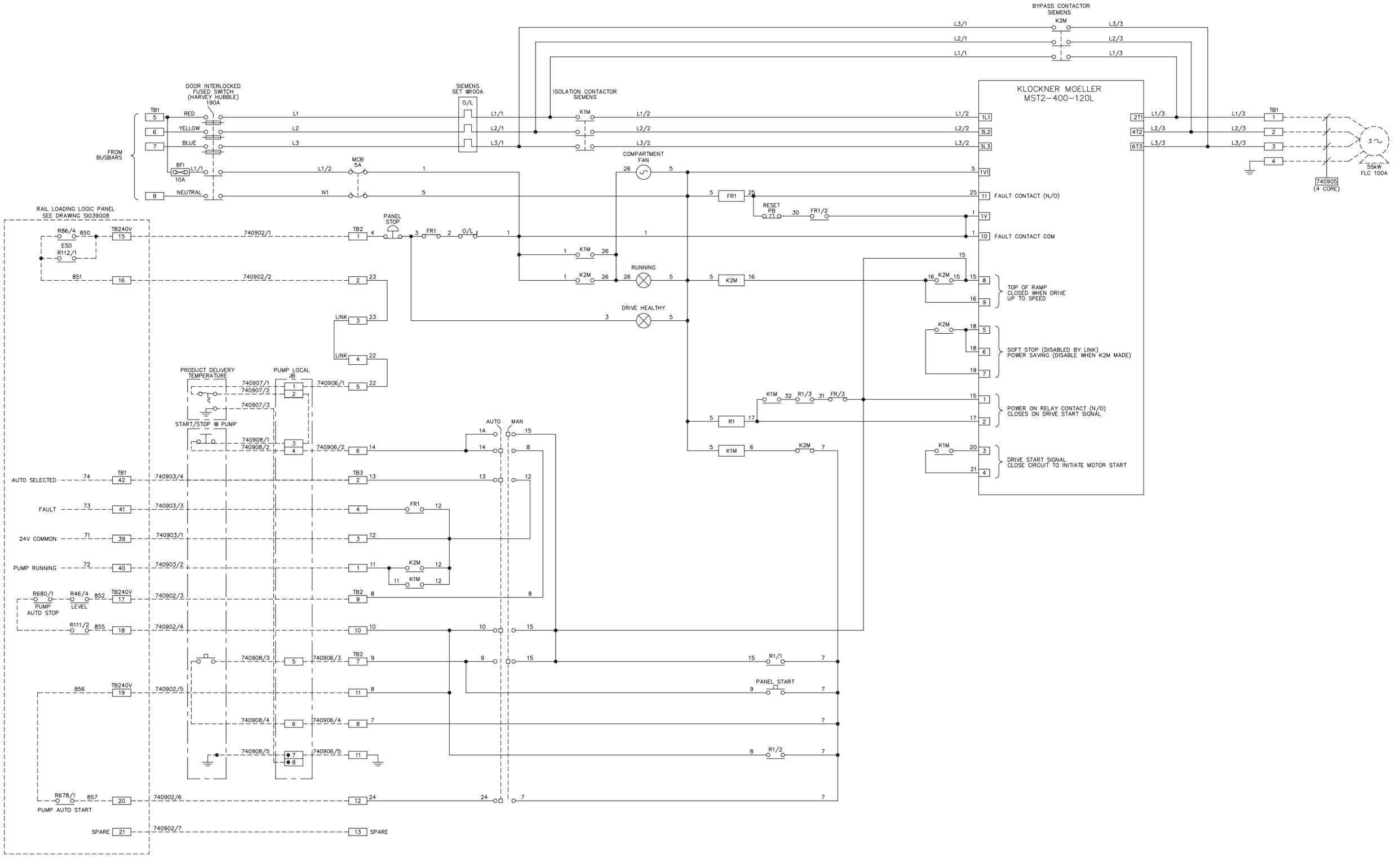
REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	PANEL TEST MODS
C	14/09/10	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	SI760 MODIFICATIONS
D	11/01/11	D.B.F	P.P.	M.M.		M.M.		AS BUILT

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 7
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039008_DWG

IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

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



NOTES:

CABLE COLOURS:
3φ – PHASE COLOURS
240V – BROWN
NEUTRAL – BLUE
24VDC – RED
0VDC – BLACK
24V DC SWITCHED – WHITE

SIZE:
TO SUIT MOTOR LOAD
2.5mm²
2.5mm²
1.5mm²
1.5mm²
1.0mm²

GENERAL
– – – – EXTERNAL WIRING

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	D.R.R	ORIGINAL ISSUE
B	09/04/99	A.J.H	A.J.H	D.R.R	D.R.R	TEMP SWITCH EARTH ADDED
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	SOFT STARTER MODS

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	DERV OFFLOADING PUMP 1 MCC DIAGRAM
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
SHEET	01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039009

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
ESD OPERATED
LEVEL SWITCH OPERATED

740917/1 740917/2 740917/3 740917/4 740917/5 740917/6 740917/7 740917/8 740917/9 740917/10 740917/11 740917/12 740917/13 740917/14 740917/18 740917/19 740917/15 740917/16 740917/17

740917 (19 Core)

MUX 1 & 2 PANEL

MUX 1 (NORTH SIDING)

S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16

740909/1/1 740909/1/2

MUX 2 (SOUTH SIDING)

S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16

740909/2/1 740909/2/2

NOTE 1

LS1 LEVEL SWITCH
LS2 LEVEL SWITCH
LS3 LEVEL SWITCH
S7 LEVEL SWITCH
S8 LEVEL SWITCH
S9 LEVEL SWITCH

740954 (1 PAIR)
740957 (1 PAIR)
740960 (1 PAIR)
740953 (2 PAIR)
740952 (2 PAIR)
740956 (2 PAIR)
740955 (2 PAIR)
740959 (2 PAIR)
740958 (2 PAIR)
740963 (1 PAIR)
740966 (1 PAIR)
740969 (1 PAIR)
740962 (2 PAIR)
740961 (2 PAIR)
740965 (2 PAIR)
740964 (2 PAIR)
740968 (2 PAIR)
740967 (2 PAIR)

COM ZSO ZSC COM
COM ZSO ZSC COMY
XCV1 XV1 XCV2 XV2 XCV3 XV3 XV7 XCV7 XV8 XCV8 XV9 XCV9

740921/1 740921/2 XSV1 MANUAL CONTROL 740921 (2 Core)
740922/1 740922/2 XSV2 MANUAL CONTROL 740922 (2 Core)
740923/1 740923/2 XSV3 MANUAL CONTROL 740923 (2 Core)
740924/1 740924/2 XSV7 MANUAL CONTROL 740924 (2 Core)
740925/1 740925/2 XSV8 MANUAL CONTROL 740925 (2 Core)
740926/1 740926/2 XSV9 MANUAL CONTROL 740926 (2 Core)

740909 (2 PAIR)

740918/1 740918/2 ESD AT GANTRY BOTTOM CONTROL STATION END 740918 (2 Core)
740919/1 740919/2 ESD AT GANTRY BOTTOM FAR END 740919 (2 Core)
740997/1 740997/2 ESD AT GANTRY BOTTOM CENTRE 740997 (2 Core)

740920/1 740920/2 HORN 740920 (2 Core)

PUMPS P4-66 & P4-67 STOP BUTTONS
WEST END OF SIDING 41336/1 41336/2 41336/3 41336 (3 Core)
EAST END OF SIDING 41338/1 41338/2 41338/3 41338 (3 Core)
CENTRE OF SIDING 41337/1 41337/2 41337/3 41337 (3 Core)

BARTEC ANTI-CONDENSATION HEATER 3 N L
FLYING LEADS
2 OFF SAK2.5 Ex'e' TERMINALS 740948/1 740948/2 740948/3
1 OFF EK2.5 Ex'e' TERMINALS
740948 (3 Core)

AC JB SEE DRAWINGS SI039010 & 011 FOR TB1-48
740948/1 740948/2 740948/3 49 50 51 52 53 54 740932/1 740932/2 740932/3
SEE DRAWING SI039013 FOR MUX 3&4 HEATER TERMINATION
740932 (3 Core)

LOCAL 3-POLE ISOLATOR
740932/1 740932/2 740932/3 740912/1 740912/2 740912/3
740912 (3 Core)

SEE DRAWING SI039003 & 4 FOR MORE DETAIL

DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

EARTH BAR

TB1

740917/1 740917/2 740918/1 740918/2 740919/1 740919/2 740997/1 740997/2 740917/3 740917/4 740917/5 740917/6 740917/7 740917/8 SPARE SPARE 740921/1 740922/1 740923/1 740921/2 740922/2 740923/2 740924/1 740925/1 740924/2 740925/2 740926/1 740926/2 740917/9 740920/1 740917/10 740917/11 740917/12 740917/13 740917/14 740920/2 740917/18 740917/19 740917/17 740917/15 740917/16 41336/1 41336/2 41336/3 41338/1 41338/2 41338/3

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

740910/1 740910/2 740910/3 740910/4 740910/5 740910/6 740910/7 740910/8 740910/9 740910/10 740910/11 740910/12 740910/13 740910/14 740910/15 740910/16 740910/17 740910/18 740910/19 740914/1 740914/2 740914/3 740914/4 740914/5 740914/6 740914/7 TB2, 5 TB3, 5 740914/8 740914/9 740914/10 740914/11 740914/12 740914/13 740914/16 740914/17 740914/18 740914/19 740914/15 41337/1 41337/2 41337/3

40820/1 40820/2 C40820 (2 Core) ESD AT GANTRY TOP CONTROL STATION END
40821/1 40821/2 C40821 (2 Core) ESD AT GANTRY TOP CENTRE
40822/1 40822/2 C40822 (2 Core) ESD AT GANTRY TOP FAR END

FOR XV4, 5, 6, 10, 11, 12 & FOR MUX 3 & 4 PANEL SEE DRG. SI039013_DWG

FOR SIDINGS PUMP STOP SEE DRG. 16062DWG005

FINA DERV M.C.C.

SEE DRAWING SI039009 FOR MORE DETAIL

TB1
PUMP RUNNING 740903/1 11
PUMP FAULT 740903/2 12
AUTO SELECTED 740903/3 14
740903/4 16
PUMP 1

740903 (4 Core)

740910 (19 Core)
740914 (19 Core)

TB1

740910/1 740910/2 740910/3 740910/4 740910/5 740910/6 740910/7 740910/8 740910/9 740910/10 740910/11 740910/12 740910/13 740910/14 740910/15 740910/16 740910/17 740910/18 740910/19 740914/1 740914/2 740914/3 740914/4 740914/5 740914/6 740914/7 740914/8 740914/9 740914/10 740914/11 740914/12 740914/13 740914/16 740914/17 740914/18 740914/19 740903/1 740903/2 740903/3 740903/4

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46

57 58 24V/3 68 24V/3 507 24V/3 508 24V/3 209 0V/4 572 573 574 575 0V/4 576 577 578 579 0V/4 580 581 582 583 0V/5 620 621 622 623 624 625 24V/6 902 629 24V/3 69 70 24V/3 71 72 73 24V/3 74 75 76

SEE DRG. SI039002 SI039007 & SI039022

FUTURE PUMP CONNECTIONS

740909/1/1 740909/1/2 MTL 3052 BARRIER (MUX 1) 7 6 3 2 101 100
740909/2/1 740909/2/2 MTL 3052 BARRIER (MUX 2) 7 6 3 2 201 200
SEE DWG. SI039003_DWG & SI039004_DWG

SCREEN EARTH BAR

740912/1 740912/2 740912/3 TB240V 29 30 31 L7 N7 E7
SEE DWG. SI039002_DWG

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
D	14/09/10	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	SI760 MODIFICATIONS
E	12/05/11	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	AS BUILT
F	24/01/17	P.P.	P.P.	M.M.		M.M.		AS BUILT – 16062 PROJECT

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. LIMIT SWITCH BOXES NOT ON VALVES.

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4-EAST RAIL LOADING SYSTEM MUX 1 & 2 PANEL LOOP

inter terminals
Inter Terminals Immingham Ltd
Immingham East Terminal
Immingham Dock Immingham
N E. Lincoshire
DN40 2QW

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039012_DWG

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
ESD OPERATED
LEVEL SWITCH OPERATED

740917/1 … 740917/9, 740917/10 … 740917/19, 740917/15, 740917/16, 740917/17

740917 (19 Core)

MUX 3 & 4 PANEL

MUX 3 (NORTH SIDING)

MUX 4 (SOUTH SIDING)

S1 … S16

LS4 LEVEL SWITCH
LS5 LEVEL SWITCH
LS6 LEVEL SWITCH
LS10 LEVEL SWITCH
LS11 LEVEL SWITCH
LS12 LEVEL SWITCH

740970 (1 PAIR)
740973 (1 PAIR)
740976 (1 PAIR)
740971 (2 PAIR)
740972 (2 PAIR)
740974 (2 PAIR)
740975 (2 PAIR)
740977 (2 PAIR)
740978 (2 PAIR)
740979 (1 PAIR)
740982 (1 PAIR)
740985 (1 PAIR)
740980 (2 PAIR)
740981 (2 PAIR)
740983 (2 PAIR)
740984 (2 PAIR)
740986 (2 PAIR)
740987 (2 PAIR)

740915/1/1
740915/1/2
740915/2/1
740915/2/2

NOTE 1

XV4 XV5 XV6 XV10 XV11 XV12
XCV4 XCV5 XCV6 XCV10 XCV11 XCV12
XSV4 XSV5 XSV6 XSV10 XSV11 XSV12

740938/1 740938/2 740938 (2 Core)
740939/1 740939/2 740939 (2 Core)
740940/1 740940/2 740940 (2 Core)
740941/1 740941/2 740941 (2 Core)
740942/1 740942/2 740942 (2 Core)
740943/1 740943/2 740943 (2 Core)

MANUAL CONTROL

740918/1 740918/2 ESD AT GANTRY BOTTOM CONTROL STATION END
740918 (2 Core)
740919/1 740919/2 ESD AT GANTRY BOTTOM FAR END
740919 (2 Core)
740997/1 740997/2 ESD AT GANTRY BOTTOM CENTRE
740997 (2 Core)

DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

EARTH BAR

TB1

740917/1 … 740917/8 → 740910/1 … 740910/8
SPARE → 740910/9
SPARE → 740910/10
740910/11
740938/1 → 740910/12
740938/2 → 740910/13
740939/1 → 740910/14
740940/1 → 740910/15
740939/2 → 740910/16
740940/2 → 740910/17
740941/1 → 740910/18
740942/1 → 740910/19
740943/1 → 740914/1
740914/2
740941/2 → 740914/3
740942/2 → 740914/4
740943/2 → 740914/5
740917/9 → 740914/6
740920/1 → 740914/7
TB2. 5
TB3. 5
740917/10 → 740914/8
740917/11 → 740914/9
740917/12 → 740914/10
740917/13 → 740914/11
740917/14 → 740914/12
740920/2 → 740914/13
SPARE
740917/18 → 740914/16
740917/19 → 740914/17
740917/17 → 740914/18
740917/15 → 740914/19
740917/16 → 740914/14
41336/1 → 41337/1
41336/2 → 41337/2
41336/3 → 740914/15
41338/1
41338/2
41338/3
41337/3

40820/1 40820/2 ESD AT GANTRY TOP CONTROL STATION END
C40820 (2 Core)
40821/1 40821/2 ESD AT GANTRY TOP CENTRE
C40821 (2 Core)
40822/1 40822/2 ESD AT GANTRY TOP FAR END
C40822 (2 Core)

740910 (19 Core)

TB1

740910/1 … 740910/19 → 57, 58, 24V/3, 68, 24V/3, 507, 24V/3, 508, 24V/3, 209, 0V/4, 572, 573, 574, 575, 0V/4, 576, 577, 578, 579, 0V/4, 620, 621, 622, 623, 624, 625, 24V/6, 902, 629, 24V/3, 69, 70, 24V/3, 71, 72, 73, 24V/3, 74, 75, 76

SEE DRG. SI039002, SI039007 & SI039022

740914 (19 Core)

FINA DERV M.C.C.

SEE DRAWING SI039009 FOR MORE DETAIL

PUMP RUNNING
PUMP FAULT
AUTO SELECTED

TB1 11 740903/1, 12 740903/2, 14 740903/3, 16 740903/4

PUMP 1

740903 (4 Core)

740903/1 … 740903/4 → 24V/3, 71, 72, 73, 24V/3, 74, 75, 76

FUTURE PUMP CONNECTIONS

740920/1 740920/2 HORN
740920 (2 Core)

PUMPS P4–66 & P4–67 STOP BUTTONS

WEST END OF SIDING: 41336/1, 41336/2, 41336/3 → 41336 (3 Core)
EAST END OF SIDING: 41338/1, 41338/2, 41338/3 → 41338 (3 Core)
CENTRE OF SIDING: 41337/1, 41337/2, 41337/3 → 41337 (3 Core)

FOR XV1, 2, 3, 7, 8, 9 & FOR MUX 1 & 2 PANEL SEE DRG. SI039012_DWG

FOR SIDINGS PUMP STOP SEE DRG. 16062DWG005

740915 (2 PAIR)

740915/1/1 740915/1/2 MTL 3052 BARRIER (MUX 3) 7 6 → 3 2 → 301, 300
740915/2/1 740915/2/2 MTL 3052 BARRIER (MUX 4) 7 6 → 3 2 → 401, 400

SEE DWG. SI039003_DWG & SI039004_DWG

SCREEN EARTH BAR

740912/1 740912/2 740912/3 TB240V 29 30 31 → L7, N7, E7

SEE DWG. SI039002_DWG

740912 (3 Core)

740932 (3 Core)

740949 (3 Core)

ANTI-CONDENSATION HEATER
BARTEC
E N L
FLYING LEADS

2 OFF SAK2.5 Ex'e' TERMINALS
740949/1
740949/2
740949/3
1 OFF EK2.5 Ex'e' TERMINALS

SEE DRAWING SI039005 & 6 FOR MORE DETAIL

AC JB
SEE DRAWINGS SI039010 & 011 FOR TB1–48

740949/1 49 740932/1
740949/2 50 740932/2
51
740949/3 52 740932/3
53
54

SEE DRAWING SI039012 FOR MUX 1&2 HEATER TERMINATION

LOCAL 3–POLE ISOLATOR

740932/1 740912/1
740932/2 740912/2
740932/3 740912/3

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES

1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. LIMIT SWITCH BOXES NOT ON VALVES.

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
D	14/09/10	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	SI760 MODIFICATIONS
E	12/05/11	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	AS BUILT
F	24/01/17	P.P.	P.P.	M.M.		M.M.		AS BUILT – 16062 PROJECT

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM MUX 3 & 4 PANEL LOOP

inter terminals
Inter Terminals Immingham Ltd
Immingham East Terminal
Immingham Dock Immingham
N.E. Lincolnshire
DN40 2QW

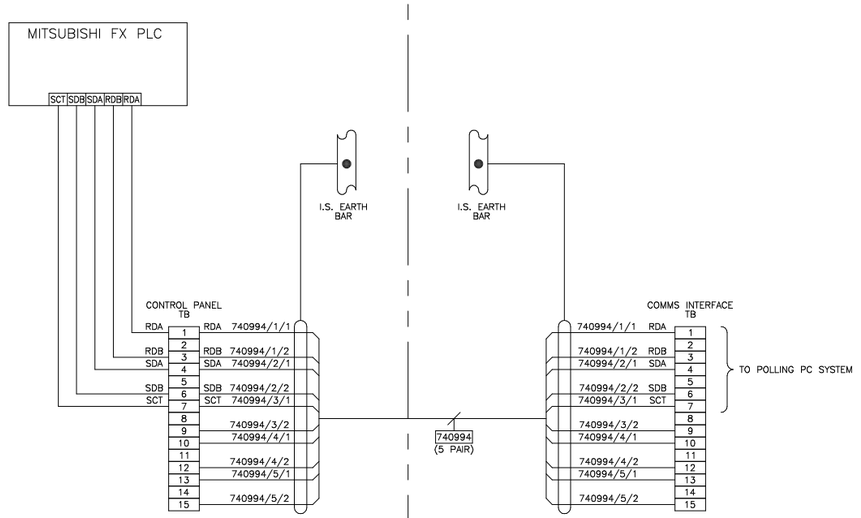
P & I Design Ltd
P & I DESIGN
Tel. 01642 617444
www.pidesign.co.uk

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039013_DWG

RAIL LOADING SIDING			COMMICATIONS INTERFACE PANEL	
DANLOAD 6000	DC JUNCTION BOX	LOGIC PANEL	LINE TERMINATION CABINET	PROTOCOL MANAGEMENT UNIT



HAZARDOUS AREA | SAFE AREA

NOTES
1.

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	13/07/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	CABLE 740994 ADDED
C	14/09/10	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	SI760 MODIFICATIONS
D	11/01/11	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	AS BUILT
E	24/01/17	P.P.	P.P.	M.M.		M.M.		AS BUILT – 16062 PROJECT

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM DANLOAD TO PC COMMUNICATIONS DIAGRAM

inter terminals
Inter Terminals Immingham Ltd
Immingham East Terminal
Immingham Dock Immingham
N.E. Lincolnshire
DN40 2QW

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

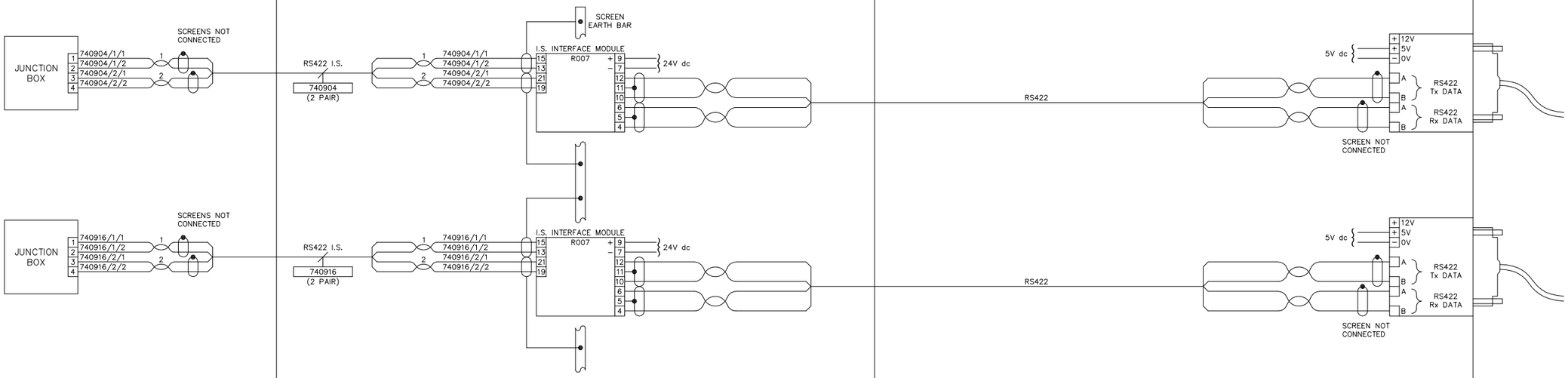
SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039014_DWG

FIELD | COMMUNICATIONS INTERFACE PANEL | PC

LINE TERMINATION CABINET | PROTOCOL MANAGEMENT UNIT



HAZARDOUS AREA | SAFE AREA

SAFETY PROTECTION	INTRINSIC SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	ZONE 0
GAS GROUP	IIB	IIC
TEMPERATURE CLASS	T4	T4

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
R007	Ex 91C2017	[EEx ia] IIC T6	BASEEFA

bulk liquid & gas network

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	AS BUILT
B	11/01/11	D.B.F	P.P.	M.M.		M.M.		AS BUILT (MERCURY 2 REMOVED)

PLANT: IMMINGHAM STORAGE Co. – EAST TERMINAL

TITLE: 4–EAST RAIL LOADING SYSTEM
MERCURY KEYPAD COMMS LOOP DIAGRAM

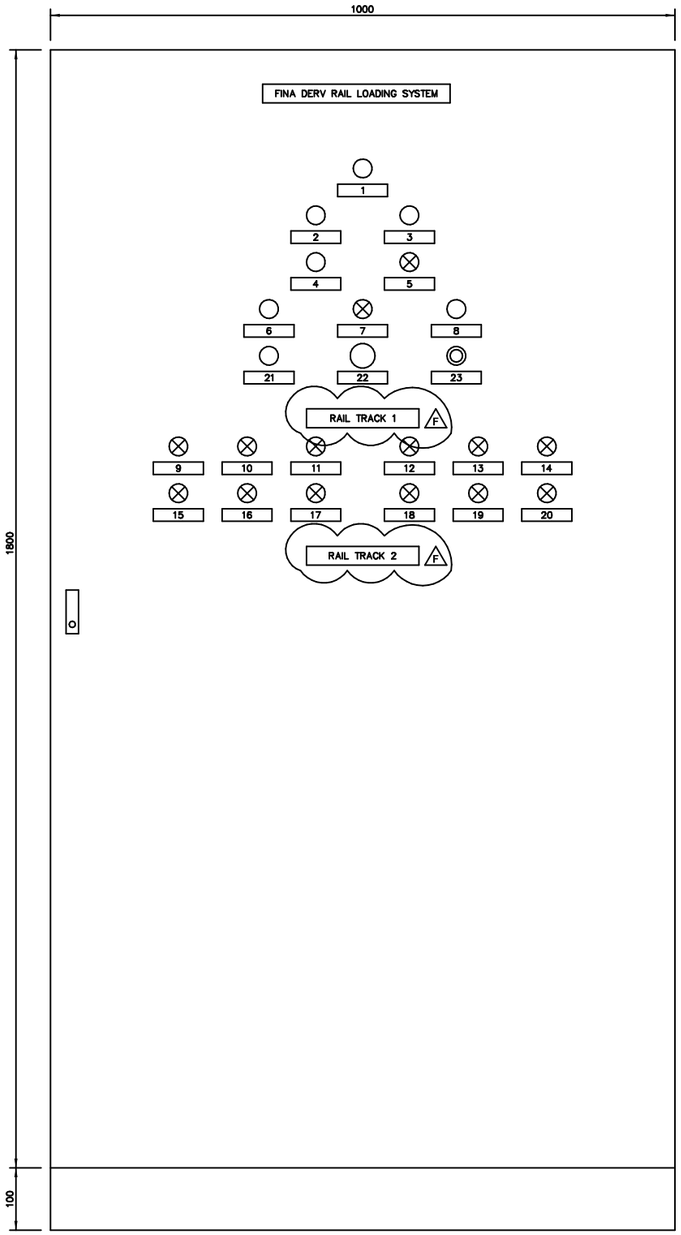
SIMON — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

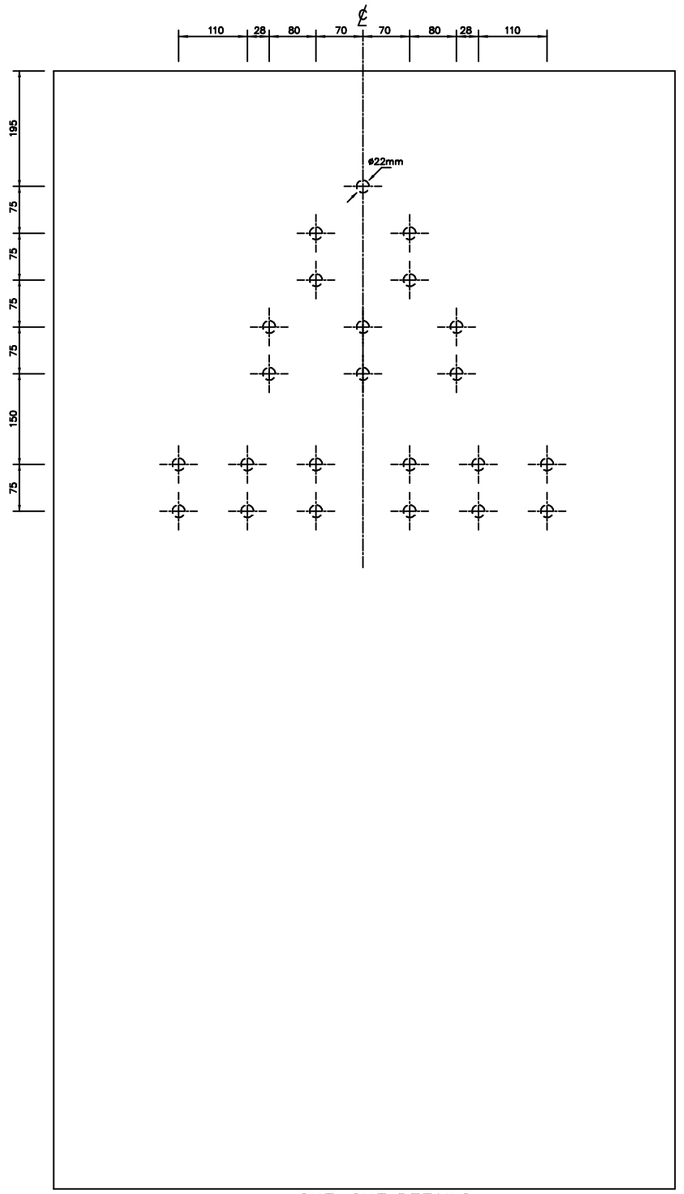
SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039015_DWG

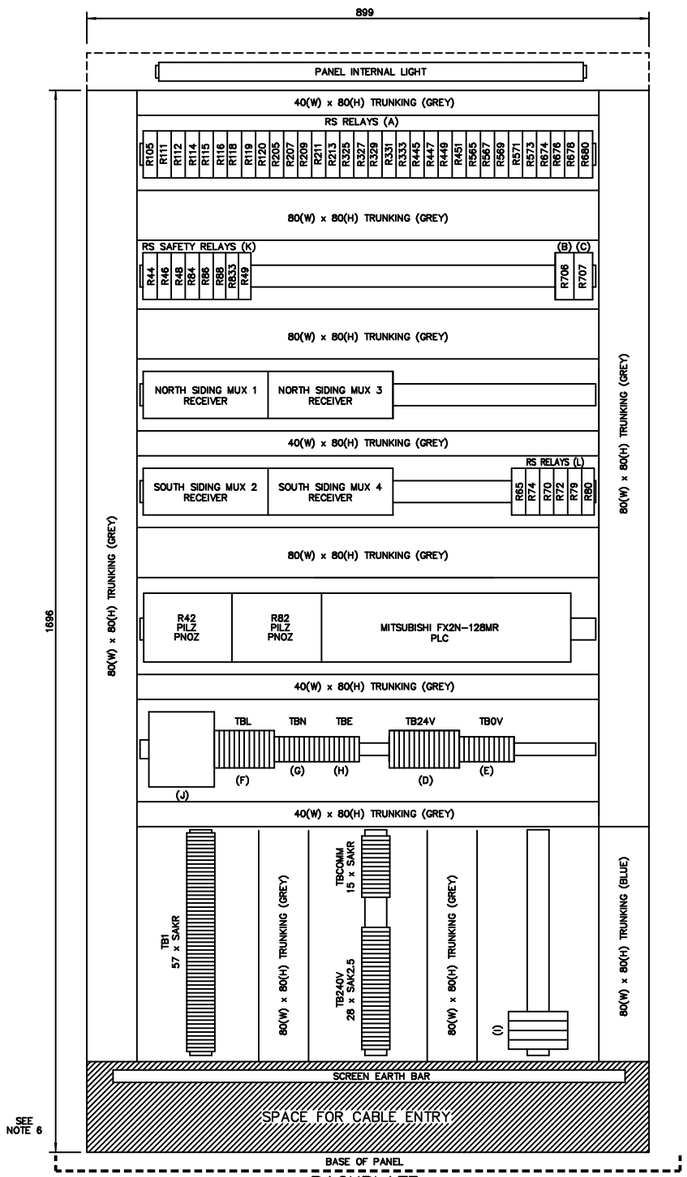


RITTAL ES 5084.600
FRONT OF PANEL LAYOUT



CUT–OUT DETAILS

ITEMS			
LOCATION	QUANTITY	DESCRIPTION	STOCK CODE
A	38	RS 4–POLE RELAYS, 24Vdc COIL	RS 213–0793
B	1	RS 4–POLE TIMER RELAYS, 24Vdc COIL (ON DELAY)	RS 328–140
C	1	RS 4–POLE TIMER RELAYS, 24Vdc COIL (OFF DELAY)	RS 328–140
D	15	ASK1	XXXX
E	15	SAK 2.5	XXXX
F	12	ASK1	XXXX
G	12	SAK2.5	XXXX
H	12	EK2.5	XXXX
I	4	MTL 3052	XXXX
J	1	ISOLATOR 25A	XXXX
K	4	RS 4 POLE SAFETY RELAYS, 24Vdc COIL	RS 260–4373
L	6	RS 4–POLE RELAYS, 240VAC COIL	RS 213–0838



BACKPLATE

LABELS	
LOCATION	DETAILS
1	
2	
3	
4	
5	LEVEL SWITCH OPERATED
6	
7	ESD OPERATED
8	
9	LEVEL SWITCH 12 OPERATED
10	LEVEL SWITCH 11 OPERATED
11	LEVEL SWITCH 10 OPERATED
12	LEVEL SWITCH 9 OPERATED
13	LEVEL SWITCH 8 OPERATED
14	LEVEL SWITCH 7 OPERATED
15	LEVEL SWITCH 6 OPERATED
16	LEVEL SWITCH 5 OPERATED
17	LEVEL SWITCH 4 OPERATED
18	LEVEL SWITCH 3 OPERATED
19	LEVEL SWITCH 2 OPERATED
20	LEVEL SWITCH 1 OPERATED
21	
22	ESD
23	LAMP TEST

DO NOT SCALE: CONTRACTOR TO CHECK DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

NOTES

1. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
2. INGRESS PROTECTION: IP 56
3. CABLE ENTRY: BOTTOM
4. PANEL DEPTH: 400
5. LABELS TO BE WHITE TRAFFOLYTE WITH BLACK ENGRAVING
6. 2–GANG 240VAC SOCKET & COUTANT LAMBDA DRP240–1 PSU TO BE MOUNTED ON THE PANEL SIDE.

SCALE 1:5
WHEN PRINTED TO FULL A1 SIZE ONLY

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	TB COMMS ADDED
D	14/09/10	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	SI760 MODIFICATIONS
E	11/01/11	D.B.F	P.P.	M.M.	M.M.	M.M.	M.M.	AS BUILT
F	09/06/17	CLIENT	D.A.Y	M.M.		M.M.		LABEL CHANGE

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM CONTROL PANEL LAYOUT

SIMON — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

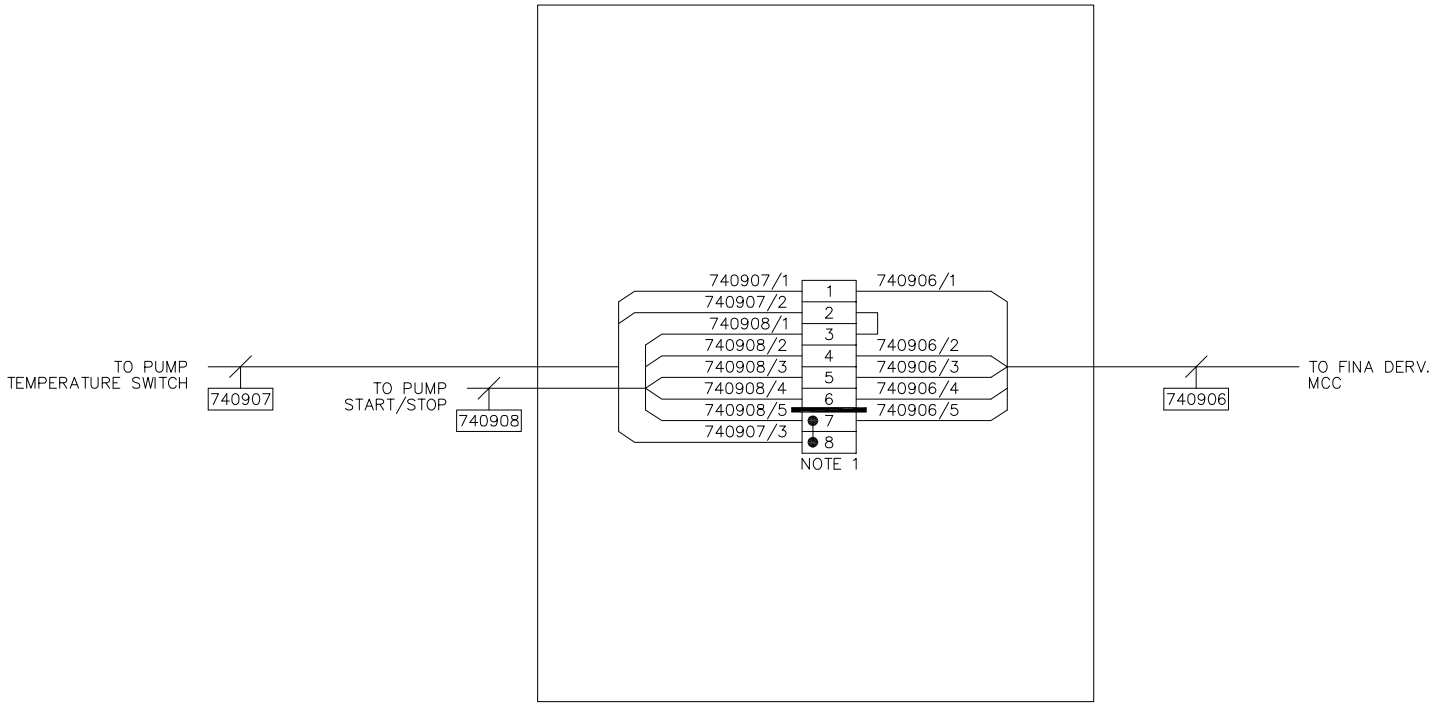
SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039016_DWG

LABEL:

FINA DERV RAIL LOADING PUMP LOCAL JUNCTION BOX



NOTES

1. BOX & TERMINALS TO BE CERTIFIED EEx'e'

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	06/04/99	A.J.H	A.J.H	D.R.R		D.R.R		ORIGINAL ISSUE

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	PUMP LOCAL JB TERMINAL ARRANGEMENT
	06/04/99

SIMON Storage Terminals

IMMINGHAM STORAGE Co Ltd,
IMMINGHAM EAST TERMINAL,
IMMINGHAM DOCK, IMMINGHAM,
SOUTH HUMBERSIDE

P & I DESIGN

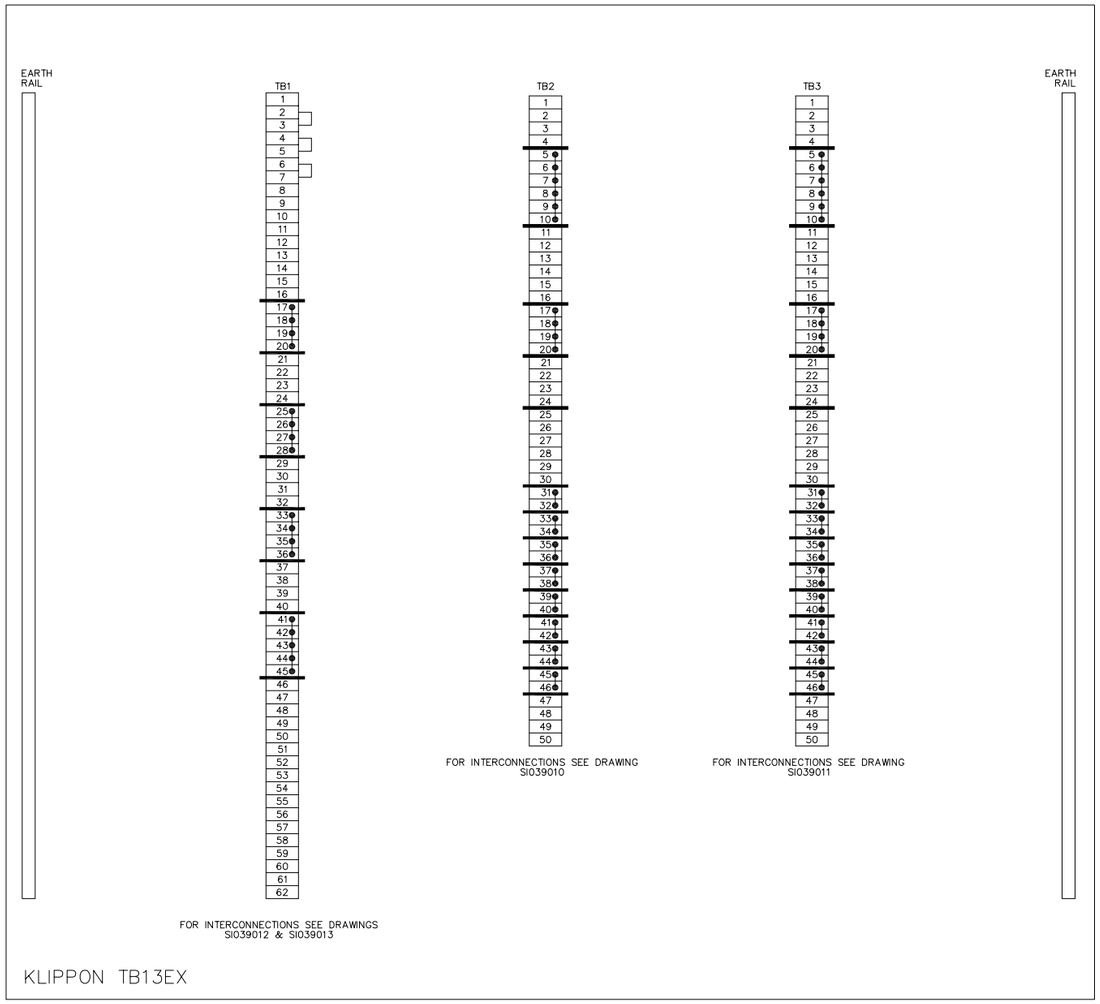
	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039017

LABEL:

FINA DERV RAIL LOADING DC JUNCTION BOX

ENCLOSURE TO BE DRILLED FOR THE FOLLOWING ENTRIES (TOP)

1. 2x40mm
2. 4x25mm
3. 3x20mm (PLUGGED)



ENCLOSURE TO BE DRILLED FOR THE FOLLOWING ENTRIES (BOTTOM)

1. 26 x 20mm (4 PLUGGED)

NOTES

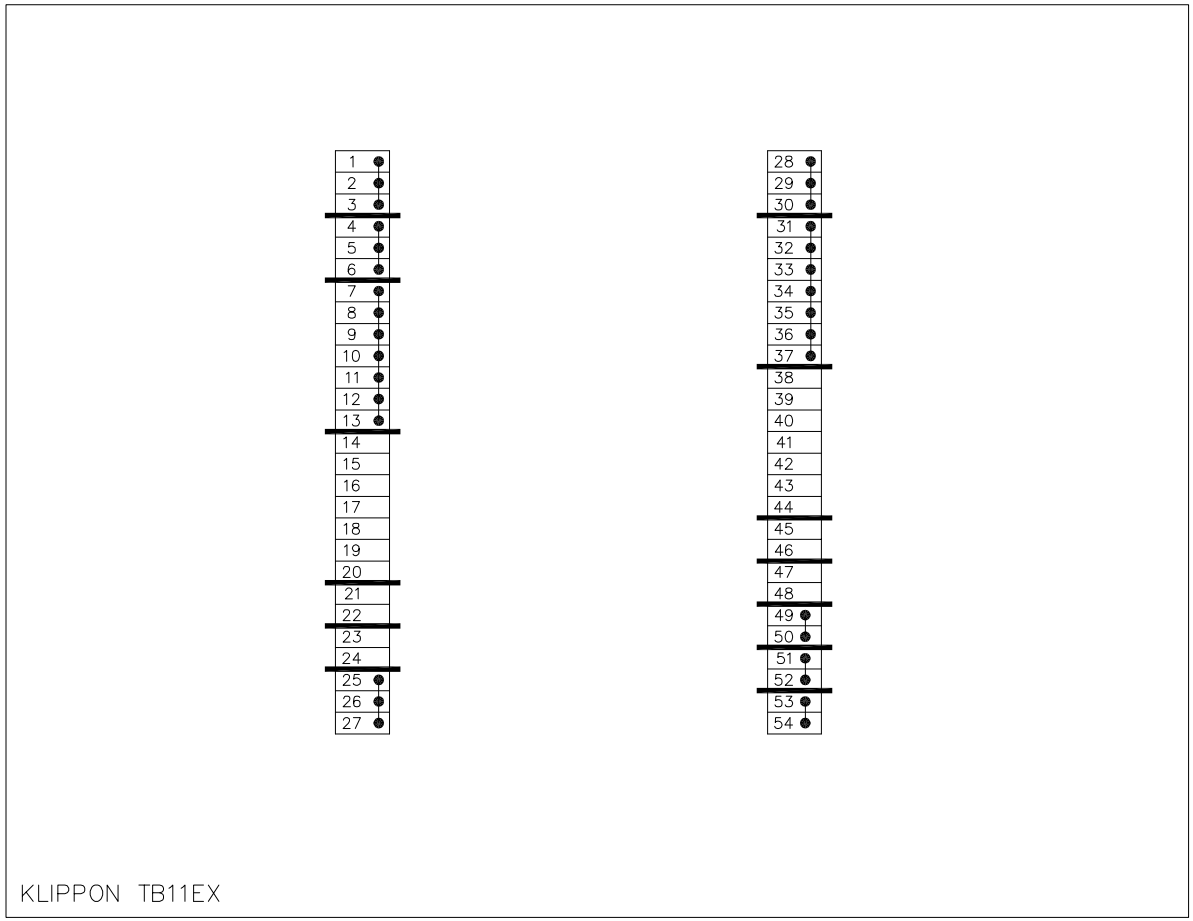
1. BOX AND CONTENTS TO BE CERTIFIED EEx'e'

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R		D.R.R		ORIGINAL ISSUE

PLANT	FINA DERV RAIL OFFLOADING SYSTEM
TITLE	DC JUNCTION BOX INTERNAL LAYOUT
	07/04/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
	P & I DESIGN
	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039018

LABEL:

FINA DERV RAIL LOADING AC JUNCTION BOX



ENCLOSURE TO BE DRILLED FOR THE FOLLOWING ENTRIES (BOTTOM)
1. 11 x 20mm (2 PLUGGED)
2. 2 x 25mm

NOTES

1. BOX & TERMINALS TO BE CERTIFIED EEx'e'

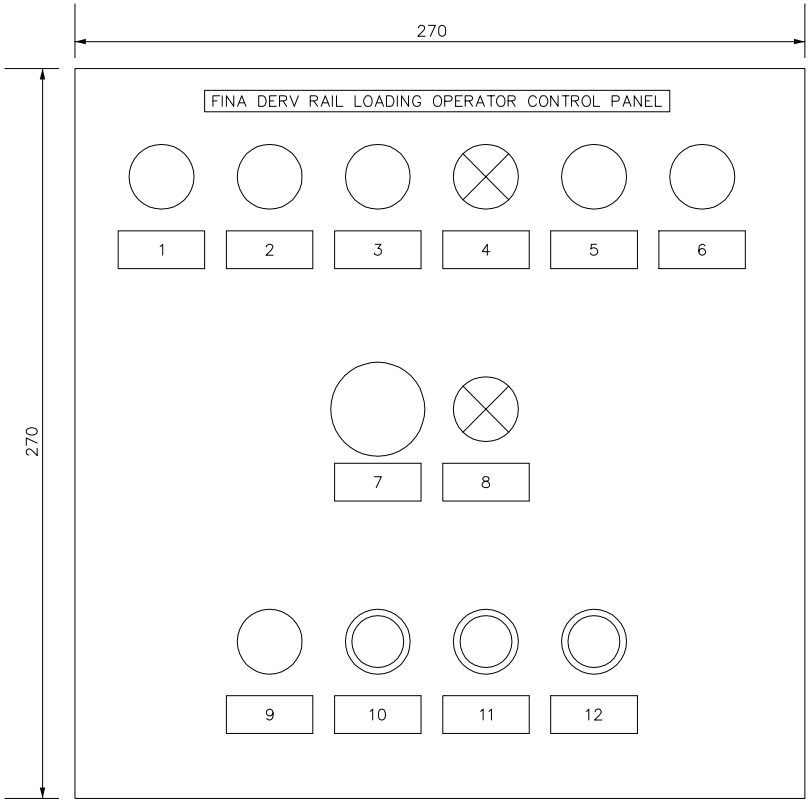
REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R		D.R.R		ORIGINAL ISSUE

PLANT	FINA DERV RAIL OFFLOADING SYSTEM
TITLE	AC JUNCTION BOX INTERNAL LAYOUT
	07/04/99

SIMON Storage Terminals
IMMINGHAM STORAGE Co Ltd,
IMMINGHAM EAST TERMINAL,
IMMINGHAM DOCK, IMMINGHAM,
SOUTH HUMBERSIDE

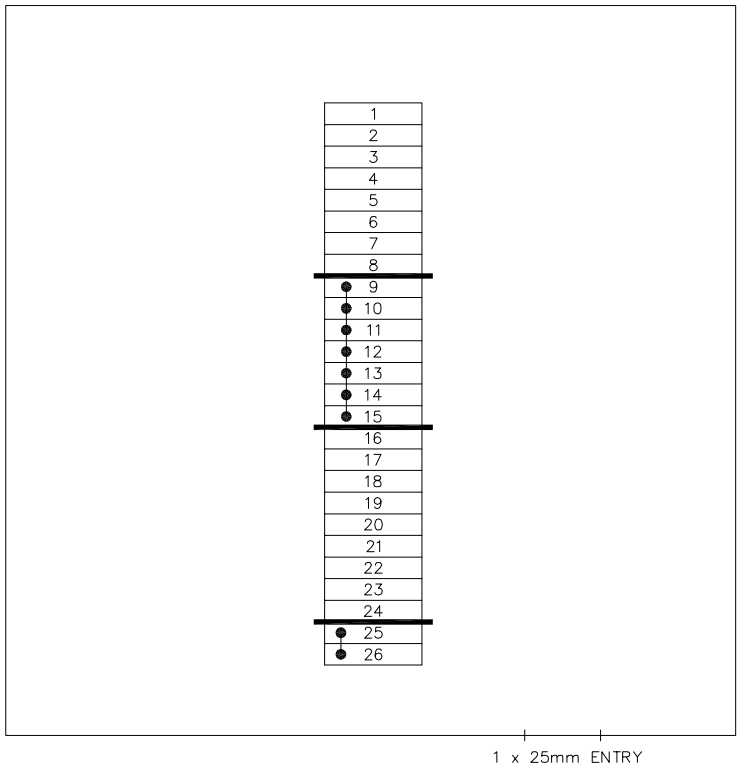
P & I DESIGN

	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039019

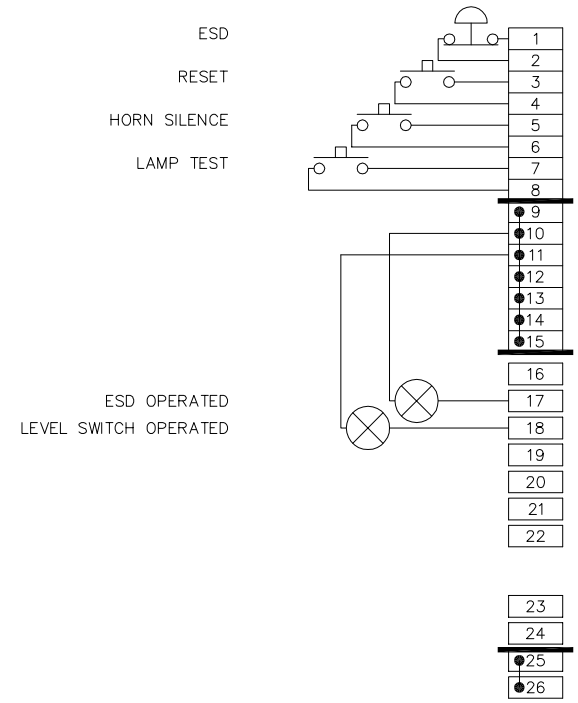


DETAIL A
TERMINAL ARRANGMENT

SEE DETAIL B FOR WIRING DIAGRAM



DETAIL B
WIRING DIAGRAM



ITEM	TOP LINE	BOTTOM LINE	LAMP COLOUR	NOTES
1				HOLE BLANKED
2				HOLE BLANKED
3				HOLE BLANKED
4	LEVEL SWITCH	OPERATED	RED	
5				HOLE BLANKED
6				HOLE BLANKED
7	ESD		N/A	
8	ESD	OPERATED	RED	
9				HOLE BLANKED
10	RESET		N/A	
11	HORN	SILENCE	N/A	
12	LAMP	TEST	N/A	

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	10/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	11/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	LABEL CHANGED
C	06/04/99	A.J.H	A.J.H	D.R.R		D.R.R		GENERAL UPDATE
D	12/05/11	D.B.F	P.P.	M.M.		M.M.		SI760 UPDATE

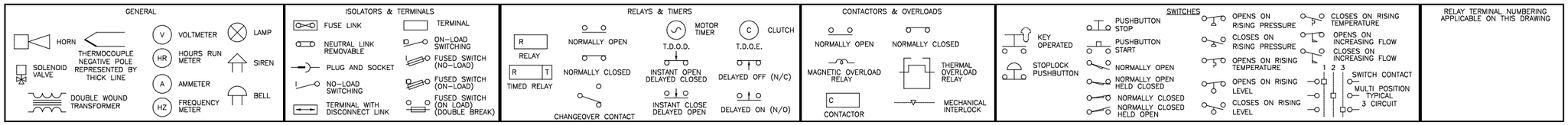
PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	OPERATOR CONTROL PANEL LAYOUT
	06/04/99

SIMON Storage Terminals
IMMINGHAM STORAGE Co Ltd,
IMMINGHAM EAST TERMINAL,
IMMINGHAM DOCK, IMMINGHAM,
SOUTH HUMBERSIDE

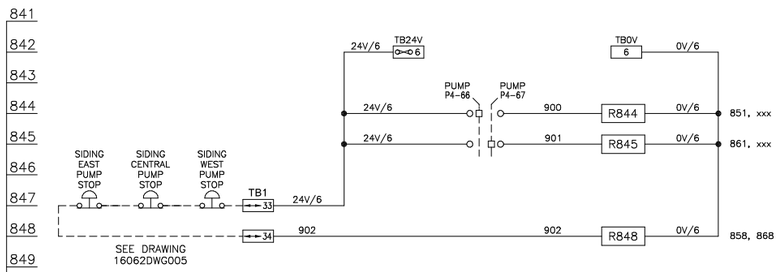
P & I DESIGN

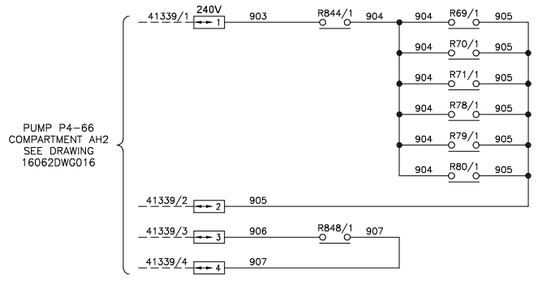
	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039020

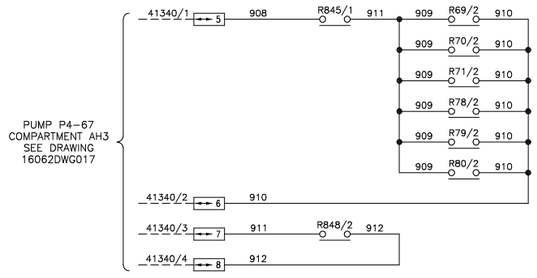
LEGEND OF GRAPHICAL SYMBOLS (ALL CONTACTS SHOWN IN THE DE-ENERGISED STATE)



PUMP SELECTOR P4-66/P4-67







LAST NUMBER USED: 912
SPARE TO: 920

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED								
REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/01/17	P.P.	P.P.	D.R.P	D.R.P	M.M.	M.M.	AS BUILT – 16062 PROJECT
B	24/01/17	P.P.	P.P.	M.M.		M.M.		PUMP STOP DETAILS ADDED

PLANT	INTER TERMINALS IMMINGHAM LTD - EAST TERMINAL
TITLE	4-EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 8

inter terminals
Inter Terminals Immingham Ltd
Immingham East Terminal
Immingham Dock Immingham
N.E. Lincolnshire
DN40 2QW

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039022_DWG

No.2 SWITCHROOM - MCC COMPARTMENT B2E

FIELD

BUSBARS R Y B N

RED / YELLOW / BLUE

FUSED SW
FUSES BS88 160A

150/5A
12 A BK

4K1M

4K2M 1 2 3 4 5 6

4A1
R L1 1
Y L2 3
B L3 5
2 T1 R
4 T2 Y
6 T3 B

02 21 21 E1
02 23 23 E2
02 02 L
20 20 N
20 39
230V AC

4F0
MCB
DOUBLE POLE
2A Type C
02
20

07 21 21 14
04 13
RUN
24 22 22 4K2M 20
23 05

R1/1
02 05 05 4K1M 20

24V/1 11

240Vac/24Vdc
POWER
SUPPLY
E
L N E
24V DC + −

0V 0V 1 0V/1
0V/2
24V 24V 1 24V/1
2A
24V/2
2A

ROSOV VALVES
SEE DRAWING
SI760005_DWG

0V/1 A2 R1 S34 08 A1 08
PILZ SAFETY
RELAY

0V/1 A2 R3T B1 08 A1 08
START−UP OVERRIDE
OMRON H3DE−M2
DELAY ON TIMER RELAY
SET to 30sec : Mode 'A'

08 R3T/1 07
08 R2/1 07

OVERLOAD
UNIT
0V/1 24V/3

0V/1 R2 10

OVERLOAD UNIT
SET @ 100A
RED YELLOW
YELLOW RED
BLUE BLUE
BACK PLATE BLACK

M20132
4 Core

P2/25
3F
55kW

CONTROL STATION
STOP
START
RUNNING

DISCHARGE TEMPERATURE

SUCTION LEVEL

SEE DRAWING SI760001_DWG

24V/3 4x2
1 20800/1
2 20800/2
3 P2/25
4 P2/25
5 20800/3
04 6 20800/4
07 7 20800/5
11 8 20800/6
0V/1 9 20800/7
10 10 20800/8
11
12
13
14
15

GANTRY CONTROL PANEL

4x3
1 1
2 2
3 3
4 4
5 5
6 6
7 7
E
C20790
7 Core

REFER TO LOGIC DRAWING
SI478002_DWG

8 20791/1
9 20791/2
10 20791/3
C20791
3 Core

CRASH STOP
P2/25 P2/25

No.2 SWITCHROOM - MCC COMPARTMENT B2F

NOTES

1) JETTY STOP − RELAY ENERGIZED TO STOP DRIVE.
2) THIS DRAWING REPLACES SITE DRAWING SPW−03−688.DWG

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
H	30/11/10	P.P.	P.P.	D.B.F	D.B.F	M.M.	M.M.	ROSOV VALVE POWER ADDED
I	10/07/15	ISCo	P.P.	D.B.F		M.M.		SITE MODIFICATIONS ADDED

REV	DATE	BY	DRN	CHK'D	APP'D		DESCRIPTION
A	10/12/98	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	19/01/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	01/02/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	SOFT START CHANGED
D	17/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	PANEL TEST MODS.
E	23/06/00	M.M.	A.B.	D.R.R	D.R.R	D.R.R	SOFT START MODS.
F	19/10/10	P.P.	P.P.	D.B.F	D.R.R	M.M.	COMPARTMENT RE−WIRED
G	28/10/10	P.P.	P.P.	D.B.F	D.R.R	M.M.	PUMP CONTROLS REVISED

PLANT: IMMINGHAM STORAGE Co. − EAST TERMINAL

TITLE: P2/25 PUMP MCC DIAGRAM

inter terminals
Immingham Storage Co Ltd
Immingham East Terminal
Immingham Dock Immingham
N.E. Lincolnshire
DN40 2QW

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

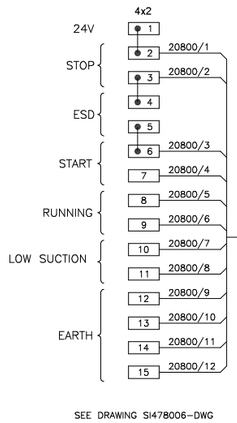
SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI478006_DWG

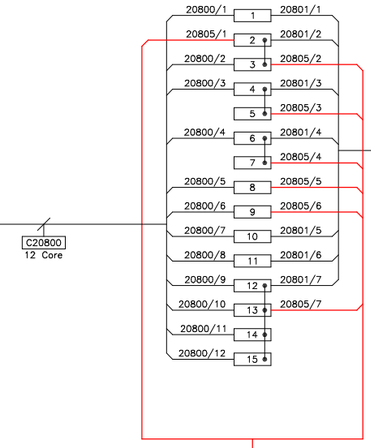
No.2 SWITCHROOM

MCC COMPARTMENT 2BE

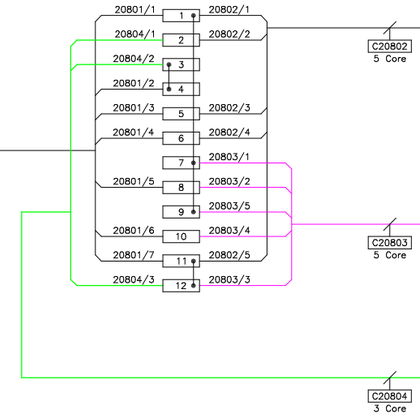


FIELD

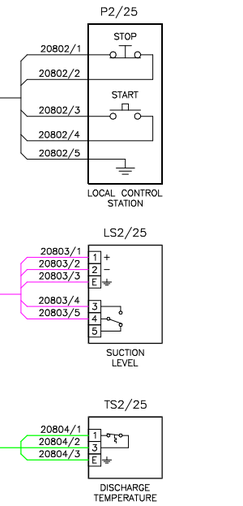
JB2–111



JB2–112

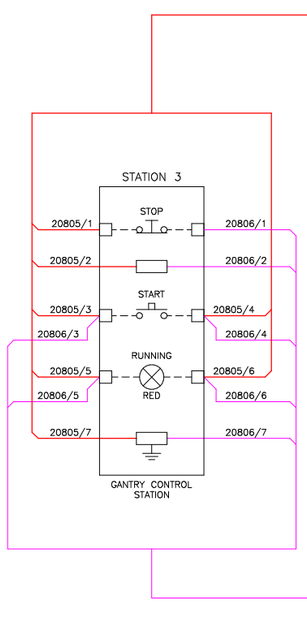


PUMP RAFT

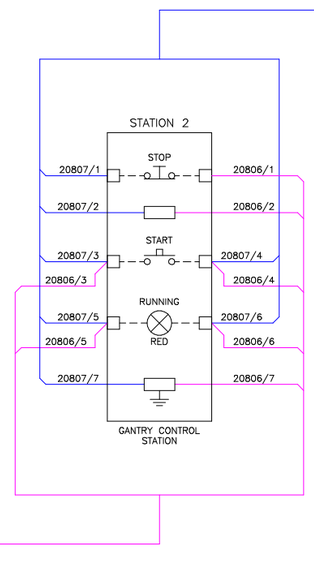


4–EAST RAIL LOADING GANTRY

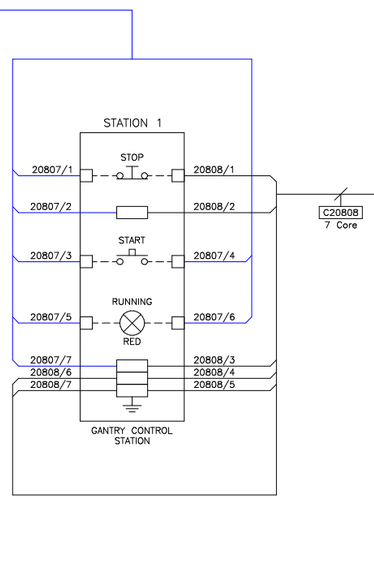
GANTRY TOP – FAR END CONTROL STATION



GANTRY TOP – CENTRE CONTROL STATION

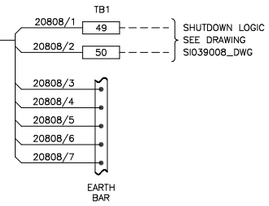


GANTRY TOP – BUFFER END CONTROL STATION



No.4 SWITCHROOM

4E RAIL LOADING LOGIC PANEL



NOTES

1)

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	01/10/10	P.P.	P.P.	D.B.F	D.B.F	M.M.	M.M.	ISSUED FOR CONSTRUCTION
B	28/10/10	P.P.	P.P.	D.B.F	D.B.F	M.M.	M.M.	JB2–112 REVISED
C	11/01/11	D.B.F	P.P.	M.M.	D.B.F	M.M.	M.M.	AS BUILT
D	10/07/15	ISCo	P.P.	M.M.	M.M.	M.M.	M.M.	SITE MODIFICATION ADDED
E	24/01/17	P.P.	P.P.	M.M.		M.M.		AS BUILT – 16062 PROJECT

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM – PUMP P2/25 CONTROL JUNCTION BOX INTERCONNECTION DETAILS

inter terminals
Immingham Storage Co Ltd
Immingham East Terminal
Immingham Dock Immingham
N.E. Lincolnshire
DN40 2QW

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI760001_DWG

No.5 SWITCHROOM

MCC 5/2 COMPARTMENT A1

TB2

STOP	1	50582/1
	2	50582/2
START	3	50582/3
	4	50582/4
INSTRUMENT POWER	5	50582/5
	6	50582/6
LOW SUCTION	7	50582/7
DISCHARGE TEMP.	8	50582/8
RUNNING	9	50582/9
EARTH	10	50582/10
	11	50582/11
	12	50582/12
STOP	13	50585/1
	14	50585/2
START	15	50585/3
	16	50585/4
RUNNING	17	50585/5
	18	50585/6
EARTH	19	50585/7

REFERENCE DRAWING SI208102_DWG

C50485 7 Core

C50486 7 Core

FIELD

JB5/61

C50582 12 Core

50582/1	1	50583/1
50582/2	2	50583/2
50582/3	3	50583/3
50582/4	4	50583/4
50582/5	5	50584/1
50582/6	6	50584/2
	7	50584/4
50582/7	8	50584/5
	9	50585/1
50582/8	10	50585/2
50582/9	11	
50582/10	12	
50582/11		50585/3
50582/12		50584/3
		50583/5

PUMP RAFT

C50583 5 Core

C50584 5 Core

C50585 3 Core

P5/12
STOP
START
50583/1
50583/2
50583/3
50583/4
50583/5
LOCAL CONTROL STATION

LS5/12
50584/1 1 +
50584/2 2 −
50584/3 E
50584/4 3
50584/5 4 5
SUCTION LEVEL

TS5/12
50585/1 1
50585/2 3
50585/3 E
DISCHARGE TEMPERATURE

4—EAST RAIL LOADING GANTRY

GANTRY TOP — BUFFER END CONTROL STATION

STATION 1
STOP
START
RUNNING
RED

50485/1		50486/1
50485/2		50486/2
50485/3		50485/4
50486/3		50486/4
50485/5		50485/6
50486/5		50486/6
50485/7		50486/7

GANTRY CONTROL STATION

GANTRY TOP — CENTRE CONTROL STATION

C50487 7 Core

STATION 2
STOP
START
RUNNING
RED

50487/1		50486/1
50487/2		50486/2
50487/3		50487/4
50486/3		50486/4
50487/5		50487/6
50486/5		50486/6
50487/7		50486/7

GANTRY CONTROL STATION

GANTRY TOP — FAR END CONTROL STATION

STATION 3
STOP
START
RUNNING
RED

50487/1		50488/1
50487/2		50488/2
50487/3		50487/4
50487/5		50487/6
50487/7		

GANTRY CONTROL STATION

C50488 2 Core

No.4 SWITCHROOM

4E RAIL LOADING LOGIC PANEL

TB1

50488/1	51	SHUTDOWN LOGIC SEE DRAWING SI039008_DWG
50488/2	52	

NOTES
1)

bulk liquid & gas network

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	01/10/10	P.P.	P.P.	D.B.F	D.B.F	M.M.	M.M.	ISSUED FOR CONSTRUCTION
B	11/01/11	D.B.F	P.P.	M.M.		M.M.		AS BUILT

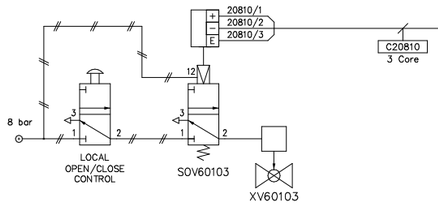
PLANT	IMMINGHAM STORAGE Co. — EAST TERMINAL
TITLE	4—EAST RAIL LOADING SYSTEM — PUMP P5/12 CONTROL JUNCTION BOX INTERCONNECTION DETAILS
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI760002_DWG

IMMINGHAM STORAGE Co Ltd.
IMMINGHAM EAST TERMINAL,
IMMINGHAM DOCK,
IMMINGHAM,
SOUTH HUMBERSIDE

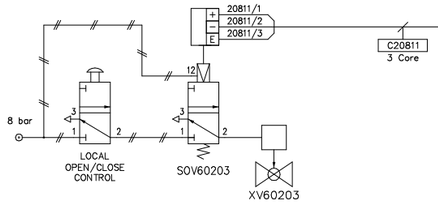
P & I Design Ltd
Tel. 01642 617444
www.pidesign.co.uk

600 SERIES TANK FARM

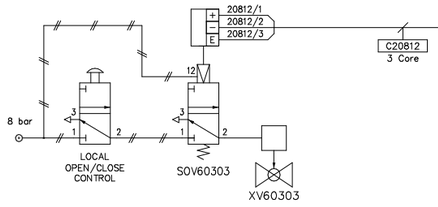
TANK 601 RAIL LOADING VALVE XV60103



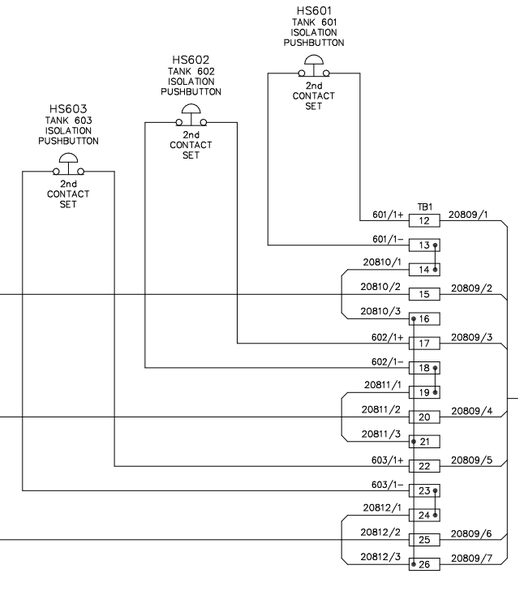
TANK 602 RAIL LOADING VALVE XV60203



TANK 603 RAIL LOADING VALVE XV60303



JB4/89
TANK ISOLATION PUSHBUTTON JUNCTION BOX

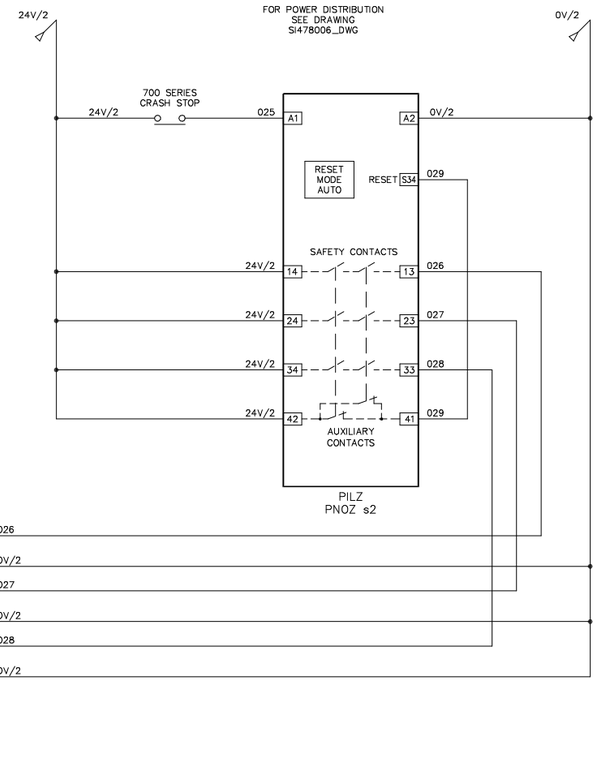


NOTE

PUSHBUTTON CONTACT SET 1 IS FED FROM No.4 SWITCHROOM AND IS PART OF THE SIS SYSTEM

SAFE AREA

No.2 SWITCHROOM - MCC COMPARTMENT B2F



NOTES
1)

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	30/11/10	P.P.	P.P.	D.B.F	D.B.F	M.M.	M.M.	ISSUED FOR CONSTRUCTION
B	31/08/11	P.P.	P.P.	D.B.F		M.M.		AS BUILT

simon
bulk liquid & gas network

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM TANK 601, 602 & 603 RAIL LOADING VALVE LOOP SHEET
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI760005_DWG

IMMINGHAM STORAGE Co Ltd,
IMMINGHAM EAST TERMINAL,
IMMINGHAM DOCK,
IMMINGHAM,
SOUTH HUMBERSIDE

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

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	REMARKS
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	
740900	TBA	TBA	5	EXISTING SUPPLY	EExe	BUSBAR CHAMBER	EExe		
740901	J03	2.5	3	240V DISTRIBUTION BOARD	EExe	CONTROL PANEL	EExe		
740902	J07	1.5	7	CONTROL PANEL	EExe	MCC FINA DERV PUMP SOFT START	EExe		
740903	J04	1.5	4	CONTROL PANEL	EExe	MCC FINA DERV PUMP SOFT START	EExe		
740904	E02I	0.75	2 pair	COMMUNICATIONS INTERFACE PANEL	EExe	JUNCTION BOX	EExe		
740905	J04	70	4	MCC FINA DERV PUMP SOFT START	EExe	55 KW PUMP	EExe		
740906	J05	1.5	5	MCC FINA DERV PUMP SOFT START	EExe	PUMP LOCAL JUNCTION BOX	EExe		
740907	J03	1.5	3	PUMP LOCAL JUNCTION BOX	EExe	TEMPERATURE SWITCH HIGH	EExe		
740908	J05	1.5	5	PUMP LOCAL JUNCTION BOX	EExe	STOP/START	EExe		
740909	E02I	0.75	2 pair	CONTROL PANEL	EExe	MUX 1 & 2 PANEL	EExe		
740910	J19	1.5	19	CONTROL PANEL	EExe	DC JUNCTION BOX	EExe		
740911	J07	2.5	7	CONTROL PANEL	EExe	NORTH SIDING DANLOAD 240V AC ISOL.	EExe		
740912	J03	2.5	3	CONTROL PANEL	EExe	MUX ANTI-COND. HEATER ISOLATOR	EExe		
740913	J07	2.5	7	CONTROL PANEL	EExe	SOUTH SIDING DANLOAD 240V AC ISOL.	EExe		
740914	J19	1.5	19	CONTROL PANEL	EExe	DC JUNCTION BOX	EExe		
740915	E02I	0.75	2 pair	CONTROL PANEL	EExe	MUX 3 & 4 PANEL	EExe		
740916	E02I	0.75	2 pair	COMMUNICATIONS INTERFACE PANEL	EExe	JUNCTION BOX	EExe		
740917	J19	1.5	19	OPERATORS CONTROL PANEL	EExe	DC JUNCTION BOX	EExe		
740918	J02	1.5	2	ESD @ CONTROL STATION END	EExe	DC JUNCTION BOX	EExe		
740919	J02	1.5	2	ESD @ FAR END	EExe	DC JUNCTION BOX	EExe		
740920	J02	1.5	2	HORN	EExe	DC JUNCTION BOX	EExe		
740921	J02	1.5	2	DC JUNCTION BOX	EExe	XSV1	EExe		
740922	J02	1.5	2	DC JUNCTION BOX	EExe	XSV2	EExe		
740923	J02	1.5	2	DC JUNCTION BOX	EExe	XSV3	EExe		
740924	J02	1.5	2	DC JUNCTION BOX	EExe	XSV7	EExe		
740925	J02	1.5	2	DC JUNCTION BOX	EExe	XSV8	EExe		
740926	J02	1.5	2	DC JUNCTION BOX	EExe	XSV9	EExe		
740927									
740928									
740929									
740930									
							TOTAL		

Note : Refer to P&I Design Cable Specifications for details on Cable Type.

REFERENCE DRAWINGS		REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
		A	12.03.99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
		B	09.04.99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
		C	02.07.99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	740994 ADDED
		D	24.12.10	D.B.F	D.B.F	MM	MM	MM	MM	SI760 Update
		E	22.04.11	D.B.F	D.B.F	MM		MM		As Built

PLANT	4 East Rail Loading
TITLE	Cable Schedule
SIMON Storage Terminals	P & I DESIGN
	SHEET 1 OF 4
CLIENT DRG No	REF NO. SI039100_SCH

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	REMARKS
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	
740931	J07	2.5	7	DANLOAD 240V ISOLATOR (NORTH SIDING)	EExe	AC JUNCTION BOX	EExe		
740932	J03	2.5	3	MUX ANTI COND HEATER ISOLATOR	EExe	AC JUNCTION BOX	EExe		
740933	J07	2.5	7	DANLOAD 240V ISOLATOR (SOUTH SIDING)	EExe	AC JUNCTION BOX	EExe		
740934									
740935									
740936									
740937									
740938	J02	1.5	2	DC JUNCTION BOX	EExe	XSV4	EExe		
740939	J02	1.5	2	DC JUNCTION BOX	EExe	XSV5	EExe		
740940	J02	1.5	2	DC JUNCTION BOX	EExe	XSV6	EExe		
740941	J02	1.5	2	DC JUNCTION BOX	EExe	XSV10	EExe		
740942	J02	1.5	2	DC JUNCTION BOX	EExe	XSV11	EExe		
740943	J02	1.5	2	DC JUNCTION BOX	EExe	XSV12	EExe		
740944									
740945									
740946									
740947									
740948	J03	1.5	3	AC JUNCTION BOX	EExe	MUX 1 & 2 HEATER EXE TERMINALS	EExe		
740949	J03	1.5	3	AC JUNCTION BOX	EExe	MUX 3 & 4 HEATER EXE TERMINALS	EExe		
740950									
740951									
740952	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XV1 OPEN/CLOSED LIMITS	EExe		
740953	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XCV1 OPEN/CLOSED LIMIT	EExe		
740954	E01I	0.75	1 pair	MUX 1 & 2 PANEL	EExe	LS1 HIGH LIMITS	EExe		
740955	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XV2 OPEN/CLOSED LIMITS	EExe		
740956	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XCV2 OPEN/CLOSED LIMITS	EExe		
740957	E01I	0.75	1 pair	MUX 1 & 2 PANEL	EExe	LS2 HIGH LEVEL	EExe		
740958	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XV3 OPEN/CLOSED LIMITS	EExe		
740959	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XCV3 OPEN/CLOSED LIMITS	EExe		
740960	E01I	0.75	1 pair	MUX 1 & 2 PANEL	EExe	LS3 HIGH LEVEL	EExe		
740961	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XV7 OPEN/CLOSED LIMITS	EExe		
							TOTAL		

Note : Refer to P&I Design Cable Specifications for details on Cable Type.

REFERENCE DRAWINGS		REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
		A	12.03.99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
		B	09.04.99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
		C	02.07.99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	740994 ADDED
		D	24.12.10	D.B.F	D.B.F	MM	MM	MM	MM	SI760 Update
		E	22.04.11	D.B.F	D.B.F	MM		MM		As Built

PLANT	4 East Rail Loading
TITLE	Cable Schedule
SIMON Storage Terminals	P & I DESIGN
	SHEET 2 OF 4
CLIENT DRG No	REF NO. SI039100_SCH

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	REMARKS
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	
740962	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XCV7 OPEN/CLOSED LIMITS	EExe		
740963	E01I	0.75	1 pair	MUX 1 & 2 PANEL	EExe	LS7 HIGH LEVEL	EExe		
740964	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XV8 OPEN/CLOSED LIMITS	EExe		
740965	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XCV8 OPEN/CLOSED LIMITS	EExe		
740966	E01I	0.75	1 pair	MUX 1 & 2 PANEL	EExe	LS8 HIGH LEVEL	EExe		
740967	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XV9 OPEN/CLOSED LIMITS	EExe		
740968	E02I	0.75	2 pair	MUX 1 & 2 PANEL	EExe	XCV9 OPEN/CLOSED LIMITS	EExe		
740969	E01I	0.75	1 pair	MUX 1 & 2 PANEL	EExe	LS9 HIGH LEVEL	EExe		
740970	E01I	0.75	1 pair	MUX 3 & 4 PANEL	EExe	LS4 HIGH LEVEL	EExe		
740971	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XCV4 OPEN/CLOSED LIMITS	EExe		
740972	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XV4 OPEN/CLOSED LIMITS	EExe		
740973	E01I	0.75	1 pair	MUX 3 & 4 PANEL	EExe	LS5 HIGH LEVEL	EExe		
740974	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XCV5 OPEN/CLOSED LIMITS	EExe		
740975	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XV5 OPEN/CLOSED LIMITS	EExe		
740976	E01I	0.75	1 pair	MUX 3 & 4 PANEL	EExe	LS6 HIGH LEVEL	EExe		
740977	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XCV6 OPEN/CLOSED LIMITS	EExe		
740978	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XV6 OPEN/CLOSED LIMITS	EExe		
740979	E01I	0.75	1 pair	MUX 3 & 4 PANEL	EExe	LS10 HIGH LEVEL	EExe		
740980	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XCV10 OPEN/CLOSED LIMITS	EExe		
740981	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XV10 OPEN/CLOSED LIMITS	EExe		
740982	E01I	0.75	1 pair	MUX 3 & 4 PANEL	EExe	LS11 HIGH LEVEL	EExe		
740983	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XCV11 OPEN/CLOSED LIMITS	EExe		
740984	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XV11 OPEN/CLOSED LIMITS	EExe		
740985	E01I	0.75	1 pair	MUX 3 & 4 PANEL	EExe	LS12 HIGH LEVEL	EExe		
740986	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XCV12 OPEN/CLOSED LIMITS	EExe		
740987	E02I	0.75	2 pair	MUX 3 & 4 PANEL	EExe	XV12 OPEN/CLOSED LIMITS	EExe		
740988	F05	0.75	5 pair	DC JB	EExe	COMMUNICATIONS INTERFACE PANEL	EExe		
740989									
							TOTAL		

Note : Refer to P&I Design Cable Specifications for details on Cable Type.

REFERENCE DRAWINGS		REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
		A	12.03.99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
		B	09.04.99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
		C	02.07.99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	740994 ADDED
		D	24.12.10	D.B.F	D.B.F	MM	MM	MM	MM	SI760 Update
		E	22.04.11	D.B.F	D.B.F	MM		MM		As Built

PLANT	4 East Rail Loading
TITLE	Cable Schedule
SIMON Storage Terminals	P & I DESIGN
	SHEET 3 OF 4
CLIENT DRG No	REF NO. SI039100_SCH

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	REMARKS
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	
740990									
740991									
740992									
740993									
740994	E05	0.75	5 pair	CONTROL PANEL	EExe	COMMUNICATIONS INTERFACE PANEL	EExe		
740995									
740996	TBA	TBA	TBA	COMMUNICATIONS INTERFACE PANEL	EExe	POLLING PC	EExe		
740997	J02	1.5	2	ESD @ CENTRE	EExe	DC JUNCTION BOX	EExe		
740998									
740999									
741000									
741001									
741002									
741003									
741004									
741005									
741006									
741007									
741008									
741009									
741010									
741011									
741012									
741013									
741014									
741015									
741016									
741017									
741018									
							TOTAL		

Note : Refer to P&I Design Cable Specifications for details on Cable Type.

REFERENCE DRAWINGS		REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
		A	12.03.99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
		B	09.04.99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
		C	02.07.99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	740994 ADDED
		D	24.12.10	D.B.F	D.B.F	MM	MM	MM	MM	SI760 Update
		E	22.04.11	D.B.F	D.B.F	MM		MM		As Built

PLANT	4 East Rail Loading
TITLE	Cable Schedule
SIMON Storage Terminals	P & I DESIGN
	SHEET 4 OF 4
CLIENT DRG No	REF NO. SI039100_SCH

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	REMARKS
P2-25									
M20132	*J04*	*70*	*4 Core*	*No.2 Switchroom MCC Compartment 2BE*	*ATEX II 2 G EExed*	*P2-25 - Bund R Rail Loading Pump*	*ATEX II 2 G EExed*	*100*	*Cable Extended*
M20132/1	J04	70	4 Core	No.2 Switchroom MCC Compartment 2BE	ATEX II 2 G EExed	P2-25 - Bund R Rail Loading Pump	ATEX II 2 G EExed	160	*Extention*
C20133	J04	N/A	4 Core	No.2 Switchroom MCC Compartment 2BE	ATEX II 2 G EExed	P2-25 Local Controls	ATEX II 2 G EExed	100	Remove
C20134	J02	N/A	2 Core	P2-25 Local Controls	ATEX II 2 G EExed	TS2-25 Discharge Temperature Switch	ATEX II 2 G EExed	5	Remove
C20800	J12	1.5	12 Core	No.2 Switchroom MCC Compartment 2BE	ATEX II 2 G EExed	JB2/111 - P2-25 Junction Box	ATEX II 2 G EExed	100	
C20801	J07	1.5	7 Core	JB2/111 - P2-25 Junction Box	ATEX II 2 G EExed	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	5	
C20802	J05	1.5	5 Core	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	P2-25 Stop/Start Station	ATEX II 2 G EExed	5	
C20803	J05	1.5	5 Core	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	LS2-25 Dry Run Protection Switch	ATEX II 2 G EExed	5	
C20804	J03	1.5	3 Core	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	TS2-25 Discharge Temperature Switch	ATEX II 2 G EExed	5	
C20805	J07	1.5	7 Core	JB2/111 - P2-25 Junction Box	ATEX II 2 G EExed	P2-25 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	Reuse C40279	Station 3 @ Far End
C20806	J07	1.5	7 Core	P2-25 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	P2-25 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 2 @ Centre
C20807	J07	1.5	7 Core	P2-25 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	P2-25 Stop/Start/Run Station 1 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 1 @ Control End
C20808	J02	1.5	2 Core	P2-25 Stop/Start/Run Station 1 at 4 East rail Gantry	ATEX II 2 G EExed	4 East Switch Room Rail Loading Logic Panel	ATEX II 2 G EExed	TBC	Re-use C40279 7c Option
P5-12									
C50485	J07	1.5	7 Core	No.5 Switchroom MCC 5/2 Compartment A1	ATEX II 2 G EExed	P5-12 Stop/Start/Run Station 1 at 4 East Rail Gantry	ATEX II 2 G EExed	TBC	Station 1 @ Control End
C50486	J07	1.5	7 Core	P5-12 Stop/Start/Run Station 1 at 4 East Rail Gantry	ATEX II 2 G EExed	P5-12 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 2 @ Centre
C50487	J07	1.5	7 Core	P5-12 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	P5-12 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 3 @ Far End
C50488	J02	1.5	2 Core	P5-12 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	4 East Switch Room Rail Loading Logic Panel	ATEX II 2 G EExed	TBC	Re-use X40356 1 Pr Option
4 EAST RAIL GANTRY									
C40820	J03	1.5	3 Core	JB 4-86 DC Junction Box	ATEX II 2 G Eexed	ESD @ Gantry Top Control End	ATEX II 2 G EExed	TBC	
C40821	J03	1.5	3 Core	JB 4-86 DC Junction Box	ATEX II 2 G Eexed	ESD @ Gantry Top Centre	ATEX II 2 G EExed	TBC	
C40822	J03	1.5	3 Core	JB 4-86 DC Junction Box	ATEX II 2 G Eexed	ESD @ Gantry Top Far End	ATEX II 2 G EExed	TBC	
C40823	J03	1.5	3 Core	No.4 Switchroom Rail Loading Control Panel	ATEX II 2 G Eexed	ESD Valve Solenoid	ATEX II 2 G EExed	TBC	
4 EAST SWITCHROOM									
C40824	J02	1.5	2 Core	No.4 Switchroom Rail Loading Control Panel	ATEX II 2 G Eexed	No.4 Switchroom Extension Annunciator Node Panel	ATEX II 2 G EExed	30	
C40825	J02	1.5	2 Core	No.4 Switchroom Rail Loading Control Panel	ATEX II 2 G Eexed	No.4 Switchroom Dupline Panel	ATEX II 2 G EExed	20	
							TOTAL	695	

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

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	30/09/10	DBF	DBF	MM		MM		Issued for Tender

PLANT	Immingham East - 4 East
TITLE	4 East Rail Loading Cable Schedule
	SHEET 1 OF 1
CLIENT DRG No	REF No. SI760001_SCH

SIMON Storage Terminals

P & I DESIGN

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	REMARKS
C20809	J07	1.5	7 Core	No.2 Switchroom MCC Compartment B2F	ATEX II 2 G EExed	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	100	Note 2
C20810	J03	1.5	3 Core	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	Tank 601 Rail Loading Valve - XSV60103 Soleniod	ATEX II 2 G EExed	220	
C20811	J03	1.5	3 Core	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	Tank 602 Rail Loading Valve - XSV60203 Soleniod	ATEX II 2 G EExed	190	
C20812	J03	1.5	3 Core	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	Tank 603 Rail Loading Valve - XSV60303 Soleniod	ATEX II 2 G EExed	160	
							TOTAL	670	

NOTES:

1) Refer to P&I Design Cable Specifications for details on Cable Type. 2) Cables to be relocated to ROSOV Control Panel in future, allow spare length.

	Denotes Cable Modified
	Denotes Cable Deleted
	Denotes Cable Added
	Future Cables

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	30/11/10	DBF	DBF	MM		MM		Issued for Construction

PLANT	Immingham East - 2 East
TITLE	600 Series ROSOVs Cable Schedule
	SHEET 1 OF 1
CLIENT DRG No	REF No. SI760002_SCH

							ACTION		Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close	Close		Stop	Stop	Stop						Alarm	Alarm	Alarm	Alarm				Radio	Radio	Radio	Radio	Radio										
							VALVES		Rail Loading ESD Valve	XCV1 - North Siding Rail Loading 1	XCV2 - North Siding Rail Loading 2	XCV3 - North Siding Rail Loading 3	XCV4 - North Siding Rail Loading 4	XCV5 - North Siding Rail Loading 5	XCV6 - North Siding Rail Loading 6	XCV7- SouthSiding Rail Loading 7	XCV8 - SouthSiding Rail Loading 8	XCV9 - SouthSiding Rail Loading 9	XCV10 - SouthSiding Rail Loading 10	XCV11 - SouthSiding Rail Loading 11	XCV12 - SouthSiding Rail Loading 12		P2-25 - Bund R Delivery Pump	P5-12 - Arcton Delivery Pump Rail Selected	P5-12 - Arcton Delivery Pump Stripping Selected	**SUMP PUMPS**	P5-13 -Arcton Pump Raft	**OPERATIONS OFFICE ANNUNCIATOR**	Site Fire Window Activated	2 East ESD Operated window Activated	4 East ESD Operated Window Activated	4 East Rail Gantry ESD Operated Window Activated			**RADIO BROADCAST**	Site Fire Critical Alarm	2 East ESD Critical Alarm	4 East ESD Critical Alarm	4 East Rail Gantry ESD Critical Alarm												
ALARM/TRIP INITIATOR	**TAG**	**TYPE**	**CALIBRATION**	**UNITS**	**SET**	**ORIGIN**																																											**NOTES**
ESD RELAY R82																																																	Gantry Control Panel Reset Required
Site Fire Alarm System	FIRE								H	H	H	H	H	H	H	H	H	H	H	H	H		H	H	H*																								* Not Part of R82, Via No.5 Switchroom
4 East ESD	4E ESD								H	H	H	H	H	H	H	H	H	H	H	H	H		H	H								H																	
4 East Rail Gantry ESD	4ER ESD								H	H	H	H	H	H	H	H	H	H	H	H	H		H	H									H																
High Level Multiplexer Fault	Mux 1,2,3 & 4								H	H	H	H	H	H	H	H	H	H	H	H	H		H	H										H															
ESD																																																	
2 East ESD	2E ESD																						H	H	H								H																
HIGH LEVEL RELAY R44																																																	Gantry Control Panel Reset Required
Rail Car 1 - North Siding	LS1	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 2 - North Siding	LS2	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 3 - North Siding	LS3	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 4 - North Siding	LS4	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 5 - North Siding	LS5	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 6 - North Siding	LS6	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 7 - SouthSiding	LS7	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 8 - SouthSiding	LS8	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 9 - SouthSiding	LS9	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 10 - SouthSiding	LS10	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 11 - SouthSiding	LS11	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
Rail Car 12 - SouthSiding	LS12	Float	Switch						H	H	H	H	H	H	H	H	H	H	H	H	H		H	H																									
P2-25 PUMP CONTROLS																																																	
Low Suction Level	LS2-25	Vib'	Switch																				H																											
High Discharge Temperature	TS2-25	Filled	Switch	DegC	40																		H																										
Local Stop			Pushbutton																				H																										
4 East Rail Gantry Stop			Pushbutton																				H																										
P5-12 PUMP CONTROLS																																																	
Low Suction Level	LS5-12	Vib'	Switch																					H	H																									
High Discharge Temperature	TS5-12	Filled	Switch	DegC	40																			H	H																									
Local Stop			Pushbutton																					H	H																									
4 East Rail Gantry Stop			Pushbutton																					H																									
MCC Stop			Pushbutton																					H	H																									
P5-13 PUMP CONTROLS																																																	
Low Sump Level	LS5-13	Float	Switch																																															
High Discharge Temperature	TS5-13	Filled	Switch	DegC	40																																												
Local Stop			Pushbutton																																														
MCC Stop			Pushbutton																																														
Pump Thermister	TH5-13	TH		DegC	TBC																																												
SERVICES																																																	
Air Failure									H	H	H	H	H	H	H	H	H	H	H	H	H																												
Power Failure									H	H	H	H	H	H	H	H	H	H	H	H	H		H	H	H		H																					

ABBREVIATIONS	NOTES	REFERENCE DRAWINGS		REV	DATE	BY	DRN	CHK'D		APPD		DESCRIPTION
ESD - Emergency Shutdown				A	08.09.10	DBF	DBF	MM	MM	MM	MM	Original Issue For Comments
				B	24.12.10	DBF	DBF	MM		MM		As Built -Temperatures Changed to 40 DegC
H - Hardwired												
S - Software												

PLANT Simon Immingham Storage Co East Terminal

TITLE 4 East Rail Loading Trip Matrix

simon bulk liquid & gas network

P & I DESIGN

SHEET 1 OF 1

CLIENT DRG

REF N0. SI760100_SCH

P & I Design Ltd

Process Instrumentation Consultancy & Design

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

SIMON STORAGE

ISCo EAST TERMINAL

4 EAST RAIL LOADING MODIFICATIONS

INSTALLATION SPECIFICATION

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	30.09.10	D.B.Faulkner	MM	MM	Issued for Tender	
						Document No. SI760001_INS
						Page 1 of 14

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CONTENTS

APPENDIX

Revision History

Revision A – Issue for tender.

1 INSTRUCTIONS TO TENDERERS

1.1 Introduction

This document details the scope of work to provide the cabling and containment installation for 4 east Rail Loading modifications at ISCo East Terminal. It is to be read in conjunction with specification SI003001_INS - Standard Specification for Instrument & Electrical Installations.

The Tender shall be in respect of the proposed works and shall be completed and submitted strictly in accordance with these instructions to tenderers.

1.2 Date, Time and Mode of Delivery

The completed tender packages together with any covering letter and with the remainder of the containing document all in originally bound form (taking account of additions/omissions, etc., notified in writing during the tender period) together with other requirements, shall be submitted by the time stated in the purchaser's letter of invitation to tender.

The envelope must not be marked nor delivered in any way which might disclose the identity of the tenderer.

1.3 Alterations of Tender Documents

No authorised alteration shall be made in the Tender or the accompanying documents.

1.4 Enquiries to be Made Concerning the Tender

Any query in connection with the tender shall be submitted to:-

Mr D.B.Faulkner
P & I Design Limited
2 Reed Street
Gladstone Industrial Estate
Thornaby.
Tel: (01642) 617444
Fax: (01642) 616447
df@pidesign.co.uk

A site visit is required to ensure that the work associated with this project is fully understood. The site visit is to be organised by contacting D.B.Faulkner at P & I Design Ltd.

1.5 Sufficiency of Tender

Before submitting a tender the tenderer should obtain all information, familiarise himself with means of access, location, extent and nature of the site, extent and nature of the services to be provided, conditions under which the services and works will be carried out, conditions affecting supply of staff and labour and any other matters which may affect his tender. applications for costs etc. on the ground of lack of knowledge in any respect of the aforementioned will be refused.

1.6 Confidentiality

The particulars of this document and any tender submitted in respect hereof are private and confidential and shall not be used for any purpose other than the proposed contract. In the event of a tender not being submitted or accepted all documents and drawings shall be returned to the person named in Clause 4 of these instructions to tenderers.

1.7 Contravention of Tender Requirements

Contravention of any of the requirements of these instructions to tenderers with regard to tendering shall render any tender concerned liable to disqualification at the sole discretion of Simon Storage Ltd.

1.8 Contract Agreement

The contractor shall, when called upon, enter into and execute a contract agreement.

1.9 Information to be Supplied by the Purchaser

In addition to the information to be provided by the purchaser prior to the contract award the tenderer shall attach a schedule of any further information which may be required from the purchaser, together with a programme indicating when it will be required.

1.10 Tender Price

The contractor shall make his tender open for acceptance for a period of one month from date of receipt by the Purchaser.

2 GENERAL REQUIREMENTS

Detailed in document SI003001_INS - Standard Specification for Instrument & Electrical Installation Section 2 with the following additional information -

Section 2.2 – Requirement

A “For Construction” drawing package will be issued prior to contract. Modifications from the “For Tender” package will be highlighted.

The contractor is to supply details of labour usage to complete the installation within the programme. The contractor shall also supply day rate costs.

Normal site working hours 8.00am to 6.00pm Monday to Friday.

Section 2.4 - Installation

All scaffolding requirements will be included within the contractor’s Scope of Work.

3 METHODS OF WORK AND MATERIALS

Detailed in document SI003001.INS - Standard Specification for Instrument & Electrical Installation Section 3 with the following additional information -

Section 3.5 – Segregation of Service

The schedules will indicate cables exceeding 110V AC.

Section 3.6 – Fixings

No fixings shall be made to the bund walls.

Section 3.8.3 – Equipment Earthing

Main earth bars within switchrooms.

Section 3.11.1 – Testing

No commissioning will commence until handover of cable test certificates and CompEx inspections by the contractor. The contractor will be responsible for providing installation handover to the engineer in good time to progress the commissioning programme.

Section 3.11.2 – Commissioning

The contractor will not be required to carry out commissioning. The contractor will not power any equipment without the consent of the engineer.

Pneumatics

The contractor shall supply all labour and materials to install or modify the pneumatic supplies to all actuated valves utilising 6mm OD black PVC tubing and push in fittings. Each tube shall be identified with durable, non-corrodible tags, of the Critchley K type or equivalent, inscribed with the valve tag number and fixed securely to the tube.

A distribution Manifold will be installed by the mechanical contractor within 10 metres of the valve. The contractor shall use this length for his costing for every valve.

4 SCOPE OF WORK

As part of the 4 East Rail Loading project P2-25 will be re-located from No.2 East loading yard to Bund R pump raft, P2-25 and P5-12 pump control systems will be modified. All inline batching equipment and associated electrical equipment will be removed to allow for line piging.

The scope of work is as detailed in the following sections and as shown on the documentation listed below.

	Existing	Modified/New
Cable Schedules		SI760001_SCH_A
Cable Overview Drawing	SI039001_DWG_C	SI039001_DWG_D
Logic Drawings	SI039002_DWG_C	SI039002_DWG_D
	SI039003_DWG_B	SI039003_DWG_C
	SI039004_DWG_B	SI039004_DWG_C
	SI039005_DWG_B	SI039005_DWG_C
	SI039006_DWG_B	SI039006_DWG_C
	SI039007_DWG_B	SI039007_DWG_C
	SI039008_DWG_B	SI039008_DWG_C
Loop Sheets	SI039010_DWG_C	SI039010_DWG_D
	SI039011_DWG_C	SI039011_DWG_D
	SI039012_DWG_C	SI039012_DWG_D
	SI039013_DWG_C	SI039013_DWG_D
	SI039014_DWG_B	SI039014_DWG_C
		SI760001_DWG_A
		SI760002_DWG_A
Panel Layout Drawing	SI039016_DWG_C	SI039016_DWG_D

The contractor shall make provision for the following works –

General

Relabeling of all equipment as required, removal of all FINA references.
Detailed CompEx inspections to be carried out to all existing equipment modified under this scope.

P2-25

Isolate and de-gland motor cable M20132 to allow relocation of pump by others. M20132 to be extended to new location via M20132/1.

Isolate, de-gland and remove control cables C20133 & C20134.

Modifications to P2-25 controls to include supply/installation of 240 Vac to 24Vdc/5A PSU. Remove of P2-25 jetty controls from the dupline system. Relabeling as required.

No.4 Switchroom

Re-programming of dupline system to provide a Site Fire Alarm output and wire to 4 pole relay within No.4 Switchroom dupline panel.

Modifications to 4 East Rail Loading panel as detailed on logic drawings.

Gantry

Replacement of 12 off free issue Exd Solenoids – 12 off original units to be removed, contractor to allow for re-glanding and testing.

Supply and install local pneumatic Open/Close control stations on rail loading valves and ESD valve.

Relocation of telephone extension No.310 from loading yard adjacent to tanks 560/599 to control end of gantry.

Removal of cables –
740927, 740928, 740929, 740930, 740934, 740935, 740936, 740937, 740944, 740945, 740946, 740947, 740950, 740951, 740990, 740991, 740992 & 740993
Removal of associated north & south siding field equipment –
2 off Danloads
4 off preamps
2 off Mercury units (cable to be installed into a contractor supplied JB)
Isolate and de-gland associated north & south siding field equipment for removal by others
4 off pickup coils,
2 off RTD's
2 off downstream DCV's
2 off upstream DCV's
All removed equipment to be retained.

Modifications to remove/blank or re-label Operator Control Panel Lamps

Three contractor supplied boards are to be mounted on the gantry top, each board will have a P2-25 stop/start/run a P5-12 stop/start/run and an 4 East Rail ESD pushbutton, the boards will be located at the control panel end, the centre and the far end of the gantry. The boards need to be of sufficient size to allow for A3 sized operating instructions to be attached.

4.1 Contractor Supplied Equipment

The contractor shall supply and install the following equipment. All equipment shall be suitably rated for the environment in which it is to be installed (site hazardous area drawing available on request). Where not fully specified, equipment shall conform with normal site standards for similar installations.

4 East Rail Loading Valves

- 12 off Pneumatic Open/Close Stations

4 East Rail Loading ESD Valve

- 1 off Pneumatic Open/Close Stations

P2-25 Delivery Pump Exde Installation

- 1 off Pump local momentary start/momentary stop station.
- 1 off JB2-111
- 1 off JB2-112
- 3 off Pump momentary start/momentary stop/run stations - Red 24Vdc Lamp

P5-12 Delivery Pump Exde Installation

- 3 off Pump momentary start/momentary stop/run stations - Red 24Vdc Lamp

4 East Rail ESD

- 3 off Stay Put Stop ESD Pushbuttons

General

- 3 off Boards for control stations on gantry top
- 2 off JB's to replace Mercury terminals

4.2 Free Issue Equipment

The contractor shall supply labour and materials to take delivery, offload and position the following free issue equipment. Equipment requiring a direct connection into the process lines will be mechanically completed by others.

P2-25 Delivery Pump Exd Local Controls

- 1 off Exd discharge temperature switch - Original unit to be reused, contractor to allow for de-glanding removal of cable.
- 1 off Exd dry run protection switch.

Gantry Instrumentation

- 13 off Exd solenoids (12 off replacements, 1 new)

5 CONTRACT PRICING CONTENTS

5.1 Introduction

The Tenderer must complete the Schedules attached in Sections 5.3.4 & 6 completing the lists of categories of unit rates for variations. The Tenderer must not re-type or make any other alterations to the wording.

Engineer authorised variations in respect of the provision of the aforementioned services to be paid in accordance with Section 5.3.4.

Payment under hourly/day rates for variations to Contract will only be made to the Contractor for Personnel approved by the Purchaser and will only be made in respect of all approved hours worked, or pro-rata to the nearest half hour, half day or whole day respectively.

5.2 Pricing Preambles/Notes on Pricing

5.2.1 General

These Pricing Preambles relate to Rates, Sums and Amounts entered in Schedules which form part of the Contract.

In arriving at said Rates, Sums and Amounts, the Contractor will be deemed to have taken account of the Conditions of Contract, the Specification/Scope of Work, the Particular Specification, these Pricing Preambles and any other matters which affects said Rates, Sums and Amounts.

Rates, Sums and Amounts, except where otherwise provided in the Contract shall be fixed for the duration of the Contract.

Completion of Lump Sums, Normal Time Rates.

5.2.1.1 A Rate, Sum or Amount shall be entered by the Contractor against each reference or item and reference or items against which no Rate, Sum or Amount is entered shall be deemed to be covered by other Rates, Sums or Amounts entered elsewhere in the Schedules.

5.2.1.2 The Contractor shall omit from his Tender any Value Added Tax chargeable or any taxable supplies made under Contract to the Purchaser and payable by him as a taxable person to the Commissioners of Customs and Excise.

5.2.1.3 The Contractor shall allow for compliance in all respects with the applicable British Standard, Codes of Practice and any other Standards or Codes specified. The Contractor shall be fully responsible for obtaining such documents and familiarising himself with same.

5.2.1.4 The Contractor shall allow for compliance with all statutory safety regulations, including those of the Purchaser, and executing the Services in such an order or sequence as may be required to accord with the overall Project programme requirements.

5.3 Schedule of Rates

5.3.1 General

5.3.1.1 Schedule of Rates

A schedule of rates is to accompany the tender.

5.3.1.2 Man-hours

The Man-hour Rates which the Contractor inserts in the Schedule shall be deemed to include, but not necessarily be restricted to all allowances required for the following:

All cost associated with the employment of labour including the requirements of Government enactment's (V.A.T. excepted) and/or other suitable National Working Rule Agreement.

Supervision by non-working trade supervisors, other than those allowed separately by the Contractor in the General Preliminaries section of the Tender.

All man-hours and costs associated with collecting "Free Issue" materials from the Purchaser's stores or compounds and transporting to the Contractor's store or workshop, including all loading, unloading, stacking and storage. Also any costs associated with off-loading, stacking and storage of materials supplied by the Contractor. Compilation of stores record system and final reconciliation for all "Free Issue" materials. Generally this store will be located on the site.

Loading and transporting from the Contractor's store or compound and assembling and installing in the final position.

The installation of all work and operations required by the Specifications and Works Rules and Regulations.

The carrying out of any tests including submission of samples where required. Any necessary site measurement and sketching for fabrication and erection purposes.

Marking up construction drawings to record the "As Built" installation.

All necessary allowances for small hand tools and consumables which are not included as Constructional Plant in the General Preliminaries section of the Tender.

Protecting the works during construction period from damage and for making good /reinstating damage caused.

All required allowances for overhead and profit.

5.3.2 Materials

The material prices which the Contractor inserts in the Schedule of Rates shall be deemed to include the following:-

All costs associated with delivery to the Contractor's site stores or compound.

Any demurrage charges or costs associated with returning packing cases, drums and the like for materials supplied by the Contractor.

All necessary allowances for waste.

All necessary allowances for consumables.

All necessary fixing devices.

5.3.3 Testing

The man-hour rates shall include for all testing.

5.3.4 Schedule of Day work Rates

Variations shall be valued on a lump sum basis. Such lump sums shall be derived from the Schedule of Rates below and the man-hour estimates for the variations which the Engineer has agreed in writing and all of which shall be subject to the issue of a Variation Order.

Position	40 Hour Rate	Time & ½ Rate	Double Time
Site Supervision			
Working Foreman			
CompEx Approved Technician			
Approved Electrician			
Electrician			
Labourer			

Percentage to be added to net cost of materials %

Site Establishment

Cost inclusive of site management, office facilities, messing, toilets and constructional equipment at a weekly rate. £

5.4 Programme

5.4.1 Provisional Programme

The following information is supplied for the guidance of the Tenderer and is provisional only, based upon the information available at the time of issue of the Tender:

1. Site visit – TBA (if required)
2. Tender required by – ASAP
3. Earliest date on which work can commence – Immediate
4. No.5 Switchroom 415V MCC delivery to site – w/c 25/10/10
5. Latest date for completion, including all testing – 29/10/10

The tenderer shall include a provisional programme with the tender to include key milestones for delivery of equipment within their supply.

6. Tender Pricing Summary

This tender summary to be completed by the tenderer, applies to the Scope of Work for the Arcton area stripping pump and sump pump project for ISCo East terminal.

1.	Supply and installation of containment	£
2.	Supply and Installation of cabling	£
3.	Supply and installation of earthing	£
4.	Testing and Documentation	£
5.	Miscellaneous (Please State)	
	Sub Total	**£**
	Site Establishment Total (based on …… weeks) (See Section 5.3.4)	**£**
	Total Tender Price	**£**

Appendix I

Drawings

Cable Overview Drawing
SI039001_DWG_C & D
Logic Drawings
SI039002_DWG_C & D
SI039003_DWG_B & C
SI039004_DWG_B & C
SI039005_DWG_B & C
SI039006_DWG_B & C
SI039007_DWG_B & C
SI039008_DWG_B & C
Loop Sheets
SI039010_DWG_C & D
SI039011_DWG_C & D
SI039012_DWG_C & D
SI039013_DWG_C & D
SI039014_DWG_B & C
SI760001_DWG_A
SI760002_DWG_A
Panel Layout Drawing
SI039016_DWG_C & D

COMPUTER OFFICE

COMMUNICATIONS INTERFACE PANEL

SWITCHROOM 4 EAST

RS422 I.S.

200A BUSBAR CHAMBER

EXISITNG SUPPLY

740900 (5 CORE)

240V DB

740901 (3 CORE)

M.C.C FINA DERV PUMP SOFT START

740902 (7 CORE)

740903 (4 CORE)

740994 (5 PAIR)

CONTROL PANEL

EARTH RODS (LIGHTNING)

INSTRUMENT CLEAN EARTH

740996

POLLING PC

RS422 I.S.

SAFE AREA

HAZARDOUS AREA

FIELD

740904 (2 PAIR)

MERCURY 1

NOTE 2

740905 (4 CORE)

PRODUCT DELIVERY TEMPERATURE

TSH

740907 (3 CORE)

JB EExe

740906 (5 CORE)

740908 (5 CORE)

55kW

STOP/ START

NOTE 3

740909 (2 PAIR I.S.)

740988 (5 PAIR)

740910 (19 CORE)

740911 (7 CORE)

740912 (3 CORE)

740913 (7 CORE)

740914 (19 CORE)

740915 (2 PAIR I.S.)

740916 (2 PAIR)

MERCURY 2

NOTE 2

ESD AT GANTRY TOP CENTRE

ESD AT GANTRY TOP CONTROL STATION END

ESD AT GANTRY TOP FAR END

D

40820 (2 CORE)

40821 (2 CORE)

40822 (2 CORE)

NORTH SIDING DANLOAD 240VAC ISOLATOR

MUX ANTI-CONDENSATION HEATER ISOLATOR

SOUTH SIDING DANLOAD 240VAC ISOLATOR

OPERATORS CONTROL PANEL

740917 (19 CORE)

ESD AT GANTRY BOTTOM CENTRE

ESD AT GANTRY BOTTOM CONTROL STATION END

ESD AT GANTRY BOTTOM FAR END

HORN

740997 (2 CORE)

740918 (2 CORE)

740919 (2 CORE)

740920 (2 CORE)

DC JUNCTION BOX

EExe

NOTE 2

740921 (2 CORE)

740922 (2 CORE)

740923 (2 CORE)

740924 (2 CORE)

740925 (2 CORE)

740926 (2 CORE)

740927 (TRIAD)

740928 (TRIAD)

740929 (2 PAIR)

PREAMP

PREAMP

740991 (1 PAIR)

740990 (1 PAIR)

PICKUP COIL

PICKUP COIL

RTD

NORTH SIDING

NOTE 2

740930 (20 PAIR)

NORTH SIDING DANLOAD

740944 (12 CORE)

740931 (7 CORE)

740932 (3 CORE)

740933 (7 CORE)

AC JUNCTION BOX

NOTE 2

EExe

740946 (3 CORE)

740947 (3 CORE)

NORTH SIDING DOWNSTREAM DCV

NORTH SIDING UPSTREAM DCV

NOTE 2

740950 (3 CORE)

740951 (3 CORE)

SOUTH SIDING UPSTREAM DCV

SOUTH SIDING DOWNSTREAM DCV

740945 (12 CORE)

NOTE 2

740934 (20 PAIR)

SOUTH SIDING DANLOAD

NOTE 2

740935 (TRIAD)

740936 (TRIAD)

740937 (2 PAIR)

PREAMP

PREAMP

740992 (1 PAIR)

740993 (1 PAIR)

PICKUP COIL

PICKUP COIL

RTD

SOUTH SIDING

740938 (2 CORE)

740939 (2 CORE)

740940 (2 CORE)

740941 (2 CORE)

740942 (2 CORE)

740943 (2 CORE)

XSV1 XSV2 XSV3 XSV7 XSV8 XSV9

MANUAL CONTROL

XV1 XCV1 XV2 XCV2 XV3 XCV3 XV7 XCV7 XV8 XCV8 XV9 XCV9

ZS O C

LS 1 LS 2 LS 3 LS 7 LS 8 LS 9 H

740952 (2 PAIR I.S.) 740953 (2 PAIR I.S.) 740954 (1 PAIR I.S.) 740955 (2 PAIR I.S.) 740956 (2 PAIR I.S.) 740957 (1 PAIR I.S.) 740958 (2 PAIR I.S.) 740959 (2 PAIR I.S.) 740960 (1 PAIR I.S.) 740961 (2 PAIR I.S.) 740962 (2 PAIR I.S.) 740963 (1 PAIR I.S.) 740964 (2 PAIR I.S.) 740965 (2 PAIR I.S.) 740966 (1 PAIR I.S.) 740967 (2 PAIR I.S.) 740968 (2 PAIR I.S.) 740969 (1 PAIR I.S.)

NORTH SIDING SOUTH SIDING

MUX 1 & 2 PANEL

HEATER NOTE 1

740948 (3 CORE)

EExe

XSV4 XSV5 XSV6 XSV10 XSV11 XSV12

MANUAL CONTROL

XV4 XCV4 XV5 XCV5 XV6 XCV6 XV10 XCV10 XV11 XCV11 XV12 XCV12

ZS O C

LS 4 LS 5 LS 6 LS 10 LS 11 LS 12 H

740970 (1 PAIR I.S.) 740971 (2 PAIR I.S.) 740972 (2 PAIR I.S.) 740973 (1 PAIR I.S.) 740974 (2 PAIR I.S.) 740975 (2 PAIR I.S.) 740976 (1 PAIR I.S.) 740977 (2 PAIR I.S.) 740978 (2 PAIR I.S.) 740979 (1 PAIR I.S.) 740980 (2 PAIR I.S.) 740981 (2 PAIR I.S.) 740982 (1 PAIR I.S.) 740983 (2 PAIR I.S.) 740984 (2 PAIR I.S.) 740985 (1 PAIR I.S.) 740986 (2 PAIR I.S.) 740987 (2 PAIR I.S.)

NORTH SIDING SOUTH SIDING

MUX 3 & 4 PANEL

NOTE 1 HEATER

740949 (3 CORE)

EExe

NOTES

1. VIA SAK2.5 EEx'e' TERMINALS
2. EQUIPMENT HIGHLIGHTED TO BE REMOVED.
3. DECOMMISSIONED BATCHING SYSTEM.

simon

bulk liquid & gas network

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	18/02/99	D.R.R	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	EARTH RODS UPDATED
D	17/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM OVERVIEW

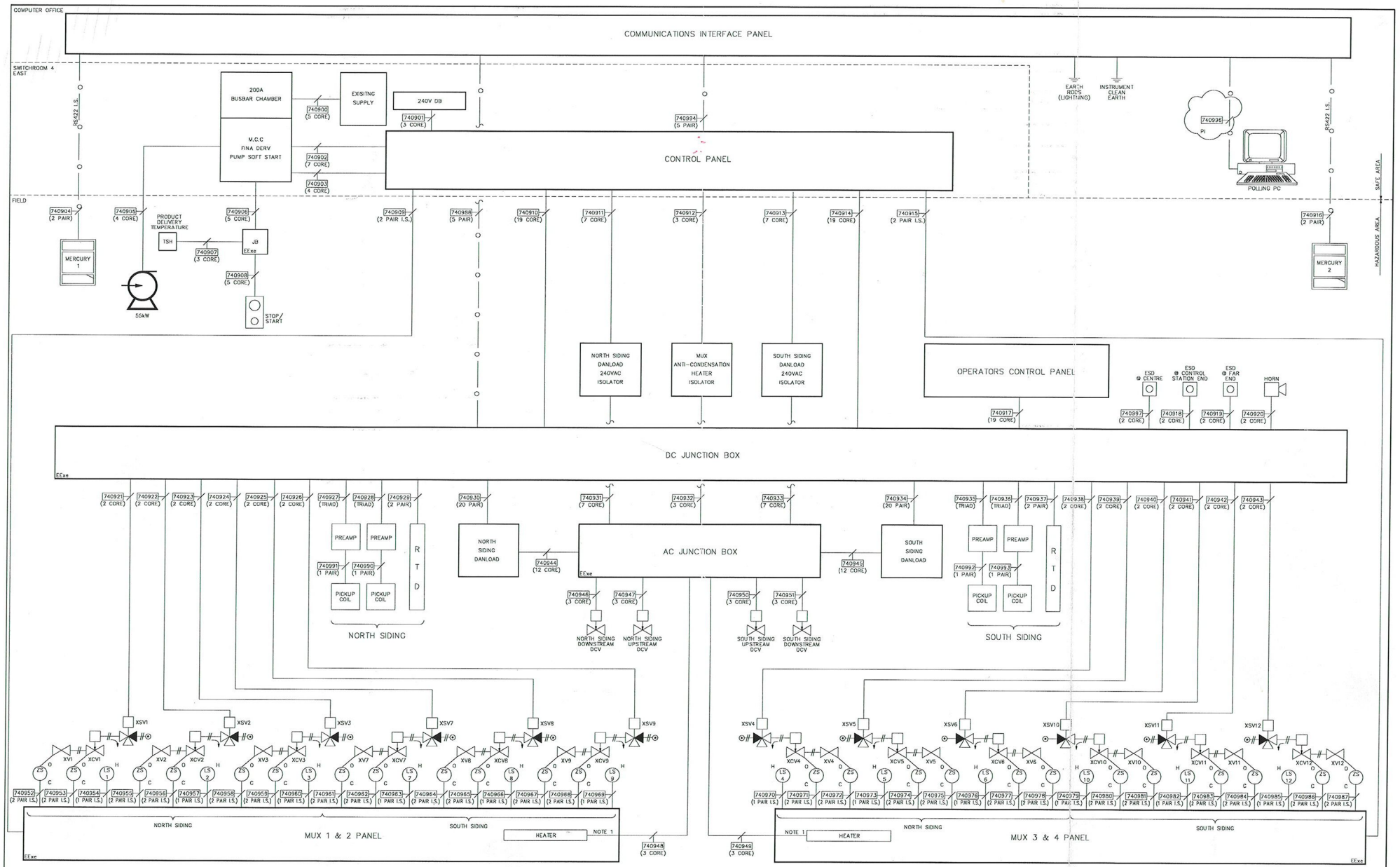
simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039001_DWG



NOTES

1. VIA SAK2.5 EEx'e' TERMINALS

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	18/02/99	D.R.R	A.J.H	P.J.P	D.R.R	ORIGINAL ISSUE
B	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	EARTHS RODS UPDATED

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	OVERVIEW
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039001

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; V VOLTMETER; HR HOURS RUN METER; A AMMETER; HZ FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D. INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E. DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

SWITCHES: KEY OPERATED; STOPLOCK PUSHBUTTON; PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

POWER DISTRIBUTION

240V 50Hz; 25A; L; N; E

TBL L1 1A	PANEL INTERIOR LIGHT	N1 TBN 1	E1 TBE 1
L2 5A	2 GANG SOCKET	N2 2	E2 2
L3 2A	PLC POWER SEE LINE 639	N3 3	E3 3
L4 6A	BATCHER POWER & PERMISSIVE SEE LINE 64	N4 4	E4 4
L5 6A	BATCHER POWER & PERMISSIVE SEE LINE 73	N5 5	E5 5
6	SPARE	6	E6 6
L7 1A TB240V 29	TO ANTI-CONDENSATION HEATERS ISOLATOR SEE DRAWING SI378012 & 13	TB240V 30 N7 7	TB240V 31 E7 7
8		8	8
9		9	9
10		10	10
11		11	11
12 4A	POWER SUPPLY UNIT L12 L 240V ac N12 N; 10A; 24V dc + − E12 E	12	12

24V; 0V

TB24V 1 24V/1 0.5A	SEE LINE 41	0V/1 TB0V 1	0V
2 24V/2 0.5A	SEE LINE 81	0V/2 2	0V
3 24V/3 2A	SEE LINE 103	0V/3 3	0V
4 24V/4 2A	SEE LINE 642	0V/4 4	0V
5 24V/5 2A	SEE LINE 682	0V/5 5	0V
6 24V/6 0.5A	SPARE	0V/6 6	0V
7 24V/7 1A	SEE LINE 721	0V/7 7	0V
8 24V/8 1A	SEE LINE 761	0V/8 8	0V
9		9	0V
10		10	0V
11		11	0V
12		12	0V
13		13	0V
14		14	0V
15		15	0V

LEVEL

24V/1 TB24V 1; FROM LINE 20; TB0V 1 0V/1

R42 SUPPLY 24VDC + −

N.O. SAFETY CONTACTS

24V/1 13	R42/1	14 1 NOTE 1 R44 0V/1	58,604,642,698
24V/1 23	R42/2	24 2 NOTE 1 R46 0V/1	58,68,77,806
24V/1 33	R42/3	34 3 NOTE 1 R48 0V/1	60,816,823,827
41	R42/4 N.C.	42	

ESD

7 R211/1 6 R209/1 5 R207/1 4	T11	T22 19	
7 R327/1 8 R329/1 9 R331/1 10			
13 R451/1 12 R449/1 11 R447/1 10			
13 R567/1 14 R569/1 15 R571/1 16	T12	T12 19	
18 R105/2 17	T33	X1 20 R44/1 21 R46/1	
RESET		FEEDBACK	
18	T34	X2 23 R48/1 22	

PILZ PNOZ

NORTH SIDING BATCHER PERMISSIVES (240V)

L4 TBL 4; FROM LINE 9; TBN 4 N4; TBE 4 E4; TB240V

N4 R65 25		1	740911/1
N4		2	740911/2
L4		3	740911/3
L4 R46/2 23 R86/2 24		4	740911/4
L4 R674/1 25		5	740911/5
610 N4 (240V COIL) R70 26		6	740911/6
612 N4 (240V COIL) R71 27		7	740911/7

740911 (7 CORE); SEE DRAWING SI378010

NOTE 2

SOUTH SIDING BATCHER PERMISSIVES (240V)

L5 TBL 5; FROM LINE 10; TBN 5 N5; TBE 5 E5; TB240V

N5 R74 30		8	740913/1
N5		9	740913/2
L5		10	740913/3
L5 R46/3 28 R86/3 29		11	740913/4
L5 R676/1 30		12	740913/5
614 N5 (240V COIL) R79 31		13	740913/6
616 N5 (240V COIL) R80 32		14	740913/7

740913 (7 CORE); SEE DRAWING SI378011

LAST NUMBER USED: 32
SPARE TO: 49

ESD

24V/2 TB24V 2; FROM LINE 21; TB0V 2 0V/2

R82 SUPPLY 24VDC + −

N.O. SAFETY CONTACTS

24V/2 13	R82/1	14 50 NOTE 1 R84 0V/2	58,606,642,698
24V/2 23	R82/2	24 51 NOTE 1 R86 0V/2	58,68,77,804
24V/2 33	R82/3	34 52 NOTE 1 R88 0V/2	100,814,823,827
41	R82/4 N.C.	42	

TO LINE 831; TO LINE 833

57 R565/1 56 R445/1 55 R325/1 54 R205/1 53	T11	T22 63	
4-EAST ESD 57 R833/1 TB1 1 80			
ESD			
SITE FIRE ALARM 2 ESD ON PANEL FRONT 79 58 R716/2 60	T12	T12	
62 R105/3 61	T33	X1 64 R84/1 65 R86/1	
RESET		FEEDBACK	
62	T34	X2 67 R88/1 66	

PILZ PNOZ

RESET

24V/3 TB24V 3; FROM LINE 22; TB0V 3 0V/3

RESET TB1 3 24V/3

4	68	R105 0V/3 608,58,98

PUMP SELECTOR

NOTE 2

TB1 36 24V/3

PUMP 1 PUMP 2 37	69	R111 0V/3 812,806,627,113
38	70	R112 0V/3 802,816,628,117

PUMP 1 FEEDBACK

TB1 39 71 R111/4 24V/3

RUN 40	72	R114 0V/3 627
FAULT 41	73	R115 0V/3 629
AUTO 42	74	R116 0V/3 631

PUMP 2 FEEDBACK (FUTURE)

TB1 43 75 R112/4 24V/3

RUN 44	76	R118 0V/3 628
FAULT 45	77	R119 0V/3 630
AUTO 46	78	R120 0V/3 632

TO LINE 203; TO LINE 203

LAST NUMBER USED: 80
SPARE TO: 99

NOTES
1. OMRON G7S-4A2B GUIDED CONTACT RELAY (RS260-4373)
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon bulk liquid & gas network

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	01/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	PANEL TEST MODS
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT: IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE: 4-EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 1

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039002_DWG

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

GENERAL: HORN; SOLENOID VALVE; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; DOUBLE WOUND TRANSFORMER; VOLTMETER; HOURS RUN METER; AMMETER; FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

POWER DISTRIBUTION

240V 50Hz, 25A, L, N, E

TBL 1	L1 1A	PANEL INTERIOR LIGHT
TBL 2	L2 5A	2 GANG SOCKET
TBL 3	L3 2A	PLC POWER SEE LINE 639
TBL 4	L4 6A	BATCHER POWER & PERMISSIVE SEE LINE 64
TBL 5	L5 6A	BATCHER POWER & PERMISSIVE SEE LINE 73
TBL 6		SPARE
TBL 7	L7 1A, TB240V 29	TO ANTI-CONDENSATION HEATERS ISOLATOR SEE DRAWING SI378012 & 13
TBL 10		
TBL 11		
TBL 12	L12 4A	POWER SUPPLY UNIT: 240V ac 10A 24V dc (L, N, E; +, -)

TBN	TBE
N1 1	E1 1
N2 2	E2 2
N3 3	E3 3
N4 4	E4 4
N5 5	E5 5
6	E6 6
TB240V 30 N7 7	TB240V 31 E7 7
8	8
9	9
10	10
11	11
12	12

24V, 0V

TB24V 1	24V/1 0.5A	SEE LINE 41	TB0V 1 0V/1
TB24V 2	24V/2 0.5A	SEE LINE 81	TB0V 2 0V/2
TB24V 3	24V/3 2A	SEE LINE 103	TB0V 3 0V/3
TB24V 4	24V/4 2A	SEE LINE 642	TB0V 4 0V/4
TB24V 5	24V/5 2A	SEE LINE 682	TB0V 5 0V/5
TB24V 6	24V/6 0.5A	SPARE	TB0V 6 0V/6
TB24V 7	24V/7 1A	SEE LINE 721	TB0V 7 0V/7
TB24V 8	24V/8 1A	SEE LINE 761	TB0V 8 0V/8
9			9 0V
10			10 0V
11			11 0V
12			12 0V
13			13 0V
14			14 0V
15			15 0V

LEVEL

24V/1, TB24V 1, TB0V 1, 0V/1

FROM LINE 20

R42 SUPPLY 24VDC (+, -)

N.O. SAFETY CONTACTS

24V/1	13	R42/1	14 1 NOTE 1 R44 0V/1 58,604,642
24V/1	23	R42/2	24 2 NOTE 1 R46 0V/1 58,68,77,806
24V/1	33	R42/3	34 3 NOTE 1 R48 0V/1 60,816
	41	R42/4 N.C.	42

7 R211/1 6 R209/1 5 R207/1 4 T11

7 R327/1 8 R329/1 9 R331/1 10

13 R451/1 12 R449/1 11 R447/1 10

13 R567/1 14 R569/1 15 R571/1 16 T12

ESD

18 R105/2 17 T33

18 T34

RESET

T22 19

T12 19

X1 20 R44/1 21 R46/1

X2 23 R48/1 22

FEEDBACK

PILZ PNOZ

NORTH SIDING BATCHER PERMISSIVES (240V)

L4, TBL 4, FROM LINE 9, TBN 4 N4, TBE 4 E4, TB240V

N4	R65	25	1 740911/1
N4			2 740911/2
L4			3 740911/3
L4	R46/2 23 R86/2	24	4 740911/4
L4	R674/1	25	5 740911/5
610 N4	(240V COIL) R70	26	6 740911/6
612 N4	(240V COIL) R71	27	7 740911/7

740911 (7 CORE) — SEE DRAWING SI378010

SOUTH SIDING BATCHER PERMISSIVES (240V)

L5, TBL 5, FROM LINE 10, TBN 5 N5, TBE 5 E5, TB240V

N5	R74	30	8 740913/1
N5			9 740913/2
L5			10 740913/3
L5	R46/3 28 R86/3	29	11 740913/4
L5	R676/1	30	12 740913/5
614 N5	(240V COIL) R79	31	13 740913/6
616 N5	(240V COIL) R80	32	14 740913/7

LAST NUMBER USED: 32
SPARE TO: 49

740913 (7 CORE) — SEE DRAWING SI378011

ESD

24V/2, TB24V 2, TB0V 2, 0V/2

FROM LINE 21

R82 SUPPLY 24VDC (+, -)

N.O. SAFETY CONTACTS

24V/2	13	R82/1	14 50 NOTE 1 R84 0V/2 98,606,642
24V/2	23	R82/2	24 51 NOTE 1 R86 0V/2 98,68,77,804
24V/2	33	R82/3	34 52 NOTE 1 R88 0V/2 100,814,
	41	R82/4 N.C.	42

ESD, TB1 1 57 R565/1 56 R445/1 55 R325/1 54 R205/1 53 T11

ESD

ESD

ESD

ESD ON PANEL FRONT

2 79 58 R716/2 60 T12

ESD

T22 63

T12

62 R105/3 61 T33

62 T34

RESET

X1 64 R84/1 65 R86/1

X2 67 R88/1 66

FEEDBACK

PILZ PNOZ

RESET

24V/3, TB24V 3, FROM LINE 22, TBOV 3 0V/3

RESET, TB1 3 24V/3

4 68 R105 0V/3 608,58,98

PUMP SELECTOR

TB1 36 24V/3

PUMP 1, PUMP 2

37 69 R111 0V/3 812,806,627,113

38 70 R112 0V/3 802,816,628,117

PUMP 1 FEEDBACK

TB1 39 71 R111/4 24V/3

RUN 40 72 R114 0V/3 627

FAULT 41 73 R115 0V/3 629

AUTO 42 74 R116 0V/3 631

PUMP 2 FEEDBACK (FUTURE)

TB1 43 75 R112/4 24V/3

RUN 44 76 R118 0V/3 628

FAULT 45 77 R119 0V/3 630

AUTO 46 78 R120 0V/3 632

TO LINE 203

LAST NUMBER USED: 79
SPARE TO: 99

TO LINE 203

NOTES

1. RELAY WITH POSITIVELY GUIDED CONTACTS RS STOCK CODE (RS260-4373)

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	01/07/99	D.P.	A.J.H	D.R.R		D.R.R		PANEL TEST MODS

PLANT: FINA DERV RAIL LOADING SYSTEM

TITLE: LOGIC 1

02/07/99

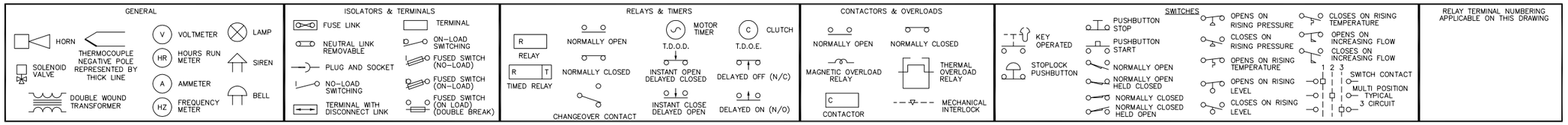
SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

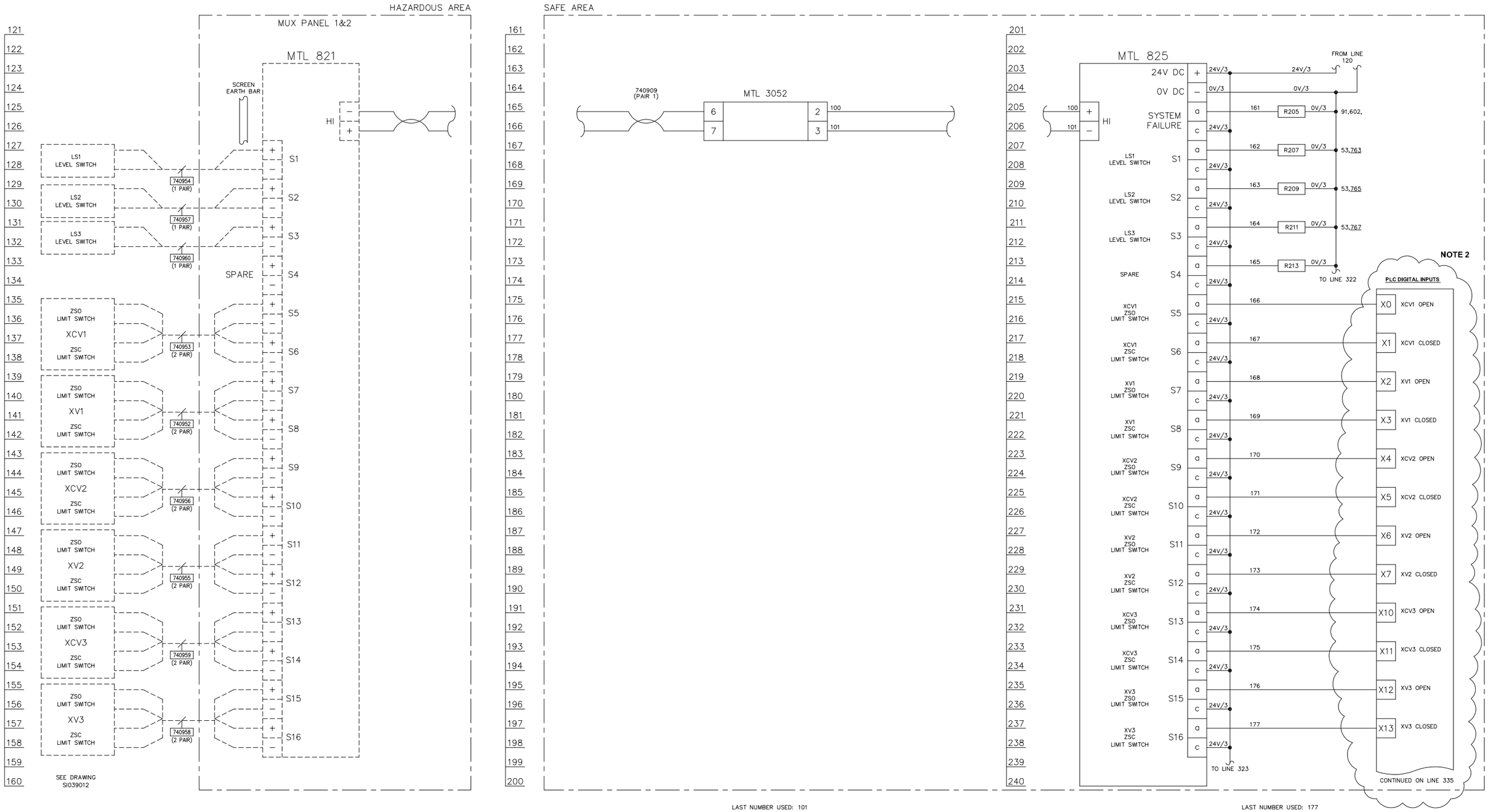
ELECTRICAL SCHEMATIC TEMPLATE — SHEET 01 OF 01

CLIENT DRG. No. — P&I DRG No. SI039002

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



MUX 1 (NORTH SIDING)



NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/07/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 2
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039003_DWG

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER; HOURS RUN METER; AMMETER; FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; TERMINAL; NEUTRAL LINK REMOVABLE; ON-LOAD SWITCHING; PLUG AND SOCKET; FUSED SWITCH (NO-LOAD); NO-LOAD SWITCHING; FUSED SWITCH (ON-LOAD); TERMINAL WITH DISCONNECT LINK; FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: RELAY; TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

MUX 1 (NORTH SIDING)

HAZARDOUS AREA

MUX PANEL 1&2

MTL 821

SCREEN EARTH BAR

HI

LS1 LEVEL SWITCH — 740954 (1 PAIR) — S1
LS2 LEVEL SWITCH — 740957 (1 PAIR) — S2
LS3 LEVEL SWITCH — 740960 (1 PAIR) — S3
SPARE — S4
ZSO LIMIT SWITCH / XCV1 / ZSC LIMIT SWITCH — 740953 (2 PAIR) — S5, S6
ZSO LIMIT SWITCH / XV1 / ZSC LIMIT SWITCH — 740952 (2 PAIR) — S7, S8
ZSO LIMIT SWITCH / XCV2 / ZSC LIMIT SWITCH — 740956 (2 PAIR) — S9, S10
ZSO LIMIT SWITCH / XV2 / ZSC LIMIT SWITCH — 740955 (2 PAIR) — S11, S12
ZSO LIMIT SWITCH / XCV3 / ZSC LIMIT SWITCH — 740959 (2 PAIR) — S13, S14
ZSO LIMIT SWITCH / XV3 / ZSC LIMIT SWITCH — 740958 (2 PAIR) — S15, S16

SEE DRAWING SI039012

SAFE AREA

740909 (PAIR 1) — MTL 3052 — 6, 7, 2, 3, 100, 101

MTL 825

100, 101 — HI

24V DC, 0V DC, SYSTEM FAILURE

LS1 LEVEL SWITCH — S1 — 161 — R205 — 91,602,
LS2 LEVEL SWITCH — S2 — 162 — R207 — 53,763
LS3 LEVEL SWITCH — S3 — 163 — R209 — 53,765
SPARE — S4 — 164 — R211 — 53,767
— 165 — R213 — TO LINE 322

FROM LINE 120

PLC DIGITAL INPUTS

XCV1 ZSO LIMIT SWITCH — S5 — 166 — X0 XCV1 OPEN
XCV1 ZSC LIMIT SWITCH — S6 — 167 — X1 XCV1 CLOSED
XV1 ZSO LIMIT SWITCH — S7 — 168 — X2 XV1 OPEN
XV1 ZSC LIMIT SWITCH — S8 — 169 — X3 XV1 CLOSED
XCV2 ZSO LIMIT SWITCH — S9 — 170 — X4 XCV2 OPEN
XCV2 ZSC LIMIT SWITCH — S10 — 171 — X5 XCV2 CLOSED
XV2 ZSO LIMIT SWITCH — S11 — 172 — X6 XV2 OPEN
XV2 ZSC LIMIT SWITCH — S12 — 173 — X7 XV2 CLOSED
XCV3 ZSO LIMIT SWITCH — S13 — 174 — X10 XCV3 OPEN
XCV3 ZSC LIMIT SWITCH — S14 — 175 — X11 XCV3 CLOSED
XV3 ZSO LIMIT SWITCH — S15 — 176 — X12 XV3 OPEN
XV3 ZSC LIMIT SWITCH — S16 — 177 — X13 XV3 CLOSED

TO LINE 323

CONTINUED ON LINE 335

LAST NUMBER USED: 101
SPARE TO: 160

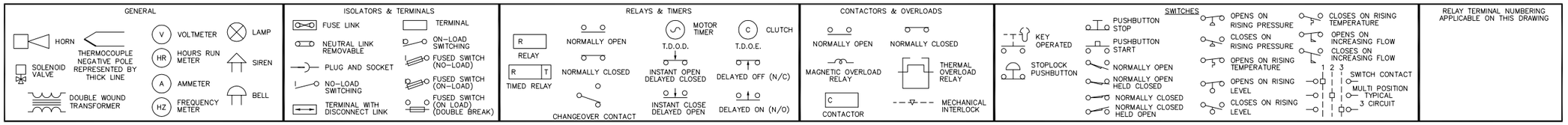
LAST NUMBER USED: 177
SPARE TO: 199

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.

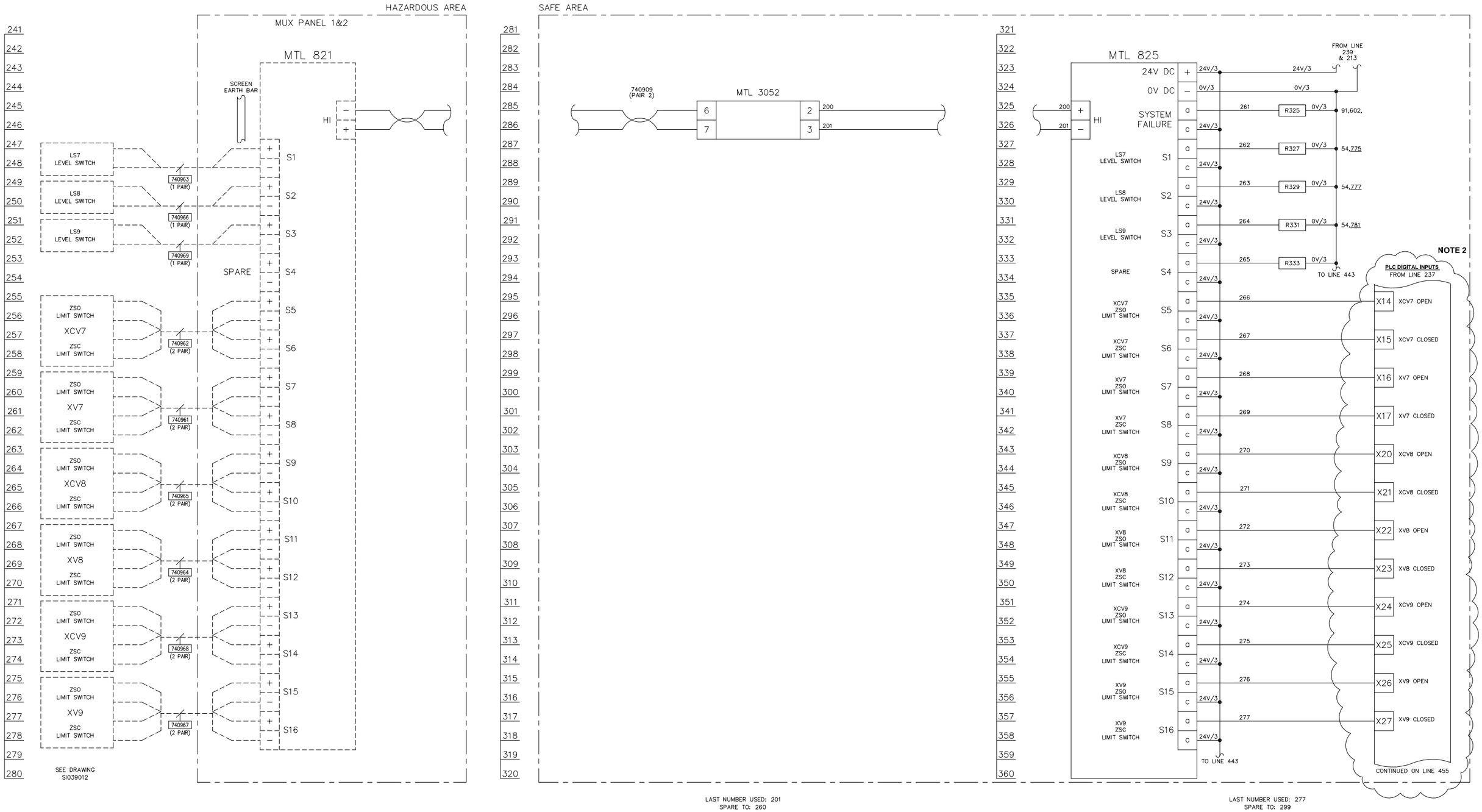
REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	A.J.H	A.J.H	D.R.R		D.R.R		COMMS POLARITY REVERSED

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	LOGIC 2
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
ELECTRICAL SCHEMATIC TEMPLATE	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039003

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



MUX 2 (SOUTH SIDING)



LAST NUMBER USED: 201
SPARE TO: 260

LAST NUMBER USED: 277
SPARE TO: 299

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 3
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039004_DWG

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER; HOURS RUN METER; AMMETER; FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; TERMINAL; NEUTRAL LINK REMOVABLE; ON-LOAD SWITCHING; PLUG AND SOCKET; FUSED SWITCH (NO-LOAD); NO-LOAD SWITCHING; FUSED SWITCH (ON-LOAD); TERMINAL WITH DISCONNECT LINK; FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

MUX 2 (SOUTH SIDING)

HAZARDOUS AREA

MUX PANEL 1&2

MTL 821

SCREEN EARTH BAR

HI

LS7 LEVEL SWITCH — 740963 (1 PAIR) — S1

LS8 LEVEL SWITCH — 740966 (1 PAIR) — S2

LS9 LEVEL SWITCH — 740969 (1 PAIR) — S3

SPARE — S4

ZSO LIMIT SWITCH / XCV7 / ZSC LIMIT SWITCH — 740962 (2 PAIR) — S5, S6

ZSO LIMIT SWITCH / XV7 / ZSC LIMIT SWITCH — 740961 (2 PAIR) — S7, S8

ZSO LIMIT SWITCH / XCV8 / ZSC LIMIT SWITCH — 740965 (2 PAIR) — S9, S10

ZSO LIMIT SWITCH / XV8 / ZSC LIMIT SWITCH — 740964 (2 PAIR) — S11, S12

ZSO LIMIT SWITCH / XCV9 / ZSC LIMIT SWITCH — 740968 (2 PAIR) — S13, S14

ZSO LIMIT SWITCH / XV9 / ZSC LIMIT SWITCH — 740967 (2 PAIR) — S15, S16

SEE DRAWING SI039012

SAFE AREA

740909 (PAIR 2) — MTL 3052 — 6 (200), 7 (201), 2 (200), 3 (201)

MTL 825

200 (+) HI 201 (−)

24V DC (+) 24V/3 — FROM LINE 239 & 213

0V DC (−) 0V/3

SYSTEM FAILURE (a, c) 24V/3 — 261 — R325 — 0V/3 — 91,602,

LS7 LEVEL SWITCH — S1 (a, c) 24V/3 — 262 — R327 — 0V/3 — 54,775

LS8 LEVEL SWITCH — S2 (a, c) 24V/3 — 263 — R329 — 0V/3 — 54,777

LS9 LEVEL SWITCH — S3 (a, c) 24V/3 — 264 — R331 — 0V/3 — 54,781

SPARE — S4 (a, c) 24V/3 — 265 — R333 — 0V/3 — TO LINE 443

PLC DIGITAL INPUTS FROM LINE 237

XCV7 ZSO LIMIT SWITCH — S5 (a, c) 24V/3 — 266 — X14 XCV7 OPEN

XCV7 ZSC LIMIT SWITCH — S6 (a, c) 24V/3 — 267 — X15 XCV7 CLOSED

XV7 ZSO LIMIT SWITCH — S7 (a, c) 24V/3 — 268 — X16 XV7 OPEN

XV7 ZSC LIMIT SWITCH — S8 (a, c) 24V/3 — 269 — X17 XV7 CLOSED

XCV8 ZSO LIMIT SWITCH — S9 (a, c) 24V/3 — 270 — X20 XCV8 OPEN

XCV8 ZSC LIMIT SWITCH — S10 (a, c) 24V/3 — 271 — X21 XCV8 CLOSED

XV8 ZSO LIMIT SWITCH — S11 (a, c) 24V/3 — 272 — X22 XV8 OPEN

XV8 ZSC LIMIT SWITCH — S12 (a, c) 24V/3 — 273 — X23 XV8 CLOSED

XCV9 ZSO LIMIT SWITCH — S13 (a, c) 24V/3 — 274 — X24 XCV9 OPEN

XCV9 ZSC LIMIT SWITCH — S14 (a, c) 24V/3 — 275 — X25 XCV9 CLOSED

XV9 ZSO LIMIT SWITCH — S15 (a, c) 24V/3 — 276 — X26 XV9 OPEN

XV9 ZSC LIMIT SWITCH — S16 (a, c) 24V/3 — 277 — X27 XV9 CLOSED

TO LINE 443

CONTINUED ON LINE 455

LAST NUMBER USED: 201
SPARE TO: 260

LAST NUMBER USED: 277
SPARE TO: 299

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	A.J.H	A.J.H	D.R.R		D.R.R		COMMS POLARITY REVERSED

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	LOGIC 3
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
ELECTRICAL SCHEMATIC TEMPLATE	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039004

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; V VOLTMETER; HR HOURS RUN METER; A AMMETER; HZ FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D. INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E. DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

MUX 3 (NORTH SIDING)

HAZARDOUS AREA

MUX PANEL 3&4

MTL 821

SCREEN EARTH BAR

HI

LS4 LEVEL SWITCH — 740970 (1 PAIR) — S1

LS5 LEVEL SWITCH — 740973 (1 PAIR) — S2

LS6 LEVEL SWITCH — 740976 (1 PAIR) — S3

SPARE — S4

ZSO LIMIT SWITCH / XCV4 / ZSC LIMIT SWITCH — 740971 (2 PAIR) — S5, S6

ZSO LIMIT SWITCH / XV4 / ZSC LIMIT SWITCH — 740972 (2 PAIR) — S7, S8

ZSO LIMIT SWITCH / XCV5 / ZSC LIMIT SWITCH — 740974 (2 PAIR) — S9, S10

ZSO LIMIT SWITCH / XV5 / ZSC LIMIT SWITCH — 740975 (2 PAIR) — S11, S12

ZSO LIMIT SWITCH / XCV6 / ZSC LIMIT SWITCH — 740977 (2 PAIR) — S13, S14

ZSO LIMIT SWITCH / XV6 / ZSC LIMIT SWITCH — 740978 (2 PAIR) — S15, S16

SEE DRAWING SI039013

SAFE AREA

740915 (PAIR 1) — MTL 3052 — 6 → 300, 7 → 301, 2 → 300, 3 → 301

MTL 825

300 (+) 301 (−) HI

24V DC (+) 24V/3 — FROM LINE 359 & 333

0V DC (−) 0V/3 — FROM LINE 359 & 333

SYSTEM FAILURE — a, c — 24V/3

LS4 LEVEL SWITCH — S1 — 361 — R445 — 0V/3 — 91,602,

LS5 LEVEL SWITCH — S2 — 362 — R447 — 0V/3 — 55,769

LS6 LEVEL SWITCH — S3 — 363 — R449 — 0V/3 — 55,771

SPARE — S4 — 364 — R451 — 0V/3 — 55,773

365 — R453 — 0V/3 — TO LINE 563

XCV4 ZSO LIMIT SWITCH — S5 — 366 — X30 XCV4 OPEN

XCV4 ZSC LIMIT SWITCH — S6 — 367 — X31 XCV4 CLOSED

XV4 ZSO LIMIT SWITCH — S7 — 368 — X32 XV4 OPEN

XV4 ZSC LIMIT SWITCH — S8 — 369 — X33 XV4 CLOSED

XCV5 ZSO LIMIT SWITCH — S9 — 370 — X34 XCV5 OPEN

XCV5 ZSC LIMIT SWITCH — S10 — 371 — X35 XCV5 CLOSED

XV5 ZSO LIMIT SWITCH — S11 — 372 — X36 XV5 OPEN

XV5 ZSC LIMIT SWITCH — S12 — 373 — X37 XV5 CLOSED

XCV6 ZSO LIMIT SWITCH — S13 — 374 — X40 XCV6 OPEN

XCV6 ZSC LIMIT SWITCH — S14 — 375 — X41 XCV6 CLOSED

XV6 ZSO LIMIT SWITCH — S15 — 376 — X42 XV6 OPEN

XV6 ZSC LIMIT SWITCH — S16 — 377 — X43 XV6 CLOSED

TO LINE 563

NOTE 2

P.L.C. DIGITAL INPUTS FROM LINE 357

CONTINUED ON LINE 575

LAST NUMBER USED: 301
SPARE TO: 360

LAST NUMBER USED: 377
SPARE TO: 399

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon — bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT: IMMINGHAM STORAGE Co. – EAST TERMINAL

TITLE: 4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 4

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039005_DWG

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER; HOURS RUN METER; AMMETER; FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; TERMINAL; NEUTRAL LINK REMOVABLE; ON-LOAD SWITCHING; PLUG AND SOCKET; FUSED SWITCH (NO-LOAD); NO-LOAD SWITCHING; FUSED SWITCH (ON-LOAD); TERMINAL WITH DISCONNECT LINK; FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: RELAY; TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

MUX 3 (NORTH SIDING)

HAZARDOUS AREA

MUX PANEL 3&4

MTL 821

SCREEN EARTH BAR

HI

LS4 LEVEL SWITCH — 740970 (1 PAIR) — S1

LS5 LEVEL SWITCH — 740973 (1 PAIR) — S2

LS6 LEVEL SWITCH — 740976 (1 PAIR) — S3

SPARE — S4

ZSO LIMIT SWITCH / XCV4 / ZSC LIMIT SWITCH — 740971 (2 PAIR) — S5, S6

ZSO LIMIT SWITCH / XV4 / ZSC LIMIT SWITCH — 740972 (2 PAIR) — S7, S8

ZSO LIMIT SWITCH / XCV5 / ZSC LIMIT SWITCH — 740974 (2 PAIR) — S9, S10

ZSO LIMIT SWITCH / XV5 / ZSC LIMIT SWITCH — 740975 (2 PAIR) — S11, S12

ZSO LIMIT SWITCH / XCV6 / ZSC LIMIT SWITCH — 740977 (2 PAIR) — S13, S14

ZSO LIMIT SWITCH / XV6 / ZSC LIMIT SWITCH — 740978 (2 PAIR) — S15, S16

SEE DRAWING SI039013

SAFE AREA

740915 (PAIR 1) — MTL 3052 — 6 → 300, 7 → 301 — 2, 3

MTL 825

300 / 301 — HI

24V DC +

0V DC −

SYSTEM FAILURE

LS4 LEVEL SWITCH — S1 — 361 — R445 — 91,602,

LS5 LEVEL SWITCH — S2 — 362 — R447 — 55,769

LS6 LEVEL SWITCH — S3 — 363 — R449 — 55,771

SPARE — S4 — 364 — R451 — 55,773

XCV4 ZSO LIMIT SWITCH — S5 — 365 — R453 — TO LINE 563

XCV4 ZSC LIMIT SWITCH — S6 — 366 — X30 XCV4 OPEN

XV4 ZSO LIMIT SWITCH — S7 — 367 — X31 XCV4 CLOSED

XV4 ZSC LIMIT SWITCH — S8 — 368 — X32 XV4 OPEN

XCV5 ZSO LIMIT SWITCH — S9 — 369 — X33 XV4 CLOSED

XCV5 ZSC LIMIT SWITCH — S10 — 370 — X34 XCV5 OPEN

XV5 ZSO LIMIT SWITCH — S11 — 371 — X35 XCV5 CLOSED

XV5 ZSC LIMIT SWITCH — S12 — 372 — X36 XV5 OPEN

XCV6 ZSO LIMIT SWITCH — S13 — 373 — X37 XV5 CLOSED

XCV6 ZSC LIMIT SWITCH — S14 — 374 — X40 XCV6 OPEN

XV6 ZSO LIMIT SWITCH — S15 — 375 — X41 XCV6 CLOSED

XV6 ZSC LIMIT SWITCH — S16 — 376 — X42 XV6 OPEN

377 — X43 XV6 CLOSED

TO LINE 563

FROM LINE 359 & 333

PLC DIGITAL INPUTS FROM LINE 357

CONTINUED ON LINE 575

LAST NUMBER USED: 301
SPARE TO: 360

LAST NUMBER USED: 377
SPARE TO: 399

NOTES

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		COMMS POLARITY REVERSED

PLANT: FINA DERV RAIL LOADING SYSTEM

TITLE: LOGIC 4

02/07/99

SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

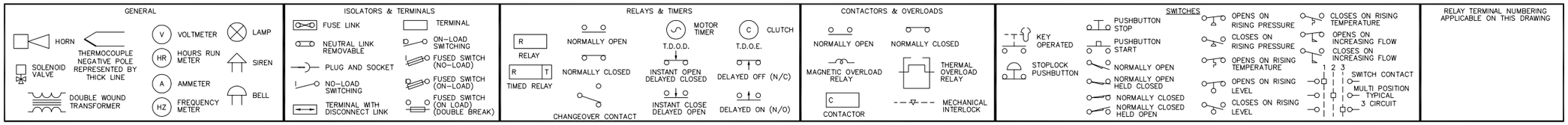
ELECTRICAL SCHEMATIC TEMPLATE

SHEET 01 OF 01

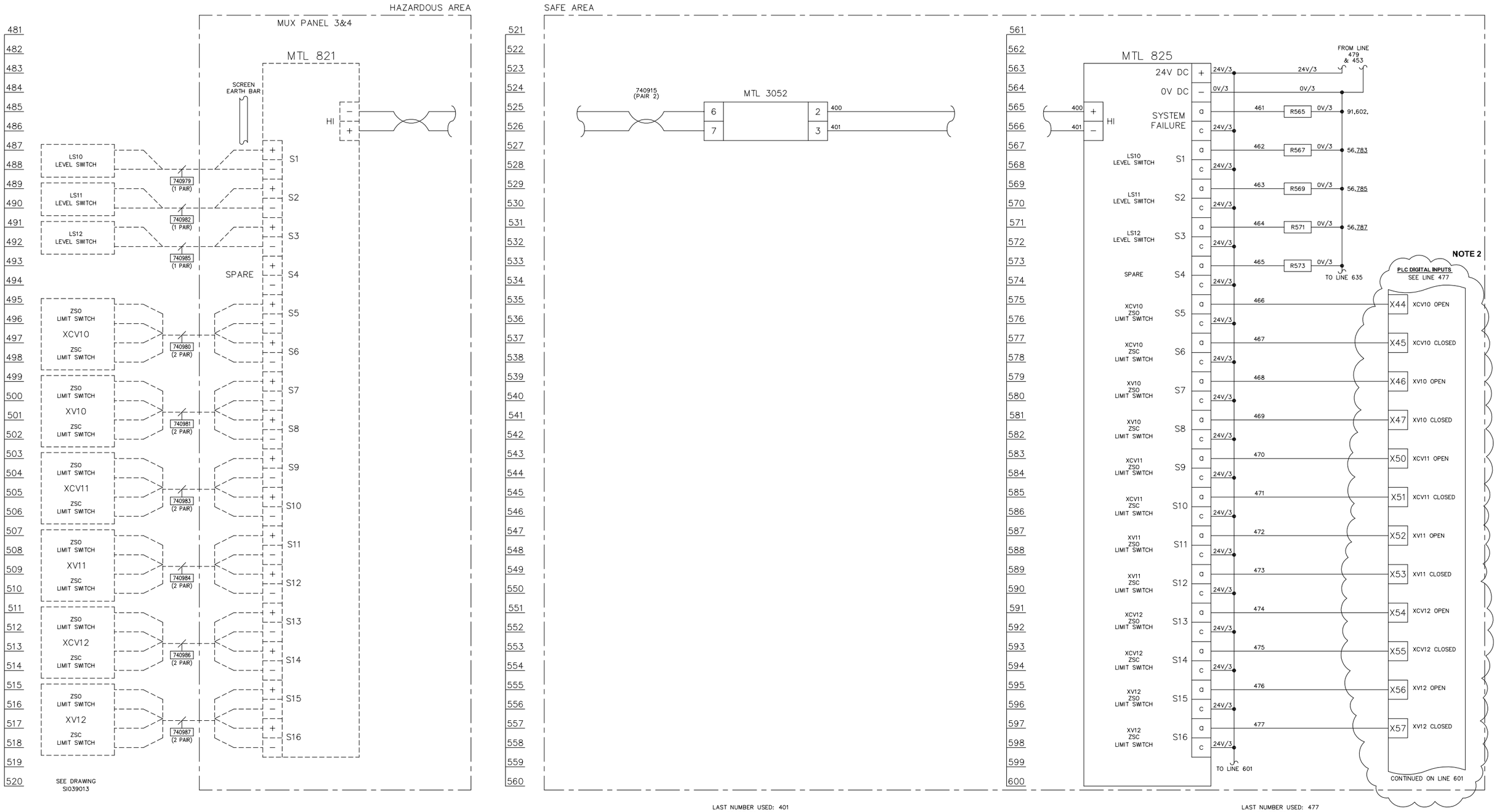
CLIENT DRG. No.

P&I DRG No. SI039005

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



MUX 4 (SOUTH SIDING)



LAST NUMBER USED: 401
SPARE TO: 460

LAST NUMBER USED: 477
SPARE TO: 499

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

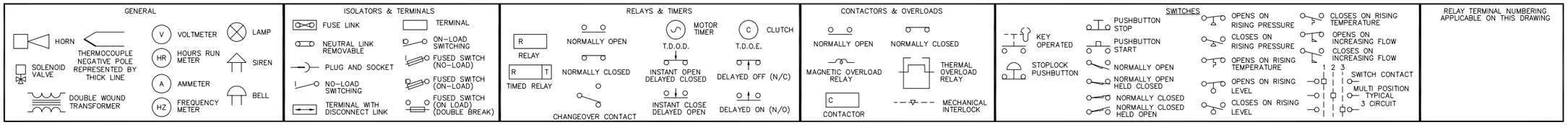
simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	11/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 5
	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
	P & I Design Ltd, Tel. 01642 617444, www.pidesign.co.uk
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039006_DWG

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



MUX 4 (SOUTH SIDING)

HAZARDOUS AREA

MUX PANEL 3&4

MTL 821

SCREEN EARTH BAR

HI

LS10 LEVEL SWITCH — 740979 (1 PAIR) — S1

LS11 LEVEL SWITCH — 740982 (1 PAIR) — S2

LS12 LEVEL SWITCH — 740985 (1 PAIR) — S3

SPARE — S4

ZSO LIMIT SWITCH / XCV10 / ZSC LIMIT SWITCH — 740980 (2 PAIR) — S5, S6

ZSO LIMIT SWITCH / XV10 / ZSC LIMIT SWITCH — 740981 (2 PAIR) — S7, S8

ZSO LIMIT SWITCH / XCV11 / ZSC LIMIT SWITCH — 740983 (2 PAIR) — S9, S10

ZSO LIMIT SWITCH / XV11 / ZSC LIMIT SWITCH — 740984 (2 PAIR) — S11, S12

ZSO LIMIT SWITCH / XCV12 / ZSC LIMIT SWITCH — 740986 (2 PAIR) — S13, S14

ZSO LIMIT SWITCH / XV12 / ZSC LIMIT SWITCH — 740987 (2 PAIR) — S15, S16

SEE DRAWING SI039013

SAFE AREA

740915 (PAIR 2)

MTL 3052

6 — 400

7 — 401

2 — 400

3 — 401

LAST NUMBER USED: 401
SPARE TO: 460

MTL 825

FROM LINE 479 & 453

24V DC +

0V DC –

400 + HI 401 –

SYSTEM FAILURE

LS10 LEVEL SWITCH	S1	461	R565	91,602,
LS11 LEVEL SWITCH	S2	462	R567	56,783
LS12 LEVEL SWITCH	S3	463	R569	56,785
SPARE	S4	464	R571	56,787
XCV10 ZSO LIMIT SWITCH	S5	465	R573	TO LINE 635
XCV10 ZSC LIMIT SWITCH	S6			
XV10 ZSO LIMIT SWITCH	S7			
XV10 ZSC LIMIT SWITCH	S8			
XCV11 ZSO LIMIT SWITCH	S9			
XCV11 ZSC LIMIT SWITCH	S10			
XV11 ZSO LIMIT SWITCH	S11			
XV11 ZSC LIMIT SWITCH	S12			
XCV12 ZSO LIMIT SWITCH	S13			
XCV12 ZSC LIMIT SWITCH	S14			
XV12 ZSO LIMIT SWITCH	S15			
XV12 ZSC LIMIT SWITCH	S16			

Each switch: a, c — 24V/3

PLC DIGITAL INPUTS SEE LINE 477

466	X44 XCV10 OPEN
467	X45 XCV10 CLOSED
468	X46 XV10 OPEN
469	X47 XV10 CLOSED
470	X50 XCV11 OPEN
471	X51 XCV11 CLOSED
472	X52 XV11 OPEN
473	X53 XV11 CLOSED
474	X54 XCV12 OPEN
475	X55 XCV12 CLOSED
476	X56 XV12 OPEN
477	X57 XV12 CLOSED

TO LINE 601

CONTINUED ON LINE 601

LAST NUMBER USED: 477
SPARE TO: 499

NOTES

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	11/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		COMMS POLARITY REVERSED

PLANT: FINA DERV RAIL LOADING SYSTEM

TITLE: LOGIC 5

02/07/99

SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

ELECTRICAL SCHEMATIC TEMPLATE

SHEET 1 OF 01

CLIENT DRG. No.

P&I DRG No. SI039006

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER (V); HOURS RUN METER (HR); AMMETER (A); FREQUENCY METER (HZ); LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

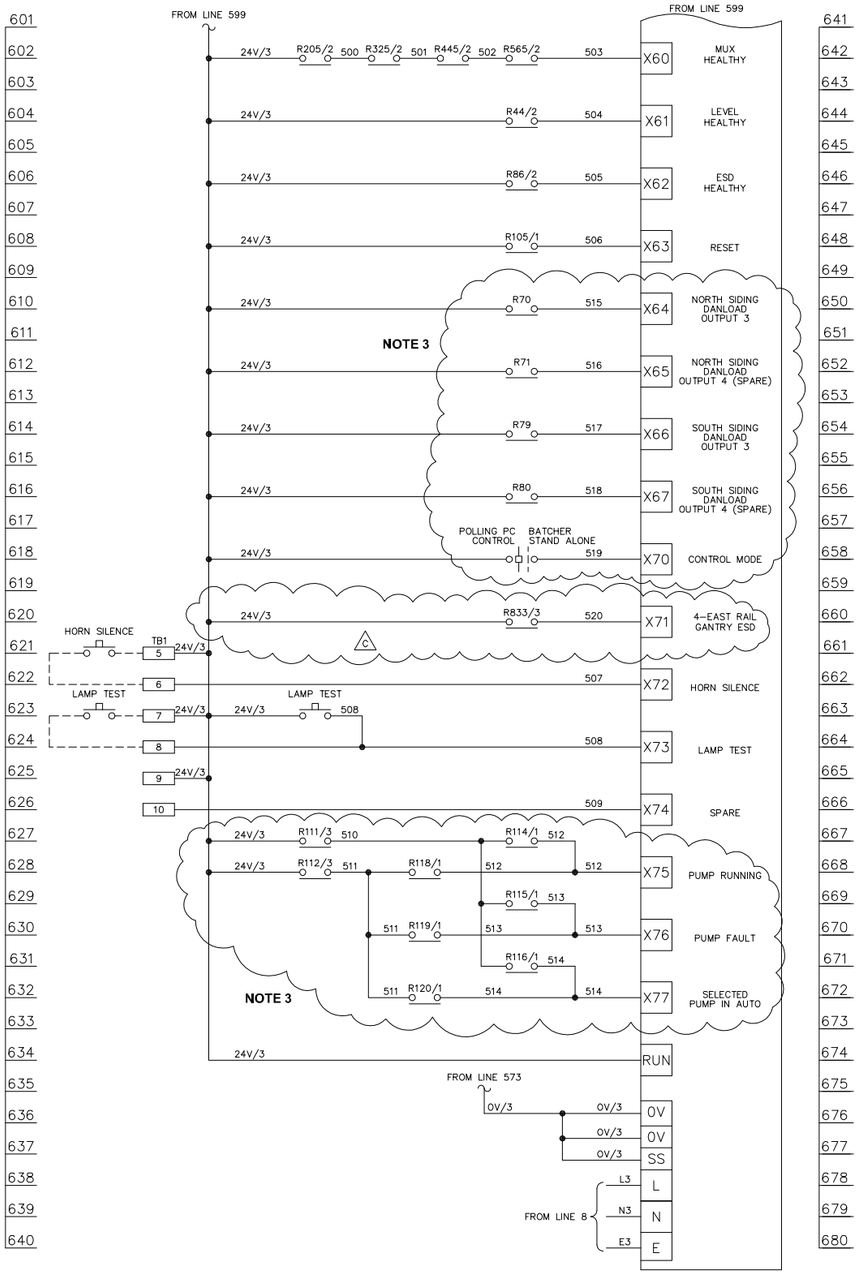
RELAYS & TIMERS: RELAY; TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; CONTACTOR; MECHANICAL INTERLOCK

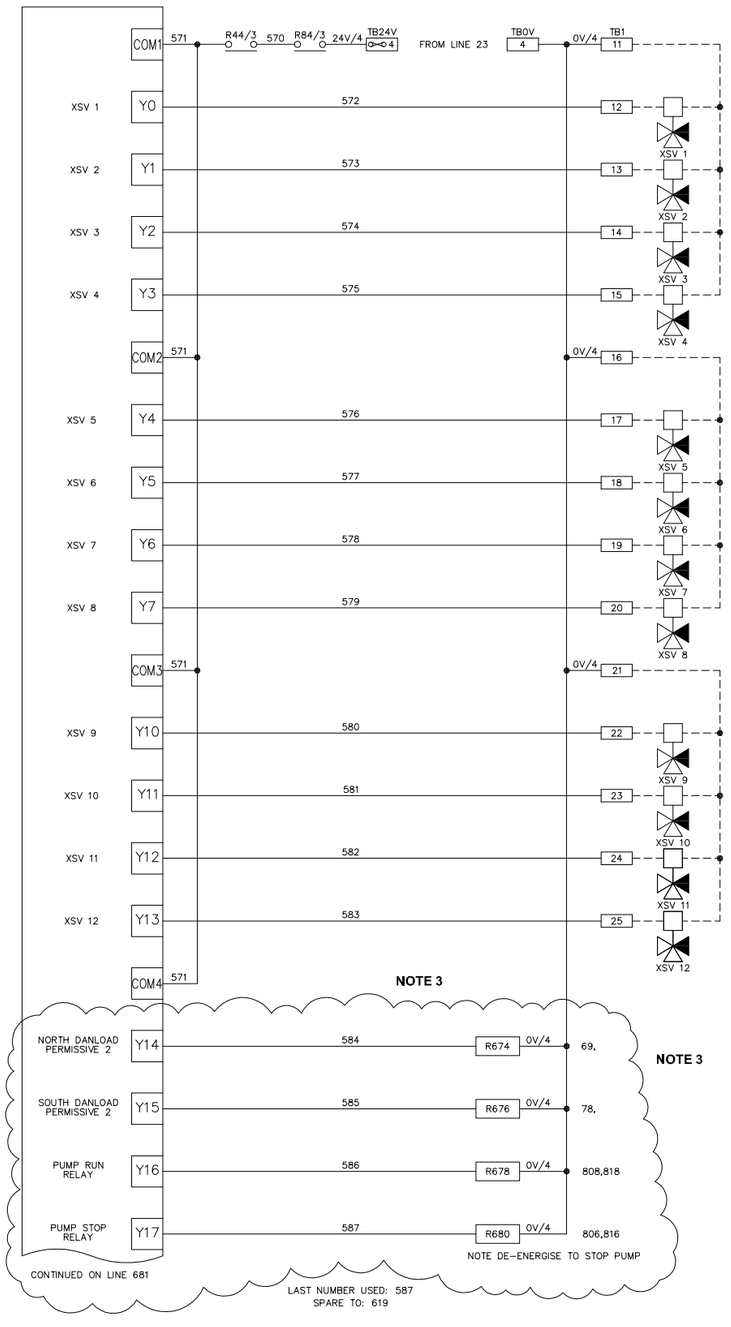
SWITCHES: KEY OPERATED; STOPLOCK PUSHBUTTON; PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

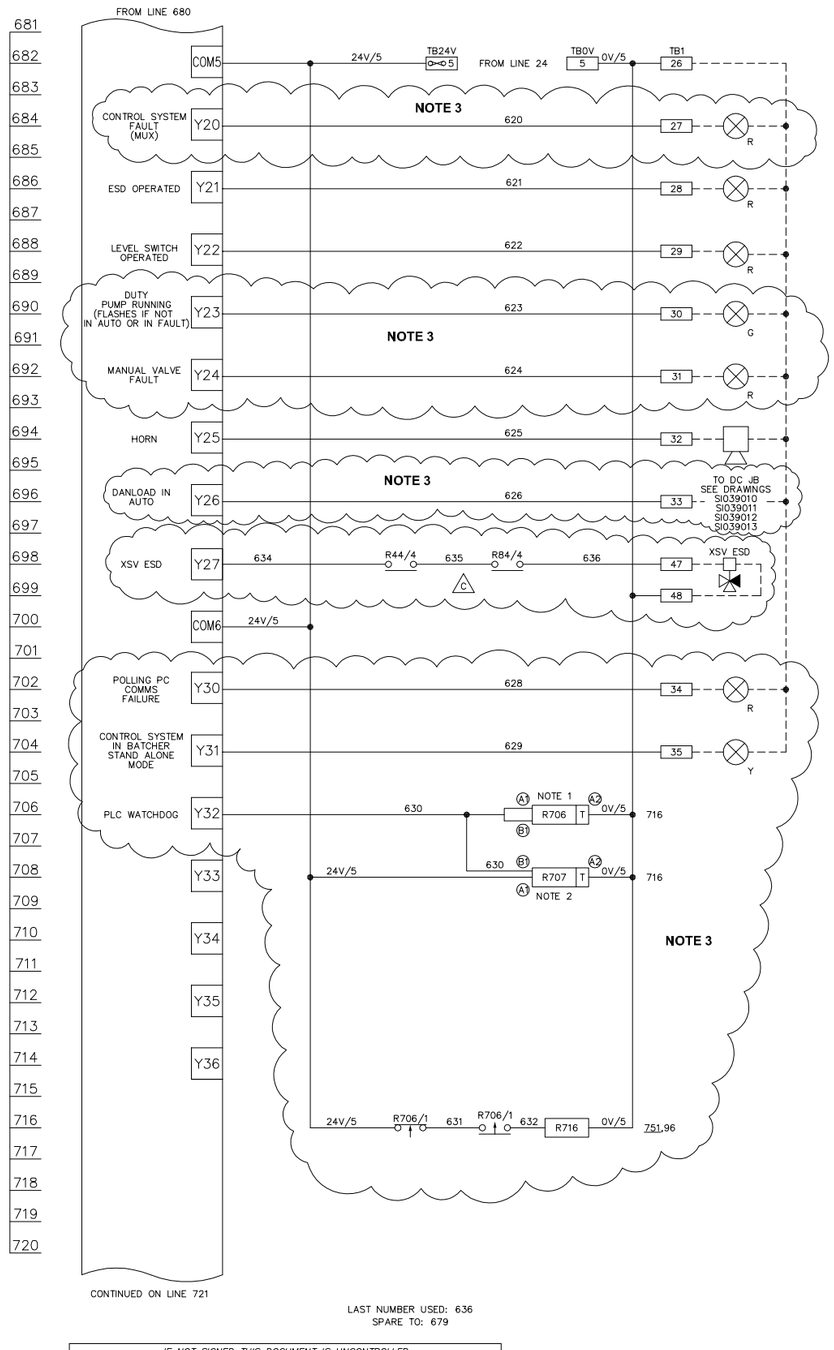
PLC DIGITAL INPUTS



PLC DIGITAL OUTPUTS



PLC DIGITAL OUTPUTS



NOTES
1. TIMER RELAY OMRON M3DE-M1 MODE A SET @ 1 SEC.
2. TIMER RELAY OMRON M3DE-M1 MODE D SET @ 1 SEC
3. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	PANEL TEST MODS
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4-EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 6
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039007_DWG

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER (V); HOURS RUN METER (HR); AMMETER (A); FREQUENCY METER (HZ); LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: RELAY; TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

PLC DIGITAL INPUTS

FROM LINE 599

24V/3 R205/2 500 R325/2 501 R445/2 502 R565/2 503	X60	MUX HEALTHY	
24V/3 R44/2 504	X61	LEVEL HEALTHY	
24V/3 R86/2 505	X62	ESD HEALTHY	
24V/3 R105/1 506	X63	RESET	
24V/3 R70 515	X64	NORTH SIDING DANLOAD OUTPUT 3	
24V/3 R71 516	X65	NORTH SIDING DANLOAD OUTPUT 4 (SPARE)	
24V/3 R79 517	X66	SOUTH SIDING DANLOAD OUTPUT 3	
24V/3 R80 518	X67	SOUTH SIDING DANLOAD OUTPUT 4 (SPARE)	
24V/3 POLLING PC CONTROL / BATCHER STAND ALONE 519	X70	CONTROL MODE	
	X71	SPARE	
HORN SILENCE TB1 5 24V/3 — 6 — 507	X72	HORN SILENCE	
LAMP TEST 7 24V/3; 24V/3 LAMP TEST 508 — 8 — 508	X73	LAMP TEST	
9 24V/3 — 10 — 509	X74	SPARE	
24V/3 R111/3 510 R114/1 512	X75	PUMP RUNNING	
24V/3 R112/3 511 R118/1 512 R115/1 513 512 513			
511 R119/1 513 R116/1 514 513 514	X76	PUMP FAULT	
511 R120/1 514 514	X77	SELECTED PUMP IN AUTO	
24V/3	RUN		
FROM LINE 573 0V/3	0V		
0V/3	0V		
0V/3	SS		
FROM LINE 8 L3	L		
N3	N		
E3	E		

LAST NUMBER USED: 514
SPARE TO: 569

PLC DIGITAL OUTPUTS

	COM1	571	R44/3 570 R84/3 24V/4 TB24V 4 FROM LINE 23 TB0V 4 0V/4	TB1 11	
XSV 1	Y0	572		12	XSV 1
XSV 2	Y1	573		13	XSV 2
XSV 3	Y2	574		14	XSV 3
XSV 4	Y3	575		15	XSV 4
	COM2	571	0V/4	16	
XSV 5	Y4	576		17	XSV 5
XSV 6	Y5	577		18	XSV 6
XSV 7	Y6	578		19	XSV 7
XSV 8	Y7	579		20	XSV 8
	COM3	571	0V/4	21	
XSV 9	Y10	580		22	XSV 9
XSV 10	Y11	581		23	XSV 10
XSV 11	Y12	582		24	XSV 11
XSV 12	Y13	583		25	XSV 12
	COM4	571			
NORTH DANLOAD PERMISSIVE 2	Y14	584	R674 0V/4	69,	
SOUTH DANLOAD PERMISSIVE 2	Y15	585	R676 0V/4	78,	
PUMP RUN RELAY	Y16	586	R678 0V/4	808,818	
PUMP STOP RELAY	Y17	587	R680 0V/4	806,816	

CONTINUED ON LINE 681

LAST NUMBER USED: 587
SPARE TO: 619

NOTE DE-ENERGISE TO STOP PUMP

PLC DIGITAL OUTPUTS

FROM LINE 680

	COM5	24V/5 TB24V 5 FROM LINE 24 TB0V 5 0V/5	TB1 26	
CONTROL SYSTEM FAULT (OIC/MUX)	Y20	620	27	R
ESD OPERATED	Y21	621	28	R
LEVEL SWITCH OPERATED	Y22	622	29	R
DUTY PUMP RUNNING (FLASHES IF NOT IN AUTO OR IN FAULT)	Y23	623	30	G
MANUAL VALVE FAULT	Y24	624	31	R
HORN	Y25	625	32	
DANLOAD IN AUTO	Y26	626	33	TO DC JB SEE DRAWINGS SI039010 SI039011 SI039012 SI039013
SPARE	Y27			
	COM6	24V/5		
POLLING PC COMMS FAILURE	Y30	628	34	R
CONTROL SYSTEM IN BATCHER STAND ALONE MODE	Y31	629	35	Y
PLC WATCHDOG	Y32	630 — A1 NOTE 1 R706 T A2 0V/5 — B1		716
	Y33	24V/5 — 630 B1 R707 T A2 0V/5 — A1 NOTE 2		716
	Y34			
	Y35			
	Y36			
		24V/5 R706/1 631 R706/1 632 R716 0V/5		751,96

CONTINUED ON LINE 721

LAST NUMBER USED: 633
SPARE TO: 679

NOTES
1. TIMER RELAY OMRON M3DE-M1 MODE A SET @ 1 SEC
2. TIMER RELAY OMRON M3DE-M1 MODE D SET @ 1 SEC

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		PANEL TEST MODS

PLANT: FINA DERV RAIL LOADING SYSTEM
TITLE: LOGIC 6
02/07/99
SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN
ELECTRICAL SCHEMATIC TEMPLATE
SHEET 1 OF 01
CLIENT DRG. No.
P&I DRG No. SI039007

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; V VOLTMETER; HR HOURS RUN METER; A AMMETER; HZ FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

PLC DIGITAL OUTPUTS

FROM LINE 720

24V/7 TB24V 7

FROM LINE 26 TBOV 7 0V/7

COM7	24V/7			
SPARE	Y40			
SPARE	Y41			
SPARE	Y42			
SPARE	Y43			
SPARE	Y44			
SPARE	Y45			
SPARE	Y46			
SPARE	Y47			
COM8	24V/7			
SYSTEM FAULT (OIC, MUX)	Y50	680	R	0V/7
ESD OPERATED	Y51	681	R	0V/7
LEVEL SWITCH OPERATED	Y52	682	R	0V/7
PUMP RUNNING (FLASHES)	Y53	683	G	0V/7
MANUAL VALVE FAULT	Y54	684	R	0V/7
WATCHDOG FAULT LAMP TEST OUTPUT	Y55	685 (24V/7 R716/1, REMOVE LINK BETWEEN CONTACT & LAMP)	R	0V/7
POLLING PC COMMS FAILURE	Y56	686	R	0V/7
CONTROL SYSTEM IN BATCHER STAND ALONE MODE	Y57	687	A	0V/7

NOTE 2

CONTINUED ON LINE 761

LAST NUMBER USED: 687
SPARE TO: 749

PLC DIGITAL OUTPUTS

FROM LINE 760

24V/8 TB24V 8

FROM LINE 27 TBOV 8 0V/8

COM9	24V/8			
LS1 LEVEL HIGH LAMP TEST	Y60	24V/8 R207/2 → 750	R	0V/8
LS2 LEVEL HIGH LAMP TEST	Y61	24V/8 R209/2 → 751	R	0V/8
LS3 LEVEL HIGH LAMP TEST	Y62	24V/8 R211/2 → 752	R	0V/8
LS4 LEVEL HIGH LAMP TEST	Y63	24V/8 R447/2 → 753	R	0V/8
LS5 LEVEL HIGH LAMP TEST	Y64	24V/8 R449/2 → 754	R	0V/8
LS6 LEVEL HIGH LAMP TEST	Y65	24V/8 R451/2 → 755	R	0V/8
LS7 LEVEL HIGH LAMP TEST	Y66	24V/8 R327/2 → 756	R	0V/8
LS8 LEVEL HIGH LAMP TEST	Y67	24V/8 R329/2 → 757	R	0V/8
COM10	24V/8			
LS9 LEVEL HIGH LAMP TEST	Y70	24V/8 R331/2 → 758	R	0V/8
LS10 LEVEL HIGH LAMP TEST	Y71	24V/8 R567/2 → 759	R	0V/8
LS11 LEVEL HIGH LAMP TEST	Y72	24V/8 R569/2 → 760	R	0V/8
LS12 LEVEL HIGH LAMP TEST	Y73	24V/8 R571/2 → 761	R	0V/8
SPARE	Y74			
SPARE	Y75			
SPARE	Y76			
SPARE	Y77			

LAST NUMBER USED: 761
SPARE TO: 849

PUMP CONTROLS (240V)

PUMP 1

MCC COMPARTMENT SEE DRAWING SI378009

850	R112/1	851	TB240V 15	740902/1	TB2 1	740902/1
850	R86/4	851	16	740902/2	2	740902/2
852			17	740902/3	9	740902/3
852	R46/4	853 R680/1 854 R111/2 855	18	740902/4	10	740902/4
856			19	740902/5	11	740902/5
856	R678/1	857	20	740902/6	12	740902/6
SPARE			21	740902/7	13	740902/7

740902 (7 CORE)

PUMP 2 (FUTURE)

NOTE 2

859	R111/1	858	TB240V 22
859	R88/2	858	23
860			24
860	R48/2	861 R680/2 862 R112/2 863	25
864			26
864	R678/2	865	27
SPARE			28

P2-25 RAIL LOADING PUMP

868	R88/3	867 R48/3	866	TB1 49
868				50

P5-12 RAIL LOADING PUMP

871	R88/4	870 R48/4	869	TB1 51
871				52

4-EAST RAIL GANTRY ESD

ESD x7 ON RAIL GANTRY

FROM LINE 89	24V/2		TB1 53	
		872	54	
FROM LINE 89	0V/2	NOTE 1 R833 92,834,620		
	874	R833/2 873	55	ANNUNCIATOR
	874		56	

C

LAST NUMBER USED: 874
SPARE TO: 899

NOTES
1. OMRON G7S-4A2B GUIDED CONTACT RELAY (RS260-4373).
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	PANEL TEST MODS
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 7

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

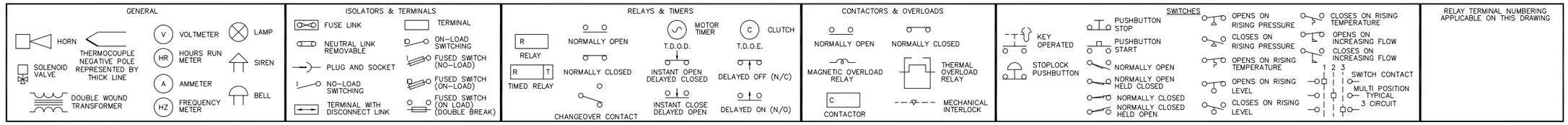
P & I DESIGN — *P & I Design Ltd* Tel. 01642 617444 www.pidesign.co.uk

SHEET 1 OF 1

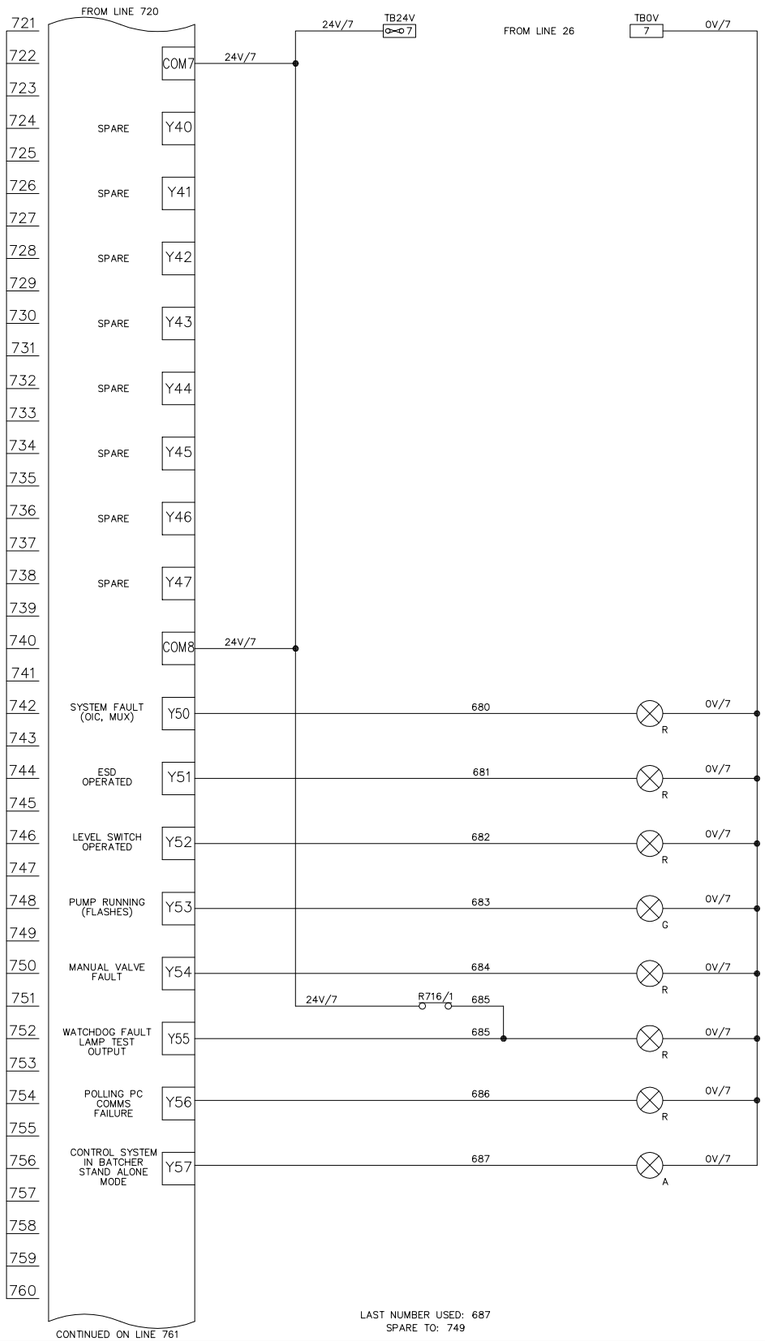
CLIENT DRG. No.

P&I DRG No. SI039008_DWG

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

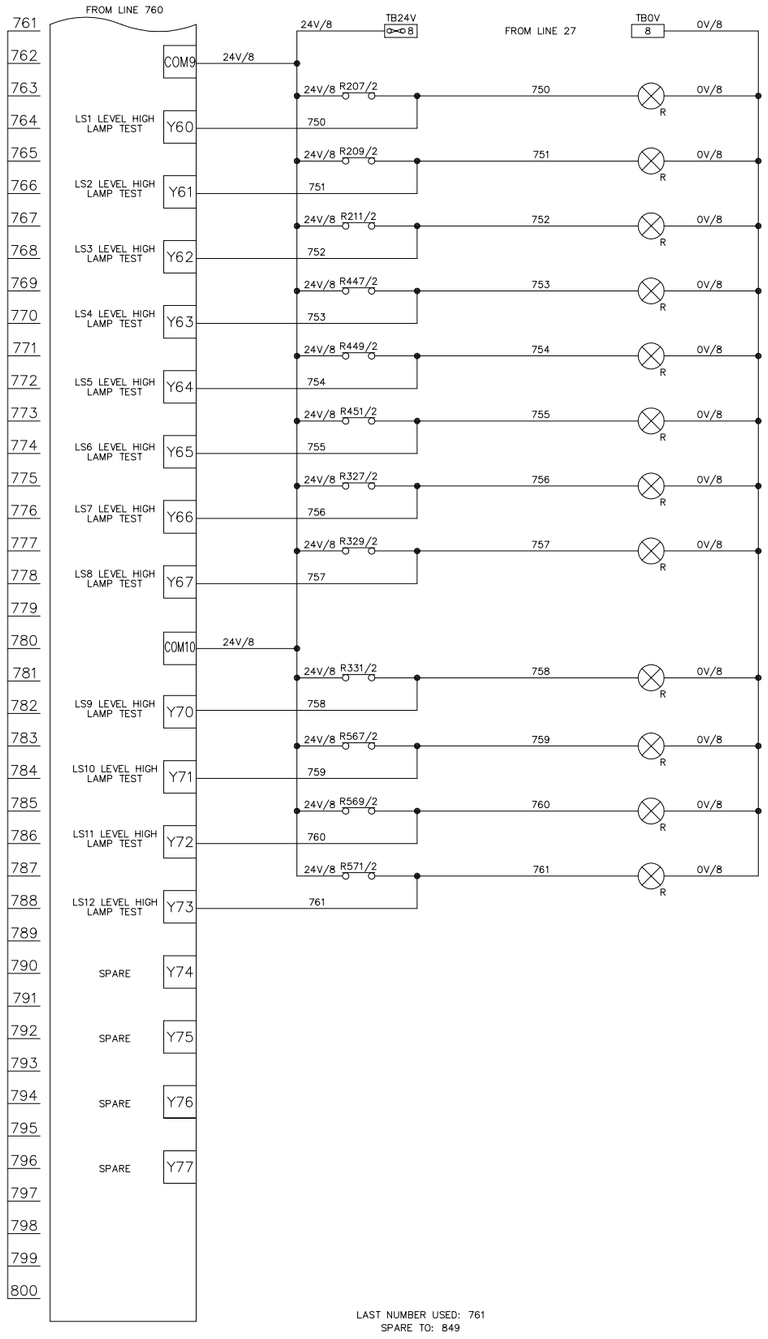


PLC DIGITAL OUTPUTS



LAST NUMBER USED: 687
SPARE TO: 749

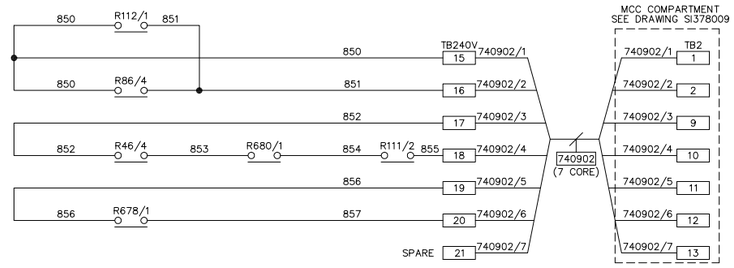
PLC DIGITAL OUTPUTS



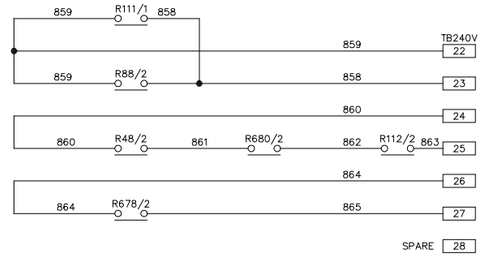
LAST NUMBER USED: 761
SPARE TO: 849

PUMP CONTROLS (240V)

PUMP 1



PUMP 2 (FUTURE)



LAST NUMBER USED: 865
SPARE TO: 899

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		PANEL TEST MODS

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	LOGIC 7
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
	P & I DESIGN
ELECTRICAL SCHEMATIC TEMPLATE	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039008

FIELD

CONTROL PANEL

COMMUNICATIONS INTERFACE PANEL

NORTH SIDING BATCHER

J0 POWER SUPPLY BOARD
TB1
LIVE 1 740944/1
EARTH 2 740944/2
NEUTRAL 3 740944/3
HEATER (SPARE) 4
5
TB2
AC PERMISSIVE 1 740944/4
NEUTRAL 2 740944/5
FUSED LIVE 3

J1 AC I/O BOARD
TB1
BLOCK VALVE INPUT – INPUT 2 1 740944/6
ESD/OVERSPILL PERMISSIVE – INPUT 1 2 740944/7
3
4
SPARE: OUTPUT 8 5
OUTPUT 7 6
OUTPUT 6 7
OUTPUT 5 8
OUTPUT 4 9
BLOCK VALVE OUTPUT – OUTPUT 3 10
DOWNSTREAM VALVE – OUTPUT 2 11 740944/8
UPSTREAM VALVE – OUTPUT 1 12 740944/9
13 740944/10
14 740944/11
15 740944/12

J3 DC I/O BOARD
TB1
SPARE: INPUT 6 1 740930/1/2
INPUT 5 2 740930/1/1
INPUT 4 3 740930/2/2
INPUT 3 4 740930/2/1
INPUT 2 5 740930/3/2
INPUT 1 6 740930/3/1
OUTPUT 4 7 740930/4/2
OUTPUT 3 8 740930/4/1
OUTPUT 2 9 740930/5/2
OUTPUT 1 10 740930/5/1
11 740930/6/2
12 740930/6/1
13 740930/7/2
14 740930/7/1
15 740930/8/2
16 740930/8/1
17 740930/9/2
18 740930/9/1
19 740930/10/2
20 740930/10/1

J5 METER PULSE BOARD
TB1
P/S 1 1 740930/12/1
INPUT 1 2 740930/11/1
SIGNAL COM 3 740930/11/2
P/S 2 4 740930/12/2
INPUT 2 5 740930/13/1
SIGNAL COM 6 740930/13/2

740930 (20 PAIR)

J7 2Ch A/D INPUT BOARD
TB1
1
2
3
V SOURCE 4 20724/14/1
Ch 2+ 5 20724/14/2
Ch 2– 6 740930/15/1
I SOURCE 7 740930/15/2

CPU & DUART BOARD
TB1
RS422: 1 740930/16/1
2 740930/16/2
3 740930/17/1
4 740930/17/2
5 740930/18/1
6 740930/18/2
7 740930/19/1
8 740930/19/2
9 740930/20/1
10 740930/20/2

740944 (12 CORE)

AC JB
740944/2 → 1 740931/1
2 740946/3
3 740947/3
740944/1 → 4 740931/3
5
6
740944/3 → 7 740931/2
740944/5 → 8
740944/7 → 9
10
11
12 740946/2
13 740947/2
740944/4 → 14 740931/4
740944/6 → 15 740931/5
16
17
740944/8 → 18 SPARE
740944/9 → 19 740931/7
740944/10 → 20 740931/6
740944/11 → 21 740946/1
22
23
740944/12 → 24 740947/1

FOR TERMINALS 25–48 SEE DRG. SI038011

740931 (7 CORE)

740931/1 → 740911/1
740931/2 → 740911/2
740931/3 → 740911/3
740931/4 → 740911/4
740931/5 → 740911/5
740931/6 → 740911/6
740931/7 → 740911/7

LOCAL 6–POLE ISOLATOR

740911 (7 CORE)

740911/1 → TB240V 1 E4
740911/2 → 2 N4
740911/3 → 3 L4
740911/4 → 4 24
740911/5 → 5 25
740911/6 → 6 26
740911/7 → 7 27

SEE DRG. SI039002

740946 (3 CORE)

740946/3 → E
740946/2 → N
740946/1 → L

NORTH SIDING DOWNSTREAM DCV

740947 (3 CORE)

740947/3 → E
740947/2 → N
740947/1 → L

NORTH SIDING UPSTREAM DCV

NOTE 3

SCREEN BAR

DC JB
TB2
740930/14/1 → 1
740930/14/2 → 2
740930/15/2 → 3
740930/15/1 → 4
740930/6/1 → 5
740930/5/1 → 6
740930/4/1 → 7
740930/3/1 → 8
740930/2/1 → 9
740930/1/1 → 10
740930/6/2 → 11
740930/5/2 → 12
740930/4/2 → 13
740930/3/2 → 14
740930/2/2 → 15
740930/1/2 → 16
740930/10/1 → 17
740930/9/1 → 18
740930/8/1 → 19
740930/7/1 → 20
740930/10/2 → 21
740930/9/2 → 22
740930/8/2 → 23
740930/7/2 → 24
740930/12/1 → 25 → 740928/1/1
740930/11/1 → 26 → 740928/1/2
740930/11/2 → 27 → 740928/2/1
740930/12/2 → 28 → 740927/1/1
740930/13/1 → 29 → 740927/1/2
740930/13/2 → 30 → 740927/2/1
740930/16/1 → 31 → 740988/1/1
32
740930/16/2 → 33 → 740988/1/2
34
740930/17/1 → 35 → 740988/2/1
36
740930/17/2 → 37 → 740988/2/2
38
740930/18/1 → 39 → 740988/3/1
40
740930/18/2 → 41 → 740988/3/2
42
740930/19/1 → 43 → 740988/4/1
44
740930/19/2 → 45 → 740988/4/2
46
740930/20/1 → 47 → SPARE
740930/20/2 → 48 → 740988/5/1
SPARE → 49 → 740988/5/2
50

NOTE 2

Exe

FOR TB3 SEE DRG. SI039011
FOR TB1 SEE DRG. SI039012

SCREEN BAR

740929/1/1 → 1
740929/1/2 → 2
740929/2/1 → 3
740929/2/2 → 4

TB1 TB1
58 42

740929 (2 PAIR)

TEMPERATURE ELEMENT
740929/1/1 → V–
740929/1/2 → +
740929/2/1 → –
740929/2/2 → I

NOTE 3

TURBINE METER
PREAMP
PICKUP COIL

740928/1/1 → E
740928/1/2 → H
740928/2/1 → F
740990/1/1 → D
740990/1/2 → E
740990/1/1 → A
740990/1/1 → B

740928 (2 PAIR)
740990 (1 PAIR)

740927/1/1 → E
740927/1/2 → H
740927/2/1 → F
740991/1/1 → D
740991/1/2 → E
740991/1/1 → A
740991/1/1 → B

740927 (2 PAIR)
740991 (1 PAIR)

740988 (5 PAIR)

LIGHTNING EARTH BAR

LIGHTENING PROTECTION
740988/1/1 → 3 5 4 ESP
740988/1/2
740988/2/1 → 3 5 4 ESP
740988/2/2
740988/3/1 → 3 5 4 ESP
740988/3/2
740988/4/1 → 3 5 4 ESP
740988/4/2

SEE DRG. SI039014

EARTH ROD

INSTRUMENT EARTH BAR

740988/5/1
740988/5/2

SCREEN EARTH

NOTE 3

NORTH SIDING KEYPAD
MERCURY 1
J5
1 740904/1/1
2 740904/1/2
3 740904/2/1
4 740904/2/2

SCREENS NOT CONNECTED

RS422 I.S.

740904 (2 PAIR)

I.S. INTERFACE MODULE R007
740904/1/1 → 15
740904/1/2 → 13
740904/2/1 → 21
740904/2/2 → 19

RS422 TO PC SEE DRG. SI039015

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
FQ01	93C.105.11123	EExd IIB T6	BASEEFA
TE01	831045X	EExd IIC T6	BASEEFA
FT01	86B1336	EExd IIC T6	BASEEFA
DCV01A	TBA	TBA	TBA
DCV01B	TBA	TBA	TBA
DC JB	84B3299X	EEx'e' IIC T6	BASEEFA

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
AC JB	84B3299X	EEx'e' IIC T6	BASEEFA

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. DECOMMISSIONED BATCHING SYSTEM. FIELD EQUIPMENT REMOVED.

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	29/06/00	D.P.	A.B.	D.R.R	D.R.R	D.R.R	D.R.R	ON SITE CHANGES
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM NORTH SIDING BATCHING SYSTEM LOOP

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039010_DWG

FIELD

CONTROL PANEL

NORTH SIDING BATCHER

J0 POWER SUPPLY BOARD

TB1
- 1 LIVE — 740944/1
- 2 EARTH — 740944/2
- 3 NEUTRAL — 740944/3
- 4
- 5 HEATER (SPARE)

TB2
- 1 AC PERMISSIVE — 740944/4
- 2 NEUTRAL — 740944/5
- 3 FUSED LIVE

J1 AC I/O BOARD

TB1
- 1 BLOCK VALVE INPUT – INPUT 2 — 740944/6
- 2 ESD/OVERSPILL PERMISSIVE – INPUT 1 — 740944/7
- 3
- 4
- 5 SPARE – OUTPUT 8
- 6
- 7 SPARE – OUTPUT 7
- 8
- 9 SPARE – OUTPUT 6
- 10
- 11 SPARE – OUTPUT 5 — 740944/8
- 12
- 13 SPARE – OUTPUT 4 — 740944/9
- 14
- 15 BLOCK VALVE OUTPUT – OUTPUT 3 — 740944/10
- 16
- 17 DOWNSTREAM VALVE – OUTPUT 2 — 740944/11
- 18
- 19 UPSTREAM VALVE – OUTPUT 1 — 740944/12
- 20

740944 (12 CORE)

J3 DC I/O BOARD

TB1
- 1 SPARE – INPUT 6 — 740930/1/2
- 2 — 740930/1/1
- 3 SPARE – INPUT 5 — 740930/2/2
- 4 — 740930/2/1
- 5 SPARE – INPUT 4 — 740930/3/2
- 6 — 740930/3/1
- 7 SPARE – INPUT 3 — 740930/4/2
- 8 — 740930/4/1
- 9 SPARE – INPUT 2 — 740930/5/2
- 10 — 740930/5/1
- 11 SPARE – INPUT 1 — 740930/6/2
- 12 — 740930/6/1
- 13 OUTPUT 4 — 740930/7/2
- 14 — 740930/7/1
- 15 OUTPUT 3 — 740930/8/2
- 16 — 740930/8/1
- 17 OUTPUT 2 — 740930/9/2
- 18 — 740930/9/1
- 19 OUTPUT 1 — 740930/10/2
- 20 — 740930/10/1

J5 METER PULSE BOARD

TB1
- 1 P/S 1 — 740930/12/1
- 2 INPUT 1 — 740930/11/1
- 3 SIGNAL COM — 740930/11/2
- 4 P/S 2 — 740930/12/2
- 5 INPUT 2 — 740930/13/1
- 6 SIGNAL COM — 740930/13/2

J7 2Ch A/D INPUT BOARD

TB1
- 1
- 2
- 3
- 4 V SOURCE — 20724/14/1
- 5 Ch 2+ — 20724/14/2
- 6 Ch 2– — 740930/15/1
- 7 I SOURCE — 740930/15/2

CPU & DUART BOARD

TB1
- 1 RS422 — 740930/16/1
- 2 — 740930/16/2
- 3 — 740930/17/2
- 4 — 740930/17/1
- 5 — 740930/18/1
- 6 — 740930/18/2
- 7 — 740930/19/1
- 8 — 740930/19/2
- 9 — 740930/20/1
- 10 — 740930/20/2

740930 (20 PAIR)

AC JB

740944/2	1	740931/1
	2	740946/3
	3	740947/3
740944/1	4	740931/3
	5	
740944/3	6	740931/2
740944/5	7	
	8	
740944/7	9	
	10	
	11	
	12	740946/2
	13	740947/2
740944/4	14	740931/4
740944/6	15	740931/5
	16	
	17	
740944/8	18	SPARE
740944/9	19	740931/7
740944/10	20	740931/6
740944/11	21	740946/1
	22	
	23	
740944/12	24	740947/1

FOR TERMINALS 25–48 SEE DRG. SI038011

740931 (7 CORE)

LOCAL 6-POLE ISOLATOR

740931/1	740911/1
740931/2	740911/2
740931/3	740911/3
740931/4	740911/4
740931/5	740911/5
740931/6	740911/6
740931/7	740911/7

740911 (7 CORE)

740946 (3 CORE)

740947 (3 CORE)

740946/3, 740946/2, 740946/1 — E N L — NORTH SIDING DOWNSTREAM DCV

740947/3, 740947/2, 740947/1 — E N L — NORTH SIDING UPSTREAM DCV

DC JB

SCREEN BAR	TB2	SCREEN BAR
740930/14/1	1	740929/1/1
740930/14/2	2	740929/1/2
740930/15/2	3	740929/2/1
740930/15/1	4	740929/2/2
740930/5/1	5	
740930/4/1	6	
740930/3/1	7	
740930/2/1	8	
740930/1/1	9	
740930/6/2	10	
740930/5/2	11	
740930/4/2	12	
740930/3/2	13	TB1 58
740930/2/2	14	
740930/1/2	15	
740930/10/1	16	
740930/9/1	17	
740930/8/1	18	
740930/7/1	19	
740930/10/2	20	
740930/9/2	21	
740930/8/2	22	
740930/7/2	23	
740930/12/1	24	
740930/11/1	25	740928/1/1
740930/11/2	26	740928/1/2
740930/12/2	27	740928/2/1
740930/13/1	28	740927/1/1
740930/13/2	29	740927/1/2
740930/16/1	30	740988/1/1
740930/16/2	31	
	32	740988/1/2
740930/17/1	33	
	34	740988/2/1
740930/17/2	35	
	36	740988/2/2
740930/18/1	37	
	38	740988/3/1
740930/18/2	39	
	40	740988/3/2
740930/19/1	41	
	42	740988/4/1
740930/19/2	43	
	44	740988/4/2
740930/20/1	45	
740930/20/2	46	
SPARE	47	SPARE
SPARE	48	740988/5/1
	49	740988/5/2
	50	

NOTE 2

Exe

FOR TB3 SEE DRG. SI039011
FOR TB1 SEE DRG. SI039012

740929 (2 PAIR)

TEMPERATURE ELEMENT
- 740929/1/1 — V–
- 740929/1/2 — +
- 740929/2/1 — –
- 740929/2/2 — I

740928 (2 PAIR)

740927 (2 PAIR)

TURBINE METER
- 740928/1/1, 740928/1/2, 740928/2/1 — E H F — PREAMP — D E — 740990/1/1, 740990/1/2 — 740990 (1 PAIR)
- 740990/1/1, 740990/1/2 — PICKUP COIL — A B
- 740927/1/1, 740927/1/2, 740927/2/1 — E H F — PREAMP — D E — 740991/1/1, 740991/1/2 — 740991 (1 PAIR)
- 740991/1/1, 740991/1/2 — PICKUP COIL — A B

740988 (5 PAIR)

LIGHTNING EARTH BAR

EARTH ROD

LIGHTENING PROTECTION
- 740988/1/1, 740988/1/2 — ESP
- 740988/2/1, 740988/2/2 — ESP
- 740988/3/1, 740988/3/2 — ESP
- 740988/4/1, 740988/4/2 — ESP

SEE DRG. SI039014

INSTRUMENT EARTH BAR

740988/5/1, 740988/5/2

SCREEN EARTH

NORTH SIDING KEYPAD

MERCURY 1

SCREENS NOT CONNECTED

J5
- 1 — 740904/1/1
- 2 — 740904/1/2
- 3 — 740904/2/1
- 4 — 740904/2/2

RS422 I.S.

740904 (2 PAIR)

I.S. INTERFACE MODULE R007

740904/1/1, 740904/1/2, 740904/2/1, 740904/2/2 — 15, 13, 21, 19

RS422 TO PC SEE DRG. SI039015

COMMUNICATIONS INTERFACE PANEL

740911/1 … 740911/7 — TB240V
- 1 — E4
- 2 — N4
- 3 — L4
- 4 — 24
- 5 — 25
- 6 — 26
- 7 — 27

SEE DRG. SI039002

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

PI

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
FQ01	93C.105.11123	EExd IIB T6	BASEEFA
TE01	831045X	EExd IIC T6	BASEEFA
FT01	86B1336	EExd IIC T6	BASEEFA
DCV01A	TBA	TBA	TBA
DCV01B	TBA	TBA	TBA
DC JB	84B3299X	EEx'e' IIC T6	BASEEFA

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
AC JB	84B3299X	EEx'e' IIC T6	BASEEFA

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
C	29/06/00	D.P.	A.B.	D.R.R	D.R.R	ON SITE CHANGES

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	NORTH SIDING BATCHING SYSTEM LOOP
	29/06/00

SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

INSTRUMENT LOOP SHEET FOR USE IN HAZARDOUS AREA — SHEET 01 OF 01

CLIENT DRG. No. — P&I DRG No. SI039010

FIELD

CONTROL PANEL

COMMUNICATIONS INTERFACE PANEL

SOUTH SIDING BATCHER

J0 POWER SUPPLY BOARD

TB1
- 1 LIVE — 740945/1
- 2 EARTH — 740945/2
- 3 NEUTRAL — 740945/3
- 4
- 5 HEATER (SPARE)

TB2
- 1 AC PERMISSIVE — 740945/4
- 2 NEUTRAL — 740945/5
- 3 FUSED LIVE

J1 AC I/O BOARD

TB1
- 1 BLOCK VALVE INPUT – INPUT 2 — 740945/6
- 2 — 740945/7
- 3 ESD/OVERSPILL PERMISSIVE – INPUT 1
- 4
- 5 SPARE – OUTPUT 8
- 6
- 7 SPARE – OUTPUT 7
- 8
- 9 SPARE – OUTPUT 6
- 10
- 11 SPARE – OUTPUT 5 — 740945/8
- 12
- 13 SPARE – OUTPUT 4 — 740945/9
- 14
- 15 BLOCK VALVE OUTPUT – OUTPUT 3 — 740945/10
- 16
- 17 DOWNSTREAM VALVE – OUTPUT 2 — 740945/11
- 18
- 19 UPSTREAM VALVE – OUTPUT 1 — 740945/12
- 20

J3 DC I/O BOARD

TB1
- 1 SPARE – INPUT 6 — 740934/1/2
- 2 — 740934/1/1
- 3 SPARE – INPUT 5 — 740934/2/2
- 4 — 740934/2/1
- 5 SPARE – INPUT 4 — 740934/3/2
- 6 — 740934/3/1
- 7 SPARE – INPUT 3 — 740934/4/2
- 8 — 740934/4/1
- 9 SPARE – INPUT 2 — 740934/5/2
- 10 — 740934/5/1
- 11 SPARE – INPUT 1 — 740934/6/2
- 12 — 740934/6/1
- 13 SPARE – OUTPUT 4 — 740934/7/2
- 14 — 740934/7/1
- 15 SPARE – OUTPUT 3 — 740934/8/2
- 16 — 740934/8/1
- 17 SPARE – OUTPUT 2 — 740934/9/2
- 18 — 740934/9/1
- 19 SPARE – OUTPUT 1 — 740934/10/2
- 20 — 740934/10/1

J5 METER PULSE BOARD

TB1
- 1 P/S 1 — 740934/12/1
- 2 INPUT 1 — 740934/11/1
- 3 SIGNAL COM — 740934/11/2
- 4 P/S 2 — 740934/12/2
- 5 INPUT 2 — 740934/13/1
- 6 SIGNAL COM — 740934/13/2

740934 (20 PAIR)

J7 2Ch A/D INPUT BOARD

TB1
- 1
- 2
- 3
- 4 V SOURCE — 20724/14/1
- 5 Ch 2+ — 20724/14/2
- 6 Ch 2– — 740934/15/1
- 7 I SOURCE — 740934/15/2

CPU & DUART BOARD

TB1
- 1 RS422 — 740934/16/1
- 2 — 740934/16/2
- 3 — 740934/17/1
- 4 — 740934/17/2
- 5 — 740934/18/1
- 6 — 740934/18/2
- 7 — 740934/19/1
- 8 — 740934/19/2
- 9 — 740934/20/1
- 10 — 740934/20/2

740945 (12 CORE)

AC JB FOR TERMINALS 1–24 SEE DRG. SI039010

740945/2	25	740933/1
	26	740951/3
	27	740950/3
740945/1	28	740933/3
	29	
	30	
740945/3	31	740933/2
740945/5	32	
740945/7	33	
	34	
	35	
	36	740951/2
	37	740950/2
740945/4	38	740933/4
740945/6	39	740933/5
	40	
740945/8	41	SPARE
740945/9	42	740933/7
740945/10	43	740933/6
740945/11	44	740951/1
	45	
	46	
	47	
740945/12	48	740950/1

EEx'e'

FOR TERMINALS 44–54 SEE DRG. SI039012

740933 (7 CORE)

740933/1 740913/1
740933/2 740913/2
740933/3 740913/3
740933/4 740913/4
740933/5 740913/5
740933/6 740913/6
740933/7 740913/7

LOCAL 6–POLE ISOLATOR

740913 (7 CORE)

740951 (3 CORE)

740951/3 740951/2 740951/1 — ENL — SOUTH SIDING DOWNSTREAM DCV

740950 (3 CORE)

740950/3 740950/2 740950/1 — ENL — SOUTH SIDING UPSTREAM DCV

740913/1 740913/2 740913/3 740913/4 740913/5 740913/6 740913/7

TB240V
- 8 E5
- 9 N5
- 10 L5
- 11 29
- 12 30
- 13 31
- 14 32

SEE DRG. SI039002

NOTE 3

SCREEN BAR — DC JB — SCREEN BAR

740934/14/1 740934/14/2 740934/15/2 740934/15/1 740934/6/1 740934/5/1 740934/4/1 740934/3/1 740934/2/1 740934/1/1 740934/6/2 740934/5/2 740934/4/2 740934/3/2 740934/2/2 740934/1/2 740934/10/1 740934/9/1 740934/8/1 740934/7/1 740934/10/2 740934/9/2 740934/8/2 740934/7/2 740934/12/1 740934/11/1 740934/11/2 740934/12/2 740934/13/1 740934/13/2 740934/16/1 740934/16/2 740934/17/1 740934/17/2 740934/18/1 740934/18/2 740934/19/1 740934/19/2 740934/20/1 740934/20/2

TB3
- 1 740935/1/1
- 2 740935/1/2
- 3 740935/2/1
- 4 740935/2/2
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25 740936/1/1
- 26 740936/1/2
- 27 740936/2/1
- 28 740937/1/1
- 29 740937/1/2
- 30 740937/2/1
- 31
- 32
- 33
- 34
- 35
- 36
- 37
- 38
- 39
- 40
- 41
- 42
- 43
- 44
- 45
- 46
- 47
- 48
- 49
- 50

TB1 43

TB1 59

NOTE 2

Exe

FOR TB2 SEE DRG. SI039010
FOR TB3 SEE DRG. SI039012

740935 (2 PAIR)

TEMPERATURE ELEMENT — 740935/1/1 740935/1/2 740935/2/1 740935/2/2 — V– + – I

NOTE 3

740936 (2 PAIR)

TURBINE METER — PREAMP — PICKUP COIL

740936/1/1 740936/1/2 740936/2/1 — EHF — DE — 740992/1/1 740992/1/2 — 740992/1/1 740992/1/2 — AB

740992 (1 PAIR)

740937 (2 PAIR)

740937/1/1 740937/1/2 740937/2/1 — EHF — DE — 740993/1/1 740993/1/2 — 740993/1/1 740993/1/2 — AB

740993 (1 PAIR)

SCREEN EARTH BAR

NOTE 3

SOUTH SIDING KEYPAD — MERCURY 2 — J5
- 1 740916/1/1
- 2 740916/1/2
- 3 740916/2/1
- 4 740916/2/2

SCREENS NOT CONNECTED

RS422 I.S.

740916 (2 PAIR)

I.S. INTERFACE MODULE R007

740916/1/1 740916/1/2 740916/2/1 740916/2/2 — 15 13 21 19

RS422 TO PC SEE DRG. SI039015

EARTH RODS

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
FQ01	93C.105.11123	EExd IIB T6	BASEEFA
TE01	831045X	EExd IIC T6	BASEEFA
FT01	86B1336	EExd IIC T6	BASEEFA
DCV02A	TBA	TBA	TBA
DCV02B	TBA	TBA	TBA
DC JB	84B3299X	EEx'e' IIC T6	BASEEFA

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
AC JB	84B3299X	EEx'e' IIC T6	BASEEFA

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. DECOMMISSIONED BATCHING SYSTEM. FIELD EQUIPMENT REMOVED.

SIMON bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	29/06/00	D.P.	A.B.	D.R.R	D.R.R	D.R.R	D.R.R	ON SITE CHANGES
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM SOUTH SIDING BATCHING SYSTEM LOOP

SIMON — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039011_DWG

FIELD

CONTROL PANEL

COMMUNICATIONS INTERFACE PANEL

SOUTH SIDING BATCHER

J0 POWER SUPPLY BOARD
TB1
1 LIVE 740945/1
2 EARTH 740945/2
3 NEUTRAL 740945/3
4 HEATER (SPARE)
5
TB2
1 AC PERMISSIVE 740945/4
2 NEUTRAL 740945/5
3 FUSED LIVE

J1 AC I/O BOARD
TB1
1 BLOCK VALVE INPUT – INPUT 2 740945/6
2 ESD/OVERSPILL PERMISSIVE – INPUT 1 740945/7
3
4
SPARE: 5 OUTPUT 8, 6 OUTPUT 7, 7 OUTPUT 6, 8 OUTPUT 5 740945/8, 9 OUTPUT 4 740945/9
10
11
12 BLOCK VALVE OUTPUT – OUTPUT 3 740945/10
13
14 DOWNSTREAM VALVE – OUTPUT 2 740945/11
15
16 UPSTREAM VALVE – OUTPUT 1 740945/12

J3 DC I/O BOARD
TB1
1 740934/1/2
2 740934/1/1
3 740934/2/2
4 740934/2/1
5 740934/3/2
6 740934/3/1
7 740934/4/2
8 740934/4/1
9 740934/5/2
10 740934/5/1
11 740934/6/2
12 740934/6/1
13 740934/7/2
14 740934/7/1
15 740934/8/2
16 740934/8/1
17 740934/9/2
18 740934/9/1
19 740934/10/2
20 740934/10/1
SPARE: INPUT 6, INPUT 5, INPUT 4, INPUT 3, INPUT 2, INPUT 1, OUTPUT 4, OUTPUT 3, OUTPUT 2, OUTPUT 1

J5 METER PULSE BOARD
TB1
1 P/S 1 740934/12/1
2 INPUT 1 740934/11/1
3 SIGNAL COM 740934/11/2
4 P/S 2 740934/12/2
5 INPUT 2 740934/13/1
6 SIGNAL COM 740934/13/2

J7 2Ch A/D INPUT BOARD
TB1
1
2
3
4 V SOURCE 20724/14/1
5 Ch 2+ 20724/14/2
6 Ch 2– 740934/15/1
7 I SOURCE 740934/15/2

CPU & DUART BOARD
TB1
RS422: 1 740934/16/1, 2 740934/16/2, 3 740934/17/1, 4 740934/17/2, 5 740934/18/1, 6 740934/18/2, 7 740934/19/1, 8 740934/19/2
9 740934/20/1
10 740934/20/2

740945 (12 CORE)

AC JB
FOR TERMINALS 1–24
SEE DRG. SI039010
740945/2 → 25 → 740933/1
26 → 740951/3
27 → 740950/3
740945/1 → 28 → 740933/3
29
30
740945/3 → 31 → 740933/2
740945/5 → 32
740945/7 → 33
34
35
740951/2
36 → 740950/2
37 → 740933/4
740945/4 → 38
740945/6 → 39 → 740933/5
40
41 SPARE
740945/8 → 42 → 740933/7
740945/9 → 43 → 740933/6
740945/10 → 44 → 740951/1
45
46
47
740945/12 → 48 → 740950/1
EEx'e'
FOR TERMINALS 44–54
SEE DRG. SI039012

740933 (7 CORE)

LOCAL 6–POLE ISOLATOR
740933/1 ↔ 740913/1
740933/2 ↔ 740913/2
740933/3 ↔ 740913/3
740933/4 ↔ 740913/4
740933/5 ↔ 740913/5
740933/6 ↔ 740913/6
740933/7 ↔ 740913/7

740913 (7 CORE)

740951 (3 CORE)
740951/3, 740951/2, 740951/1 → E N L → SOUTH SIDING DOWNSTREAM DCV

740950 (3 CORE)
740950/3, 740950/2, 740950/1 → E N L → SOUTH SIDING UPSTREAM DCV

740934 (20 PAIR)

DC JB
SCREEN BAR — TB3 — SCREEN BAR
740934/14/1 1 740935/1/1
740934/14/2 2 740935/1/2
740934/15/2 3 740935/2/1
740934/15/1 4 740935/2/2
740934/6/1 5
740934/5/1 6
740934/4/1 7
740934/3/1 8
740934/2/1 9
740934/1/1 10
740934/6/2 11 — TB1 43
740934/5/2 12
740934/4/2 13
740934/3/2 14
740934/2/2 15
740934/1/2 16 — TB1 59
740934/10/1 17
740934/9/1 18
740934/8/1 19
740934/7/1 20
740934/10/2 21
740934/9/2 22
740934/8/2 23
740934/7/2 24
740934/12/1 25 740936/1/1
740934/11/1 26 740936/1/2
740934/11/2 27 740936/2/1
740934/12/2 28 740937/1/1
740934/13/1 29 740937/1/2
740934/13/2 30 740937/2/1
740934/16/1 31
740934/16/2 32
33
34
740934/17/1 35
36
740934/17/2 37
38
740934/18/1 39 — NOTE 2
740934/18/2 40
41
740934/19/1 42
43
44
740934/19/2 45
740934/20/1 46
740934/20/2 47
48
49
50
Exe
FOR TB2 SEE DRG. SI039010
FOR TB3 SEE DRG. SI039012

740935 (2 PAIR)

TEMPERATURE ELEMENT
740935/1/1 V–
740935/1/2 +
740935/2/1 –
740935/2/2 I

740936 (2 PAIR)
740937 (2 PAIR)

TURBINE METER
PREAMP: 740936/1/1 E, 740936/1/2 H, 740936/2/1 F; 740992/1/1 D, 740992/1/2 E
PICKUP COIL: 740992/1/1 A, 740992/1/2 B
740992 (1 PAIR)
PREAMP: 740937/1/1 E, 740937/1/2 H, 740937/2/1 F; 740993/1/1 D, 740993/1/2 E
PICKUP COIL: 740993/1/1 A, 740993/1/2 B
740993 (1 PAIR)

740913/1 ↔ TB240V 8 E5
740913/2 ↔ 9 N5
740913/3 ↔ 10 L5
740913/4 ↔ 11 29
740913/5 ↔ 12 30
740913/6 ↔ 13 31
740913/7 ↔ 14 32
SEE DRG. SI039002

SCREEN EARTH BAR

SOUTH SIDING KEYPAD
MERCURY 2
J5: 1 740916/1/1, 2 740916/1/2, 3 740916/2/1, 4 740916/2/2
SCREENS NOT CONNECTED
RS422 I.S.
740916 (2 PAIR)

I.S. INTERFACE MODULE R007
740916/1/1 15
740916/1/2 13
740916/2/1 21
740916/2/2 19
RS422 TO PC SEE DRG. SI039015

EARTH RODS

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

PI

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
FQ01	93C.105.11123	EExd IIB T6	BASEEFA
TE01	831045X	EExd IIC T6	BASEEFA
FT01	86B1336	EExd IIC T6	BASEEFA
DCV02A	TBA	TBA	TBA
DCV02B	TBA	TBA	TBA
DC JB	84B3299X	EEx'e' IIC T6	BASEEFA

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
AC JB	84B3299X	EEx'e' IIC T6	BASEEFA

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY
2. FOR COMMUNICATIONS INTERCONNECTIONS SEE DRAWING SI039014

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	29/06/00	D.P.	A.B.	D.R.R		D.R.R		ON SITE CHANGES

PLANT: FINA DERV RAIL LOADING SYSTEM
TITLE: SOUTH SIDING BATCHING SYSTEM LOOP
29/06/00
SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN
INSTRUMENT LOOP SHEET FOR USE IN HAZARDOUS AREA
SHEET 01 OF 01
CLIENT DRG. No.
P&I DRG No. SI039011

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
NOTE 3
CONTROL SYS. FAULT
ESD OPERATED
LEVEL SWITCH OPERATED
PUMP RUNNING
PUMP FAULT/IN AUTO (FLASHES)
MANUAL VALVE FAULT
POLLING PC COMMS FAILURE
CONTROL SYSTEM IN BATCHER STAND ALONE MODE
PUMP 1
PUMP 2
PUMP 1 SELECTED
PUMP 2 SELECTED
NOTE 3

740917/1 … 740917/9 (19 CORE) → DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

740917/10 → TB2, 11 / TB3, 11
740917/11 → 740920/1 → HORN
740917/12 → 740920/2 → 740920 (2 CORE)
740917/13 → SPARE
740917/14 → SPARE
740917/15 → SPARE
740917/16 → SPARE
740917/17 → SPARE
740917/18 → SPARE
740917/19 → SPARE

740918/1, 740918/2 → ESD AT GANTRY BOTTOM CONTROL STATION END → 740918 (2 CORE)
740919/1, 740919/2 → ESD AT GANTRY BOTTOM FAR END → 740919 (2 CORE)
740997/1, 740997/2 → ESD AT GANTRY BOTTOM CENTRE → 740997 (2 CORE)

SCREEN BAR — TB1 — SCREEN BAR

740917/1 … 740917/8 → TB1 1–8 → 740910/1 … 740910/8
SPARE → TB1 15 → 740910/9
SPARE → TB1 16 → 740910/10
740921/1 → TB1 17 → 740910/11
740922/1 → TB1 18 → SPARE
740923/1 → TB1 19 → SPARE
740921/2 → TB1 20 → SPARE
740922/2 → TB1 21 → 740910/12
740923/2 → TB1 22 → 740910/13
TB1 23 → 740910/14
TB1 24 → 740910/15
TB1 25 → 740910/16
740924/1 → TB1 26 → SPARE
740925/1 → TB1 27 → SPARE
TB1 28 → 740910/17
740924/2 → TB1 29 → 740910/18
740925/2 → TB1 30 → 740910/19
740926/1 → TB1 31 → 740914/1
TB1 32 → 740914/2
TB1 33 → SPARE
TB1 34 → SPARE
TB1 35 → SPARE
740926/2 → TB1 36 → 740914/3
TB1 37 → 740914/4
TB1 38 → 740914/5
TB1 39 → 740914/6
740917/9 → TB1 40 → 740914/7
740920/1 → TB1 41 → SPARE
TB1 42 → TB2, 5 / TB3, 5
TB1 43 → SPARE
TB1 44 → SPARE
740917/10 → TB1 45 → 740914/8
740917/11 → TB1 46 → 740914/9
740917/12 → TB1 47 → 740914/10
740917/13 → TB1 48 → 740914/11
740917/14 → TB1 49 → 740914/12
740920/2 → TB1 50 → 740914/13
TB1 51 → SPARE
740917/18 → TB1 52 → 740914/15
740917/19 → TB1 53 → 740914/16
740917/17 → TB1 54 → 740914/17
740917/15 → TB1 55 → 740914/18
740917/16 → TB1 56 → 740914/19
TB2, 11 / TB3, 11 → TB1 57 → 740914/14
TB1 58 → SPARE
TB1 59 → SPARE
TB1 60 → SPARE
TB1 61 → SPARE
TB1 62 → SPARE

FOR XV4, 5, 6, 10, 11, 12 & FOR MUX 3&4 PANEL SEE DRG. SI039013

740910/1 … 740910/19 (19 CORE) → 740910 (19 CORE)
740914/1 … 740914/19 (19 CORE) → 740914 (19 CORE)
740903/1 … 740903/4 (4 CORE) → 740903 (4 CORE)

FINA DERV M.C.C
SEE DRAWING SI039009 FOR MORE DETAIL
TB1
PUMP RUNNING — 11 — 740903/1
PUMP FAULT — 12 — 740903/2
AUTO SELECTED — 14 — 740903/3
16 — 740903/4
PUMP 1
NOTE 4

740910/1 … 740910/19 → TB1 1–19 → 57, 58, 24V/3, 68, 24V/3, 507, 24V/3, 508, 24V/3, 209, 0V/4, 572, 573, 574, 575, 0V/4, 576, 577, 578, 579
740914/1 … 740914/19 → TB1 20–38 → 0V/4, 580, 581, 582, 583, 0V/5, 620, 621, 622, 623, 624, 625, SPARE, 628, 629, 24V/3, 69, 70, 24V/3
740903/1 … 740903/4 → TB1 39–42 → 71, 72, 73, 24V/3
TB1 43–46 → 74, 75, 76
FUTURE PUMP CONNECTIONS
SEE DRG. SI039002 & SI039007

MUX 1 & 2 PANEL

MUX 1 (NORTH SIDING): S1 … S16
740909/1/1, 740909/1/2
740960 (1 PAIR) — LS3 LEVEL SWITCH
740954 (1 PAIR) — LS2 LEVEL SWITCH
LS1 LEVEL SWITCH
740953 (2 PAIR)
740952 (2 PAIR)
740956 (2 PAIR)
740955 (2 PAIR)
740959 (2 PAIR)
740958 (2 PAIR)

MUX 2 (SOUTH SIDING): S1 … S16
740909/2/1, 740909/2/2
740963 (1 PAIR) — S8 LEVEL SWITCH
740966 (1 PAIR) — S9 LEVEL SWITCH
S7 LEVEL SWITCH
740969 (1 PAIR)
740962 (2 PAIR)
740961 (2 PAIR)
740965 (2 PAIR)
740964 (2 PAIR)
740968 (2 PAIR)
740967 (2 PAIR)
NOTE 1

COM, ZSO, ZSC, COM

740921/1, 740921/2 → XSV1 (MANUAL CONTROL) → 740921 (2 CORE) — XCV1
740922/1, 740922/2 → XSV2 (MANUAL CONTROL) → 740922 (2 CORE) — XV1, XCV2
740923/1, 740923/2 → XSV3 (MANUAL CONTROL) → 740923 (2 CORE) — XV2, XCV3
XV3
740924/1, 740924/2 → XSV7 (MANUAL CONTROL) → 740924 (2 CORE) — XCV7
740925/1, 740925/2 → XSV8 (MANUAL CONTROL) → 740925 (2 CORE) — XV7, XCV8
740926/1, 740926/2 → XSV9 (MANUAL CONTROL) → 740926 (2 CORE) — XV8, XCV9
XV9

740909 (2 PAIR)

BARTEC ANTI-CONDENSATION HEATER — E, N, L — FLYING LEADS
2 OFF SAK2.5 Ex'e' TERMINALS
740948/1, 740948/2, 740948/3
1 OFF EK2.5 Ex'e' TERMINALS
740948 (3 CORE)
SEE DRAWING SI039003 & 4 FOR MORE DETAIL

AC JB
SEE DRAWINGS SI039010 & 011 FOR TB1-48
740948/1 — 49 — 740932/1
740948/2 — 50 — 740932/2
740948/3 — 51 — 740932/3
52
53
54
740932 (3 CORE)
SEE DRAWING SI039013 FOR MUX 3&4 HEATER TERMINATION

LOCAL 3-POLE ISOLATOR
740932/1 — 740912/1
740932/2 — 740912/2
740932/3 — 740912/3
740912 (3 CORE)

SCREEN EARTH BAR

740909/1/1, 740909/1/2 → 7 MTL 3052 BARRIER (MUX 1) 6 → 3 101, 2 100 → SEE DWG. NO. SI039003 & SI039004
740909/2/1, 740909/2/2 → 7 MTL 3052 BARRIER (MUX 2) 6 → 3 201, 2 200 → SEE DWG. NO. SI039004

740912/1 → TB240V 29 L7
740912/2 → TB240V 30 N7
740912/3 → TB240V 31 E7
→ SEE DWG. NO. SI039002

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT					CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY		TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. LAMPS, SELECTOR SWITCH & ASSOCIATED WIRING HIGHLIGHTED TO BE REMOVED FROM THE LOCAL CONTROL PANEL & THE HOLES BLANKED.
4. DECOMMISSIONED BATCHING SYSTEM.

simon — bulk liquid & gas network

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM MUX 1 & 2 PANEL LOOP
	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
	P & I Design Ltd, Tel. 01642 617444, www.pidesign.co.uk
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039012_DWG

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
CONTROL SYS. FAULT
ESD OPERATED
LEVEL SWITCH OPERATED
PUMP RUNNING
PUMP FAULT/IN AUTO (FLASHES)
MANUAL VALVE FAULT
POLLING PC COMMS FAILURE
CONTROL SYSTEM IN BATCHER STAND ALONE MODE
PUMP 1
PUMP 2
PUMP 1 SELECTED
PUMP 2 SELECTED

740917/1 740917/2 740917/3 740917/4 740917/5 740917/6 740917/7 740917/8 740917/9 740917/10 740917/11 740917/12 740917/13 740917/14 740917/18 740917/19 740917/15 740917/16 740917/17

MUX 1 & 2 PANEL

MUX 1 (NORTH SIDING) S1–S16

MUX 2 (SOUTH SIDING) S1–S16

NOTE 1

740909/1/1 740909/1/2

740909/2/1 740909/2/2

LS1 LEVEL SWITCH
LS2 LEVEL SWITCH
LS3 LEVEL SWITCH
S7 LEVEL SWITCH
S8 LEVEL SWITCH
S9 LEVEL SWITCH

740960 (1 PAIR)
740957 (1 PAIR)
740954 (1 PAIR)
740953 (2 PAIR)
740952 (2 PAIR)
740956 (2 PAIR)
740955 (2 PAIR)
740959 (2 PAIR)
740958 (2 PAIR)
740969 (1 PAIR)
740966 (1 PAIR)
740963 (1 PAIR)
740962 (2 PAIR)
740961 (2 PAIR)
740965 (2 PAIR)
740964 (2 PAIR)
740968 (2 PAIR)
740967 (2 PAIR)

XV1 XV2 XV3 XV7 XV8 XV9

XCV1 XCV2 XCV3 XCV7 XCV8 XCV9

COM ZSO ZSC COM SOL

740921/1 740921/2 XSV1 740921 (2 CORE)
740922/1 740922/2 XSV2 740922 (2 CORE)
740923/1 740923/2 XSV3 740923 (2 CORE)
740924/1 740924/2 XSV7 740924 (2 CORE)
740925/1 740925/2 XSV8 740925 (2 CORE)
740926/1 740926/2 XSV9 740926 (2 CORE)

740917 (19 CORE)
740918/1 740918/2 ESD AT CONTROL STATION END
740918 (2 CORE)
740919/1 740919/2 ESD AT FAR END
740919 (2 CORE)
740997/1 740997/2 ESD AT CENTRE
740997 (2 CORE)

DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

SCREEN BAR

TB1

740917/1 740917/2 740918/1 740918/2 740919/1 740919/2 740997/1 740997/2 740917/3 740917/4 740917/5 740917/6 740917/7 740917/8 SPARE SPARE 740921/1 740922/1 740923/1 740921/2 740922/2 740923/2 740924/1 740925/1 740924/2 740925/2 740926/1 740926/2 740917/9 740920/1 740917/10 740917/11 740917/12 740917/13 740920/2 740917/18 740917/19 740917/17 740917/15 740917/16 TB2, 11 TB3, 11

740910/1 740910/2 740910/3 740910/4 740910/5 740910/6 740910/7 740910/8 740910/9 740910/10 740910/11 740910/12 740910/13 740910/14 740910/15 740910/16 740910/17 740910/18 740910/19 740914/1 740914/2 740914/3 740914/4 740914/5 740914/6 740914/7 TB2, 5 TB3, 5 740914/8 740914/9 740914/10 740914/11 740914/12 740914/13 740914/15 740914/16 740914/17 740914/18 740914/19 740914/14

740920/1 740920/2 HORN
740920 (2 CORE)

FOR XV4, 5, 6, 10, 11, 12 & FOR MUX 3&4 PANEL SEE DRG. SI039013

740910 (19 CORE)
740914 (19 CORE)
740903 (4 CORE)

FINA DERV M.C.C

SEE DRAWING SI039009 FOR MORE DETAIL

PUMP RUNNING
PUMP FAULT
AUTO SELECTED

740903/1 740903/2 740903/3 740903/4

PUMP 1

740910/1 740910/2 740910/3 740910/4 740910/5 740910/6 740910/7 740910/8 740910/9 740910/10 740910/11 740910/12 740910/13 740910/14 740910/15 740910/16 740914/1 740914/2 740914/3 740914/4 740914/5 740914/6 740914/7 740914/8 740914/9 740914/10 740914/11 740914/12 740914/13 740914/15 740914/16 740914/17 740914/18 740914/19 740914/14 740903/1 740903/2 740903/3 740903/4

57 58 24V/3 68 24V/3 507 24V/3 508 24V/3 209 0V/4 572 573 574 575 0V/4 576 577 578 579 0V/4 580 581 582 583 0V/5 620 621 622 623 624 625 SPARE 628 629 24V/3 69 70 24V/3 71 72 73 24V/3 74 75 76

FUTURE PUMP CONNECTIONS

SEE DRG. SI039002 & SI039007

740909/1/1 740909/1/2 MTL 3052 BARRIER (MUX 1) 101 100 SEE DWG. NO. SI039003 & SI039004
740909/2/1 740909/2/2 MTL 3052 BARRIER (MUX 2) 201 200

SCREEN EARTH BAR

740912/1 740912/2 740912/3 TB240V L7 N7 E7 SEE DWG. NO. SI039002

740909 (2 PAIR)

ANTI-CONDENSATION HEATER BARTEC E N L FLYING LEADS

2 OFF SAK2.5 Ex'e' TERMINALS
740948/1 740948/2 740948/3
1 OFF EK2.5 Ex'e' TERMINALS

740948 (3 CORE)

AC JB
SEE DRAWINGS SI039010 & 011 FOR TB1-48

740948/1 740948/2 740948/3 740932/1 740932/2 740932/3

SEE DRAWING SI039013 FOR MUX 3&4 HEATER TERMINATION

740932 (3 CORE)

LOCAL 3-POLE ISOLATOR

740932/1 740932/2 740932/3 740912/1 740912/2 740912/3

740912 (3 CORE)

SEE DRAWING SI039003 & 4 FOR MORE DETAIL

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY
2. FOR COMMUNICATIONS INTERCONNECTIONS SEE DRAWING SI039014

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		GENERAL UPDATE

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	MUX 1 & 2 PANEL LOOP
	02/07/99

SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

INSTRUMENT LOOP SHEET FOR USE IN HAZARDOUS AREA — SHEET 01 OF 01

CLIENT DRG. No. — P&I DRG No. SI039012

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
NOTE 3
CONTROL SYS. FAULT
ESD OPERATED
LEVEL SWITCH OPERATED
PUMP RUNNING
PUMP FAULT/IN AUTO (FLASHES)
MANUAL VALVE FAULT
POLLING PC COMMS FAILURE
CONTROL SYSTEM IN BATCHER STAND ALONE MODE
PUMP 1
PUMP 2
PUMP 1 SELECTED
PUMP 2 SELECTED
NOTE 3

740917/1 … 740917/19

MUX 3 & 4 PANEL

MUX 3 (NORTH SIDING)
MUX 4 (SOUTH SIDING)
S1 … S16
NOTE 1

LS4 LEVEL SWITCH
LS5 LEVEL SWITCH
LS6 LEVEL SWITCH
LS10 LEVEL SWITCH
LS11 LEVEL SWITCH
LS12 LEVEL SWITCH

740970 (1 PAIR)
740973 (1 PAIR)
740976 (1 PAIR)
740971 (2 PAIR)
740972 (2 PAIR)
740974 (2 PAIR)
740975 (2 PAIR)
740977 (2 PAIR)
740978 (2 PAIR)
740979 (1 PAIR)
740982 (1 PAIR)
740985 (1 PAIR)
740980 (2 PAIR)
740981 (2 PAIR)
740983 (2 PAIR)
740984 (2 PAIR)
740986 (2 PAIR)
740987 (2 PAIR)

740915/1/1
740915/1/2
740915/2/1
740915/2/2

XV4 XV5 XV6 XV10 XV11 XV12
XCV4 XCV5 XCV6 XCV10 XCV11 XCV12
XSV4 XSV5 XSV6 XSV10 XSV11 XSV12
MANUAL CONTROL

740938/1 740938/2 740938 (2 CORE)
740939/1 740939/2 740939 (2 CORE)
740940/1 740940/2 740940 (2 CORE)
740941/1 740941/2 740941 (2 CORE)
740942/1 740942/2 740942 (2 CORE)
740943/1 740943/2 740943 (2 CORE)

740917 (19 CORE)
740918/1 740918/2 740918 (2 CORE) ESD AT GANTRY BOTTOM CONTROL STATION END
740919/1 740919/2 740919 (2 CORE) ESD AT GANTRY BOTTOM FAR END
740997/1 740997/2 740997 (2 CORE) ESD AT GANTRY BOTTOM CENTRE

740920/1 740920/2 740920 (2 CORE) HORN

DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

SCREEN BAR
TB1
740917/1 … 740917/8
SPARE
SPARE
740938/1
740938/2
740939/1
740940/1
740939/2
740940/2
740941/1
740942/1
740943/1
740941/2
740942/2
740943/2
740917/9
740920/1
740917/10 … 740917/19
740917/15
740917/16
740920/2
SPARE
740917/18
740917/19
740917/17
740917/15
740917/16
TO TB2, 11
TO TB3, 11
740910/1 … 740910/11
740910/12 … 740910/16
740910/17 … 740910/19
740914/1
740914/2
740914/3 … 740914/7
TB2, 5
TB3, 5
740914/8 … 740914/14
SPARE

FOR XV1, 2, 3, 7, 8, 9 & FOR MUX 1&2 PANEL SEE DRG. SI039012

D
40820/1 40820/2 C40820 (2 CORE) ESD AT GANTRY TOP CONTROL STATION END
40821/1 40821/2 C40821 (2 CORE) ESD AT GANTRY TOP CENTRE
40822/1 40822/2 C40822 (2 CORE) ESD AT GANTRY TOP FAR END

740910 (19 CORE)
740914 (19 CORE)
740903 (4 CORE)

FINA DERV M.C.C
SEE DRAWING SI039009 FOR MORE DETAIL
TB1
PUMP RUNNING 740903/1 … 740903/4
PUMP FAULT
AUTO SELECTED
PUMP 1
FUTURE PUMP CONNECTIONS

NOTE 4

TB1
740910/1 … 740910/19
740914/1 … 740914/19
740903/1 … 740903/4
1 … 46
57 58 24V/3 68 24V/3 507 24V/3 508 24V/3 209 0V/4 572 573 574 575 0V/4 576 577 578 579 0V/4 580 581 582 583 0V/5 620 621 622 623 624 625 626 628 629 24V/3 69 70 24V/3 71 72 73 24V/3 74 75 76

SEE DRG. SI039002 & SI039007

ANTI-CONDENSATION HEATER
BARTEC
E N L
FLYING LEADS

2 OFF SAK2.5 Ex'e' TERMINALS
740949/1
740949/2
740949/3
1 OFF EK2.5 Ex'e' TERMINALS

AC JB
SEE DRAWINGS SI039010 & 011 FOR TB1-48
740949/1 … 740949/3
740932/1 … 740932/3
49 … 54

740949 (3 CORE)
740932 (3 CORE)
SEE DRAWING SI039012 FOR MUX 1&2 HEATER TERMINATION

LOCAL 3-POLE ISOLATOR
740932/1 … 740932/3
740912/1 … 740912/3
740912 (3 CORE)

740915 (2 PAIR)

SCREEN EARTH BAR

740915/1/1
740915/1/2
740915/2/1
740915/2/2
MTL 3052 BARRIER (MUX 3)
MTL 3052 BARRIER (MUX 4)
7 6 3 2
301 300 401 400
SEE DWG. NO. SI039005 & SI039006

740912/1 … 740912/3
TB240V
29 30 31
L7 N7 E7
SEE DWG. NO. SI039002

SEE DRAWING SI039005 & 6 FOR MORE DETAIL

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

PI

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. LAMPS, SELECTOR SWITCH & ASSOCIATED WIRING HIGHLIGHTED TO BE REMOVED FROM THE LOCAL CONTROL PANEL & THE HOLES BLANKED.
4. DECOMMISSIONED BATCHING SYSTEM.

simon
bulk liquid & gas network

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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
D	14/09/10	D.B.F	P.P.	M.M.	M.M.	SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM MUX 3 & 4 PANEL LOOP

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039013_DWG

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
CONTROL SYS. FAULT
ESD OPERATED
LEVEL SWITCH OPERATED
PUMP RUNNING
PUMP FAULT/IN AUTO (FLASHES)
MANUAL VALVE FAULT
POLLING PC COMMS FAILURE
CONTROL SYSTEM IN BATCHER STAND ALONE MODE
PUMP 1
PUMP 2
PUMP 1 SELECTED
PUMP 2 SELECTED

740917/1 … 740917/19

MUX 3 & 4 PANEL

MUX 3 (NORTH SIDING)
MUX 4 (SOUTH SIDING)

LS4 LEVEL SWITCH
LS5 LEVEL SWITCH
LS6 LEVEL SWITCH
LS10 LEVEL SWITCH
LS11 LEVEL SWITCH
LS12 LEVEL SWITCH

740970 (1 PAIR)
740973 (1 PAIR)
740976 (1 PAIR)
740971 (2 PAIR)
740972 (2 PAIR)
740974 (2 PAIR)
740975 (2 PAIR)
740977 (2 PAIR)
740978 (2 PAIR)
740979 (1 PAIR)
740982 (1 PAIR)
740985 (1 PAIR)
740980 (2 PAIR)
740981 (2 PAIR)
740983 (2 PAIR)
740984 (2 PAIR)
740986 (2 PAIR)
740987 (2 PAIR)

740915/1/1
740915/1/2
740915/2/1
740915/2/2

XV4 XCV4 XSV4 740938/1 740938/2 740938 (2 CORE)
XV5 XCV5 XSV5 740939/1 740939/2 740939 (2 CORE)
XV6 XCV6 XSV6 740940/1 740940/2 740940 (2 CORE)
XV10 XCV10 XSV10 740941/1 740941/2 740941 (2 CORE)
XV11 XCV11 XSV11 740942/1 740942/2 740942 (2 CORE)
XV12 XCV12 XSV12 740943/1 740943/2 740943 (2 CORE)

NOTE 1

740917 (19 CORE)
740918/1 740918/2
740918 (2 CORE)
ESD AT CONTROL STATION END
740919/1 740919/2
740919 (2 CORE)
ESD AT FAR END
740997/1 740997/2
740997 (2 CORE)
ESD AT CENTRE

740920/1 740920/2
740920 (2 CORE)
HORN

DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

SCREEN BAR
TB1

740917/1 … 740917/8 → 740910/1 … 740910/8
SPARE, SPARE → 740910/9, 740910/10, 740910/11
740938/1 → 740910/12
740938/2 → 740910/13
740939/1 → 740910/14
740940/1 → 740910/15
740939/2 → 740910/16
740940/2 → 740910/17
740941/1 → 740910/18
740942/1 → 740910/19
740943/1 → 740914/1
740941/2 → 740914/2
740942/2 → 740914/3
740943/2 → 740914/4
740917/9 → 740914/5
740920/1 → 740914/6
TB2, 5 / TB3, 5 → 740914/7
740917/10 → 740914/8
740917/11 → 740914/9
740917/12 → 740914/10
740917/13 → 740914/11
740917/14 → 740914/12
740920/2 → 740914/13
SPARE → 740914/15
740917/18 → 740914/16
740917/19 → 740914/17
740917/17 → 740914/18
740917/15 → 740914/19
740917/16 → 740914/14
TO TB2, 11 / TO TB3, 11
SPARE

FOR XV1, 2, 3, 7, 8, 9 & FOR MUX 1&2 PANEL SEE DRG. SI039012

740910 (19 CORE) → TB1 740910/1 … 740910/19 → 57, 58, 24V/3, 68, 24V/3, 507, 24V/3, 508, 24V/3, 209, 0V/4, 572, 573, 574, 575, 0V/4, 576, 577, 578, 579, 0V/4, 620, 0V/5, 620, 621, 622, 623, 624, 625, 626, 628, 629, 24V/3, 69, 70, 24V/3, 71, 72, 73, 24V/3, 74, 75, 76

740914 (19 CORE) → SEE DRG. SI039002 & SI039007

740903 (4 CORE) → FINA DERV M.C.C
SEE DRAWING SI039009 FOR MORE DETAIL
TB1 740903/1 … 740903/4
PUMP RUNNING
PUMP FAULT
AUTO SELECTED
PUMP 1
FUTURE PUMP CONNECTIONS → 740903/1 … 740903/4 → 24V/3, 74, 75, 76

740915 (2 PAIR) → SCREEN EARTH BAR
740915/1/1 740915/1/2 → MTL 3052 BARRIER (MUX 3) → 301, 300
740915/2/1 740915/2/2 → MTL 3052 BARRIER (MUX 4) → 401, 400
SEE DWG. NO. SI039005 & SI039006

740912 (3 CORE) → TB240V
740912/1 740912/2 740912/3 → L7, N7, E7
SEE DWG. NO. SI039002

BARTEC ANTI-CONDENSATION HEATER
3 N L
FLYING LEADS

2 OFF SAK2.5 Ex'e' TERMINALS
740949/1
740949/2
740949/3
1 OFF EK2.5 Ex'e' TERMINALS
740949 (3 CORE)

AC JB
SEE DRAWINGS SI039010 & 011 FOR TB1-48
740949/1 … 740949/3 → 49, 50, 51, 52, 53, 54
740932/1 740932/2 740932/3
740932 (3 CORE)
SEE DRAWING SI039012 FOR MUX 1&2 HEATER TERMINATION

LOCAL 3-POLE ISOLATOR
740932/1 740932/2 740932/3
740912/1 740912/2 740912/3
740912 (3 CORE)

SEE DRAWING SI039005 & 6 FOR MORE DETAIL

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

PI

CERTIFIED EQUIPMENT				CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY	TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY
2. FOR COMMUNICATIONS INTERCONNECTIONS SEE DRAWING SI039014

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		GENERAL UPDATE

PLANT	FINA DERV RAIL OFFLOADING SYSTEM
TITLE	MUX 3 & 4 PANEL LOOP
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
INSTRUMENT LOOP SHEET FOR USE IN HAZARDOUS AREA	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039013

RAIL LOADING SIDING

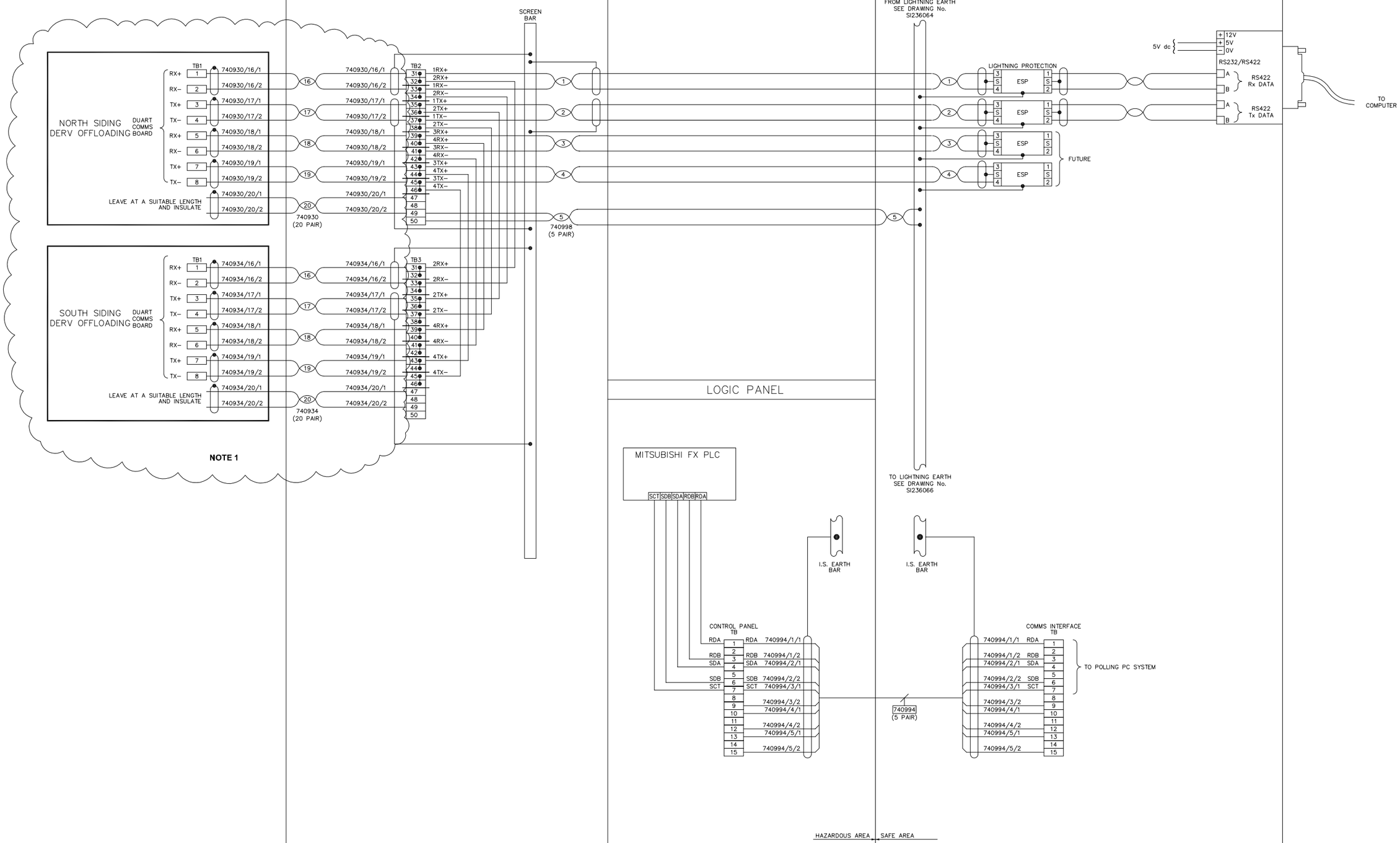
COMMICATIONS INTERFACE PANEL

DANLOAD 6000

DC JUNCTION BOX

LINE TERMINATION CABINET

PROTOCOL MANAGEMENT UNIT



NOTES

1. DECOMMISSIONED BATCHING SYSTEM. FIELD EQUIPMENT REMOVED.

simon

bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	13/07/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	CABLE 740994 ADDED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM DANLOAD TO PC COMMUNICATIONS DIAGRAM

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039014_DWG

RAIL LOADING SIDING

COMMICATIONS INTERFACE PANEL

DANLOAD 6000

DC JUNCTION BOX

LINE TERMINATION CABINET

PROTOCOL MANAGEMENT UNIT

NORTH SIDING DERV OFFLOADING

DUART COMMS BOARD

TB1

RX+ 1 740930/16/1

RX− 2 740930/16/2

TX+ 3 740930/17/1

TX− 4 740930/17/2

RX+ 5 740930/18/1

RX− 6 740930/18/2

TX+ 7 740930/19/1

TX− 8 740930/19/2

LEAVE AT A SUITABLE LENGTH AND INSULATE

740930/20/1

740930/20/2

16 740930/16/1 — 740930/16/2

17 740930/17/1 — 740930/17/2

18 740930/18/1 — 740930/18/2

19 740930/19/1 — 740930/19/2

20 740930/20/1 — 740930/20/2

740930 (20 PAIR)

TB2

31 1RX+

32 2RX+

33 1RX−

34 2RX−

35 1TX+

36 2TX+

37 1TX−

38 2TX−

39 3RX+

40 4RX+

41 3RX−

42 4RX−

43 3TX+

44 4TX+

45 3TX−

46 4TX−

47

48

49

50

SCREEN BAR

1 — 740930/16/1 — 740930/16/2

2 — 740930/17/1 — 740930/17/2

3 — 740930/18/1 — 740930/18/2

4 — 740930/19/1 — 740930/19/2

5 — 740930/20/1 — 740930/20/2

740998 (5 PAIR)

SOUTH SIDING DERV OFFLOADING

DUART COMMS BOARD

TB1

RX+ 1 740934/16/1

RX− 2 740934/16/2

TX+ 3 740934/17/1

TX− 4 740934/17/2

RX+ 5 740934/18/1

RX− 6 740934/18/2

TX+ 7 740934/19/1

TX− 8 740934/19/2

LEAVE AT A SUITABLE LENGTH AND INSULATE

740934/20/1

740934/20/2

16 740934/16/1 — 740934/16/2

17 740934/17/1 — 740934/17/2

18 740934/18/1 — 740934/18/2

19 740934/19/1 — 740934/19/2

20 740934/20/1 — 740934/20/2

740934 (20 PAIR)

TB3

31 2RX+

32 2RX−

33

34

35 2TX+

36 2TX−

37

38 4RX+

39

40 4RX−

41

42

43 4TX+

44

45 4TX−

46

47

48

49

50

LOGIC PANEL

MITSUBISHI FX PLC

SCT SDB SDA RDB RDA

FROM LIGHTNING EARTH SEE DRAWING No. SI236064

TO LIGHTNING EARTH SEE DRAWING No. SI236066

LIGHTNING PROTECTION

ESP

FUTURE

5V dc

+ 12V

+ 5V

− 0V

RS232/RS422

A B RS422 Rx DATA

A B RS422 Tx DATA

TO COMPUTER

I.S. EARTH BAR

I.S. EARTH BAR

CONTROL PANEL TB

RDA 1 RDA 740994/1/1

2

RDB 3 RDB 740994/1/2

SDA 4 SDA 740994/2/1

5

SDB 6 SDB 740994/2/2

SCT 7 SCT 740994/3/1

8 740994/3/2

9 740994/4/1

10

11 740994/4/2

12 740994/5/1

13

14 740994/5/2

15

740994 (5 PAIR)

COMMS INTERFACE TB

740994/1/1 RDA 1

740994/1/2 RDB 2

740994/2/1 SDA 3

4

740994/2/2 SDB 5

740994/3/1 SCT 6

7

740994/3/2 8

740994/4/1 9

10

740994/4/2 11

740994/5/1 12

13

740994/5/2 14

15

TO POLLING PC SYSTEM

HAZARDOUS AREA | SAFE AREA

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	13/07/99	A.J.H	A.J.H	D.R.R	D.R.R	CABLE 740994 ADDED

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	DANLOAD TO PC COMMUNICATIONS DIAGRAM
	13/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039014

No.5 SWITCHROOM

MCC 5/2 COMPARTMENT A1

TB2

STOP	1	50582/1
	2	50582/2
START	3	50582/3
	4	50582/4
INSTRUMENT POWER	5	50582/5
	6	50582/6
LOW SUCTION	7	50582/7
DISCHARGE TEMP.	8	50582/8
RUNNING	9	50582/9
EARTH	10	50582/10
	11	50582/11
	12	50582/12
STOP	13	50585/1
	14	50585/2
START	15	50585/3
	16	50585/4
RUNNING	17	50585/5
	18	50585/6
EARTH	19	50585/7

REFERENCE DRAWING SI208102_.DWG

FIELD

JB5/61

C50582 12 Core

50582/1	1	50583/1
50582/2	2	50583/2
50582/3	3	50583/3
50582/4	4	50583/4
50582/10	E	50583/5
50582/5	5	50584/1
50582/6	6	50584/2
50582/11	E	50584/3
	7	50584/4
50582/7	8	50584/5
	9	50585/1
50582/8	10	50585/2
50582/12	E	50585/3
50582/9	14	
	15	

PUMP RAFT

C50583 5 Core

P5/12

50583/1	STOP
50583/2	
50583/3	START
50583/4	
50583/5	

LOCAL CONTROL STATION

C50584 5 Core

LS5/12

50584/1	1 +
50584/2	2 −
50584/3	E
50584/4	3
50584/5	4
	5

SUCTION LEVEL

C50585 3 Core

TS5/12

50585/1	1
50585/2	3
50585/3	E

DISCHARGE TEMPERATURE

4−EAST RAIL LOADING GANTRY

GANTRY TOP − BUFFER END CONTROL STATION

C50485 7 Core

STATION 1

STOP	50485/1	50486/1
	50485/2	50486/2
START	50485/3	50485/4
	50486/3	50486/4
RUNNING	50485/5	50485/6
	50486/5	50486/6
	50485/7	50486/7

GANTRY CONTROL STATION

C50486 7 Core

GANTRY TOP − CENTRE CONTROL STATION

C50487 7 Core

STATION 2

STOP	50487/1	50486/1
	50487/2	50486/2
START	50487/3	50487/4
	50486/3	50486/4
RUNNING	50487/5	50487/6
	50486/5	50486/6
	50487/7	50486/7

GANTRY CONTROL STATION

GANTRY TOP − FAR END CONTROL STATION

STATION 3

STOP	50487/1	50488/1
	50487/2	50488/2
START	50487/3	50487/4
	50487/5	50487/6
RUNNING		
	50487/7	

GANTRY CONTROL STATION

C50488 2 Core

No.4 SWITCHROOM

4E RAIL LOADING LOGIC PANEL

TB1

50488/1	51	SHUTDOWN LOGIC SEE DRAWING SI039008_DWG
50488/2	52	

NOTES
1)

bulk liquid & gas network

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	01/10/10	P.P.	P.P.	D.B.F		M.M.		ISSUED FOR CONSTRUCTION

PLANT	IMMINGHAM STORAGE Co. − EAST TERMINAL
TITLE	4−EAST RAIL LOADING SYSTEM − PUMP P5/12 CONTROL JUNCTION BOX INTERCONNECTION DETAILS

IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI760002_.DWG

No.2 SWITCHROOM

MCC COMPARTMENT 2BE

STOP 20800/1 20800/2
START 20800/3 20800/4
RUNNING 20800/5 20800/6
LOW SUCTION POWER 20800/7 20800/8
EARTH 20800/9 20800/10 20800/11 20800/12

FIELD

JB2–111

20800/1 → 1 → 20801/1
20805/1 → 2 → 20801/2
20800/2 → 3 → 20805/2
20800/3 → 4 → 20801/3
5 → 20805/3
20800/4 → 6 → 20801/4
7 → 20805/4
20800/5 → 8 → 20805/5
20800/6 → 9 → 20805/6
20800/7 → 10 → 20801/5
20800/8 → 11 → 20801/6
20800/9 → 12 → 20801/7
20800/10 → 13 → 20805/7
20800/11 → 14
20800/12 → 15

C20800 12 Core

C20801 7 Core

JB2–112

20801/1 → 1 → 20802/1
20804/1 → 2 → 20802/2
20804/2 → 3 → 20803/5
20801/3 → 4 → 20802/3
20801/4 → 5 → 20802/4
20804/3 → 6 → 20802/5
20801/7 → 7 → 20803/3
20801/5 → 8 → 20803/1
20801/6 → 9 → 20803/2
20801/2 → 10 → 20803/4

C20802 5 Core

C20803 5 Core

C20804 3 Core

PUMP RAFT

P2/25
20802/1 STOP
20802/2
20802/3 START
20802/4
20802/5
LOCAL CONTROL STATION

LS2/25
20803/1 + 1
20803/2 – 2
20803/3 E
20803/4 3
20803/5 4 5
SUCTION LEVEL

TS2/25
20804/1 1
20804/2 3
20804/3 E
DISCHARGE TEMPERATURE

4–EAST RAIL LOADING GANTRY

GANTRY TOP – FAR END CONTROL STATION

C20805 7 Core

STATION 3
STOP 20805/1 20806/1
20805/2 20806/2
START 20805/3 20805/4 20806/3 20806/4
RUNNING 20805/5 20805/6 20806/5 20806/6
RED
20805/7 20806/7
GANTRY CONTROL STATION

C20806 7 Core

GANTRY TOP – CENTRE CONTROL STATION

C20807 7 Core

STATION 2
STOP 20807/1 20806/1
20807/2 20806/2
START 20807/3 20807/4 20806/3 20806/4
RUNNING 20807/5 20806/5 20807/6 20806/6
RED
20807/7 20806/7
GANTRY CONTROL STATION

GANTRY TOP – BUFFER END CONTROL STATION

STATION 1
STOP 20807/1 20808/1
20807/2 20808/2
START 20807/3 20807/4
RUNNING 20807/5 20807/6
RED
20807/7 20808/3
20808/6 20808/4
20808/7 20808/5
GANTRY CONTROL STATION

C20808 7 Core

No.4 SWITCHROOM

4E RAIL LOADING LOGIC PANEL

TB1
20808/1 49 – SHUTDOWN LOGIC SEE DRAWING SI039008_DWG
20808/2 50
20808/3
20808/4
20808/5
20808/6
20808/7
EARTH BAR

NOTES
1)

bulk liquid & gas network

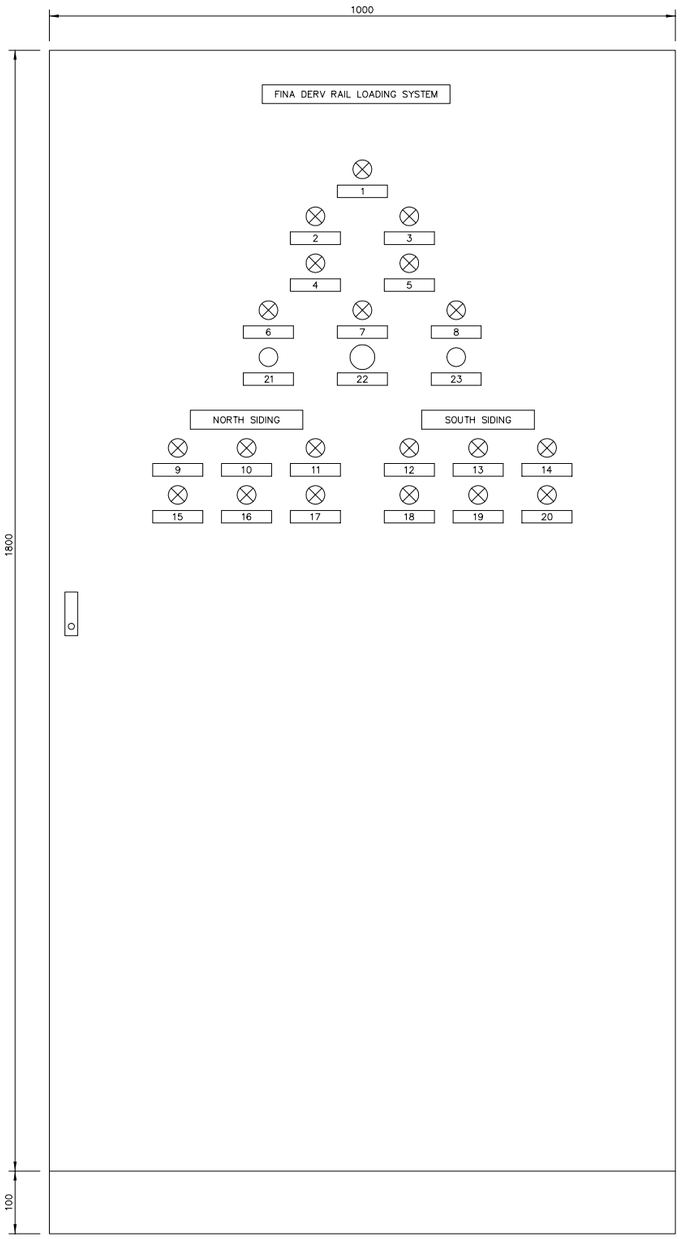
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	01/10/10	P.P.	P.P.	D.B.F		M.M.		ISSUED FOR CONSTRUCTION

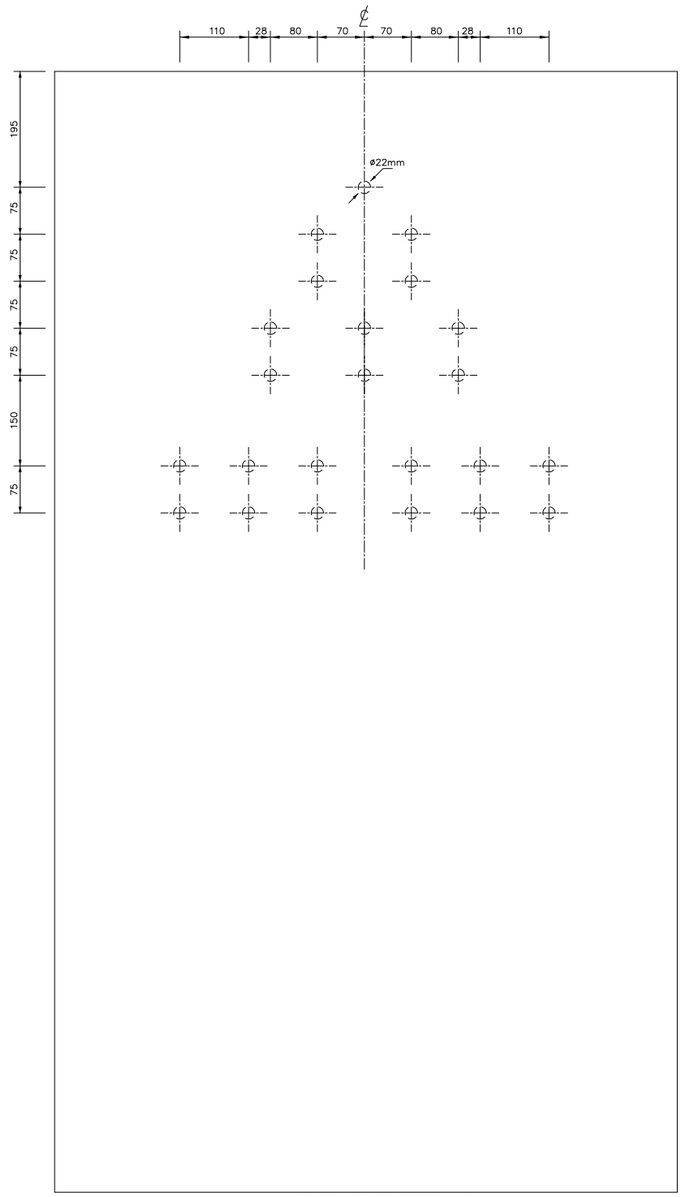
PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM – PUMP P2/25 CONTROL JUNCTION BOX INTERCONNECTION DETAILS
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI760001_DWG

IMMINGHAM STORAGE Co Ltd.
IMMINGHAM EAST TERMINAL,
IMMINGHAM DOCK,
IMMINGHAM,
SOUTH HUMBERSIDE

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

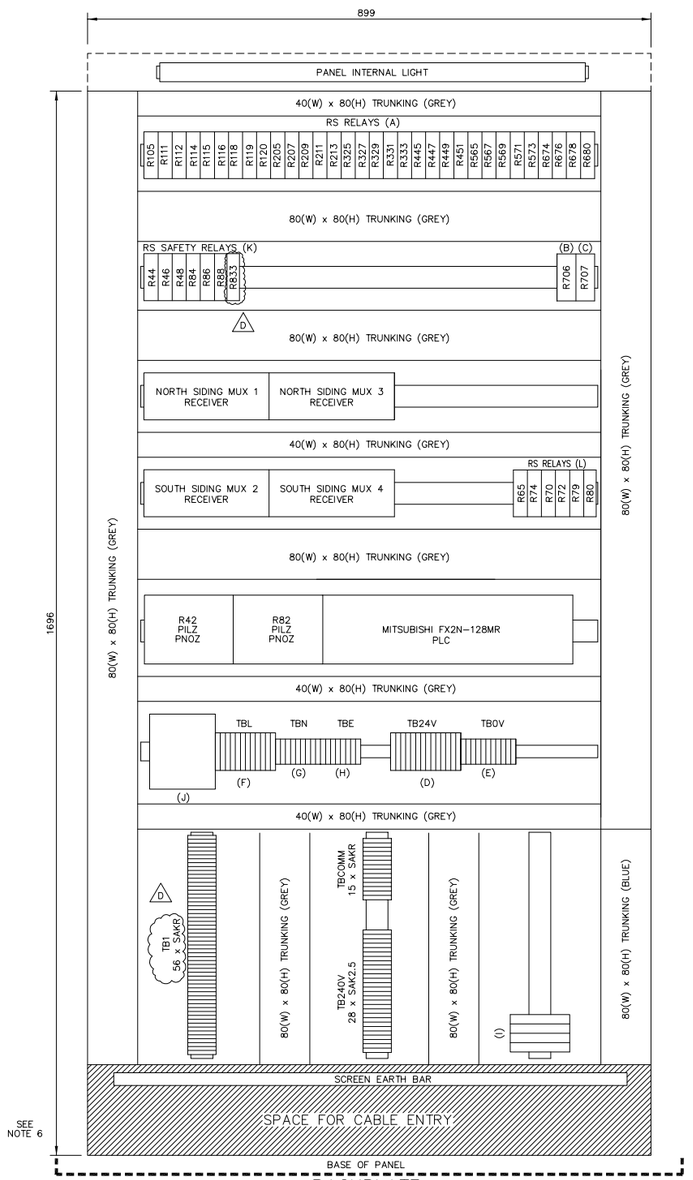


RITTAL ES 5084.600
FRONT OF PANEL LAYOUT



CUT–OUT DETAILS

ITEMS			
LOCATION	QUANTITY	DESCRIPTION	STOCK CODE
A	38	RS 4–POLE RELAYS, 24Vdc COIL	RS 213–0793
B	1	RS 4–POLE TIMER RELAYS, 24Vdc COIL (ON DELAY)	RS 328–140
C	1	RS 4–POLE TIMER RELAYS, 24Vdc COIL (OFF DELAY)	RS 328–140
D	15	ASK1	XXXX
E	15	SAK 2.5	XXXX
F	12	ASK1	XXXX
G	12	SAK2.5	XXXX
H	12	EK2.5	XXXX
I	4	MTL 3052	XXXX
J	1	ISOLATOR 25A	XXXX
K	4	RS 4 POLE SAFETY RELAYS, 24Vdc COIL	RS 260–4373
L	6	RS 4–POLE RELAYS, 240VAC COIL	RS 213–0838



BACKPLATE

LABELS	
LOCATION	DETAILS
1	PUMP RUNNING (FLASHES IF NOT IN AUTO OR IN FAULT)
2	POLLING PC COMMS FAILURE
3	CONTROL SYSTEM IN BATCHER STAND ALONE
4	MANUAL VALVE FAULT
5	LEVEL SWITCH OPERATED
6	SYSTEM FAULT
7	ESD OPERATED
8	WATCHDOG FAULT
9	LEVEL SWITCH 1 OPERATED
10	LEVEL SWITCH 2 OPERATED
11	LEVEL SWITCH 3 OPERATED
12	LEVEL SWITCH 7 OPERATED
13	LEVEL SWITCH 8 OPERATED
14	LEVEL SWITCH 9 OPERATED
15	LEVEL SWITCH 4 OPERATED
16	LEVEL SWITCH 5 OPERATED
17	LEVEL SWITCH 6 OPERATED
18	LEVEL SWITCH 10 OPERATED
19	LEVEL SWITCH 11 OPERATED
20	LEVEL SWITCH 12 OPERATED
21	STAND ALONE MODE
22	ESD
23	LAMP TEST

DO NOT SCALE: CONTRACTOR TO CHECK DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

NOTES
1. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
2. INGRESS PROTECTION: IP 56
3. CABLE ENTRY: BOTTOM
4. PANEL DEPTH: 400
5. LABELS TO BE WHITE TRAFFOLYTE WITH BLACK ENGRAVING
6. 2–GANG 240VAC SOCKET & COUTANT LAMBDA DRP240–1 PSU TO BE MOUNTED ON THE PANEL SIDE.

SCALE 1:5 WHEN FULL A1

bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

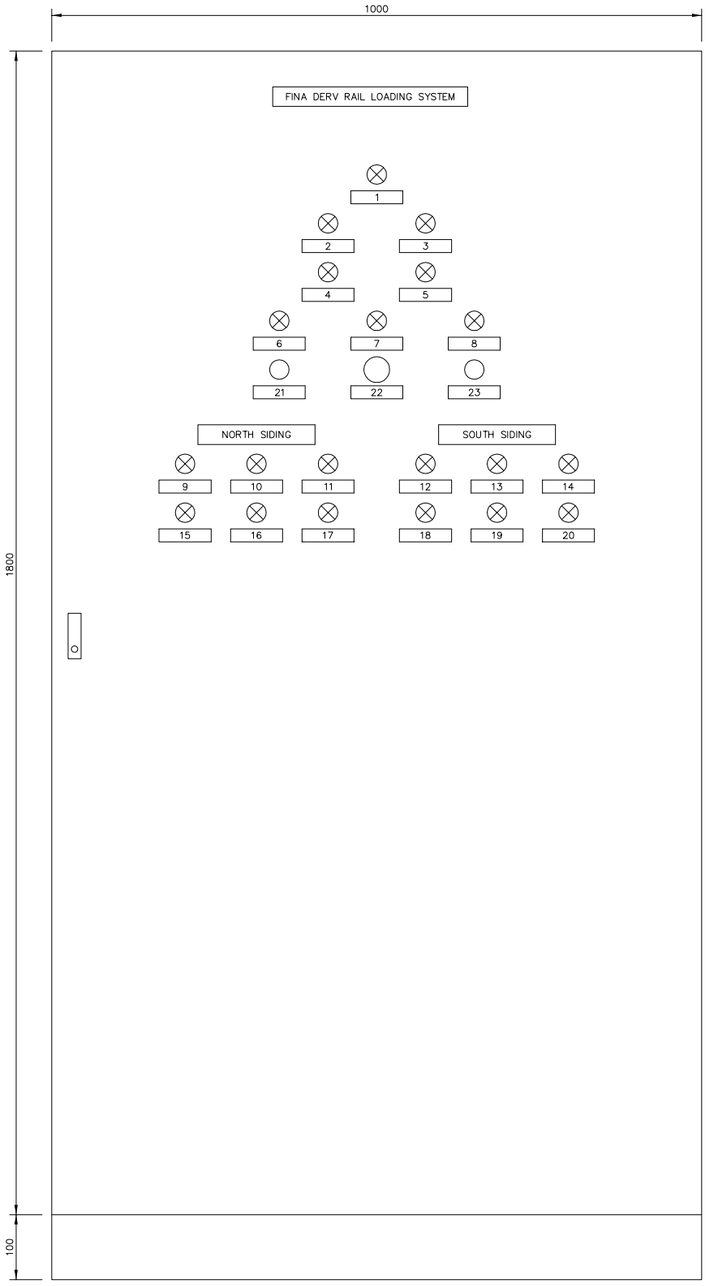
REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	TB COMMS ADDED
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM CONTROL PANEL LAYOUT
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039016_DWG

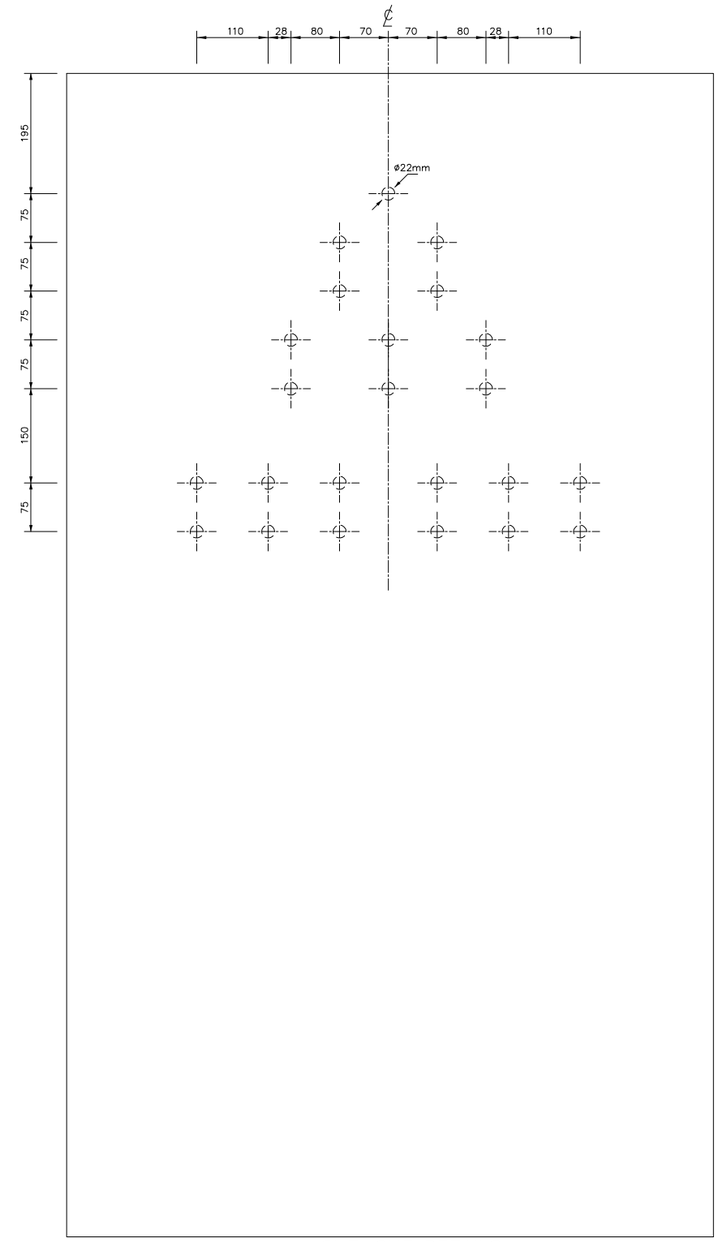
IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

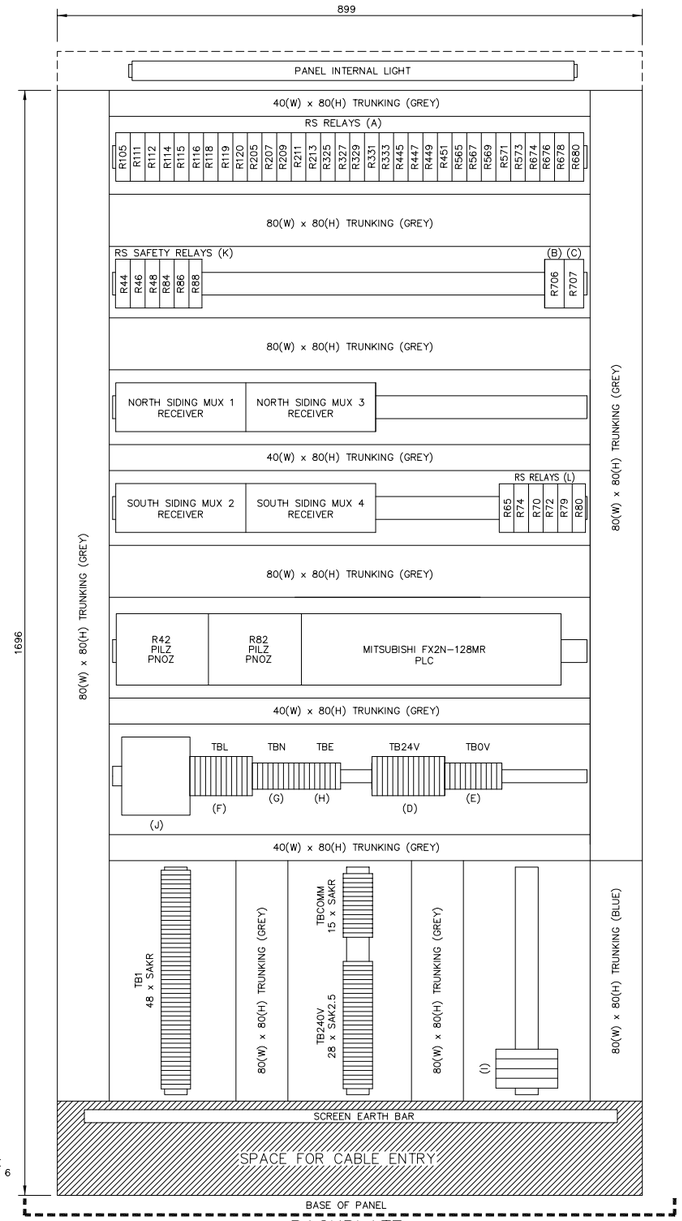
P & I Design Ltd
Tel. 01642 617444
www.pidesign.co.uk



RITTAL ES 5084.600
FRONT OF PANEL LAYOUT



CUT-OUT DETAILS



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J	1	ISOLATOR 25A	XXXX
K	4	RS 4 POLE SAFETY RELAYS, 24Vdc COIL	RS 260-4373
L	6	RS 4-POLE RELAYS, 240VAC COIL	RS 213-0838

DO NOT SCALE: CONTRACTOR TO CHECK DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

NOTES

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3. CABLE ENTRY: BOTTOM
4. PANEL DEPTH: 400
5. LABELS TO BE WHITE TRAFFOLYTE WITH BLACK ENGRAVING
6. 2-GANG 240VAC SOCKET & COUTANT LAMBDA DRP240-1 PSU TO BE MOUNTED ON THE PANEL SIDE.

SCALE 1:5
WHEN PRINTED TO FULL A1 SIZE ONLY

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/04/99	A.J.H	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	TB COMMS ADDED

PLANT	FINA RAIL LOADING SYSTEM
TITLE	CONTROL PANEL LAYOUT
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039016

Appendix II

Schedules

Cable Schedule
SI760001_SCH_A

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	REMARKS
P2-25									
M20132	*J04*	*70*	*4 Core*	*No.2 Switchroom MCC Compartment 2BE*	*ATEX II 2 G EExed*	*P2-25 - Bund R Rail Loading Pump*	*ATEX II 2 G EExed*	*100*	*Cable Extended*
M20132/1	J04	70	4 Core	No.2 Switchroom MCC Compartment 2BE	ATEX II 2 G EExed	P2-25 - Bund R Rail Loading Pump	ATEX II 2 G EExed	160	*Extention*
C20133	J04	N/A	4 Core	No.2 Switchroom MCC Compartment 2BE	ATEX II 2 G EExed	P2-25 Local Controls	ATEX II 2 G EExed	100	Remove
C20134	J02	N/A	2 Core	P2-25 Local Controls	ATEX II 2 G EExed	TS2-25 Discharge Temperature Switch	ATEX II 2 G EExed	5	Remove
C20800	J12	1.5	12 Core	No.2 Switchroom MCC Compartment 2BE	ATEX II 2 G EExed	JB2/111 - P2-25 Junction Box	ATEX II 2 G EExed	100	
C20801	J07	1.5	7 Core	JB2/111 - P2-25 Junction Box	ATEX II 2 G EExed	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	5	
C20802	J05	1.5	5 Core	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	P2-25 Stop/Start Station	ATEX II 2 G EExed	5	
C20803	J05	1.5	5 Core	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	LS2-25 Dry Run Protection Switch	ATEX II 2 G EExed	5	
C20804	J03	1.5	3 Core	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	TS2-25 Discharge Temperature Switch	ATEX II 2 G EExed	5	
C20805	J07	1.5	7 Core	JB2/111 - P2-25 Junction Box	ATEX II 2 G EExed	P2-25 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	Reuse C40279	Station 3 @ Far End
C20806	J07	1.5	7 Core	P2-25 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	P2-25 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 2 @ Centre
C20807	J07	1.5	7 Core	P2-25 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	P2-25 Stop/Start/Run Station 1 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 1 @ Control End
C20808	J02	1.5	2 Core	P2-25 Stop/Start/Run Station 1 at 4 East rail Gantry	ATEX II 2 G EExed	4 East Switch Room Rail Loading Logic Panel	ATEX II 2 G EExed	TBC	Re-use C40279 7c Option
P5-12									
C50485	J07	1.5	7 Core	No.5 Switchroom MCC 5/2 Compartment A1	ATEX II 2 G EExed	P5-12 Stop/Start/Run Station 1 at 4 East Rail Gantry	ATEX II 2 G EExed	TBC	Station 1 @ Control End
C50486	J07	1.5	7 Core	P5-12 Stop/Start/Run Station 1 at 4 East Rail Gantry	ATEX II 2 G EExed	P5-12 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 2 @ Centre
C50487	J07	1.5	7 Core	P5-12 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	P5-12 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 3 @ Far End
C50488	J02	1.5	2 Core	P5-12 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	4 East Switch Room Rail Loading Logic Panel	ATEX II 2 G EExed	TBC	Re-use X40356 1 Pr Option
4 EAST RAIL GANTRY									
C40820	J03	1.5	3 Core	JB 4-86 DC Junction Box	ATEX II 2 G Eexed	ESD @ Gantry Top Control End	ATEX II 2 G EExed	TBC	
C40821	J03	1.5	3 Core	JB 4-86 DC Junction Box	ATEX II 2 G Eexed	ESD @ Gantry Top Centre	ATEX II 2 G EExed	TBC	
C40822	J03	1.5	3 Core	JB 4-86 DC Junction Box	ATEX II 2 G Eexed	ESD @ Gantry Top Far End	ATEX II 2 G EExed	TBC	
C40823	J03	1.5	3 Core	No.4 Switchroom Rail Loading Control Panel	ATEX II 2 G Eexed	ESD Valve Solenoid	ATEX II 2 G EExed	TBC	
4 EAST SWITCHROOM									
C40824	J02	1.5	2 Core	No.4 Switchroom Rail Loading Control Panel	ATEX II 2 G Eexed	No.4 Switchroom Extension Annunciator Node Panel	ATEX II 2 G EExed	30	
C40825	J02	1.5	2 Core	No.4 Switchroom Rail Loading Control Panel	ATEX II 2 G Eexed	No.4 Switchroom Dupline Panel	ATEX II 2 G EExed	20	
							TOTAL	695	

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

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	30/09/10	DBF	DBF	MM		MM		Issued for Tender

PLANT	Immingham East - 4 East
TITLE	4 East Rail Loading Cable Schedule
	SHEET 1 OF 1
CLIENT DRG No	REF No. SI760001_SCH

SIMON Storage Terminals

P & I DESIGN

Appendix III

Cable Specifications

Type ‘E’
Type ‘J’

TYPE	J
DESCRIPTION	XLPE Insulated Power Cable - Armoured
MANUFACTURING SPECIFICATION	BS5467
SERVICE	Power Distribution / Control (Max. 440V ac.)
VOLTAGE	600/1000V.
CONDUCTORS	Stranded Copper
INSULATION	XLPE (Cross Linked Polyethylene)
CORE COLOUR CODE	1 core Brown 2 cores Brown, Blue 3 cores Brown, Black, Grey 4 cores Brown, Black, Grey, Blue 5 cores Brown, Black, Grey, Blue, Green/Yellow 7 cores, 12 cores, 19 cores, 27 cores, 37 cores, 48 cores: White insulation with core number indelibly marked at regular maximum intervals of 50mm
SHEATH	Black PVC
ARMOUR BEDDING	PVC
ARMOUR	Single Core - Aluminium Wire Multi Core - Galvanised Steel Wire
NOTES	The cable type shall be followed by a number that defines the number of cores within a given cable. e.g. J12 indicates a twelve core type J cable.

TYPE	E
DESCRIPTION	Twisted Pairs, Collectively Screened - Armoured One pair, Two pair, Five pair, Ten pair or Twenty pair.
MANUFACTURING SPECIFICATION	BS5308 Part 1 Type 2
SERVICE	24V dc (Nominal) Digital, Pulse and Analogue Instrument Signals
CONDUCTORS	Stranded Copper 0.5mm^2 to 1.5 mm^2
INSULATION	Polyethylene, with one core black and one core blue.
MULTI-PAIR IDENTIFICATION	Both cores of each pair shall be indelibly numbered with the pair number at regular maximum intervals of 50mm
LAYING UP	Cores twisted together in pairs.
COLLECTIVE SCREEN	Laminated tape with the metallic side down and in continuous contact with a tinned copper drain wire.
ARMOUR BEDDING	Polyethylene
ARMOUR	Galvanised Steel Wire
SHEATH	PVC For intrinsically safe circuits the sheath colour shall be blue, for other circuits the sheath colour shall be black (See Notes).
NOTES	The cable type shall be followed by a number that defines the number of cores / pairs / triads within a given cable. In addition a suffix may be added where applicable as follows. Suffix Description I Intrinsically Safe Circuit e.g. E10I indicates a ten pair type E cable with a blue sheath.

Appendix IV

Standard Specification for Instrument & Electrical installations

SI003001_INS_A

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

SIMON STORAGE LTD.

IMMINGHAM EAST TERMINAL

STANDARD SPECIFICATION FOR

INSTRUMENT & ELECTRICAL INSTALLATION

CONTENTS

APPENDICES

1 INTRODUCTION

This document details the specifications required to install instrument and electrical equipment and associated systems at Simon Storage Ltd. ISCO East Terminal. This document covers all aspects of industrial instrument and electrical installation work and may contain sections that may not be relevant to every project.

2 GENERAL REQUIREMENTS

The Contractor is to supply all labour, cables, cable tray/ladder racking, equipment and materials necessary to complete the works detailed.

2.1 General Conditions of Contract

The Contractor is required to work to the Employer's Condition of Contract;

2.2 Requirement of Contract

To carry out works to install the instrument and electrical element of the project. Works will be carried out while surrounding systems are under construction and care must be taken to avoid any clash with other trades. It may be necessary to carry out some of the works during agreed shutdowns. The Engineer will liaise closely with the Contractor to ensure that the required systems are made available.

2.3 Safety

The Contractor is required to work to the Employer's Safety Conditions.

Following Tender assessment, the successful Tenderer will be required to attend a meeting and participate fully in the formulation and regular update of the final Health and Safety Plan for the Project.

2.4 Installation

All labour, including unskilled, skilled and supervisory staff involved in the off-loading of equipment at the site and in the complete installation, assembly and testing of all the items included in the contract.

All materials required for the contract including earth conductors and furse clamp/fixings, cable ladder, tray, channel, supports, cable as detailed in the schedules.

All tools and equipment, including lifting equipment, scaffolding, general plant required in the performance of the contract and all necessary testing equipment.

The provision of all site facilities and any temporary electricity supplies.

All builders work including drilling and fixing to the civil structure, any necessary grouting and the sealing of holes, ducts and trenches after cable installations. All fixings, nuts, bolts,

2.4 Installation (Cont.)

studs, washers, gaskets and any other appurtenances necessary to provide a complete and operational installation.

3 METHODS OF WORK AND MATERIALS

3.1 Installation Standards

Equipment and installation shall comply with all relevant standards, statutory instruments, regulations and authorities current and governing at the time, with particular reference to those detailed in Appendix IV.

If interpretation of the standards shall prejudice any part of this specification, where requirements may be in excess of those called for in the standards, the Purchaser's standards shall apply.

3.2 Materials

All materials used in manufacture, construction or installation shall be new and specifically suited for their duty or purpose.

The Contractor shall provide all miscellaneous materials, not of free-issue nor specifically defined by the Company, which are necessary to complete any installation to the required standard.

3.3 Electrical Contractor

All work carried out shall be performed by a qualified electrical contractor, approved by the National Inspection Council for Electrical Installation (NICEIC). Work shall comply with the relevant British Standards. The contractor shall ensure that either:-

All electricians employed on the project have suitable experience of working on hazardous area equipment or a qualification for working on Electrical Equipment in Hazardous Areas (CompEx),

or,

that the complete installation is checked and certified by a CompEx certified person.

3.4 Position of Electrical Equipment and Appliances

The approximate positions of electrical apparatus such as motors, instruments, and distribution boards are shown on the drawings, but their exact positions shall be determined on site by an appointed representative of the Engineer.

The position of electrical apparatus shown on the drawings shall be assumed to be correct for the purposes of tendering, but they may be reasonably varied without extra cost.

The Contractor shall ascertain on site that his work will not foul other engineering services or equipment and any work which has to be re-done, due to negligence, in this respect shall be his responsibility.

3.5 Segregation of Service

All cable supports and cables shall be prevented from coming into contact with process equipment and piping by a spacing of 150mm.

Cables operating at a voltage of 110V AC and above shall be segregated from cables operating at a voltage of 24V DC and below.

Intrinsically safe circuits shall not share multicore cables with none intrinsically safe circuits.

3.6 Fixings

No structural steelwork shall be drilled for any purposes without the approval of the Engineer. In general, all fixing to steelwork shall be by means of studs welded to the steelwork or by clamp brackets or hook bolts. Permission shall be obtained from the Engineer for any other type of fixing. Any protective coating damaged by welding, etc. should be made good by a method approved by the Engineer.

The supply and fixing of all support brackets, clamps and spacers and any other steelwork, whether or not shown in detail on the drawings or otherwise, which may be required for the proper and effective fixing of any equipment shall be considered to be included in the material and labour for the supply and fixing of that equipment, unless this work is specifically detailed in the Schedules.

Where PVC sheathed cable is used, cable cleats and supports shall be as recommended by the cable manufacturer. They shall be designed to avoid any damage to the PVC sheaths by sharp edges and excess pressure.

Cables erected on walls or steelwork shall, so far as is practicable, be so supported that no flexing can occur. Generally cables shall be supported on cleats which clamp the cables to prevent longitudinal movement.

Lightweight equipment and conduit saddles may be fixed to the building structure by means of screws in metal or plastic plugs. Wood or fibre plugs shall not be used.

Fixing to brickwork shall be made in the bricks and not in the joint. If it is not possible to make all the fixings in the brickwork, then the equipment shall be positioned to enable the upper fixings to be made in the brickwork.

Shot fixing bolts shall not be used.

Any additional scaffolding required will be included within the Contractor’s Scope of Work. Note: Existing scaffold in place to assist with the Mechanical Pipework Installation may be used.

3.7 Clean Up

During and on completion of installation work the Contractor shall remove all surplus equipment and material and leave areas in a 'brush clean' condition. Refuse shall be disposed of as directed by the Engineer.

Prior to testing (where damage could arise) and before offering any part of the installation for acceptance, the Contractor shall clean out all electrical enclosures and wipe down painted surfaces. If necessary, damage to paintwork shall be made good by touch-up.

Before finally leaving the site, the Contractor shall remove all his accommodation, plant, tackle and tools of the trade to the satisfaction of the Engineer.

3.8 Earthing

3.8.1 General Soil Conditions

No information is available.

3.8.2 System Earthing

The neutral shall not be regarded as an earth conductor.

In areas where earth rods are to be driven into the ground, it shall be the contractors responsibility to ensure that there are no other underground services in the immediate vicinity.

3.8.3 Equipment Earthing

The main earthing bar as identified in the specific project documentation will be connected by a separate earth conductor to its main earth point. All non-live metalwork shall be directly or indirectly bonded to the main earth bar. Such metalworks will include electrical equipment enclosures, motor frames, tray/ladder rack to be continuously bonded, cable armouring and glands. All glands which are through clearance holes require an earth tag and connection to the earth system by 6 sq.mm cable. Care must be taken to ensure that paint, etc. is cleaned away from under earth connections so that there is good earth continuity.

Direct bonding shall be taken to mean dedicated earth conductors within, or separate from, plant cable. Separate conductors shall be multi-stranded copper with a green/yellow sheath, size as specified in the drawings. Indirect bonding shall be taken as earth paths through armouring.

Note: (Dedicated earth conductors preferred).

However, a combination of both may be employed, providing that the value of the earth loop impedance allows flow of fault current sufficient to rupture associated protective fuses within five (5) seconds.

3.8.4 Lightning Protection

Lightning protection is not anticipated for the plant.

3.9 Cabling

3.9.1 General

The schedules detail the cables with the estimated lengths for tendering purposes only. It is the Installation contractors responsibility to site measure prior to any cable installation and any cost variation must be advised to the Engineer for approval before installation.

All cables above 16 sq mm section shall have shaped conductors.

Before any armoured cable is installed, triplicate copies of the test certificate giving details of these tests shall be submitted to the Engineer for approval.

When delivered to site, each coil of cable shall have attached the manufacturer's test certificate.

When cables are steel wire armoured, the conductance of the armour shall be not less than 50% of the conductance of one phase core.

3.9.2 Installation

Bending radii shall conform to the maker's recommendations but in no case shall be less than:
8 x OD for armoured cables.

Cables shall be identified with durable, non-corrodible tags, of the Critchley K type or equivalent, inscribed with the reference number allocated in the cable schedules and fixed securely to the cable.

All cables shall be tagged as follows:

a. At each termination.
b. Where they enter and leave underground ducts.
c. At each side of any barrier through which they run.
d. Where they rise from one level to another.

All cores shall be terminated using approved crimped lugs of appropriate size. Spare cores shall be made off to unused terminals.

The cores of cables of section larger than 4mm² shall be connected by a means approved by the Engineer.

3.9.2 Installation (Cont.)

Cable joints shall not be used unless specified or on the written authority of the Engineer.

Cores shall be marked to comply with the references given in the cable schedules using Critchley Z type or equivalent. They shall be identified having black characters reading from the terminals outwards. Clip-on ferrules will not be accepted.

Insulated cables shall have standard compression type gland of the appropriate size. Particulaer ATEX certification requirements will be detailed on cable schedules.

Each gland shall be bonded to its cable armouring, where applicable and unless otherwise specified, and to be complete with earth tag and locknut.

Cables shall be protected against mechanical damage at vulnerable points. This particularly applies in exposed locations where cables emerge from ground or floor.

3.9.3 Cables in Ground

When excavating trenches for underground cables, due account shall be taken of ground conditions. Cables in normal ground shall be laid in trenches 500mm deep minimum unless agreed otherwise. Before any excavation starts, the Contractor shall check if there is any record of other underground services along the route.

Trench bottoms shall be cleared of irregular and sharp objects before applying bedding.

Cables shall be laid the appropriate distance apart (dictated by rating factors) on a bed of clean, dry, builders' sand, 75mm deep.

Cables shall be blinded with a similar layer as soon as possible after installation.

The trench shall be backfilled a further 150mm with riddled, excavated spoil.

Interlocking cable tiles or continuous marker tape, giving clear warning or danger, shall be placed over each cable or closely associated groups of cables.

Backfill to surface shall be allowed to settle before final topping and grading.

Approved route markers shall be installed where cables enter of leave buildings, at changes of direction and at appropriate intermediate intervals.

Pilot cables shall run continuously with their associated main cable, where the route is common.

3.10 CABLE SUPPORTS

3.10.1 Cable Ladder

Cable ladder should be installed as required in this specification.

The ladder shall be Swift type which is Hot Dip Galvanised to BS729:1971.

Standard metric widths shall be used.

Radius bends, tees, sets, reducers or other fittings shall be proprietary type by the ladder manufacturer and his installation instructions shall be followed. Earth Continuity connectors are to be fitted to all racking.

It shall be the contractors responsibility to provide the main supports for the racks as well as the fixing of the racks to the main supports.

Non Standard fittings will only be allowed where expressly agreed.

Cables shall not be tiered more than two deep, in which case the larger should be nearer to the end of the ladder.

Ladders shall be supported over their full width and secured to each support.

All bolts, nuts or washers shall be metric and sheradised, plated or otherwise effectively protected against corrosion.

Excessive bolt projections which may make the removal of nuts at a later date difficult will not be accepted.

When fully loaded, no span shall have a sag detectable by the eye.

Ladder runs shall be completely erected before cable laying commences and any rags, burrs or raw edges suitable treated.

3.10.2 Cable Trays

Cable trays shall be heavy-duty pattern formed from galvanised sheet steel. The tray shall have side flanges not less than 25mm deep with returned edges and be coated fabrication. Material gauge shall be 1.5mm (16 SWG) minimum except that for tray widths less than 400mm, the gauge may be reduced subject to the flange depth and the approval of the engineer. Factory made tee sections and bends shall be used where possible.

The cutting of trays shall be kept to a minimum but where unavoidable, the edges shall be suitably treated. Fasteners shall not present any obstruction on the tray. Capacity amounting to 25% usable tray area shall be left spare.

For those portions of cable route where the cables are to be laid on cable tray, they shall be laid flat and straight and shall be properly dressed into position and fastened to the tray at intervals not greater than 500mm. Where the tray is run horizontally but arranged in the vertical plane, fastener spacing shall be as detailed in the IEE Regulations. Care shall be taken to space the cables to allow adequate cooling in accordance with the IEE Wiring Regulations and not more than two layers of cables shall be run on one tray.

3.10.3 Channel

"Unistrut" type channel may be used for individual cable runs. Where cables are installed in the channel, capping is to be fitted. The channel and capping are to be of the galvanised type.

Where channel is to be used it must be with the approval of the Engineer.

3.10.4 Routes

Specific routing will be influenced by local circumstances.

Final details of all routes shall also be agreed with the Engineer before commencing pulling.

In all cases particular attention shall be paid to installation to as to prevent:

a. Cable support fixings adversely affecting the strength of structures to which they are attached.

b. Cable routes fouling access to other equipment and plant areas.

c. Cables being at risk of damage caused by normal circumstances.

3.11 Testing and Commissioning

3.11.1 Testing

On completion of any installation work the Contractor shall carry out tests to ensure that it has been correctly executed and is safe to commission. This section provides a guide to the minimum normal requirements. Additional or special testing of particular equipment or components may be necessary and if so shall be carried out in accordance with any applicable instructions or recommendations.

On completion of the installation, an inspection of hazardous area equipment is to be conducted as detailed in EN60079-17 Type: Initial, Grade: Detailed. All results are to be fully recorded. These tests must be carried out by a CompEx or equivalent certified person.

Safety Procedures, for any tests which may involve danger to personnel, the Contractor shall 'tape off' the area and display warning notices.

Earth Tests, as soon as possible after establishment, the value of the plant earth(s) shall be measured, preferably using an instrument specifically for this purpose. Tests shall preferably be carried out in dry weather.

Continuity of all earth paths shall be checked, loop impedance values shall be measured and recorded for all or sample circuits at the discretion of the Engineer. Any sample testing shall involve circuits furthest from the point of supply.

Insulation Tests, insulation tests shall be carried out on all cables and equipment using a 'Megger' of appropriate voltage. Low voltage devices (e.g. electronic circuitry) which could suffer damage thereby, shall be disconnected prior to testing.

Di-electric tests on insulating oil shall be carried out only if required by the Engineer.

Pressure Tests, it may be assumed that pressure testing (over-potential) of equipment will have taken place at works prior to despatch and need be repeated only if required by the Engineer.

In general and unless expressly excluded, all HV cables shall undergo a site pressure test prior to energising.

Injection Tests, injection tests on protective relays shall be carried out at the discretion of the Engineer.

Phase Rotation, supplies to principle load centres shall be checked for correct phase rotation.

3.11.1 Testing (Cont.)

Rotating Machines, all motors shall be 'jogged' on agreement with the Engineer, for direction then run on light load (with overload relays set low) to check for noise and vibration. Any drain plugs shall be removed to check for condensation, then replaced.

Lighting Levels, illumination levels shall be measured against specification in the absence of daylight.

Noise Levels, will not normally require measuring unless required by the Engineer.

Witnessing, the Contractor shall give reasonable notice of testing to the Engineer who may wish to witness same.

Records, all test results shall be recorded.

3.11.2 Commissioning

Electrical

The installation shall be pre-commissioned by carrying out full functional tests at rated voltages.

These operations will normally be carried out jointly by the Engineer and the Contractor and will include:-

Prolonged running of rotating machines (on load if possible) to check for smooth operation and temperature rise. During these tests the Contractor shall check metered currents, where applicable, and set overload relays and ammeter markers to suit conditions.

Active tests on all circuits to ensure that all components are operating correctly.

Sequence tests on all circuits to prove interlock and alarm features.

If required by the Engineer, the Contractor shall provide qualified assistance on a standby basis during full plant commissioning under process conditions.

Rates would be agreed in advance, in this event.

APPENDIX I

Applicable Standards

Specifications and Codes of Practice of the BSI

Regulations under the Electricity Acts

Requirements of HM Factory Inspectorate

Any applicable requirements of other National or Local Authorities

Simon Storage Safety Regulations for Contractors

Simon Storage General Conditions of Contract. (Latest Edition)

The Contractor is to request a copy of Simon Storage Regulations and Conditions of contract if not already in possession.

British Standard EN60079-14 Electrical Installation in hazardous areas.

British Standard EN60079-17 Inspection and Maintenance of electrical installations in hazardous areas.

British Standard BS7671:2008 Requirements for Electrical Installations (IEE Wiring Regulations 17th Edition)

P & I Design Ltd

Process Instrumentation Consultancy & Design

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Thornaby, TS17 7AF, United Kingdom.
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Web Site: www.pidesign.co.uk

IMMINGHAM STORAGE Co LTD

ISCo EAST TERMINAL

INSTRUMENT & ELECTRICAL INSTALLATION

INSTALLATION SCOPE OF WORK

600 SERIES ROSOVs

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	02.12.10	D.B.Faulkner	MM	MM	Issued for Construction	
						Document No. SI760002_INS
						Page 1 of 3

CONTENTS

APPENDIX

Revision History

Revision A – Original issue

1 INTRODUCTION

This document details the scope of work to provide the Instrument/electrical installation works for 600 series tank 601, 602 & 603 rail loading export ROSOVs at ISCo East Terminal. It is to be read in conjunction with specification SI003001_INS - Standard Specification for Instrument & Electrical Installations.

This scope is a variation to the main installation contract defined in document SI760001_INS. All terms and conditions applicable to the main contract apply to these variation works also.

2 SCOPE OF WORK

The scope of work is as detailed in the following sections and as shown on the documentation listed below.

Cable Schedules	SI760002_SCH_A
Junction Box Schedules	SI277010_SCH_C
Loop Sheets	SI760005_DWG_A
MCC Drawing	SI478006_DWG_H

2.1 Scope of Work – No2 Switchroom

Modifications and tie ins to MCC compartments B2E & B2F.

2.2 Scope of Work – Field

Cables and containment to be installed from No.2 switchroom MCC panel to new valve assemblies XV60103, XV60203 & XV60303. Valve assemblies will be mechanically installed by others. Air lines to be installed from air header within 10 meters of the valves. JB4/89 is existing, contractor to modify or replace.
Note - 24Vdc power in JB4/89 from No4 switchroom SIS logic panel, contractor to apply relevant warning label and comply with SIS modification procedures.

2.3 Contractor Supplied Equipment

The contractor shall supply and install the following equipment. All equipment shall be suitably rated for the environment in which it is to be installed (site hazardous area drawing available on request). Where not fully specified, equipment shall conform with normal site standards for similar installations.

ROSOV Local Controls

- 3 off Pneumatic Open/Close Stations
- 1 off JB4/89 See section 2.2

Switchroom Equipment

- 1 off PILZ PNOZ s2 Safety relay.
- Terminals & Fuses

2.4 Free Issue Equipment

No Free Issue equipment.

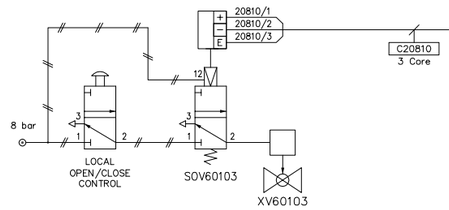
Appendix I

Drawings

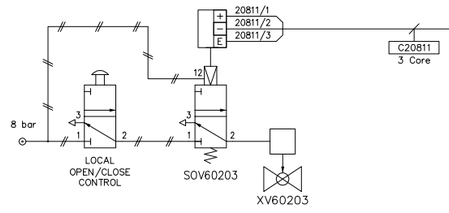
SI760005_DWG_A
SI478006_DWG_H

600 SERIES TANK FARM

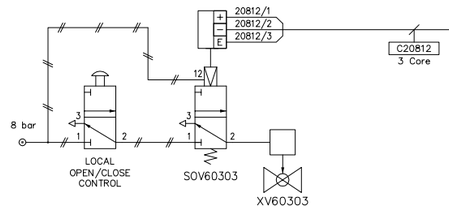
TANK 601 RAIL LOADING VALVE XV60103



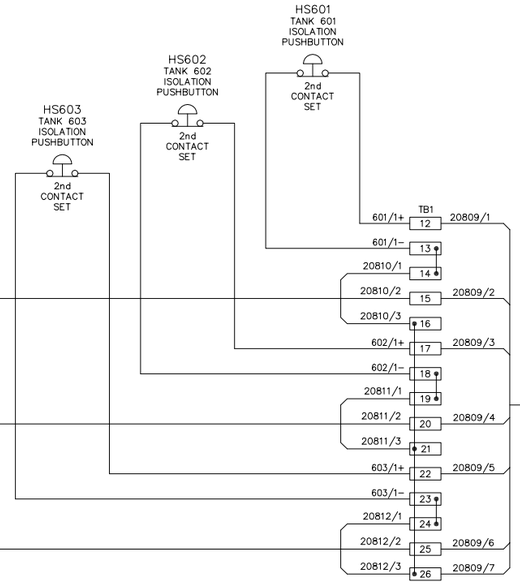
TANK 602 RAIL LOADING VALVE XV60203



TANK 603 RAIL LOADING VALVE XV60303

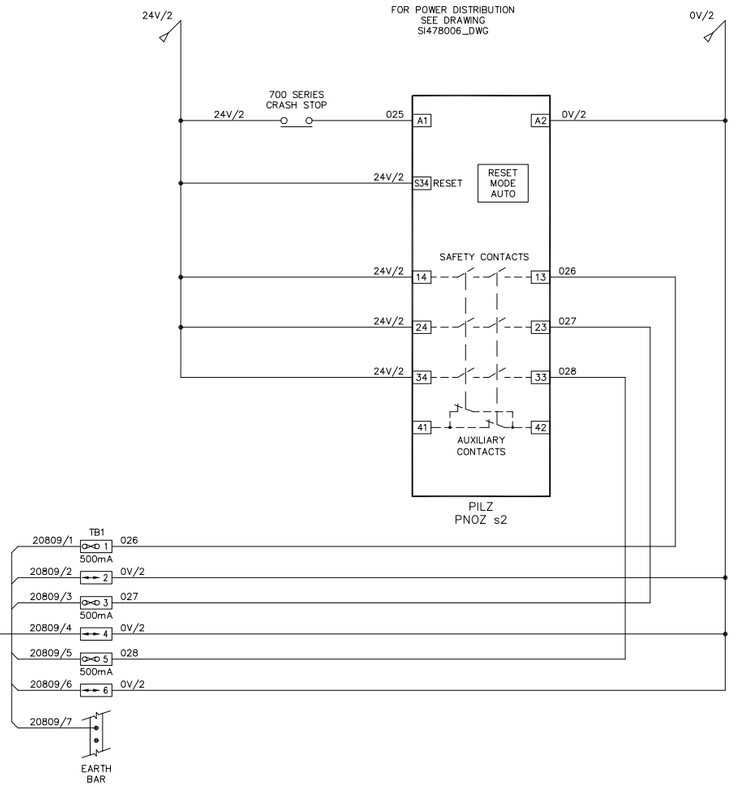


JB4/89
TANK ISOLATION PUSHBUTTON JUNCTION BOX



SAFE AREA

No.2 SWITCHROOM - MCC COMPARTMENT B2F



NOTE

PUSHBUTTON CONTACT SET 1 IS FED FROM No.4 SWITCHROOM AND IS PART OF THE SIS SYSTEM

NOTES
1)

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	30/11/10	P.P.	P.P.	D.B.F	M.M.	ISSUED FOR CONSTRUCTION

simon
bulk liquid & gas network

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM TANK 601, 602 & 603 RAIL LOADING VALVE LOOP SHEET
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI760005_DWG

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN — P & I Design Ltd, Tel. 01642 617444, www.pidesign.co.uk

No.2 SWITCHROOM - MCC COMPARTMENT B2E

FIELD

BUSBARS R Y B N

4Q1 KLOCKNER MOELLER NZM7-125N-M SET at 100A

150/5A

4K1M

4K2M

4A1

230V AC

RUN

4F0 MCB DOUBLE POLE 2A Type C

240Vac/24Vdc POWER SUPPLY

24V DC

PILZ SAFETY RELAY

START-UP OVERRIDE OMRON H3DE-M2 DELAY ON TIMER RELAY SET to 30sec : Mode 'A'

ROSOV VALVES SEE DRAWING SI760005_DWG

4x1

P2/25 3Φ 55kW

M20132 4 Core

CONTROL STATION

STOP

START

RUNNING

DISCHARGE TEMPERATURE

SUCTION LEVEL

SEE DRAWING SI760001_DWG

4x2

GANTRY CONTROL PANEL

4x3

C20790 7 Core

REFER TO LOGIC DRAWING SI478002_DWG

C20791 3 Core

CRASH STOP

No.2 SWITCHROOM - MCC COMPARTMENT B2F

NOTES

1) JETTY STOP – RELAY ENERGIZED TO STOP DRIVE.
2) THIS DRAWING REPLACES SITE DRAWING SPW-03-688.DWG

simon bulk liquid & gas network

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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
H	30/11/10	P.P.	P.P.	D.B.F	M.M.	ROSOV VALVE POWER ADDED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	10/12/98	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	19/01/99	A.J.H	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
C	01/02/99	A.J.H	A.J.H	D.R.R	D.R.R	SOFT START CHANGED
D	17/03/99	A.J.H	A.J.H	D.R.R	D.R.R	PANEL TEST MODS.
E	23/06/00	M.M.	A.B.	D.R.R	D.R.R	SOFT START MODS.
F	19/10/10	P.P.	P.P.	D.B.F	D.R.R	COMPARTMENT RE-WIRED
G	28/10/10	P.P.	P.P.	D.B.F	M.M.	PUMP CONTROLS REVISED

PLANT: IMMINGHAM STORAGE Co. – EAST TERMINAL

TITLE: P2/25 PUMP MCC DIAGRAM

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI478006_DWG

Appendix II

Schedules & Specifications

SI760002_SCH_A
SI277010_SCH_C

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	REMARKS
C20809	J07	1.5	7 Core	No.2 Switchroom MCC Compartment B2F	ATEX II 2 G EExed	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	100	Note 2
C20810	J03	1.5	3 Core	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	Tank 601 Rail Loading Valve - XSV60103 Soleniod	ATEX II 2 G EExed	220	
C20811	J03	1.5	3 Core	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	Tank 602 Rail Loading Valve - XSV60203 Soleniod	ATEX II 2 G EExed	190	
C20812	J03	1.5	3 Core	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	Tank 603 Rail Loading Valve - XSV60303 Soleniod	ATEX II 2 G EExed	160	
							TOTAL	670	

NOTES:

1) Refer to P&I Design Cable Specifications for details on Cable Type. 2) Cables to be relocated to ROSOV Control Panel in future, allow spare length.

	Denotes Cable Modified
	Denotes Cable Deleted
	Denotes Cable Added
	Future Cables

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	30/11/10	DBF	DBF	MM		MM		Issued for Construction

PLANT	Immingham East - 2 East
TITLE	600 Series ROSOVs Cable Schedule
	SHEET 1 OF 1
CLIENT DRG No	REF No. SI760002_SCH

FIELD							JB4/89						SWITCHROOM 4 - TANK OVERFILL MONITORING PANEL (SIS)								
FIELD INSTRU-MENT	TERMINAL No.	CABLE DETAILS					TERMINAL No.	JUNCTION BOX DETAILS					TERMINAL No.	PANEL TERMINATION DETAILS					INST. TERMINAL No.	INST. LOOP DIAGRAM	REMARKS
		CABLE No.	TYPE	CORE No.	FERRULE No.	LENGTH METRES		CABLE No.	TYPE	CORE No.	FERRULE No.	LENGTH METRES		CABLE No	TYPE	CORE No.	FERRULE No.	LENGTH METRES			
							TB1						TB3								
HS601	12		1 Core		601+		1	X40358	E05	Pr 1+	40358/1+		27								Tank 601 Isolation
	11		1 Core		601-		2			Pr 1-	40358/1-		28								
HS602	12		1 Core		602+		3			Pr 2+	40358/2+		29								Tank 602 Isolation
	11		1 Core		602-		4			Pr 2-	40358/2-		30								
HS603	12		1 Core		603+		5			Pr 3+	40358/3+		31								Tank 603 Isolation
	11		1 Core		603-		6			Pr 3-	40358/3-		32								
							7			Pr 4+	40358/4+		Earth Bar								Spare
							8			Pr 4-	40358/4-		Earth Bar								
							9			Pr 5+	40358/5+		Earth Bar								Spare
							10			Pr 5-	40358/5-		Earth Bar								
							11			SCN	40358/SCN		Earth Bar								Screen

FIELD							JB4/89						SWITCHROOM 2 - 600 SERIERS ROSOV CONTROL PANEL								
FIELD INSTRU-MENT	TERMINAL No.	CABLE DETAILS					TERMINAL No.	JUNCTION BOX DETAILS					TERMINAL No.	PANEL TERMINATION DETAILS					INST. TERMINAL No.	INST. LOOP DIAGRAM	REMARKS
		CABLE No.	TYPE	CORE No.	FERRULE No.	LENGTH METRES		CABLE No.	TYPE	CORE No.	FERRULE No.	LENGTH METRES		CABLE No	TYPE	CORE No.	FERRULE No.	LENGTH METRES			
							TB1						TB1								
HS601	22		1 Core		601/1+		12	C20809	J07	Core 1	20809/1		1								Tank 601 Solenoid +ve
	21		1 Core		601/1-		13														
XSV60103	+	C20910	3 Core	1	20810/1		14														
	-			2	20810/2		15			Core 2	20809/2		2								Tank 601 Solenoid -ve
	E			3	20810/3		16														
HS602	22		1 Core		602/1+		17			Core 3	20809/3		3								Tank 602 Solenoid +ve
	21		1 Core		602/1-		18														
XSV60203	+	C20911	3 Core	1	20811/1		19														
	-			2	20811/2		20			Core 4	20809/4		4								Tank 602 Solenoid -ve
	E			3	20811/3		21														
HS603	22		1 Core		603/1+		22			Core 5	20809/5		5								Tank 603 Solenoid +ve
	21		1 Core		603/1-		23														
XSV60303	+	C20912	3 Core	1	20812/1		24														
	-			2	20812/2		25			Core 6	20809/6		6								Tank 603 Solenoid -ve
	E			3	20812/3		26			Core 7	20809/7		Earth Bar								Earth

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ABBREVIATIONS	REFERENCE DRAWINGS
Revision C Modifications	SI277120_DWG
	SI277121_DWG
	SI277122_DWG
	SI277123_DWG
	SI277124_DWG
	SI277125_DWG
	SI760005_DWG

REV	DATE	BY	DRN	CHECKED		APPROVED		DESCRIPTION
A	27/03/08	P.P.	P.P.	D.S.R	D.S.R	D.R.R	D.R.R	Issued for Tender
B	24/04/08	P.P.	P.P.	D.S.R	D.S.R	D.R.R	D.R.R	Issued for Construction
C	30.11.10	DBF	DBF	MM		MM		Issued for Construction

PLANT: ISCo EAST - TANK OVERFILL SIS

TITLE: JB4/89 TANK ISOLATION PUSHBUTTON J/B CONNECTION SCHED.

simon bulk liquid & gas network

P & I DESIGN

SHEET 1 OF 1

CLIENT DRG No.

REF No. SI277010_SCH

P & I Design Ltd

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SIMON STORAGE

ISCo EAST TERMINAL

4 EAST RAIL LOADING MODIFICATIONS

INSTALLATION SPECIFICATION

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	30.09.10	D.B.Faulkner	MM	MM	Issued for Tender	
						Document No. SI760001_INS
						Page 1 of 14

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CONTENTS

APPENDIX

Revision History

Revision A – Issue for tender.

1 INSTRUCTIONS TO TENDERERS

1.1 Introduction

This document details the scope of work to provide the cabling and containment installation for 4 east Rail Loading modifications at ISCo East Terminal. It is to be read in conjunction with specification SI003001_INS - Standard Specification for Instrument & Electrical Installations.

The Tender shall be in respect of the proposed works and shall be completed and submitted strictly in accordance with these instructions to tenderers.

1.2 Date, Time and Mode of Delivery

The completed tender packages together with any covering letter and with the remainder of the containing document all in originally bound form (taking account of additions/omissions, etc., notified in writing during the tender period) together with other requirements, shall be submitted by the time stated in the purchaser's letter of invitation to tender.

The envelope must not be marked nor delivered in any way which might disclose the identity of the tenderer.

1.3 Alterations of Tender Documents

No authorised alteration shall be made in the Tender or the accompanying documents.

1.4 Enquiries to be Made Concerning the Tender

Any query in connection with the tender shall be submitted to:-

Mr D.B.Faulkner
P & I Design Limited
2 Reed Street
Gladstone Industrial Estate
Thornaby.
Tel: (01642) 617444
Fax: (01642) 616447
df@pidesign.co.uk

A site visit is required to ensure that the work associated with this project is fully understood. The site visit is to be organised by contacting D.B.Faulkner at P & I Design Ltd.

1.5 Sufficiency of Tender

Before submitting a tender the tenderer should obtain all information, familiarise himself with means of access, location, extent and nature of the site, extent and nature of the services to be provided, conditions under which the services and works will be carried out, conditions affecting supply of staff and labour and any other matters which may affect his tender. applications for costs etc. on the ground of lack of knowledge in any respect of the aforementioned will be refused.

1.6 Confidentiality

The particulars of this document and any tender submitted in respect hereof are private and confidential and shall not be used for any purpose other than the proposed contract. In the event of a tender not being submitted or accepted all documents and drawings shall be returned to the person named in Clause 4 of these instructions to tenderers.

1.7 Contravention of Tender Requirements

Contravention of any of the requirements of these instructions to tenderers with regard to tendering shall render any tender concerned liable to disqualification at the sole discretion of Simon Storage Ltd.

1.8 Contract Agreement

The contractor shall, when called upon, enter into and execute a contract agreement.

1.9 Information to be Supplied by the Purchaser

In addition to the information to be provided by the purchaser prior to the contract award the tenderer shall attach a schedule of any further information which may be required from the purchaser, together with a programme indicating when it will be required.

1.10 Tender Price

The contractor shall make his tender open for acceptance for a period of one month from date of receipt by the Purchaser.

2 GENERAL REQUIREMENTS

Detailed in document SI003001_INS - Standard Specification for Instrument & Electrical Installation Section 2 with the following additional information -

Section 2.2 – Requirement

A “For Construction” drawing package will be issued prior to contract. Modifications from the “For Tender” package will be highlighted.

The contractor is to supply details of labour usage to complete the installation within the programme. The contractor shall also supply day rate costs.

Normal site working hours 8.00am to 6.00pm Monday to Friday.

Section 2.4 - Installation

All scaffolding requirements will be included within the contractor’s Scope of Work.

3 METHODS OF WORK AND MATERIALS

Detailed in document SI003001.INS - Standard Specification for Instrument & Electrical Installation Section 3 with the following additional information -

Section 3.5 – Segregation of Service

The schedules will indicate cables exceeding 110V AC.

Section 3.6 – Fixings

No fixings shall be made to the bund walls.

Section 3.8.3 – Equipment Earthing

Main earth bars within switchrooms.

Section 3.11.1 – Testing

No commissioning will commence until handover of cable test certificates and CompEx inspections by the contractor. The contractor will be responsible for providing installation handover to the engineer in good time to progress the commissioning programme.

Section 3.11.2 – Commissioning

The contractor will not be required to carry out commissioning. The contractor will not power any equipment without the consent of the engineer.

Pneumatics

The contractor shall supply all labour and materials to install or modify the pneumatic supplies to all actuated valves utilising 6mm OD black PVC tubing and push in fittings. Each tube shall be identified with durable, non-corrodible tags, of the Critchley K type or equivalent, inscribed with the valve tag number and fixed securely to the tube.

A distribution Manifold will be installed by the mechanical contractor within 10 metres of the valve. The contractor shall use this length for his costing for every valve.

4 SCOPE OF WORK

As part of the 4 East Rail Loading project P2-25 will be re-located from No.2 East loading yard to Bund R pump raft, P2-25 and P5-12 pump control systems will be modified. All inline batching equipment and associated electrical equipment will be removed to allow for line piging.

The scope of work is as detailed in the following sections and as shown on the documentation listed below.

	Existing	Modified/New
Cable Schedules		SI760001_SCH_A
Cable Overview Drawing	SI039001_DWG_C	SI039001_DWG_D
Logic Drawings	SI039002_DWG_C	SI039002_DWG_D
	SI039003_DWG_B	SI039003_DWG_C
	SI039004_DWG_B	SI039004_DWG_C
	SI039005_DWG_B	SI039005_DWG_C
	SI039006_DWG_B	SI039006_DWG_C
	SI039007_DWG_B	SI039007_DWG_C
	SI039008_DWG_B	SI039008_DWG_C
Loop Sheets	SI039010_DWG_C	SI039010_DWG_D
	SI039011_DWG_C	SI039011_DWG_D
	SI039012_DWG_C	SI039012_DWG_D
	SI039013_DWG_C	SI039013_DWG_D
	SI039014_DWG_B	SI039014_DWG_C
		SI760001_DWG_A
		SI760002_DWG_A
Panel Layout Drawing	SI039016_DWG_C	SI039016_DWG_D

The contractor shall make provision for the following works –

General

Relabeling of all equipment as required, removal of all FINA references.
Detailed CompEx inspections to be carried out to all existing equipment modified under this scope.

P2-25

Isolate and de-gland motor cable M20132 to allow relocation of pump by others. M20132 to be extended to new location via M20132/1.

Isolate, de-gland and remove control cables C20133 & C20134.

Modifications to P2-25 controls to include supply/installation of 240 Vac to 24Vdc/5A PSU. Remove of P2-25 jetty controls from the dupline system. Relabeling as required.

No.4 Switchroom

Re-programming of dupline system to provide a Site Fire Alarm output and wire to 4 pole relay within No.4 Switchroom dupline panel.

Modifications to 4 East Rail Loading panel as detailed on logic drawings.

Gantry

Replacement of 12 off free issue Exd Solenoids – 12 off original units to be removed, contractor to allow for re-glanding and testing.

Supply and install local pneumatic Open/Close control stations on rail loading valves and ESD valve.

Relocation of telephone extension No.310 from loading yard adjacent to tanks 560/599 to control end of gantry.

Removal of cables –
740927, 740928, 740929, 740930, 740934, 740935, 740936, 740937, 740944, 740945, 740946, 740947, 740950, 740951, 740990, 740991, 740992 & 740993
Removal of associated north & south siding field equipment –
2 off Danloads
4 off preamps
2 off Mercury units (cable to be installed into a contractor supplied JB)
Isolate and de-gland associated north & south siding field equipment for removal by others
4 off pickup coils,
2 off RTD's
2 off downstream DCV's
2 off upstream DCV's
All removed equipment to be retained.

Modifications to remove/blank or re-label Operator Control Panel Lamps

Three contractor supplied boards are to be mounted on the gantry top, each board will have a P2-25 stop/start/run a P5-12 stop/start/run and an 4 East Rail ESD pushbutton, the boards will be located at the control panel end, the centre and the far end of the gantry. The boards need to be of sufficient size to allow for A3 sized operating instructions to be attached.

4.1 Contractor Supplied Equipment

The contractor shall supply and install the following equipment. All equipment shall be suitably rated for the environment in which it is to be installed (site hazardous area drawing available on request). Where not fully specified, equipment shall conform with normal site standards for similar installations.

4 East Rail Loading Valves

- 12 off Pneumatic Open/Close Stations

4 East Rail Loading ESD Valve

- 1 off Pneumatic Open/Close Stations

P2-25 Delivery Pump Exde Installation

- 1 off Pump local momentary start/momentary stop station.
- 1 off JB2-111
- 1 off JB2-112
- 3 off Pump momentary start/momentary stop/run stations - Red 24Vdc Lamp

P5-12 Delivery Pump Exde Installation

- 3 off Pump momentary start/momentary stop/run stations - Red 24Vdc Lamp

4 East Rail ESD

- 3 off Stay Put Stop ESD Pushbuttons

General

- 3 off Boards for control stations on gantry top
- 2 off JB's to replace Mercury terminals

4.2 Free Issue Equipment

The contractor shall supply labour and materials to take delivery, offload and position the following free issue equipment. Equipment requiring a direct connection into the process lines will be mechanically completed by others.

P2-25 Delivery Pump Exd Local Controls

- 1 off Exd discharge temperature switch - Original unit to be reused, contractor to allow for de-glanding removal of cable.
- 1 off Exd dry run protection switch.

Gantry Instrumentation

- 13 off Exd solenoids (12 off replacements, 1 new)

5 CONTRACT PRICING CONTENTS

5.1 Introduction

The Tenderer must complete the Schedules attached in Sections 5.3.4 & 6 completing the lists of categories of unit rates for variations. The Tenderer must not re-type or make any other alterations to the wording.

Engineer authorised variations in respect of the provision of the aforementioned services to be paid in accordance with Section 5.3.4.

Payment under hourly/day rates for variations to Contract will only be made to the Contractor for Personnel approved by the Purchaser and will only be made in respect of all approved hours worked, or pro-rata to the nearest half hour, half day or whole day respectively.

5.2 Pricing Preambles/Notes on Pricing

5.2.1 General

These Pricing Preambles relate to Rates, Sums and Amounts entered in Schedules which form part of the Contract.

In arriving at said Rates, Sums and Amounts, the Contractor will be deemed to have taken account of the Conditions of Contract, the Specification/Scope of Work, the Particular Specification, these Pricing Preambles and any other matters which affects said Rates, Sums and Amounts.

Rates, Sums and Amounts, except where otherwise provided in the Contract shall be fixed for the duration of the Contract.

Completion of Lump Sums, Normal Time Rates.

5.2.1.1 A Rate, Sum or Amount shall be entered by the Contractor against each reference or item and reference or items against which no Rate, Sum or Amount is entered shall be deemed to be covered by other Rates, Sums or Amounts entered elsewhere in the Schedules.

5.2.1.2 The Contractor shall omit from his Tender any Value Added Tax chargeable or any taxable supplies made under Contract to the Purchaser and payable by him as a taxable person to the Commissioners of Customs and Excise.

5.2.1.3 The Contractor shall allow for compliance in all respects with the applicable British Standard, Codes of Practice and any other Standards or Codes specified. The Contractor shall be fully responsible for obtaining such documents and familiarising himself with same.

5.2.1.4 The Contractor shall allow for compliance with all statutory safety regulations, including those of the Purchaser, and executing the Services in such an order or sequence as may be required to accord with the overall Project programme requirements.

5.3 Schedule of Rates

5.3.1 General

5.3.1.1 Schedule of Rates

A schedule of rates is to accompany the tender.

5.3.1.2 Man-hours

The Man-hour Rates which the Contractor inserts in the Schedule shall be deemed to include, but not necessarily be restricted to all allowances required for the following:

All cost associated with the employment of labour including the requirements of Government enactment's (V.A.T. excepted) and/or other suitable National Working Rule Agreement.

Supervision by non-working trade supervisors, other than those allowed separately by the Contractor in the General Preliminaries section of the Tender.

All man-hours and costs associated with collecting "Free Issue" materials from the Purchaser's stores or compounds and transporting to the Contractor's store or workshop, including all loading, unloading, stacking and storage. Also any costs associated with off-loading, stacking and storage of materials supplied by the Contractor. Compilation of stores record system and final reconciliation for all "Free Issue" materials. Generally this store will be located on the site.

Loading and transporting from the Contractor's store or compound and assembling and installing in the final position.

The installation of all work and operations required by the Specifications and Works Rules and Regulations.

The carrying out of any tests including submission of samples where required. Any necessary site measurement and sketching for fabrication and erection purposes.

Marking up construction drawings to record the "As Built" installation.

All necessary allowances for small hand tools and consumables which are not included as Constructional Plant in the General Preliminaries section of the Tender.

Protecting the works during construction period from damage and for making good /reinstating damage caused.

All required allowances for overhead and profit.

5.3.2 Materials

The material prices which the Contractor inserts in the Schedule of Rates shall be deemed to include the following:-

All costs associated with delivery to the Contractor's site stores or compound.

Any demurrage charges or costs associated with returning packing cases, drums and the like for materials supplied by the Contractor.

All necessary allowances for waste.

All necessary allowances for consumables.

All necessary fixing devices.

5.3.3 Testing

The man-hour rates shall include for all testing.

5.3.4 Schedule of Day work Rates

Variations shall be valued on a lump sum basis. Such lump sums shall be derived from the Schedule of Rates below and the man-hour estimates for the variations which the Engineer has agreed in writing and all of which shall be subject to the issue of a Variation Order.

Position	40 Hour Rate	Time & ½ Rate	Double Time
Site Supervision			
Working Foreman			
CompEx Approved Technician			
Approved Electrician			
Electrician			
Labourer			

Percentage to be added to net cost of materials %

Site Establishment

Cost inclusive of site management, office facilities, messing, toilets and constructional equipment at a weekly rate. £

5.4 Programme

5.4.1 Provisional Programme

The following information is supplied for the guidance of the Tenderer and is provisional only, based upon the information available at the time of issue of the Tender:

1. Site visit – TBA (if required)
2. Tender required by – ASAP
3. Earliest date on which work can commence – Immediate
4. No.5 Switchroom 415V MCC delivery to site – w/c 25/10/10
5. Latest date for completion, including all testing – 29/10/10

The tenderer shall include a provisional programme with the tender to include key milestones for delivery of equipment within their supply.

6. Tender Pricing Summary

This tender summary to be completed by the tenderer, applies to the Scope of Work for the Arcton area stripping pump and sump pump project for ISCo East terminal.

1.	Supply and installation of containment	£
2.	Supply and Installation of cabling	£
3.	Supply and installation of earthing	£
4.	Testing and Documentation	£
5.	Miscellaneous (Please State)	
	Sub Total	**£**
	Site Establishment Total (based on …… weeks) (See Section 5.3.4)	**£**
	Total Tender Price	**£**

Appendix I

Drawings

Cable Overview Drawing
SI039001_DWG_C & D
Logic Drawings
SI039002_DWG_C & D
SI039003_DWG_B & C
SI039004_DWG_B & C
SI039005_DWG_B & C
SI039006_DWG_B & C
SI039007_DWG_B & C
SI039008_DWG_B & C
Loop Sheets
SI039010_DWG_C & D
SI039011_DWG_C & D
SI039012_DWG_C & D
SI039013_DWG_C & D
SI039014_DWG_B & C
SI760001_DWG_A
SI760002_DWG_A
Panel Layout Drawing
SI039016_DWG_C & D

COMPUTER OFFICE

COMMUNICATIONS INTERFACE PANEL

SWITCHROOM 4 EAST

RS422 I.S.

200A BUSBAR CHAMBER

EXISITNG SUPPLY

740900 (5 CORE)

240V DB

740901 (3 CORE)

M.C.C FINA DERV PUMP SOFT START

740902 (7 CORE)

740903 (4 CORE)

740994 (5 PAIR)

CONTROL PANEL

EARTH RODS (LIGHTNING)

INSTRUMENT CLEAN EARTH

740996

POLLING PC

RS422 I.S.

SAFE AREA

HAZARDOUS AREA

FIELD

740904 (2 PAIR)

MERCURY 1

NOTE 2

740905 (4 CORE)

PRODUCT DELIVERY TEMPERATURE

TSH

740907 (3 CORE)

JB EExe

740906 (5 CORE)

740908 (5 CORE)

55kW

STOP/ START

NOTE 3

740909 (2 PAIR I.S.)

740988 (5 PAIR)

740910 (19 CORE)

740911 (7 CORE)

740912 (3 CORE)

740913 (7 CORE)

740914 (19 CORE)

740915 (2 PAIR I.S.)

740916 (2 PAIR)

MERCURY 2

NOTE 2

ESD AT GANTRY TOP CENTRE

ESD AT GANTRY TOP CONTROL STATION END

ESD AT GANTRY TOP FAR END

D

40820 (2 CORE)

40821 (2 CORE)

40822 (2 CORE)

NORTH SIDING DANLOAD 240VAC ISOLATOR

MUX ANTI-CONDENSATION HEATER ISOLATOR

SOUTH SIDING DANLOAD 240VAC ISOLATOR

OPERATORS CONTROL PANEL

740917 (19 CORE)

ESD AT GANTRY BOTTOM CENTRE

ESD AT GANTRY BOTTOM CONTROL STATION END

ESD AT GANTRY BOTTOM FAR END

HORN

740997 (2 CORE)

740918 (2 CORE)

740919 (2 CORE)

740920 (2 CORE)

DC JUNCTION BOX

EExe

NOTE 2

740921 (2 CORE)

740922 (2 CORE)

740923 (2 CORE)

740924 (2 CORE)

740925 (2 CORE)

740926 (2 CORE)

740927 (TRIAD)

740928 (TRIAD)

740929 (2 PAIR)

PREAMP

PREAMP

740991 (1 PAIR)

740990 (1 PAIR)

PICKUP COIL

PICKUP COIL

RTD

NORTH SIDING

NOTE 2

740930 (20 PAIR)

NORTH SIDING DANLOAD

740944 (12 CORE)

740931 (7 CORE)

740932 (3 CORE)

740933 (7 CORE)

AC JUNCTION BOX

NOTE 2

EExe

740946 (3 CORE)

740947 (3 CORE)

NORTH SIDING DOWNSTREAM DCV

NORTH SIDING UPSTREAM DCV

NOTE 2

740950 (3 CORE)

740951 (3 CORE)

SOUTH SIDING UPSTREAM DCV

SOUTH SIDING DOWNSTREAM DCV

740945 (12 CORE)

NOTE 2

740934 (20 PAIR)

SOUTH SIDING DANLOAD

NOTE 2

740935 (TRIAD)

740936 (TRIAD)

740937 (2 PAIR)

PREAMP

PREAMP

740992 (1 PAIR)

740993 (1 PAIR)

PICKUP COIL

PICKUP COIL

RTD

SOUTH SIDING

740938 (2 CORE)

740939 (2 CORE)

740940 (2 CORE)

740941 (2 CORE)

740942 (2 CORE)

740943 (2 CORE)

XSV1 XSV2 XSV3 XSV7 XSV8 XSV9

MANUAL CONTROL

XV1 XCV1 XV2 XCV2 XV3 XCV3 XV7 XCV7 XV8 XCV8 XV9 XCV9

ZS O C

LS 1 LS 2 LS 3 LS 7 LS 8 LS 9 H

740952 (2 PAIR I.S.) 740953 (2 PAIR I.S.) 740954 (1 PAIR I.S.) 740955 (2 PAIR I.S.) 740956 (2 PAIR I.S.) 740957 (1 PAIR I.S.) 740958 (2 PAIR I.S.) 740959 (2 PAIR I.S.) 740960 (1 PAIR I.S.) 740961 (2 PAIR I.S.) 740962 (2 PAIR I.S.) 740963 (1 PAIR I.S.) 740964 (2 PAIR I.S.) 740965 (2 PAIR I.S.) 740966 (1 PAIR I.S.) 740967 (2 PAIR I.S.) 740968 (2 PAIR I.S.) 740969 (1 PAIR I.S.)

NORTH SIDING SOUTH SIDING

MUX 1 & 2 PANEL

HEATER NOTE 1

740948 (3 CORE)

EExe

XSV4 XSV5 XSV6 XSV10 XSV11 XSV12

MANUAL CONTROL

XV4 XCV4 XV5 XCV5 XV6 XCV6 XV10 XCV10 XV11 XCV11 XV12 XCV12

ZS O C

LS 4 LS 5 LS 6 LS 10 LS 11 LS 12 H

740970 (1 PAIR I.S.) 740971 (2 PAIR I.S.) 740972 (2 PAIR I.S.) 740973 (1 PAIR I.S.) 740974 (2 PAIR I.S.) 740975 (2 PAIR I.S.) 740976 (1 PAIR I.S.) 740977 (2 PAIR I.S.) 740978 (2 PAIR I.S.) 740979 (1 PAIR I.S.) 740980 (2 PAIR I.S.) 740981 (2 PAIR I.S.) 740982 (1 PAIR I.S.) 740983 (2 PAIR I.S.) 740984 (2 PAIR I.S.) 740985 (1 PAIR I.S.) 740986 (2 PAIR I.S.) 740987 (2 PAIR I.S.)

NORTH SIDING SOUTH SIDING

MUX 3 & 4 PANEL

NOTE 1 HEATER

740949 (3 CORE)

EExe

NOTES

1. VIA SAK2.5 EEx'e' TERMINALS
2. EQUIPMENT HIGHLIGHTED TO BE REMOVED.
3. DECOMMISSIONED BATCHING SYSTEM.

simon

bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	18/02/99	D.R.R	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	EARTH RODS UPDATED
D	17/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM OVERVIEW

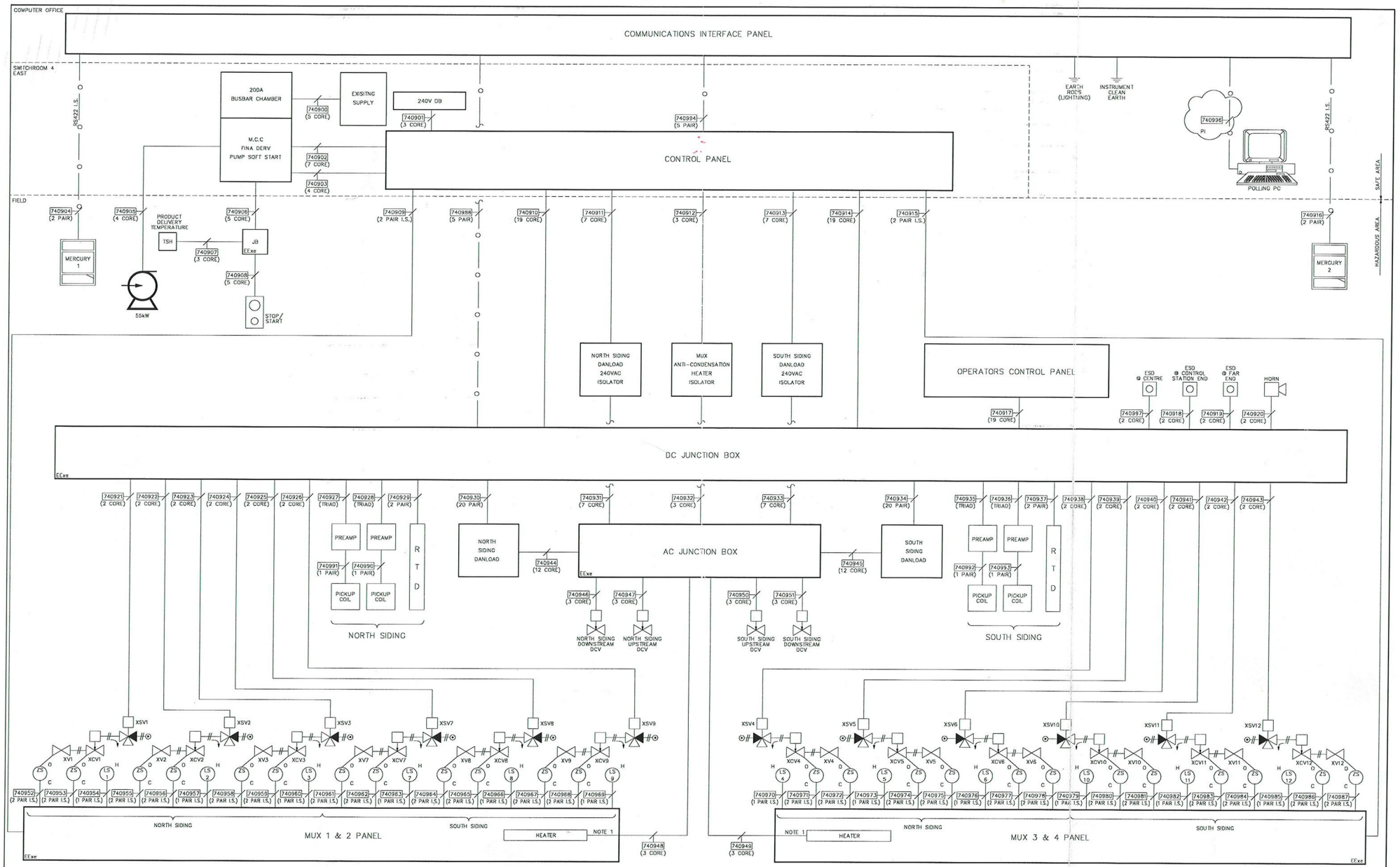
simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039001_DWG



NOTES

1. VIA SAK2.5 EEx'e' TERMINALS

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	18/02/99	D.R.R	A.J.H	P.J.P	D.R.R	ORIGINAL ISSUE
B	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	EARTHS RODS UPDATED

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	OVERVIEW
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039001

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; V VOLTMETER; HR HOURS RUN METER; A AMMETER; HZ FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D. INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E. DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

SWITCHES: KEY OPERATED; STOPLOCK PUSHBUTTON; PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

POWER DISTRIBUTION

240V 50Hz; 25A; L; N; E

TBL L1 1A	PANEL INTERIOR LIGHT	N1 TBN 1	E1 TBE 1
L2 5A	2 GANG SOCKET	N2 2	E2 2
L3 2A	PLC POWER SEE LINE 639	N3 3	E3 3
L4 6A	BATCHER POWER & PERMISSIVE SEE LINE 64	N4 4	E4 4
L5 6A	BATCHER POWER & PERMISSIVE SEE LINE 73	N5 5	E5 5
6	SPARE	6	E6 6
L7 1A TB240V 29	TO ANTI-CONDENSATION HEATERS ISOLATOR SEE DRAWING SI378012 & 13	TB240V 30 N7 7	TB240V 31 E7 7
8		8	8
9		9	9
10		10	10
11		11	11
12 4A	POWER SUPPLY UNIT L12 L 240V ac N12 N; 10A; 24V dc + − E12 E	12	12

24V; 0V

TB24V 1 24V/1 0.5A	SEE LINE 41	0V/1 TB0V 1	0V
2 24V/2 0.5A	SEE LINE 81	0V/2 2	0V
3 24V/3 2A	SEE LINE 103	0V/3 3	0V
4 24V/4 2A	SEE LINE 642	0V/4 4	0V
5 24V/5 2A	SEE LINE 682	0V/5 5	0V
6 24V/6 0.5A	SPARE	0V/6 6	0V
7 24V/7 1A	SEE LINE 721	0V/7 7	0V
8 24V/8 1A	SEE LINE 761	0V/8 8	0V
9		9	0V
10		10	0V
11		11	0V
12		12	0V
13		13	0V
14		14	0V
15		15	0V

LEVEL

24V/1 TB24V 1; FROM LINE 20; TB0V 1 0V/1

R42 SUPPLY 24VDC + −

N.O. SAFETY CONTACTS

24V/1 13	R42/1	14 1 NOTE 1 R44 0V/1	58,604,642,698
24V/1 23	R42/2	24 2 NOTE 1 R46 0V/1	58,68,77,806
24V/1 33	R42/3	34 3 NOTE 1 R48 0V/1	60,816,823,827
41	R42/4 N.C.	42	

ESD

7 R211/1 6 R209/1 5 R207/1 4	T11	T22 19	
7 R327/1 8 R329/1 9 R331/1 10			
13 R451/1 12 R449/1 11 R447/1 10			
13 R567/1 14 R569/1 15 R571/1 16	T12	T12 19	
18 R105/2 17	T33	X1 20 R44/1 21 R46/1	
RESET		FEEDBACK	
18	T34	X2 23 R48/1 22	

PILZ PNOZ

NORTH SIDING BATCHER PERMISSIVES (240V)

L4 TBL 4; FROM LINE 9; TBN 4 N4; TBE 4 E4; TB240V

N4 R65 25		1	740911/1
N4		2	740911/2
L4		3	740911/3
L4 R46/2 23 R86/2 24		4	740911/4
L4 R674/1 25		5	740911/5
610 N4 (240V COIL) R70 26		6	740911/6
612 N4 (240V COIL) R71 27		7	740911/7

740911 (7 CORE); SEE DRAWING SI378010

NOTE 2

SOUTH SIDING BATCHER PERMISSIVES (240V)

L5 TBL 5; FROM LINE 10; TBN 5 N5; TBE 5 E5; TB240V

N5 R74 30		8	740913/1
N5		9	740913/2
L5		10	740913/3
L5 R46/3 28 R86/3 29		11	740913/4
L5 R676/1 30		12	740913/5
614 N5 (240V COIL) R79 31		13	740913/6
616 N5 (240V COIL) R80 32		14	740913/7

740913 (7 CORE); SEE DRAWING SI378011

LAST NUMBER USED: 32
SPARE TO: 49

ESD

24V/2 TB24V 2; FROM LINE 21; TB0V 2 0V/2

R82 SUPPLY 24VDC + −

N.O. SAFETY CONTACTS

24V/2 13	R82/1	14 50 NOTE 1 R84 0V/2	58,606,642,698
24V/2 23	R82/2	24 51 NOTE 1 R86 0V/2	58,68,77,804
24V/2 33	R82/3	34 52 NOTE 1 R88 0V/2	100,814,823,827
41	R82/4 N.C.	42	

TO LINE 831; TO LINE 833

57 R565/1 56 R445/1 55 R325/1 54 R205/1 53	T11	T22 63	
4-EAST ESD 57 R833/1 TB1 1 80			
ESD			
SITE FIRE ALARM 2 ESD ON PANEL FRONT 79 58 R716/2 60	T12	T12	
62 R105/3 61	T33	X1 64 R84/1 65 R86/1	
RESET		FEEDBACK	
62	T34	X2 67 R88/1 66	

PILZ PNOZ

RESET

24V/3 TB24V 3; FROM LINE 22; TB0V 3 0V/3

RESET TB1 3 24V/3

4	68	R105 0V/3 608,58,98

PUMP SELECTOR

NOTE 2

TB1 36 24V/3

PUMP 1 PUMP 2 37	69	R111 0V/3 812,806,627,113
38	70	R112 0V/3 802,816,628,117

PUMP 1 FEEDBACK

TB1 39 71 R111/4 24V/3

RUN 40	72	R114 0V/3 627
FAULT 41	73	R115 0V/3 629
AUTO 42	74	R116 0V/3 631

PUMP 2 FEEDBACK (FUTURE)

TB1 43 75 R112/4 24V/3

RUN 44	76	R118 0V/3 628
FAULT 45	77	R119 0V/3 630
AUTO 46	78	R120 0V/3 632

TO LINE 203; TO LINE 203

LAST NUMBER USED: 80
SPARE TO: 99

NOTES
1. OMRON G7S-4A2B GUIDED CONTACT RELAY (RS260-4373)
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	01/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	PANEL TEST MODS
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT: IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE: 4-EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 1

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039002_DWG

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

GENERAL: HORN; SOLENOID VALVE; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; DOUBLE WOUND TRANSFORMER; VOLTMETER; HOURS RUN METER; AMMETER; FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

POWER DISTRIBUTION

240V 50Hz, 25A, L, N, E

TBL 1	L1 1A	PANEL INTERIOR LIGHT
TBL 2	L2 5A	2 GANG SOCKET
TBL 3	L3 2A	PLC POWER SEE LINE 639
TBL 4	L4 6A	BATCHER POWER & PERMISSIVE SEE LINE 64
TBL 5	L5 6A	BATCHER POWER & PERMISSIVE SEE LINE 73
TBL 6		SPARE
TBL 7	L7 1A, TB240V 29	TO ANTI-CONDENSATION HEATERS ISOLATOR SEE DRAWING SI378012 & 13
TBL 10		
TBL 11		
TBL 12	L12 4A	POWER SUPPLY UNIT: 240V ac 10A 24V dc (L, N, E; +, -)

TBN	TBE
N1 1	E1 1
N2 2	E2 2
N3 3	E3 3
N4 4	E4 4
N5 5	E5 5
6	E6 6
TB240V 30 N7 7	TB240V 31 E7 7
8	8
9	9
10	10
11	11
12	12

24V, 0V

TB24V 1	24V/1 0.5A	SEE LINE 41	TB0V 1 0V/1
TB24V 2	24V/2 0.5A	SEE LINE 81	TB0V 2 0V/2
TB24V 3	24V/3 2A	SEE LINE 103	TB0V 3 0V/3
TB24V 4	24V/4 2A	SEE LINE 642	TB0V 4 0V/4
TB24V 5	24V/5 2A	SEE LINE 682	TB0V 5 0V/5
TB24V 6	24V/6 0.5A	SPARE	TB0V 6 0V/6
TB24V 7	24V/7 1A	SEE LINE 721	TB0V 7 0V/7
TB24V 8	24V/8 1A	SEE LINE 761	TB0V 8 0V/8
9			9 0V
10			10 0V
11			11 0V
12			12 0V
13			13 0V
14			14 0V
15			15 0V

LEVEL

24V/1, TB24V 1, TB0V 1, 0V/1

FROM LINE 20

R42 SUPPLY 24VDC (+, -)

N.O. SAFETY CONTACTS

24V/1	13	R42/1	14 1 NOTE 1 R44 0V/1 58,604,642
24V/1	23	R42/2	24 2 NOTE 1 R46 0V/1 58,68,77,806
24V/1	33	R42/3	34 3 NOTE 1 R48 0V/1 60,816
	41	R42/4 N.C.	42

7 R211/1 6 R209/1 5 R207/1 4 T11

7 R327/1 8 R329/1 9 R331/1 10

13 R451/1 12 R449/1 11 R447/1 10

13 R567/1 14 R569/1 15 R571/1 16 T12

ESD

18 R105/2 17 T33

18 T34

RESET

T22 19

T12 19

X1 20 R44/1 21 R46/1

X2 23 R48/1 22

FEEDBACK

PILZ PNOZ

NORTH SIDING BATCHER PERMISSIVES (240V)

L4, TBL 4, FROM LINE 9, TBN 4 N4, TBE 4 E4, TB240V

N4	R65	25	1 740911/1
N4			2 740911/2
L4			3 740911/3
L4	R46/2 23 R86/2	24	4 740911/4
L4	R674/1	25	5 740911/5
610 N4	(240V COIL) R70	26	6 740911/6
612 N4	(240V COIL) R71	27	7 740911/7

740911 (7 CORE) — SEE DRAWING SI378010

SOUTH SIDING BATCHER PERMISSIVES (240V)

L5, TBL 5, FROM LINE 10, TBN 5 N5, TBE 5 E5, TB240V

N5	R74	30	8 740913/1
N5			9 740913/2
L5			10 740913/3
L5	R46/3 28 R86/3	29	11 740913/4
L5	R676/1	30	12 740913/5
614 N5	(240V COIL) R79	31	13 740913/6
616 N5	(240V COIL) R80	32	14 740913/7

LAST NUMBER USED: 32
SPARE TO: 49

740913 (7 CORE) — SEE DRAWING SI378011

ESD

24V/2, TB24V 2, TB0V 2, 0V/2

FROM LINE 21

R82 SUPPLY 24VDC (+, -)

N.O. SAFETY CONTACTS

24V/2	13	R82/1	14 50 NOTE 1 R84 0V/2 98,606,642
24V/2	23	R82/2	24 51 NOTE 1 R86 0V/2 98,68,77,804
24V/2	33	R82/3	34 52 NOTE 1 R88 0V/2 100,814,
	41	R82/4 N.C.	42

ESD, TB1 1 57 R565/1 56 R445/1 55 R325/1 54 R205/1 53 T11

ESD

ESD

ESD

ESD ON PANEL FRONT

2 79 58 R716/2 60 T12

ESD

T22 63

T12

62 R105/3 61 T33

62 T34

RESET

X1 64 R84/1 65 R86/1

X2 67 R88/1 66

FEEDBACK

PILZ PNOZ

RESET

24V/3, TB24V 3, FROM LINE 22, TBOV 3 0V/3

RESET, TB1 3 24V/3

4 68 R105 0V/3 608,58,98

PUMP SELECTOR

TB1 36 24V/3

PUMP 1, PUMP 2

37 69 R111 0V/3 812,806,627,113

38 70 R112 0V/3 802,816,628,117

PUMP 1 FEEDBACK

TB1 39 71 R111/4 24V/3

RUN 40 72 R114 0V/3 627

FAULT 41 73 R115 0V/3 629

AUTO 42 74 R116 0V/3 631

PUMP 2 FEEDBACK (FUTURE)

TB1 43 75 R112/4 24V/3

RUN 44 76 R118 0V/3 628

FAULT 45 77 R119 0V/3 630

AUTO 46 78 R120 0V/3 632

TO LINE 203

LAST NUMBER USED: 79
SPARE TO: 99

TO LINE 203

NOTES

1. RELAY WITH POSITIVELY GUIDED CONTACTS RS STOCK CODE (RS260-4373)

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	01/07/99	D.P.	A.J.H	D.R.R		D.R.R		PANEL TEST MODS

PLANT: FINA DERV RAIL LOADING SYSTEM

TITLE: LOGIC 1

02/07/99

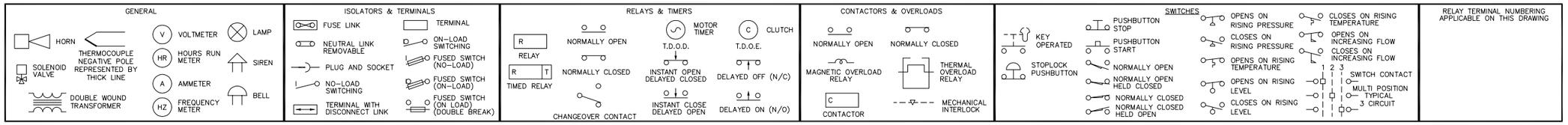
SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

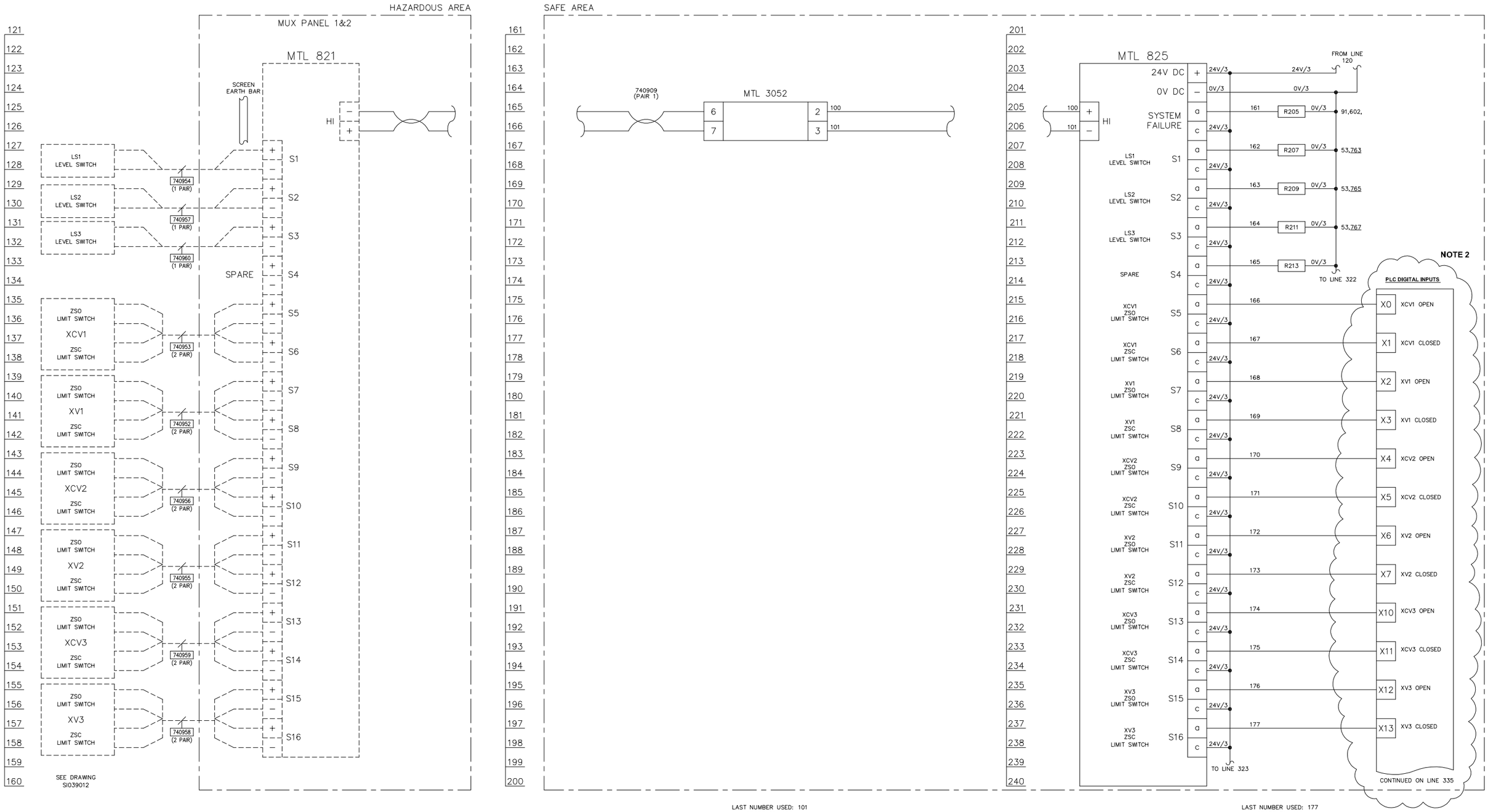
ELECTRICAL SCHEMATIC TEMPLATE — SHEET 01 OF 01

CLIENT DRG. No. — P&I DRG No. SI039002

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



MUX 1 (NORTH SIDING)



NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/07/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 2
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039003_DWG

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER; HOURS RUN METER; AMMETER; FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; TERMINAL; NEUTRAL LINK REMOVABLE; ON-LOAD SWITCHING; PLUG AND SOCKET; FUSED SWITCH (NO-LOAD); NO-LOAD SWITCHING; FUSED SWITCH (ON-LOAD); TERMINAL WITH DISCONNECT LINK; FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: RELAY; TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

MUX 1 (NORTH SIDING)

HAZARDOUS AREA

MUX PANEL 1&2

MTL 821

SCREEN EARTH BAR

HI

LS1 LEVEL SWITCH — 740954 (1 PAIR) — S1
LS2 LEVEL SWITCH — 740957 (1 PAIR) — S2
LS3 LEVEL SWITCH — 740960 (1 PAIR) — S3
SPARE — S4
ZSO LIMIT SWITCH / XCV1 / ZSC LIMIT SWITCH — 740953 (2 PAIR) — S5, S6
ZSO LIMIT SWITCH / XV1 / ZSC LIMIT SWITCH — 740952 (2 PAIR) — S7, S8
ZSO LIMIT SWITCH / XCV2 / ZSC LIMIT SWITCH — 740956 (2 PAIR) — S9, S10
ZSO LIMIT SWITCH / XV2 / ZSC LIMIT SWITCH — 740955 (2 PAIR) — S11, S12
ZSO LIMIT SWITCH / XCV3 / ZSC LIMIT SWITCH — 740959 (2 PAIR) — S13, S14
ZSO LIMIT SWITCH / XV3 / ZSC LIMIT SWITCH — 740958 (2 PAIR) — S15, S16

SEE DRAWING SI039012

SAFE AREA

740909 (PAIR 1) — MTL 3052 — 6, 7, 2, 3, 100, 101

MTL 825

100, 101 — HI

24V DC, 0V DC, SYSTEM FAILURE

LS1 LEVEL SWITCH — S1 — 161 — R205 — 91,602,
LS2 LEVEL SWITCH — S2 — 162 — R207 — 53,763
LS3 LEVEL SWITCH — S3 — 163 — R209 — 53,765
SPARE — S4 — 164 — R211 — 53,767
— 165 — R213 — TO LINE 322

FROM LINE 120

PLC DIGITAL INPUTS

XCV1 ZSO LIMIT SWITCH — S5 — 166 — X0 XCV1 OPEN
XCV1 ZSC LIMIT SWITCH — S6 — 167 — X1 XCV1 CLOSED
XV1 ZSO LIMIT SWITCH — S7 — 168 — X2 XV1 OPEN
XV1 ZSC LIMIT SWITCH — S8 — 169 — X3 XV1 CLOSED
XCV2 ZSO LIMIT SWITCH — S9 — 170 — X4 XCV2 OPEN
XCV2 ZSC LIMIT SWITCH — S10 — 171 — X5 XCV2 CLOSED
XV2 ZSO LIMIT SWITCH — S11 — 172 — X6 XV2 OPEN
XV2 ZSC LIMIT SWITCH — S12 — 173 — X7 XV2 CLOSED
XCV3 ZSO LIMIT SWITCH — S13 — 174 — X10 XCV3 OPEN
XCV3 ZSC LIMIT SWITCH — S14 — 175 — X11 XCV3 CLOSED
XV3 ZSO LIMIT SWITCH — S15 — 176 — X12 XV3 OPEN
XV3 ZSC LIMIT SWITCH — S16 — 177 — X13 XV3 CLOSED

TO LINE 323

CONTINUED ON LINE 335

LAST NUMBER USED: 101
SPARE TO: 160

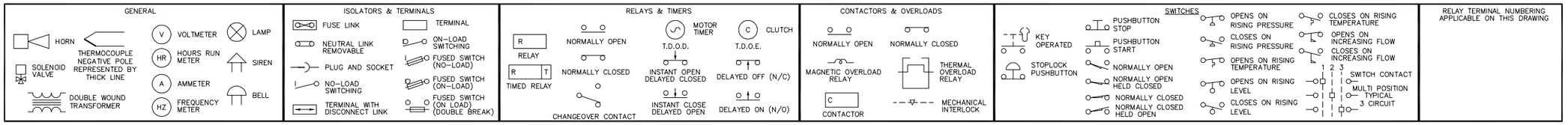
LAST NUMBER USED: 177
SPARE TO: 199

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.

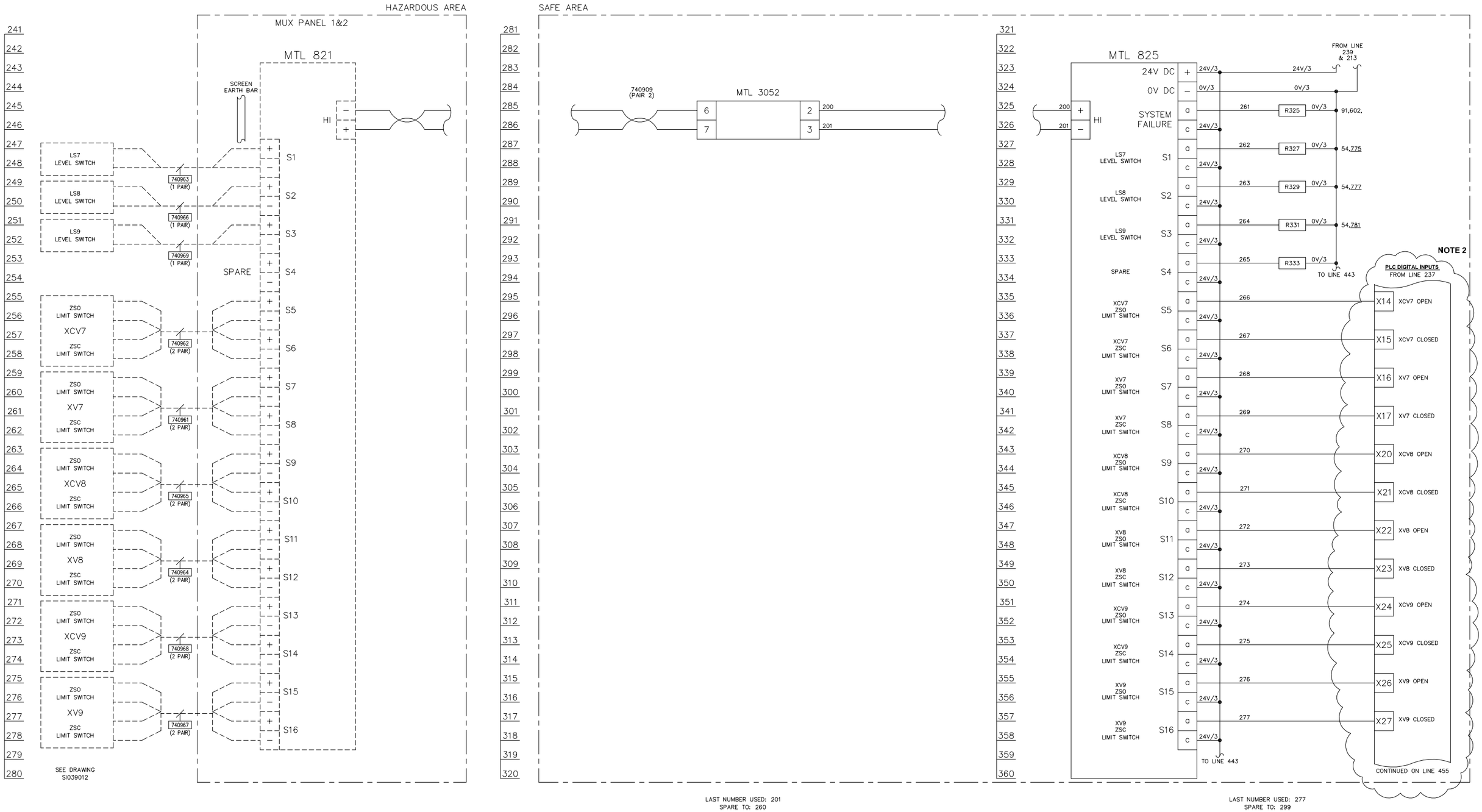
REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	A.J.H	A.J.H	D.R.R		D.R.R		COMMS POLARITY REVERSED

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	LOGIC 2
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
ELECTRICAL SCHEMATIC TEMPLATE	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039003

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



MUX 2 (SOUTH SIDING)



LAST NUMBER USED: 201
SPARE TO: 260

LAST NUMBER USED: 277
SPARE TO: 299

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 3
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039004_DWG

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER; HOURS RUN METER; AMMETER; FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; TERMINAL; NEUTRAL LINK REMOVABLE; ON-LOAD SWITCHING; PLUG AND SOCKET; FUSED SWITCH (NO-LOAD); NO-LOAD SWITCHING; FUSED SWITCH (ON-LOAD); TERMINAL WITH DISCONNECT LINK; FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

MUX 2 (SOUTH SIDING)

HAZARDOUS AREA

MUX PANEL 1&2

MTL 821

SCREEN EARTH BAR

HI

LS7 LEVEL SWITCH — 740963 (1 PAIR) — S1

LS8 LEVEL SWITCH — 740966 (1 PAIR) — S2

LS9 LEVEL SWITCH — 740969 (1 PAIR) — S3

SPARE — S4

ZSO LIMIT SWITCH / XCV7 / ZSC LIMIT SWITCH — 740962 (2 PAIR) — S5, S6

ZSO LIMIT SWITCH / XV7 / ZSC LIMIT SWITCH — 740961 (2 PAIR) — S7, S8

ZSO LIMIT SWITCH / XCV8 / ZSC LIMIT SWITCH — 740965 (2 PAIR) — S9, S10

ZSO LIMIT SWITCH / XV8 / ZSC LIMIT SWITCH — 740964 (2 PAIR) — S11, S12

ZSO LIMIT SWITCH / XCV9 / ZSC LIMIT SWITCH — 740968 (2 PAIR) — S13, S14

ZSO LIMIT SWITCH / XV9 / ZSC LIMIT SWITCH — 740967 (2 PAIR) — S15, S16

SEE DRAWING SI039012

SAFE AREA

740909 (PAIR 2) — MTL 3052 — 6 (200), 7 (201), 2 (200), 3 (201)

MTL 825

200 (+) HI 201 (−)

24V DC (+) 24V/3 — FROM LINE 239 & 213

0V DC (−) 0V/3

SYSTEM FAILURE (a, c) 24V/3 — 261 — R325 — 0V/3 — 91,602,

LS7 LEVEL SWITCH — S1 (a, c) 24V/3 — 262 — R327 — 0V/3 — 54,775

LS8 LEVEL SWITCH — S2 (a, c) 24V/3 — 263 — R329 — 0V/3 — 54,777

LS9 LEVEL SWITCH — S3 (a, c) 24V/3 — 264 — R331 — 0V/3 — 54,781

SPARE — S4 (a, c) 24V/3 — 265 — R333 — 0V/3 — TO LINE 443

PLC DIGITAL INPUTS FROM LINE 237

XCV7 ZSO LIMIT SWITCH — S5 (a, c) 24V/3 — 266 — X14 XCV7 OPEN

XCV7 ZSC LIMIT SWITCH — S6 (a, c) 24V/3 — 267 — X15 XCV7 CLOSED

XV7 ZSO LIMIT SWITCH — S7 (a, c) 24V/3 — 268 — X16 XV7 OPEN

XV7 ZSC LIMIT SWITCH — S8 (a, c) 24V/3 — 269 — X17 XV7 CLOSED

XCV8 ZSO LIMIT SWITCH — S9 (a, c) 24V/3 — 270 — X20 XCV8 OPEN

XCV8 ZSC LIMIT SWITCH — S10 (a, c) 24V/3 — 271 — X21 XCV8 CLOSED

XV8 ZSO LIMIT SWITCH — S11 (a, c) 24V/3 — 272 — X22 XV8 OPEN

XV8 ZSC LIMIT SWITCH — S12 (a, c) 24V/3 — 273 — X23 XV8 CLOSED

XCV9 ZSO LIMIT SWITCH — S13 (a, c) 24V/3 — 274 — X24 XCV9 OPEN

XCV9 ZSC LIMIT SWITCH — S14 (a, c) 24V/3 — 275 — X25 XCV9 CLOSED

XV9 ZSO LIMIT SWITCH — S15 (a, c) 24V/3 — 276 — X26 XV9 OPEN

XV9 ZSC LIMIT SWITCH — S16 (a, c) 24V/3 — 277 — X27 XV9 CLOSED

TO LINE 443

CONTINUED ON LINE 455

LAST NUMBER USED: 201
SPARE TO: 260

LAST NUMBER USED: 277
SPARE TO: 299

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	A.J.H	A.J.H	D.R.R		D.R.R		COMMS POLARITY REVERSED

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	LOGIC 3
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
ELECTRICAL SCHEMATIC TEMPLATE	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039004

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; V VOLTMETER; HR HOURS RUN METER; A AMMETER; HZ FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D. INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E. DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

MUX 3 (NORTH SIDING)

HAZARDOUS AREA

MUX PANEL 3&4

MTL 821

SCREEN EARTH BAR

HI

LS4 LEVEL SWITCH — 740970 (1 PAIR) — S1

LS5 LEVEL SWITCH — 740973 (1 PAIR) — S2

LS6 LEVEL SWITCH — 740976 (1 PAIR) — S3

SPARE — S4

ZSO LIMIT SWITCH / XCV4 / ZSC LIMIT SWITCH — 740971 (2 PAIR) — S5, S6

ZSO LIMIT SWITCH / XV4 / ZSC LIMIT SWITCH — 740972 (2 PAIR) — S7, S8

ZSO LIMIT SWITCH / XCV5 / ZSC LIMIT SWITCH — 740974 (2 PAIR) — S9, S10

ZSO LIMIT SWITCH / XV5 / ZSC LIMIT SWITCH — 740975 (2 PAIR) — S11, S12

ZSO LIMIT SWITCH / XCV6 / ZSC LIMIT SWITCH — 740977 (2 PAIR) — S13, S14

ZSO LIMIT SWITCH / XV6 / ZSC LIMIT SWITCH — 740978 (2 PAIR) — S15, S16

SEE DRAWING SI039013

SAFE AREA

740915 (PAIR 1) — MTL 3052 — 6 → 300, 7 → 301, 2 → 300, 3 → 301

MTL 825

300 (+) 301 (−) HI

24V DC (+) 24V/3 — FROM LINE 359 & 333

0V DC (−) 0V/3 — FROM LINE 359 & 333

SYSTEM FAILURE — a, c — 24V/3

LS4 LEVEL SWITCH — S1 — 361 — R445 — 0V/3 — 91,602,

LS5 LEVEL SWITCH — S2 — 362 — R447 — 0V/3 — 55,769

LS6 LEVEL SWITCH — S3 — 363 — R449 — 0V/3 — 55,771

SPARE — S4 — 364 — R451 — 0V/3 — 55,773

365 — R453 — 0V/3 — TO LINE 563

XCV4 ZSO LIMIT SWITCH — S5 — 366 — X30 XCV4 OPEN

XCV4 ZSC LIMIT SWITCH — S6 — 367 — X31 XCV4 CLOSED

XV4 ZSO LIMIT SWITCH — S7 — 368 — X32 XV4 OPEN

XV4 ZSC LIMIT SWITCH — S8 — 369 — X33 XV4 CLOSED

XCV5 ZSO LIMIT SWITCH — S9 — 370 — X34 XCV5 OPEN

XCV5 ZSC LIMIT SWITCH — S10 — 371 — X35 XCV5 CLOSED

XV5 ZSO LIMIT SWITCH — S11 — 372 — X36 XV5 OPEN

XV5 ZSC LIMIT SWITCH — S12 — 373 — X37 XV5 CLOSED

XCV6 ZSO LIMIT SWITCH — S13 — 374 — X40 XCV6 OPEN

XCV6 ZSC LIMIT SWITCH — S14 — 375 — X41 XCV6 CLOSED

XV6 ZSO LIMIT SWITCH — S15 — 376 — X42 XV6 OPEN

XV6 ZSC LIMIT SWITCH — S16 — 377 — X43 XV6 CLOSED

TO LINE 563

NOTE 2

P.L.C. DIGITAL INPUTS FROM LINE 357

CONTINUED ON LINE 575

LAST NUMBER USED: 301
SPARE TO: 360

LAST NUMBER USED: 377
SPARE TO: 399

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon — bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT: IMMINGHAM STORAGE Co. – EAST TERMINAL

TITLE: 4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 4

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039005_DWG

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER; HOURS RUN METER; AMMETER; FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; TERMINAL; NEUTRAL LINK REMOVABLE; ON-LOAD SWITCHING; PLUG AND SOCKET; FUSED SWITCH (NO-LOAD); NO-LOAD SWITCHING; FUSED SWITCH (ON-LOAD); TERMINAL WITH DISCONNECT LINK; FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: RELAY; TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

MUX 3 (NORTH SIDING)

HAZARDOUS AREA

MUX PANEL 3&4

MTL 821

SCREEN EARTH BAR

HI

LS4 LEVEL SWITCH — 740970 (1 PAIR) — S1

LS5 LEVEL SWITCH — 740973 (1 PAIR) — S2

LS6 LEVEL SWITCH — 740976 (1 PAIR) — S3

SPARE — S4

ZSO LIMIT SWITCH / XCV4 / ZSC LIMIT SWITCH — 740971 (2 PAIR) — S5, S6

ZSO LIMIT SWITCH / XV4 / ZSC LIMIT SWITCH — 740972 (2 PAIR) — S7, S8

ZSO LIMIT SWITCH / XCV5 / ZSC LIMIT SWITCH — 740974 (2 PAIR) — S9, S10

ZSO LIMIT SWITCH / XV5 / ZSC LIMIT SWITCH — 740975 (2 PAIR) — S11, S12

ZSO LIMIT SWITCH / XCV6 / ZSC LIMIT SWITCH — 740977 (2 PAIR) — S13, S14

ZSO LIMIT SWITCH / XV6 / ZSC LIMIT SWITCH — 740978 (2 PAIR) — S15, S16

SEE DRAWING SI039013

SAFE AREA

740915 (PAIR 1) — MTL 3052 — 6 → 300, 7 → 301 — 2, 3

MTL 825

300 / 301 — HI

24V DC +

0V DC −

SYSTEM FAILURE

LS4 LEVEL SWITCH — S1 — 361 — R445 — 91,602,

LS5 LEVEL SWITCH — S2 — 362 — R447 — 55,769

LS6 LEVEL SWITCH — S3 — 363 — R449 — 55,771

SPARE — S4 — 364 — R451 — 55,773

XCV4 ZSO LIMIT SWITCH — S5 — 365 — R453 — TO LINE 563

XCV4 ZSC LIMIT SWITCH — S6 — 366 — X30 XCV4 OPEN

XV4 ZSO LIMIT SWITCH — S7 — 367 — X31 XCV4 CLOSED

XV4 ZSC LIMIT SWITCH — S8 — 368 — X32 XV4 OPEN

XCV5 ZSO LIMIT SWITCH — S9 — 369 — X33 XV4 CLOSED

XCV5 ZSC LIMIT SWITCH — S10 — 370 — X34 XCV5 OPEN

XV5 ZSO LIMIT SWITCH — S11 — 371 — X35 XCV5 CLOSED

XV5 ZSC LIMIT SWITCH — S12 — 372 — X36 XV5 OPEN

XCV6 ZSO LIMIT SWITCH — S13 — 373 — X37 XV5 CLOSED

XCV6 ZSC LIMIT SWITCH — S14 — 374 — X40 XCV6 OPEN

XV6 ZSO LIMIT SWITCH — S15 — 375 — X41 XCV6 CLOSED

XV6 ZSC LIMIT SWITCH — S16 — 376 — X42 XV6 OPEN

377 — X43 XV6 CLOSED

TO LINE 563

FROM LINE 359 & 333

PLC DIGITAL INPUTS FROM LINE 357

CONTINUED ON LINE 575

LAST NUMBER USED: 301
SPARE TO: 360

LAST NUMBER USED: 377
SPARE TO: 399

NOTES

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	04/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		COMMS POLARITY REVERSED

PLANT: FINA DERV RAIL LOADING SYSTEM

TITLE: LOGIC 4

02/07/99

SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

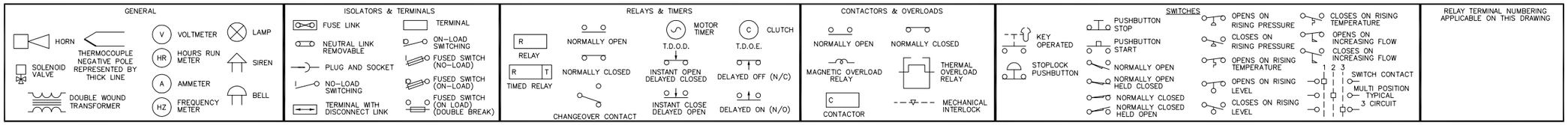
ELECTRICAL SCHEMATIC TEMPLATE

SHEET 01 OF 01

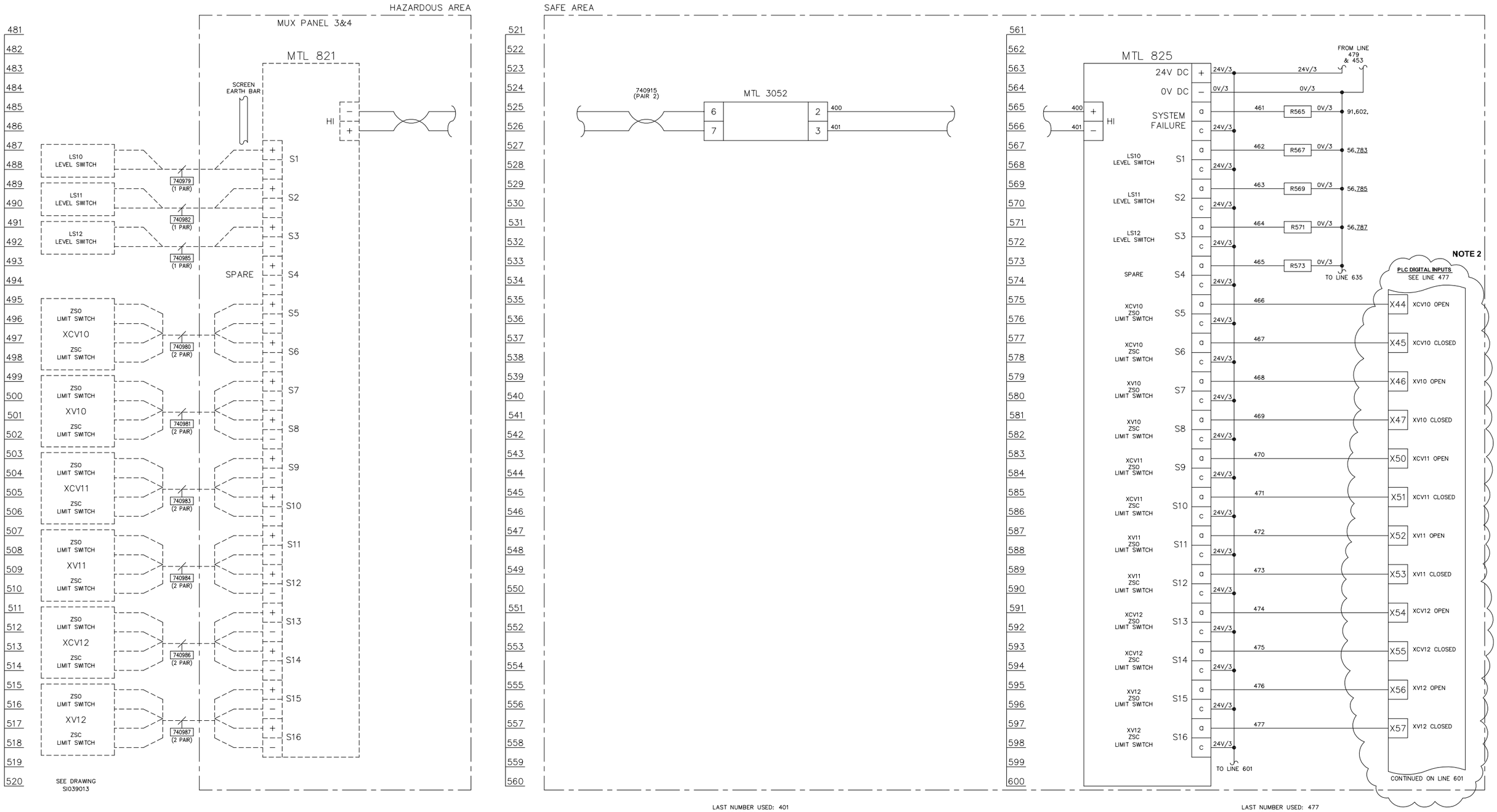
CLIENT DRG. No.

P&I DRG No. SI039005

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



MUX 4 (SOUTH SIDING)



LAST NUMBER USED: 401
SPARE TO: 460

LAST NUMBER USED: 477
SPARE TO: 499

NOTES
1. SCREEN EARTHS NOT SHOWN FOR CLARITY.
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

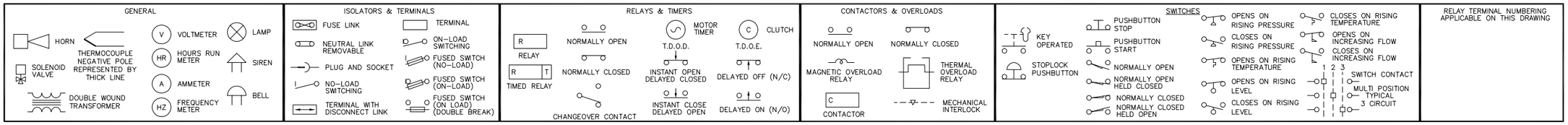
simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	11/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	07/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	COMMS POLARITY REVERSED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 5
	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
	P & I Design Ltd, Tel. 01642 617444, www.pidesign.co.uk
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039006_DWG

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



MUX 4 (SOUTH SIDING)

HAZARDOUS AREA

MUX PANEL 3&4

MTL 821

SCREEN EARTH BAR

HI

LS10 LEVEL SWITCH — 740979 (1 PAIR) — S1

LS11 LEVEL SWITCH — 740982 (1 PAIR) — S2

LS12 LEVEL SWITCH — 740985 (1 PAIR) — S3

SPARE — S4

ZSO LIMIT SWITCH / XCV10 / ZSC LIMIT SWITCH — 740980 (2 PAIR) — S5, S6

ZSO LIMIT SWITCH / XV10 / ZSC LIMIT SWITCH — 740981 (2 PAIR) — S7, S8

ZSO LIMIT SWITCH / XCV11 / ZSC LIMIT SWITCH — 740983 (2 PAIR) — S9, S10

ZSO LIMIT SWITCH / XV11 / ZSC LIMIT SWITCH — 740984 (2 PAIR) — S11, S12

ZSO LIMIT SWITCH / XCV12 / ZSC LIMIT SWITCH — 740986 (2 PAIR) — S13, S14

ZSO LIMIT SWITCH / XV12 / ZSC LIMIT SWITCH — 740987 (2 PAIR) — S15, S16

SEE DRAWING SI039013

SAFE AREA

740915 (PAIR 2)

MTL 3052

6 — 400

7 — 401

2 — 400

3 — 401

LAST NUMBER USED: 401
SPARE TO: 460

MTL 825

FROM LINE 479 & 453

24V DC +

0V DC –

400 + HI 401 –

SYSTEM FAILURE

LS10 LEVEL SWITCH	S1	461	R565	91,602,
LS11 LEVEL SWITCH	S2	462	R567	56,783
LS12 LEVEL SWITCH	S3	463	R569	56,785
SPARE	S4	464	R571	56,787
XCV10 ZSO LIMIT SWITCH	S5	465	R573	TO LINE 635
XCV10 ZSC LIMIT SWITCH	S6			
XV10 ZSO LIMIT SWITCH	S7			
XV10 ZSC LIMIT SWITCH	S8			
XCV11 ZSO LIMIT SWITCH	S9			
XCV11 ZSC LIMIT SWITCH	S10			
XV11 ZSO LIMIT SWITCH	S11			
XV11 ZSC LIMIT SWITCH	S12			
XCV12 ZSO LIMIT SWITCH	S13			
XCV12 ZSC LIMIT SWITCH	S14			
XV12 ZSO LIMIT SWITCH	S15			
XV12 ZSC LIMIT SWITCH	S16			

Each switch: a, c — 24V/3

PLC DIGITAL INPUTS SEE LINE 477

466	X44 XCV10 OPEN
467	X45 XCV10 CLOSED
468	X46 XV10 OPEN
469	X47 XV10 CLOSED
470	X50 XCV11 OPEN
471	X51 XCV11 CLOSED
472	X52 XV11 OPEN
473	X53 XV11 CLOSED
474	X54 XCV12 OPEN
475	X55 XCV12 CLOSED
476	X56 XV12 OPEN
477	X57 XV12 CLOSED

TO LINE 601

CONTINUED ON LINE 601

LAST NUMBER USED: 477
SPARE TO: 499

NOTES

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	11/03/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		COMMS POLARITY REVERSED

PLANT: FINA DERV RAIL LOADING SYSTEM

TITLE: LOGIC 5

02/07/99

SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

ELECTRICAL SCHEMATIC TEMPLATE

SHEET 1 OF 01

CLIENT DRG. No.

P&I DRG No. SI039006

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER (V); HOURS RUN METER (HR); AMMETER (A); FREQUENCY METER (HZ); LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

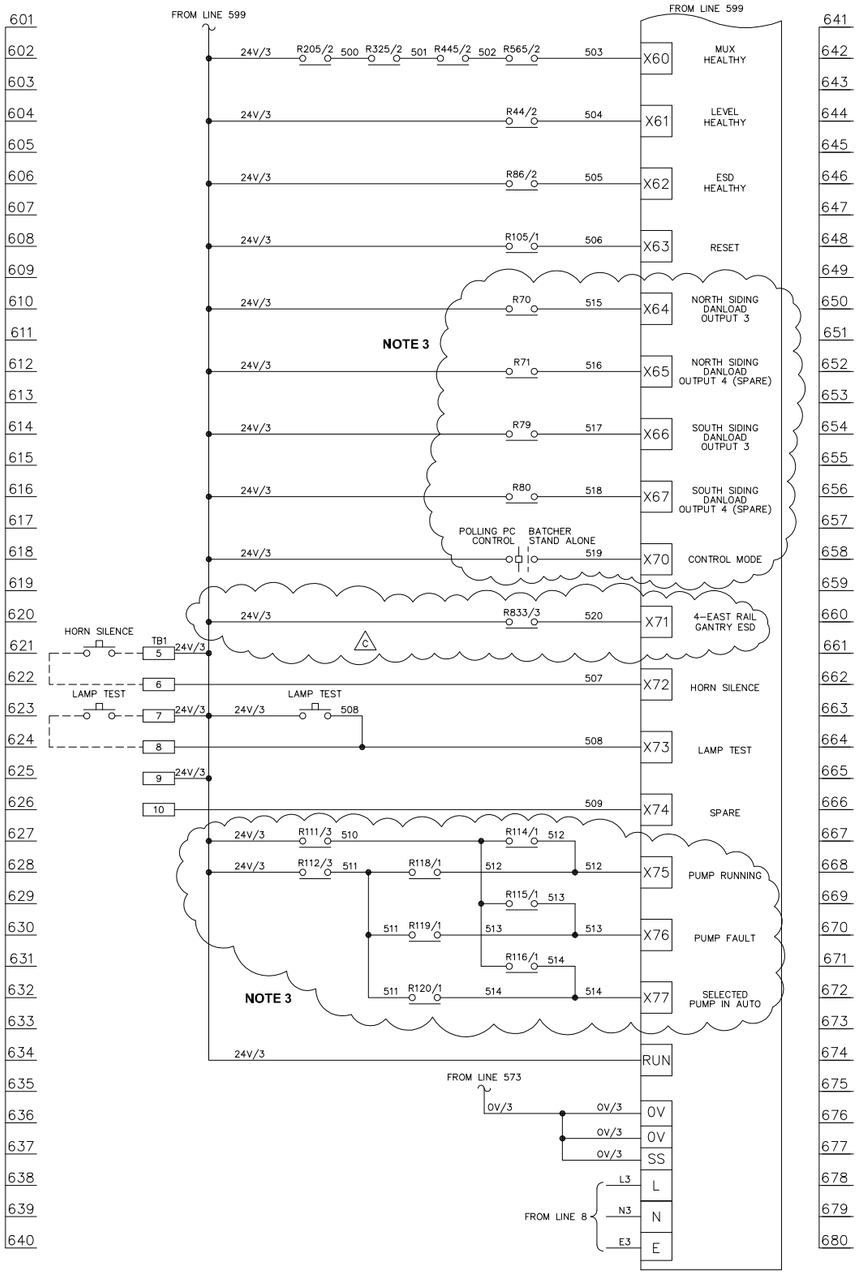
RELAYS & TIMERS: RELAY; TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; CONTACTOR; MECHANICAL INTERLOCK

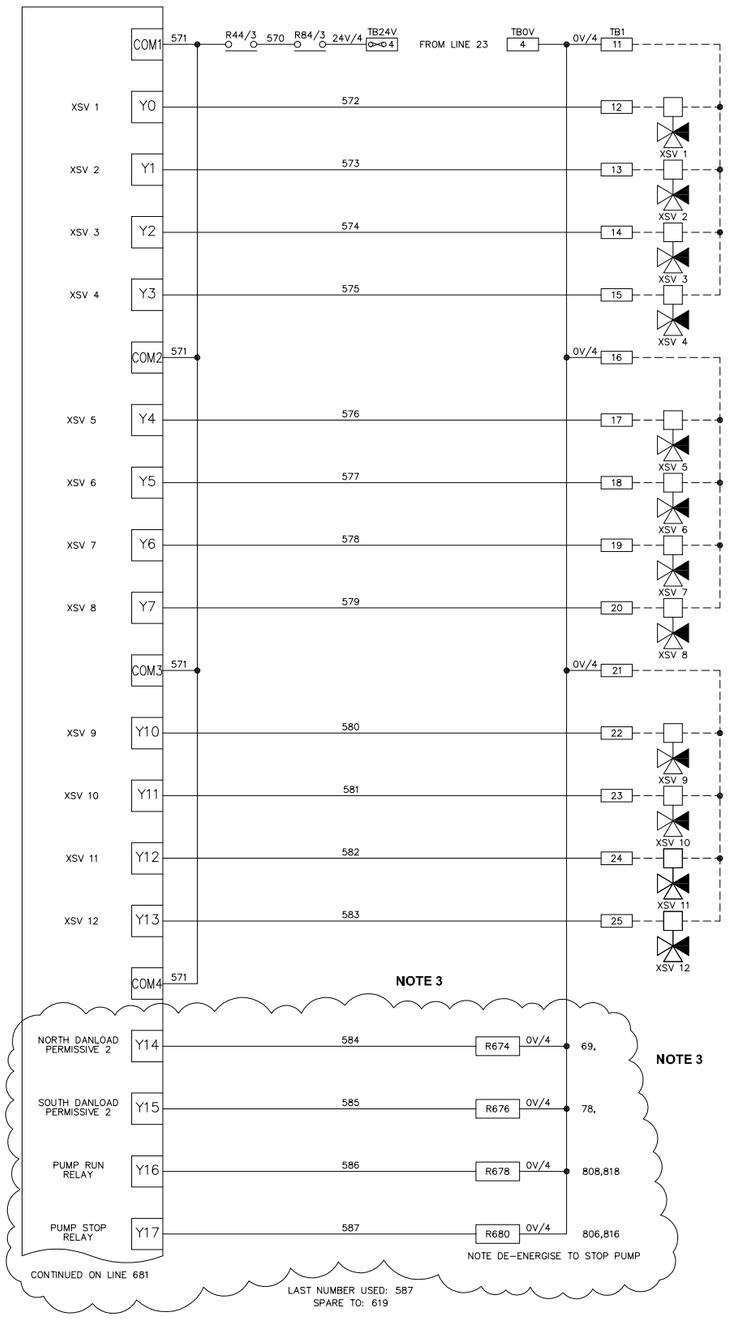
SWITCHES: KEY OPERATED; STOPLOCK PUSHBUTTON; PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

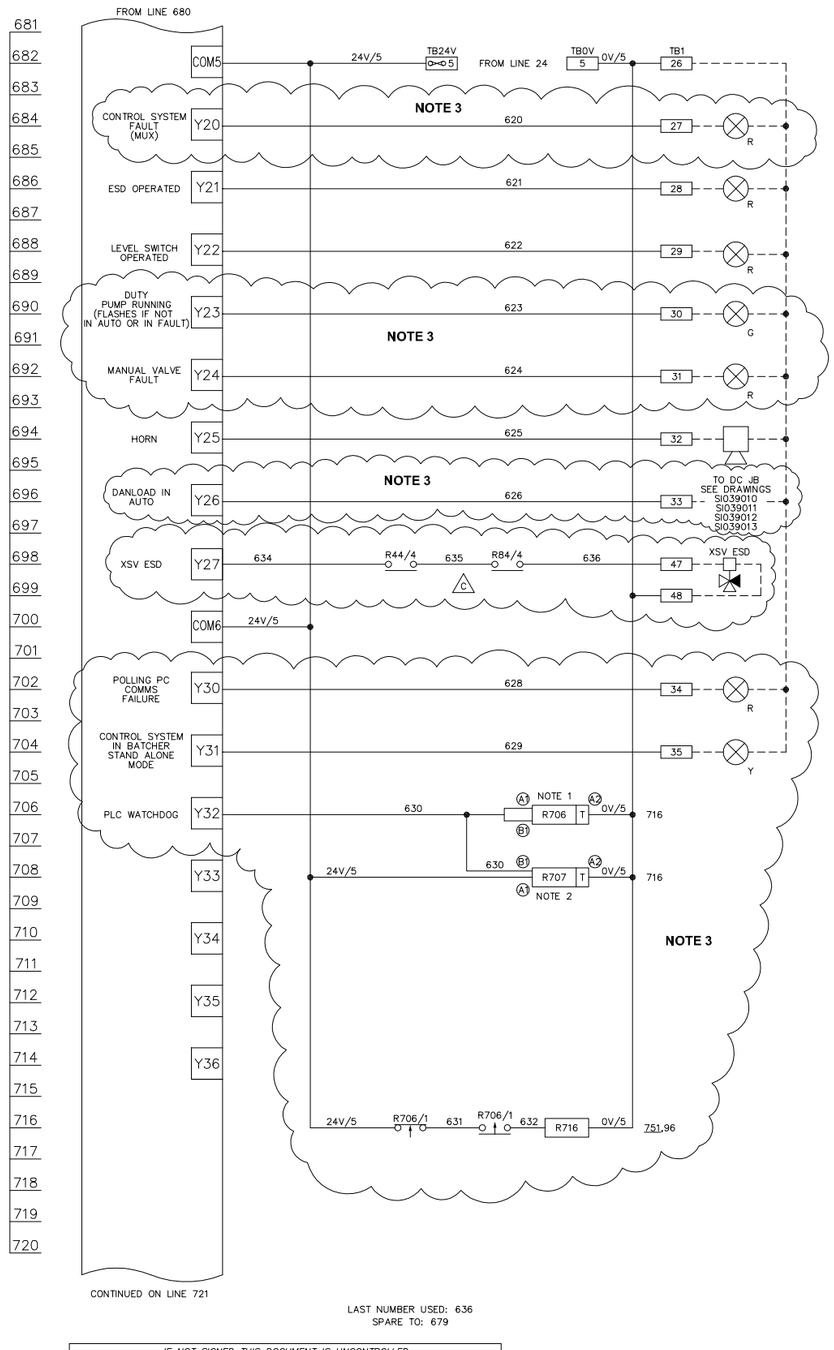
PLC DIGITAL INPUTS



PLC DIGITAL OUTPUTS



PLC DIGITAL OUTPUTS



NOTES
1. TIMER RELAY OMRON M3DE-M1 MODE A SET @ 1 SEC.
2. TIMER RELAY OMRON M3DE-M1 MODE D SET @ 1 SEC
3. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	PANEL TEST MODS
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4-EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 6
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039007_DWG

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; VOLTMETER (V); HOURS RUN METER (HR); AMMETER (A); FREQUENCY METER (HZ); LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: RELAY; TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

PLC DIGITAL INPUTS

FROM LINE 599

24V/3 R205/2 500 R325/2 501 R445/2 502 R565/2 503	X60	MUX HEALTHY	
24V/3 R44/2 504	X61	LEVEL HEALTHY	
24V/3 R86/2 505	X62	ESD HEALTHY	
24V/3 R105/1 506	X63	RESET	
24V/3 R70 515	X64	NORTH SIDING DANLOAD OUTPUT 3	
24V/3 R71 516	X65	NORTH SIDING DANLOAD OUTPUT 4 (SPARE)	
24V/3 R79 517	X66	SOUTH SIDING DANLOAD OUTPUT 3	
24V/3 R80 518	X67	SOUTH SIDING DANLOAD OUTPUT 4 (SPARE)	
24V/3 POLLING PC CONTROL / BATCHER STAND ALONE 519	X70	CONTROL MODE	
	X71	SPARE	
HORN SILENCE TB1 5 24V/3 — 6 — 507	X72	HORN SILENCE	
LAMP TEST 7 24V/3; 24V/3 LAMP TEST 508 — 8 — 508	X73	LAMP TEST	
9 24V/3 — 10 — 509	X74	SPARE	
24V/3 R111/3 510 R114/1 512	X75	PUMP RUNNING	
24V/3 R112/3 511 R118/1 512 R115/1 513 512 513			
511 R119/1 513 R116/1 514 513 514	X76	PUMP FAULT	
511 R120/1 514 514	X77	SELECTED PUMP IN AUTO	
24V/3	RUN		
FROM LINE 573 0V/3	0V		
0V/3	0V		
0V/3	SS		
FROM LINE 8 L3	L		
N3	N		
E3	E		

LAST NUMBER USED: 514
SPARE TO: 569

PLC DIGITAL OUTPUTS

	COM1	571	R44/3 570 R84/3 24V/4 TB24V 4 FROM LINE 23 TB0V 4 0V/4	TB1 11	
XSV 1	Y0	572		12	XSV 1
XSV 2	Y1	573		13	XSV 2
XSV 3	Y2	574		14	XSV 3
XSV 4	Y3	575		15	XSV 4
	COM2	571	0V/4	16	
XSV 5	Y4	576		17	XSV 5
XSV 6	Y5	577		18	XSV 6
XSV 7	Y6	578		19	XSV 7
XSV 8	Y7	579		20	XSV 8
	COM3	571	0V/4	21	
XSV 9	Y10	580		22	XSV 9
XSV 10	Y11	581		23	XSV 10
XSV 11	Y12	582		24	XSV 11
XSV 12	Y13	583		25	XSV 12
	COM4	571			
NORTH DANLOAD PERMISSIVE 2	Y14	584	R674 0V/4	69,	
SOUTH DANLOAD PERMISSIVE 2	Y15	585	R676 0V/4	78,	
PUMP RUN RELAY	Y16	586	R678 0V/4	808,818	
PUMP STOP RELAY	Y17	587	R680 0V/4	806,816	

CONTINUED ON LINE 681

LAST NUMBER USED: 587
SPARE TO: 619

NOTE DE-ENERGISE TO STOP PUMP

PLC DIGITAL OUTPUTS

FROM LINE 680

	COM5	24V/5 TB24V 5 FROM LINE 24 TB0V 5 0V/5	TB1 26	
CONTROL SYSTEM FAULT (OIC/MUX)	Y20	620	27	R
ESD OPERATED	Y21	621	28	R
LEVEL SWITCH OPERATED	Y22	622	29	R
DUTY PUMP RUNNING (FLASHES IF NOT IN AUTO OR IN FAULT)	Y23	623	30	G
MANUAL VALVE FAULT	Y24	624	31	R
HORN	Y25	625	32	
DANLOAD IN AUTO	Y26	626	33	TO DC JB SEE DRAWINGS SI039010 SI039011 SI039012 SI039013
SPARE	Y27			
	COM6	24V/5		
POLLING PC COMMS FAILURE	Y30	628	34	R
CONTROL SYSTEM IN BATCHER STAND ALONE MODE	Y31	629	35	Y
PLC WATCHDOG	Y32	630 — A1 NOTE 1 R706 T A2 0V/5 — B1		716
	Y33	24V/5 — 630 B1 R707 T A2 0V/5 — A1 NOTE 2		716
	Y34			
	Y35			
	Y36			
		24V/5 R706/1 631 R706/1 632 R716 0V/5		751,96

CONTINUED ON LINE 721

LAST NUMBER USED: 633
SPARE TO: 679

NOTES
1. TIMER RELAY OMRON M3DE-M1 MODE A SET @ 1 SEC
2. TIMER RELAY OMRON M3DE-M1 MODE D SET @ 1 SEC

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		PANEL TEST MODS

PLANT: FINA DERV RAIL LOADING SYSTEM
TITLE: LOGIC 6
02/07/99
SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN
ELECTRICAL SCHEMATIC TEMPLATE
SHEET 1 OF 01
CLIENT DRG. No.
P&I DRG No. SI039007

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

GENERAL: HORN; THERMOCOUPLE NEGATIVE POLE REPRESENTED BY THICK LINE; SOLENOID VALVE; DOUBLE WOUND TRANSFORMER; V VOLTMETER; HR HOURS RUN METER; A AMMETER; HZ FREQUENCY METER; LAMP; SIREN; BELL

ISOLATORS & TERMINALS: FUSE LINK; NEUTRAL LINK REMOVABLE; PLUG AND SOCKET; NO-LOAD SWITCHING; TERMINAL WITH DISCONNECT LINK; TERMINAL; ON-LOAD SWITCHING; FUSED SWITCH (NO-LOAD); FUSED SWITCH (ON-LOAD); FUSED SWITCH (ON LOAD) (DOUBLE BREAK)

RELAYS & TIMERS: R RELAY; R T TIMED RELAY; NORMALLY OPEN; NORMALLY CLOSED; CHANGEOVER CONTACT; MOTOR TIMER; T.D.O.D.; INSTANT OPEN DELAYED CLOSED; INSTANT CLOSE DELAYED OPEN; C CLUTCH; T.D.O.E.; DELAYED OFF (N/C); DELAYED ON (N/O)

CONTACTORS & OVERLOADS: NORMALLY OPEN; NORMALLY CLOSED; MAGNETIC OVERLOAD RELAY; THERMAL OVERLOAD RELAY; C CONTACTOR; MECHANICAL INTERLOCK

KEY OPERATED; STOPLOCK PUSHBUTTON

SWITCHES: PUSHBUTTON STOP; PUSHBUTTON START; NORMALLY OPEN; NORMALLY OPEN HELD CLOSED; NORMALLY CLOSED; NORMALLY CLOSED HELD OPEN; OPENS ON RISING PRESSURE; CLOSES ON RISING PRESSURE; OPENS ON RISING TEMPERATURE; OPENS ON RISING LEVEL; CLOSES ON RISING LEVEL; CLOSES ON RISING TEMPERATURE; OPENS ON INCREASING FLOW; CLOSES ON INCREASING FLOW; 1 2 3 SWITCH CONTACT; MULTI POSITION TYPICAL 3 CIRCUIT

RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING

PLC DIGITAL OUTPUTS

FROM LINE 720

24V/7 TB24V 7

FROM LINE 26 TBOV 7 0V/7

COM7	24V/7			
SPARE	Y40			
SPARE	Y41			
SPARE	Y42			
SPARE	Y43			
SPARE	Y44			
SPARE	Y45			
SPARE	Y46			
SPARE	Y47			
COM8	24V/7			
SYSTEM FAULT (OIC, MUX)	Y50	680	R	0V/7
ESD OPERATED	Y51	681	R	0V/7
LEVEL SWITCH OPERATED	Y52	682	R	0V/7
PUMP RUNNING (FLASHES)	Y53	683	G	0V/7
MANUAL VALVE FAULT	Y54	684	R	0V/7
WATCHDOG FAULT LAMP TEST OUTPUT	Y55	685 (24V/7 R716/1, REMOVE LINK BETWEEN CONTACT & LAMP)	R	0V/7
POLLING PC COMMS FAILURE	Y56	686	R	0V/7
CONTROL SYSTEM IN BATCHER STAND ALONE MODE	Y57	687	A	0V/7

NOTE 2

CONTINUED ON LINE 761

LAST NUMBER USED: 687
SPARE TO: 749

PLC DIGITAL OUTPUTS

FROM LINE 760

24V/8 TB24V 8

FROM LINE 27 TBOV 8 0V/8

COM9	24V/8			
LS1 LEVEL HIGH LAMP TEST	Y60	24V/8 R207/2 → 750	R	0V/8
LS2 LEVEL HIGH LAMP TEST	Y61	24V/8 R209/2 → 751	R	0V/8
LS3 LEVEL HIGH LAMP TEST	Y62	24V/8 R211/2 → 752	R	0V/8
LS4 LEVEL HIGH LAMP TEST	Y63	24V/8 R447/2 → 753	R	0V/8
LS5 LEVEL HIGH LAMP TEST	Y64	24V/8 R449/2 → 754	R	0V/8
LS6 LEVEL HIGH LAMP TEST	Y65	24V/8 R451/2 → 755	R	0V/8
LS7 LEVEL HIGH LAMP TEST	Y66	24V/8 R327/2 → 756	R	0V/8
LS8 LEVEL HIGH LAMP TEST	Y67	24V/8 R329/2 → 757	R	0V/8
COM10	24V/8			
LS9 LEVEL HIGH LAMP TEST	Y70	24V/8 R331/2 → 758	R	0V/8
LS10 LEVEL HIGH LAMP TEST	Y71	24V/8 R567/2 → 759	R	0V/8
LS11 LEVEL HIGH LAMP TEST	Y72	24V/8 R569/2 → 760	R	0V/8
LS12 LEVEL HIGH LAMP TEST	Y73	24V/8 R571/2 → 761	R	0V/8
SPARE	Y74			
SPARE	Y75			
SPARE	Y76			
SPARE	Y77			

LAST NUMBER USED: 761
SPARE TO: 849

PUMP CONTROLS (240V)

PUMP 1

MCC COMPARTMENT SEE DRAWING SI378009

850	R112/1	851	TB240V 15	740902/1	TB2 1	740902/1
850	R86/4	851	16	740902/2	2	740902/2
852			17	740902/3	9	740902/3
852	R46/4	853 R680/1 854 R111/2 855	18	740902/4	10	740902/4
856			19	740902/5	11	740902/5
856	R678/1	857	20	740902/6	12	740902/6
SPARE			21	740902/7	13	740902/7

740902 (7 CORE)

PUMP 2 (FUTURE)

NOTE 2

859	R111/1	858	TB240V 22
859	R88/2	858	23
860			24
860	R48/2	861 R680/2 862 R112/2 863	25
864			26
864	R678/2	865	27
SPARE			28

P2-25 RAIL LOADING PUMP

868	R88/3	867 R48/3	866	TB1 49
868				50

P5-12 RAIL LOADING PUMP

871	R88/4	870 R48/4	869	TB1 51
871				52

4-EAST RAIL GANTRY ESD

ESD x7 ON RAIL GANTRY

FROM LINE 89	24V/2		TB1 53	
		872	54	
FROM LINE 89	0V/2	NOTE 1 R833 92,834,620		
	874	R833/2 873	55	ANNUNCIATOR
	874		56	

C

LAST NUMBER USED: 874
SPARE TO: 899

NOTES
1. OMRON G7S-4A2B GUIDED CONTACT RELAY (RS260-4373).
2. DECOMMISSIONED BATCHING SYSTEM. INPUTS NOT USED IN PLC

simon bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	PANEL TEST MODS
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM PANEL LOGIC DRAWING 7

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

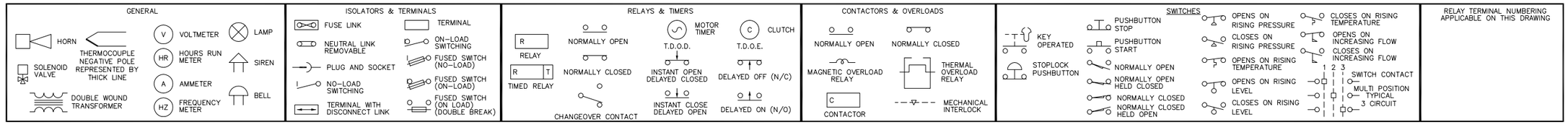
P & I DESIGN — *P & I Design Ltd* Tel. 01642 617444 www.pidesign.co.uk

SHEET 1 OF 1

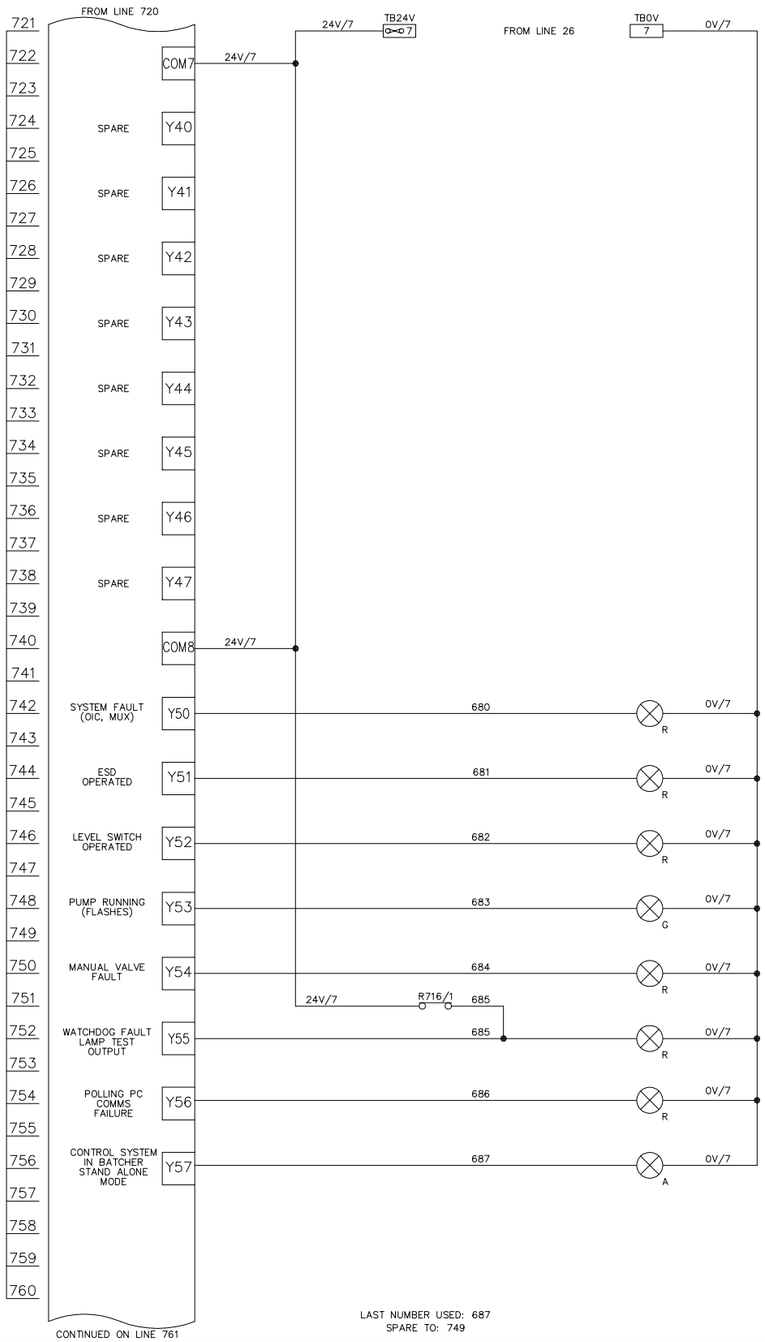
CLIENT DRG. No.

P&I DRG No. SI039008_DWG

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

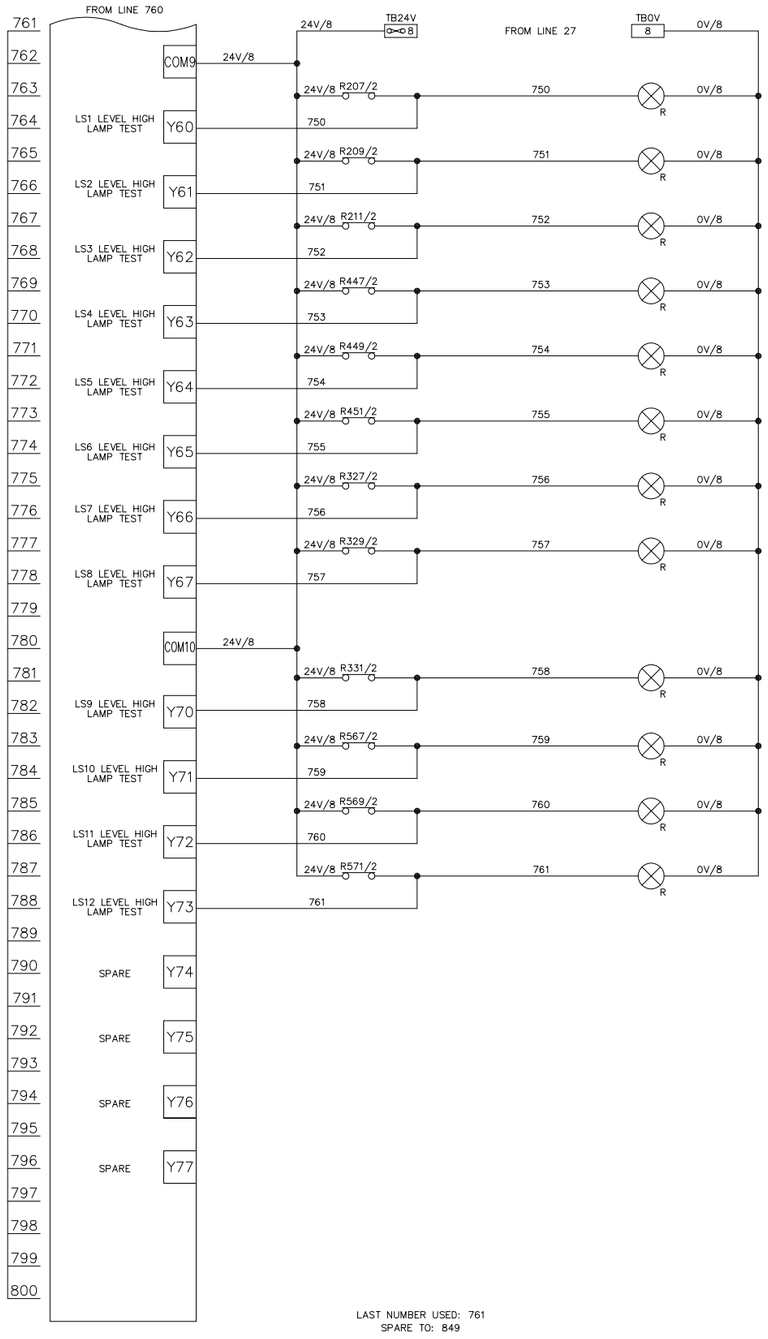


PLC DIGITAL OUTPUTS



LAST NUMBER USED: 687
SPARE TO: 749

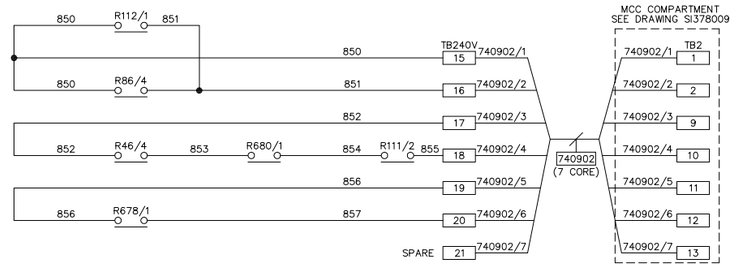
PLC DIGITAL OUTPUTS



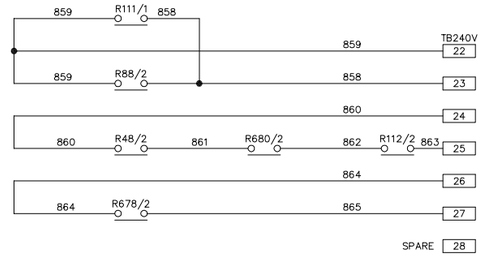
LAST NUMBER USED: 761
SPARE TO: 849

PUMP CONTROLS (240V)

PUMP 1



PUMP 2 (FUTURE)



LAST NUMBER USED: 865
SPARE TO: 899

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		PANEL TEST MODS

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	LOGIC 7
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
	P & I DESIGN
ELECTRICAL SCHEMATIC TEMPLATE	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039008

FIELD

CONTROL PANEL

COMMUNICATIONS INTERFACE PANEL

NORTH SIDING BATCHER

J0 POWER SUPPLY BOARD
TB1
LIVE 1 740944/1
EARTH 2 740944/2
NEUTRAL 3 740944/3
HEATER (SPARE) 4
5
TB2
AC PERMISSIVE 1 740944/4
NEUTRAL 2 740944/5
FUSED LIVE 3

J1 AC I/O BOARD
TB1
BLOCK VALVE INPUT – INPUT 2 1 740944/6
ESD/OVERSPILL PERMISSIVE – INPUT 1 2 740944/7
3
4
SPARE: OUTPUT 8 5
OUTPUT 7 6
OUTPUT 6 7
OUTPUT 5 8
OUTPUT 4 9
BLOCK VALVE OUTPUT – OUTPUT 3 10
DOWNSTREAM VALVE – OUTPUT 2 11 740944/8
UPSTREAM VALVE – OUTPUT 1 12 740944/9
13 740944/10
14 740944/11
15 740944/12

J3 DC I/O BOARD
TB1
SPARE: INPUT 6 1 740930/1/2
INPUT 5 2 740930/1/1
INPUT 4 3 740930/2/2
INPUT 3 4 740930/2/1
INPUT 2 5 740930/3/2
INPUT 1 6 740930/3/1
OUTPUT 4 7 740930/4/2
OUTPUT 3 8 740930/4/1
OUTPUT 2 9 740930/5/2
OUTPUT 1 10 740930/5/1
11 740930/6/2
12 740930/6/1
13 740930/7/2
14 740930/7/1
15 740930/8/2
16 740930/8/1
17 740930/9/2
18 740930/9/1
19 740930/10/2
20 740930/10/1

J5 METER PULSE BOARD
TB1
P/S 1 1 740930/12/1
INPUT 1 2 740930/11/1
SIGNAL COM 3 740930/11/2
P/S 2 4 740930/12/2
INPUT 2 5 740930/13/1
SIGNAL COM 6 740930/13/2

740930 (20 PAIR)

J7 2Ch A/D INPUT BOARD
TB1
1
2
3
V SOURCE 4 20724/14/1
Ch 2+ 5 20724/14/2
Ch 2– 6 740930/15/1
I SOURCE 7 740930/15/2

CPU & DUART BOARD
TB1
RS422: 1 740930/16/1
2 740930/16/2
3 740930/17/1
4 740930/17/2
5 740930/18/1
6 740930/18/2
7 740930/19/1
8 740930/19/2
9 740930/20/1
10 740930/20/2

740944 (12 CORE)

AC JB
740944/2 → 1 740931/1
2 740946/3
3 740947/3
740944/1 → 4 740931/3
5
6
740944/3 → 7 740931/2
740944/5 → 8
740944/7 → 9
10
11
12 740946/2
13 740947/2
740944/4 → 14 740931/4
740944/6 → 15 740931/5
16
17
740944/8 → 18 SPARE
740944/9 → 19 740931/7
740944/10 → 20 740931/6
740944/11 → 21 740946/1
22
23
740944/12 → 24 740947/1

FOR TERMINALS 25–48 SEE DRG. SI038011

740931 (7 CORE)

740931/1 → 740911/1
740931/2 → 740911/2
740931/3 → 740911/3
740931/4 → 740911/4
740931/5 → 740911/5
740931/6 → 740911/6
740931/7 → 740911/7

LOCAL 6–POLE ISOLATOR

740911 (7 CORE)

740911/1 → TB240V 1 E4
740911/2 → 2 N4
740911/3 → 3 L4
740911/4 → 4 24
740911/5 → 5 25
740911/6 → 6 26
740911/7 → 7 27

SEE DRG. SI039002

740946 (3 CORE)

740946/3 → E
740946/2 → N
740946/1 → L

NORTH SIDING DOWNSTREAM DCV

740947 (3 CORE)

740947/3 → E
740947/2 → N
740947/1 → L

NORTH SIDING UPSTREAM DCV

NOTE 3

SCREEN BAR

DC JB
TB2
740930/14/1 → 1
740930/14/2 → 2
740930/15/2 → 3
740930/15/1 → 4
740930/6/1 → 5
740930/5/1 → 6
740930/4/1 → 7
740930/3/1 → 8
740930/2/1 → 9
740930/1/1 → 10
740930/6/2 → 11
740930/5/2 → 12
740930/4/2 → 13
740930/3/2 → 14
740930/2/2 → 15
740930/1/2 → 16
740930/10/1 → 17
740930/9/1 → 18
740930/8/1 → 19
740930/7/1 → 20
740930/10/2 → 21
740930/9/2 → 22
740930/8/2 → 23
740930/7/2 → 24
740930/12/1 → 25 → 740928/1/1
740930/11/1 → 26 → 740928/1/2
740930/11/2 → 27 → 740928/2/1
740930/12/2 → 28 → 740927/1/1
740930/13/1 → 29 → 740927/1/2
740930/13/2 → 30 → 740927/2/1
740930/16/1 → 31 → 740988/1/1
32
740930/16/2 → 33 → 740988/1/2
34
740930/17/1 → 35 → 740988/2/1
36
740930/17/2 → 37 → 740988/2/2
38
740930/18/1 → 39 → 740988/3/1
40
740930/18/2 → 41 → 740988/3/2
42
740930/19/1 → 43 → 740988/4/1
44
740930/19/2 → 45 → 740988/4/2
46
740930/20/1 → 47 → SPARE
740930/20/2 → 48 → 740988/5/1
SPARE → 49 → 740988/5/2
50

NOTE 2

Exe

FOR TB3 SEE DRG. SI039011
FOR TB1 SEE DRG. SI039012

SCREEN BAR

740929/1/1 → 1
740929/1/2 → 2
740929/2/1 → 3
740929/2/2 → 4

TB1 TB1
58 42

740929 (2 PAIR)

TEMPERATURE ELEMENT
740929/1/1 → V–
740929/1/2 → +
740929/2/1 → –
740929/2/2 → I

NOTE 3

TURBINE METER
PREAMP
PICKUP COIL

740928/1/1 → E
740928/1/2 → H
740928/2/1 → F
740990/1/1 → D
740990/1/2 → E
740990/1/1 → A
740990/1/1 → B

740928 (2 PAIR)
740990 (1 PAIR)

740927/1/1 → E
740927/1/2 → H
740927/2/1 → F
740991/1/1 → D
740991/1/2 → E
740991/1/1 → A
740991/1/1 → B

740927 (2 PAIR)
740991 (1 PAIR)

740988 (5 PAIR)

LIGHTNING EARTH BAR

LIGHTENING PROTECTION
740988/1/1 → 3 5 4 ESP
740988/1/2
740988/2/1 → 3 5 4 ESP
740988/2/2
740988/3/1 → 3 5 4 ESP
740988/3/2
740988/4/1 → 3 5 4 ESP
740988/4/2

SEE DRG. SI039014

EARTH ROD

INSTRUMENT EARTH BAR

740988/5/1
740988/5/2

SCREEN EARTH

NOTE 3

NORTH SIDING KEYPAD
MERCURY 1
J5
1 740904/1/1
2 740904/1/2
3 740904/2/1
4 740904/2/2

SCREENS NOT CONNECTED

RS422 I.S.

740904 (2 PAIR)

I.S. INTERFACE MODULE R007
740904/1/1 → 15
740904/1/2 → 13
740904/2/1 → 21
740904/2/2 → 19

RS422 TO PC SEE DRG. SI039015

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
FQ01	93C.105.11123	EExd IIB T6	BASEEFA
TE01	831045X	EExd IIC T6	BASEEFA
FT01	86B1336	EExd IIC T6	BASEEFA
DCV01A	TBA	TBA	TBA
DCV01B	TBA	TBA	TBA
DC JB	84B3299X	EEx'e' IIC T6	BASEEFA

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
AC JB	84B3299X	EEx'e' IIC T6	BASEEFA

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. DECOMMISSIONED BATCHING SYSTEM. FIELD EQUIPMENT REMOVED.

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	29/06/00	D.P.	A.B.	D.R.R	D.R.R	D.R.R	D.R.R	ON SITE CHANGES
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM NORTH SIDING BATCHING SYSTEM LOOP

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039010_DWG

FIELD

CONTROL PANEL

NORTH SIDING BATCHER

J0 POWER SUPPLY BOARD

TB1
- 1 LIVE — 740944/1
- 2 EARTH — 740944/2
- 3 NEUTRAL — 740944/3
- 4
- 5 HEATER (SPARE)

TB2
- 1 AC PERMISSIVE — 740944/4
- 2 NEUTRAL — 740944/5
- 3 FUSED LIVE

J1 AC I/O BOARD

TB1
- 1 BLOCK VALVE INPUT – INPUT 2 — 740944/6
- 2 ESD/OVERSPILL PERMISSIVE – INPUT 1 — 740944/7
- 3
- 4
- 5 SPARE – OUTPUT 8
- 6
- 7 SPARE – OUTPUT 7
- 8
- 9 SPARE – OUTPUT 6
- 10
- 11 SPARE – OUTPUT 5 — 740944/8
- 12
- 13 SPARE – OUTPUT 4 — 740944/9
- 14
- 15 BLOCK VALVE OUTPUT – OUTPUT 3 — 740944/10
- 16
- 17 DOWNSTREAM VALVE – OUTPUT 2 — 740944/11
- 18
- 19 UPSTREAM VALVE – OUTPUT 1 — 740944/12
- 20

740944 (12 CORE)

J3 DC I/O BOARD

TB1
- 1 SPARE – INPUT 6 — 740930/1/2
- 2 — 740930/1/1
- 3 SPARE – INPUT 5 — 740930/2/2
- 4 — 740930/2/1
- 5 SPARE – INPUT 4 — 740930/3/2
- 6 — 740930/3/1
- 7 SPARE – INPUT 3 — 740930/4/2
- 8 — 740930/4/1
- 9 SPARE – INPUT 2 — 740930/5/2
- 10 — 740930/5/1
- 11 SPARE – INPUT 1 — 740930/6/2
- 12 — 740930/6/1
- 13 OUTPUT 4 — 740930/7/2
- 14 — 740930/7/1
- 15 OUTPUT 3 — 740930/8/2
- 16 — 740930/8/1
- 17 OUTPUT 2 — 740930/9/2
- 18 — 740930/9/1
- 19 OUTPUT 1 — 740930/10/2
- 20 — 740930/10/1

J5 METER PULSE BOARD

TB1
- 1 P/S 1 — 740930/12/1
- 2 INPUT 1 — 740930/11/1
- 3 SIGNAL COM — 740930/11/2
- 4 P/S 2 — 740930/12/2
- 5 INPUT 2 — 740930/13/1
- 6 SIGNAL COM — 740930/13/2

J7 2Ch A/D INPUT BOARD

TB1
- 1
- 2
- 3
- 4 V SOURCE — 20724/14/1
- 5 Ch 2+ — 20724/14/2
- 6 Ch 2– — 740930/15/1
- 7 I SOURCE — 740930/15/2

CPU & DUART BOARD

TB1
- 1 RS422 — 740930/16/1
- 2 — 740930/16/2
- 3 — 740930/17/2
- 4 — 740930/17/1
- 5 — 740930/18/1
- 6 — 740930/18/2
- 7 — 740930/19/1
- 8 — 740930/19/2
- 9 — 740930/20/1
- 10 — 740930/20/2

740930 (20 PAIR)

AC JB

740944/2	1	740931/1
	2	740946/3
	3	740947/3
740944/1	4	740931/3
	5	
740944/3	6	740931/2
740944/5	7	
	8	
740944/7	9	
	10	
	11	
	12	740946/2
	13	740947/2
740944/4	14	740931/4
740944/6	15	740931/5
	16	
	17	
740944/8	18	SPARE
740944/9	19	740931/7
740944/10	20	740931/6
740944/11	21	740946/1
	22	
	23	
740944/12	24	740947/1

FOR TERMINALS 25–48 SEE DRG. SI038011

740931 (7 CORE)

LOCAL 6-POLE ISOLATOR

740931/1	740911/1
740931/2	740911/2
740931/3	740911/3
740931/4	740911/4
740931/5	740911/5
740931/6	740911/6
740931/7	740911/7

740911 (7 CORE)

740946 (3 CORE)

740947 (3 CORE)

740946/3, 740946/2, 740946/1 — E N L — NORTH SIDING DOWNSTREAM DCV

740947/3, 740947/2, 740947/1 — E N L — NORTH SIDING UPSTREAM DCV

DC JB

SCREEN BAR	TB2	SCREEN BAR
740930/14/1	1	740929/1/1
740930/14/2	2	740929/1/2
740930/15/2	3	740929/2/1
740930/15/1	4	740929/2/2
740930/5/1	5	
740930/4/1	6	
740930/3/1	7	
740930/2/1	8	
740930/1/1	9	
740930/6/2	10	
740930/5/2	11	
740930/4/2	12	
740930/3/2	13	TB1 58
740930/2/2	14	
740930/1/2	15	
740930/10/1	16	
740930/9/1	17	
740930/8/1	18	
740930/7/1	19	
740930/10/2	20	
740930/9/2	21	
740930/8/2	22	
740930/7/2	23	
740930/12/1	24	
740930/11/1	25	740928/1/1
740930/11/2	26	740928/1/2
740930/12/2	27	740928/2/1
740930/13/1	28	740927/1/1
740930/13/2	29	740927/1/2
740930/16/1	30	740988/1/1
740930/16/2	31	
	32	740988/1/2
740930/17/1	33	
	34	740988/2/1
740930/17/2	35	
	36	740988/2/2
740930/18/1	37	
	38	740988/3/1
740930/18/2	39	
	40	740988/3/2
740930/19/1	41	
	42	740988/4/1
740930/19/2	43	
	44	740988/4/2
740930/20/1	45	
740930/20/2	46	
SPARE	47	SPARE
SPARE	48	740988/5/1
	49	740988/5/2
	50	

NOTE 2

Exe

FOR TB3 SEE DRG. SI039011
FOR TB1 SEE DRG. SI039012

740929 (2 PAIR)

TEMPERATURE ELEMENT
- 740929/1/1 — V–
- 740929/1/2 — +
- 740929/2/1 — –
- 740929/2/2 — I

740928 (2 PAIR)

740927 (2 PAIR)

TURBINE METER
- 740928/1/1, 740928/1/2, 740928/2/1 — E H F — PREAMP — D E — 740990/1/1, 740990/1/2 — 740990 (1 PAIR)
- 740990/1/1, 740990/1/2 — PICKUP COIL — A B
- 740927/1/1, 740927/1/2, 740927/2/1 — E H F — PREAMP — D E — 740991/1/1, 740991/1/2 — 740991 (1 PAIR)
- 740991/1/1, 740991/1/2 — PICKUP COIL — A B

740988 (5 PAIR)

LIGHTNING EARTH BAR

EARTH ROD

LIGHTENING PROTECTION
- 740988/1/1, 740988/1/2 — ESP
- 740988/2/1, 740988/2/2 — ESP
- 740988/3/1, 740988/3/2 — ESP
- 740988/4/1, 740988/4/2 — ESP

SEE DRG. SI039014

INSTRUMENT EARTH BAR

740988/5/1, 740988/5/2

SCREEN EARTH

NORTH SIDING KEYPAD

MERCURY 1

SCREENS NOT CONNECTED

J5
- 1 — 740904/1/1
- 2 — 740904/1/2
- 3 — 740904/2/1
- 4 — 740904/2/2

RS422 I.S.

740904 (2 PAIR)

I.S. INTERFACE MODULE R007

740904/1/1, 740904/1/2, 740904/2/1, 740904/2/2 — 15, 13, 21, 19

RS422 TO PC SEE DRG. SI039015

COMMUNICATIONS INTERFACE PANEL

740911/1 … 740911/7 — TB240V
- 1 — E4
- 2 — N4
- 3 — L4
- 4 — 24
- 5 — 25
- 6 — 26
- 7 — 27

SEE DRG. SI039002

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

PI

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
FQ01	93C.105.11123	EExd IIB T6	BASEEFA
TE01	831045X	EExd IIC T6	BASEEFA
FT01	86B1336	EExd IIC T6	BASEEFA
DCV01A	TBA	TBA	TBA
DCV01B	TBA	TBA	TBA
DC JB	84B3299X	EEx'e' IIC T6	BASEEFA

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
AC JB	84B3299X	EEx'e' IIC T6	BASEEFA

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
C	29/06/00	D.P.	A.B.	D.R.R	D.R.R	ON SITE CHANGES

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	NORTH SIDING BATCHING SYSTEM LOOP
	29/06/00

SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

INSTRUMENT LOOP SHEET FOR USE IN HAZARDOUS AREA — SHEET 01 OF 01

CLIENT DRG. No. — P&I DRG No. SI039010

FIELD

CONTROL PANEL

COMMUNICATIONS INTERFACE PANEL

SOUTH SIDING BATCHER

J0 POWER SUPPLY BOARD

TB1
- 1 LIVE — 740945/1
- 2 EARTH — 740945/2
- 3 NEUTRAL — 740945/3
- 4
- 5 HEATER (SPARE)

TB2
- 1 AC PERMISSIVE — 740945/4
- 2 NEUTRAL — 740945/5
- 3 FUSED LIVE

J1 AC I/O BOARD

TB1
- 1 BLOCK VALVE INPUT – INPUT 2 — 740945/6
- 2 — 740945/7
- 3 ESD/OVERSPILL PERMISSIVE – INPUT 1
- 4
- 5 SPARE – OUTPUT 8
- 6
- 7 SPARE – OUTPUT 7
- 8
- 9 SPARE – OUTPUT 6
- 10
- 11 SPARE – OUTPUT 5 — 740945/8
- 12
- 13 SPARE – OUTPUT 4 — 740945/9
- 14
- 15 BLOCK VALVE OUTPUT – OUTPUT 3 — 740945/10
- 16
- 17 DOWNSTREAM VALVE – OUTPUT 2 — 740945/11
- 18
- 19 UPSTREAM VALVE – OUTPUT 1 — 740945/12
- 20

J3 DC I/O BOARD

TB1
- 1 SPARE – INPUT 6 — 740934/1/2
- 2 — 740934/1/1
- 3 SPARE – INPUT 5 — 740934/2/2
- 4 — 740934/2/1
- 5 SPARE – INPUT 4 — 740934/3/2
- 6 — 740934/3/1
- 7 SPARE – INPUT 3 — 740934/4/2
- 8 — 740934/4/1
- 9 SPARE – INPUT 2 — 740934/5/2
- 10 — 740934/5/1
- 11 SPARE – INPUT 1 — 740934/6/2
- 12 — 740934/6/1
- 13 SPARE – OUTPUT 4 — 740934/7/2
- 14 — 740934/7/1
- 15 SPARE – OUTPUT 3 — 740934/8/2
- 16 — 740934/8/1
- 17 SPARE – OUTPUT 2 — 740934/9/2
- 18 — 740934/9/1
- 19 SPARE – OUTPUT 1 — 740934/10/2
- 20 — 740934/10/1

J5 METER PULSE BOARD

TB1
- 1 P/S 1 — 740934/12/1
- 2 INPUT 1 — 740934/11/1
- 3 SIGNAL COM — 740934/11/2
- 4 P/S 2 — 740934/12/2
- 5 INPUT 2 — 740934/13/1
- 6 SIGNAL COM — 740934/13/2

740934 (20 PAIR)

J7 2Ch A/D INPUT BOARD

TB1
- 1
- 2
- 3
- 4 V SOURCE — 20724/14/1
- 5 Ch 2+ — 20724/14/2
- 6 Ch 2– — 740934/15/1
- 7 I SOURCE — 740934/15/2

CPU & DUART BOARD

TB1
- 1 RS422 — 740934/16/1
- 2 — 740934/16/2
- 3 — 740934/17/1
- 4 — 740934/17/2
- 5 — 740934/18/1
- 6 — 740934/18/2
- 7 — 740934/19/1
- 8 — 740934/19/2
- 9 — 740934/20/1
- 10 — 740934/20/2

740945 (12 CORE)

AC JB FOR TERMINALS 1–24 SEE DRG. SI039010

740945/2	25	740933/1
	26	740951/3
	27	740950/3
740945/1	28	740933/3
	29	
	30	
740945/3	31	740933/2
740945/5	32	
740945/7	33	
	34	
	35	
	36	740951/2
	37	740950/2
740945/4	38	740933/4
740945/6	39	740933/5
	40	
740945/8	41	SPARE
740945/9	42	740933/7
740945/10	43	740933/6
740945/11	44	740951/1
	45	
	46	
	47	
740945/12	48	740950/1

EEx'e'

FOR TERMINALS 44–54 SEE DRG. SI039012

740933 (7 CORE)

740933/1 740913/1
740933/2 740913/2
740933/3 740913/3
740933/4 740913/4
740933/5 740913/5
740933/6 740913/6
740933/7 740913/7

LOCAL 6–POLE ISOLATOR

740913 (7 CORE)

740951 (3 CORE)

740951/3 740951/2 740951/1 — ENL — SOUTH SIDING DOWNSTREAM DCV

740950 (3 CORE)

740950/3 740950/2 740950/1 — ENL — SOUTH SIDING UPSTREAM DCV

740913/1 740913/2 740913/3 740913/4 740913/5 740913/6 740913/7

TB240V
- 8 E5
- 9 N5
- 10 L5
- 11 29
- 12 30
- 13 31
- 14 32

SEE DRG. SI039002

NOTE 3

SCREEN BAR — DC JB — SCREEN BAR

740934/14/1 740934/14/2 740934/15/2 740934/15/1 740934/6/1 740934/5/1 740934/4/1 740934/3/1 740934/2/1 740934/1/1 740934/6/2 740934/5/2 740934/4/2 740934/3/2 740934/2/2 740934/1/2 740934/10/1 740934/9/1 740934/8/1 740934/7/1 740934/10/2 740934/9/2 740934/8/2 740934/7/2 740934/12/1 740934/11/1 740934/11/2 740934/12/2 740934/13/1 740934/13/2 740934/16/1 740934/16/2 740934/17/1 740934/17/2 740934/18/1 740934/18/2 740934/19/1 740934/19/2 740934/20/1 740934/20/2

TB3
- 1 740935/1/1
- 2 740935/1/2
- 3 740935/2/1
- 4 740935/2/2
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25 740936/1/1
- 26 740936/1/2
- 27 740936/2/1
- 28 740937/1/1
- 29 740937/1/2
- 30 740937/2/1
- 31
- 32
- 33
- 34
- 35
- 36
- 37
- 38
- 39
- 40
- 41
- 42
- 43
- 44
- 45
- 46
- 47
- 48
- 49
- 50

TB1 43

TB1 59

NOTE 2

Exe

FOR TB2 SEE DRG. SI039010
FOR TB3 SEE DRG. SI039012

740935 (2 PAIR)

TEMPERATURE ELEMENT — 740935/1/1 740935/1/2 740935/2/1 740935/2/2 — V– + – I

NOTE 3

740936 (2 PAIR)

TURBINE METER — PREAMP — PICKUP COIL

740936/1/1 740936/1/2 740936/2/1 — EHF — DE — 740992/1/1 740992/1/2 — 740992/1/1 740992/1/2 — AB

740992 (1 PAIR)

740937 (2 PAIR)

740937/1/1 740937/1/2 740937/2/1 — EHF — DE — 740993/1/1 740993/1/2 — 740993/1/1 740993/1/2 — AB

740993 (1 PAIR)

SCREEN EARTH BAR

NOTE 3

SOUTH SIDING KEYPAD — MERCURY 2 — J5
- 1 740916/1/1
- 2 740916/1/2
- 3 740916/2/1
- 4 740916/2/2

SCREENS NOT CONNECTED

RS422 I.S.

740916 (2 PAIR)

I.S. INTERFACE MODULE R007

740916/1/1 740916/1/2 740916/2/1 740916/2/2 — 15 13 21 19

RS422 TO PC SEE DRG. SI039015

EARTH RODS

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
FQ01	93C.105.11123	EExd IIB T6	BASEEFA
TE01	831045X	EExd IIC T6	BASEEFA
FT01	86B1336	EExd IIC T6	BASEEFA
DCV02A	TBA	TBA	TBA
DCV02B	TBA	TBA	TBA
DC JB	84B3299X	EEx'e' IIC T6	BASEEFA

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
AC JB	84B3299X	EEx'e' IIC T6	BASEEFA

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. DECOMMISSIONED BATCHING SYSTEM. FIELD EQUIPMENT REMOVED.

SIMON bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	29/06/00	D.P.	A.B.	D.R.R	D.R.R	D.R.R	D.R.R	ON SITE CHANGES
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM SOUTH SIDING BATCHING SYSTEM LOOP

SIMON — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039011_DWG

FIELD

CONTROL PANEL

COMMUNICATIONS INTERFACE PANEL

SOUTH SIDING BATCHER

J0 POWER SUPPLY BOARD
TB1
1 LIVE 740945/1
2 EARTH 740945/2
3 NEUTRAL 740945/3
4 HEATER (SPARE)
5
TB2
1 AC PERMISSIVE 740945/4
2 NEUTRAL 740945/5
3 FUSED LIVE

J1 AC I/O BOARD
TB1
1 BLOCK VALVE INPUT – INPUT 2 740945/6
2 ESD/OVERSPILL PERMISSIVE – INPUT 1 740945/7
3
4
SPARE: 5 OUTPUT 8, 6 OUTPUT 7, 7 OUTPUT 6, 8 OUTPUT 5 740945/8, 9 OUTPUT 4 740945/9
10
11
12 BLOCK VALVE OUTPUT – OUTPUT 3 740945/10
13
14 DOWNSTREAM VALVE – OUTPUT 2 740945/11
15
16 UPSTREAM VALVE – OUTPUT 1 740945/12

J3 DC I/O BOARD
TB1
1 740934/1/2
2 740934/1/1
3 740934/2/2
4 740934/2/1
5 740934/3/2
6 740934/3/1
7 740934/4/2
8 740934/4/1
9 740934/5/2
10 740934/5/1
11 740934/6/2
12 740934/6/1
13 740934/7/2
14 740934/7/1
15 740934/8/2
16 740934/8/1
17 740934/9/2
18 740934/9/1
19 740934/10/2
20 740934/10/1
SPARE: INPUT 6, INPUT 5, INPUT 4, INPUT 3, INPUT 2, INPUT 1, OUTPUT 4, OUTPUT 3, OUTPUT 2, OUTPUT 1

J5 METER PULSE BOARD
TB1
1 P/S 1 740934/12/1
2 INPUT 1 740934/11/1
3 SIGNAL COM 740934/11/2
4 P/S 2 740934/12/2
5 INPUT 2 740934/13/1
6 SIGNAL COM 740934/13/2

J7 2Ch A/D INPUT BOARD
TB1
1
2
3
4 V SOURCE 20724/14/1
5 Ch 2+ 20724/14/2
6 Ch 2– 740934/15/1
7 I SOURCE 740934/15/2

CPU & DUART BOARD
TB1
RS422: 1 740934/16/1, 2 740934/16/2, 3 740934/17/1, 4 740934/17/2, 5 740934/18/1, 6 740934/18/2, 7 740934/19/1, 8 740934/19/2
9 740934/20/1
10 740934/20/2

740945 (12 CORE)

AC JB
FOR TERMINALS 1–24
SEE DRG. SI039010
740945/2 → 25 → 740933/1
26 → 740951/3
27 → 740950/3
740945/1 → 28 → 740933/3
29
30
740945/3 → 31 → 740933/2
740945/5 → 32
740945/7 → 33
34
35
740951/2
36 → 740950/2
37 → 740933/4
740945/4 → 38
740945/6 → 39 → 740933/5
40
41 SPARE
740945/8 → 42 → 740933/7
740945/9 → 43 → 740933/6
740945/10 → 44 → 740951/1
45
46
47
740945/12 → 48 → 740950/1
EEx'e'
FOR TERMINALS 44–54
SEE DRG. SI039012

740933 (7 CORE)

LOCAL 6–POLE ISOLATOR
740933/1 ↔ 740913/1
740933/2 ↔ 740913/2
740933/3 ↔ 740913/3
740933/4 ↔ 740913/4
740933/5 ↔ 740913/5
740933/6 ↔ 740913/6
740933/7 ↔ 740913/7

740913 (7 CORE)

740951 (3 CORE)
740951/3, 740951/2, 740951/1 → E N L → SOUTH SIDING DOWNSTREAM DCV

740950 (3 CORE)
740950/3, 740950/2, 740950/1 → E N L → SOUTH SIDING UPSTREAM DCV

740934 (20 PAIR)

DC JB
SCREEN BAR — TB3 — SCREEN BAR
740934/14/1 1 740935/1/1
740934/14/2 2 740935/1/2
740934/15/2 3 740935/2/1
740934/15/1 4 740935/2/2
740934/6/1 5
740934/5/1 6
740934/4/1 7
740934/3/1 8
740934/2/1 9
740934/1/1 10
740934/6/2 11 — TB1 43
740934/5/2 12
740934/4/2 13
740934/3/2 14
740934/2/2 15
740934/1/2 16 — TB1 59
740934/10/1 17
740934/9/1 18
740934/8/1 19
740934/7/1 20
740934/10/2 21
740934/9/2 22
740934/8/2 23
740934/7/2 24
740934/12/1 25 740936/1/1
740934/11/1 26 740936/1/2
740934/11/2 27 740936/2/1
740934/12/2 28 740937/1/1
740934/13/1 29 740937/1/2
740934/13/2 30 740937/2/1
740934/16/1 31
740934/16/2 32
33
34
740934/17/1 35
36
740934/17/2 37
38
740934/18/1 39 — NOTE 2
740934/18/2 40
41
740934/19/1 42
43
44
740934/19/2 45
740934/20/1 46
740934/20/2 47
48
49
50
Exe
FOR TB2 SEE DRG. SI039010
FOR TB3 SEE DRG. SI039012

740935 (2 PAIR)

TEMPERATURE ELEMENT
740935/1/1 V–
740935/1/2 +
740935/2/1 –
740935/2/2 I

740936 (2 PAIR)
740937 (2 PAIR)

TURBINE METER
PREAMP: 740936/1/1 E, 740936/1/2 H, 740936/2/1 F; 740992/1/1 D, 740992/1/2 E
PICKUP COIL: 740992/1/1 A, 740992/1/2 B
740992 (1 PAIR)
PREAMP: 740937/1/1 E, 740937/1/2 H, 740937/2/1 F; 740993/1/1 D, 740993/1/2 E
PICKUP COIL: 740993/1/1 A, 740993/1/2 B
740993 (1 PAIR)

740913/1 ↔ TB240V 8 E5
740913/2 ↔ 9 N5
740913/3 ↔ 10 L5
740913/4 ↔ 11 29
740913/5 ↔ 12 30
740913/6 ↔ 13 31
740913/7 ↔ 14 32
SEE DRG. SI039002

SCREEN EARTH BAR

SOUTH SIDING KEYPAD
MERCURY 2
J5: 1 740916/1/1, 2 740916/1/2, 3 740916/2/1, 4 740916/2/2
SCREENS NOT CONNECTED
RS422 I.S.
740916 (2 PAIR)

I.S. INTERFACE MODULE R007
740916/1/1 15
740916/1/2 13
740916/2/1 21
740916/2/2 19
RS422 TO PC SEE DRG. SI039015

EARTH RODS

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

PI

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
FQ01	93C.105.11123	EExd IIB T6	BASEEFA
TE01	831045X	EExd IIC T6	BASEEFA
FT01	86B1336	EExd IIC T6	BASEEFA
DCV02A	TBA	TBA	TBA
DCV02B	TBA	TBA	TBA
DC JB	84B3299X	EEx'e' IIC T6	BASEEFA

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY
AC JB	84B3299X	EEx'e' IIC T6	BASEEFA

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY
2. FOR COMMUNICATIONS INTERCONNECTIONS SEE DRAWING SI039014

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	P.J.P	P.J.P	D.R.R	D.R.R	ORIGINAL ISSUE
B	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	29/06/00	D.P.	A.B.	D.R.R		D.R.R		ON SITE CHANGES

PLANT: FINA DERV RAIL LOADING SYSTEM
TITLE: SOUTH SIDING BATCHING SYSTEM LOOP
29/06/00
SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN
INSTRUMENT LOOP SHEET FOR USE IN HAZARDOUS AREA
SHEET 01 OF 01
CLIENT DRG. No.
P&I DRG No. SI039011

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
NOTE 3
CONTROL SYS. FAULT
ESD OPERATED
LEVEL SWITCH OPERATED
PUMP RUNNING
PUMP FAULT/IN AUTO (FLASHES)
MANUAL VALVE FAULT
POLLING PC COMMS FAILURE
CONTROL SYSTEM IN BATCHER STAND ALONE MODE
PUMP 1
PUMP 2
PUMP 1 SELECTED
PUMP 2 SELECTED
NOTE 3

740917/1 … 740917/9 (19 CORE) → DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

740917/10 → TB2, 11 / TB3, 11
740917/11 → 740920/1 → HORN
740917/12 → 740920/2 → 740920 (2 CORE)
740917/13 → SPARE
740917/14 → SPARE
740917/15 → SPARE
740917/16 → SPARE
740917/17 → SPARE
740917/18 → SPARE
740917/19 → SPARE

740918/1, 740918/2 → ESD AT GANTRY BOTTOM CONTROL STATION END → 740918 (2 CORE)
740919/1, 740919/2 → ESD AT GANTRY BOTTOM FAR END → 740919 (2 CORE)
740997/1, 740997/2 → ESD AT GANTRY BOTTOM CENTRE → 740997 (2 CORE)

SCREEN BAR — TB1 — SCREEN BAR

740917/1 … 740917/8 → TB1 1–8 → 740910/1 … 740910/8
SPARE → TB1 15 → 740910/9
SPARE → TB1 16 → 740910/10
740921/1 → TB1 17 → 740910/11
740922/1 → TB1 18 → SPARE
740923/1 → TB1 19 → SPARE
740921/2 → TB1 20 → SPARE
740922/2 → TB1 21 → 740910/12
740923/2 → TB1 22 → 740910/13
TB1 23 → 740910/14
TB1 24 → 740910/15
TB1 25 → 740910/16
740924/1 → TB1 26 → SPARE
740925/1 → TB1 27 → SPARE
TB1 28 → 740910/17
740924/2 → TB1 29 → 740910/18
740925/2 → TB1 30 → 740910/19
740926/1 → TB1 31 → 740914/1
TB1 32 → 740914/2
TB1 33 → SPARE
TB1 34 → SPARE
TB1 35 → SPARE
740926/2 → TB1 36 → 740914/3
TB1 37 → 740914/4
TB1 38 → 740914/5
TB1 39 → 740914/6
740917/9 → TB1 40 → 740914/7
740920/1 → TB1 41 → SPARE
TB1 42 → TB2, 5 / TB3, 5
TB1 43 → SPARE
TB1 44 → SPARE
740917/10 → TB1 45 → 740914/8
740917/11 → TB1 46 → 740914/9
740917/12 → TB1 47 → 740914/10
740917/13 → TB1 48 → 740914/11
740917/14 → TB1 49 → 740914/12
740920/2 → TB1 50 → 740914/13
TB1 51 → SPARE
740917/18 → TB1 52 → 740914/15
740917/19 → TB1 53 → 740914/16
740917/17 → TB1 54 → 740914/17
740917/15 → TB1 55 → 740914/18
740917/16 → TB1 56 → 740914/19
TB2, 11 / TB3, 11 → TB1 57 → 740914/14
TB1 58 → SPARE
TB1 59 → SPARE
TB1 60 → SPARE
TB1 61 → SPARE
TB1 62 → SPARE

FOR XV4, 5, 6, 10, 11, 12 & FOR MUX 3&4 PANEL SEE DRG. SI039013

740910/1 … 740910/19 (19 CORE) → 740910 (19 CORE)
740914/1 … 740914/19 (19 CORE) → 740914 (19 CORE)
740903/1 … 740903/4 (4 CORE) → 740903 (4 CORE)

FINA DERV M.C.C
SEE DRAWING SI039009 FOR MORE DETAIL
TB1
PUMP RUNNING — 11 — 740903/1
PUMP FAULT — 12 — 740903/2
AUTO SELECTED — 14 — 740903/3
16 — 740903/4
PUMP 1
NOTE 4

740910/1 … 740910/19 → TB1 1–19 → 57, 58, 24V/3, 68, 24V/3, 507, 24V/3, 508, 24V/3, 209, 0V/4, 572, 573, 574, 575, 0V/4, 576, 577, 578, 579
740914/1 … 740914/19 → TB1 20–38 → 0V/4, 580, 581, 582, 583, 0V/5, 620, 621, 622, 623, 624, 625, SPARE, 628, 629, 24V/3, 69, 70, 24V/3
740903/1 … 740903/4 → TB1 39–42 → 71, 72, 73, 24V/3
TB1 43–46 → 74, 75, 76
FUTURE PUMP CONNECTIONS
SEE DRG. SI039002 & SI039007

MUX 1 & 2 PANEL

MUX 1 (NORTH SIDING): S1 … S16
740909/1/1, 740909/1/2
740960 (1 PAIR) — LS3 LEVEL SWITCH
740954 (1 PAIR) — LS2 LEVEL SWITCH
LS1 LEVEL SWITCH
740953 (2 PAIR)
740952 (2 PAIR)
740956 (2 PAIR)
740955 (2 PAIR)
740959 (2 PAIR)
740958 (2 PAIR)

MUX 2 (SOUTH SIDING): S1 … S16
740909/2/1, 740909/2/2
740963 (1 PAIR) — S8 LEVEL SWITCH
740966 (1 PAIR) — S9 LEVEL SWITCH
S7 LEVEL SWITCH
740969 (1 PAIR)
740962 (2 PAIR)
740961 (2 PAIR)
740965 (2 PAIR)
740964 (2 PAIR)
740968 (2 PAIR)
740967 (2 PAIR)
NOTE 1

COM, ZSO, ZSC, COM

740921/1, 740921/2 → XSV1 (MANUAL CONTROL) → 740921 (2 CORE) — XCV1
740922/1, 740922/2 → XSV2 (MANUAL CONTROL) → 740922 (2 CORE) — XV1, XCV2
740923/1, 740923/2 → XSV3 (MANUAL CONTROL) → 740923 (2 CORE) — XV2, XCV3
XV3
740924/1, 740924/2 → XSV7 (MANUAL CONTROL) → 740924 (2 CORE) — XCV7
740925/1, 740925/2 → XSV8 (MANUAL CONTROL) → 740925 (2 CORE) — XV7, XCV8
740926/1, 740926/2 → XSV9 (MANUAL CONTROL) → 740926 (2 CORE) — XV8, XCV9
XV9

740909 (2 PAIR)

BARTEC ANTI-CONDENSATION HEATER — E, N, L — FLYING LEADS
2 OFF SAK2.5 Ex'e' TERMINALS
740948/1, 740948/2, 740948/3
1 OFF EK2.5 Ex'e' TERMINALS
740948 (3 CORE)
SEE DRAWING SI039003 & 4 FOR MORE DETAIL

AC JB
SEE DRAWINGS SI039010 & 011 FOR TB1-48
740948/1 — 49 — 740932/1
740948/2 — 50 — 740932/2
740948/3 — 51 — 740932/3
52
53
54
740932 (3 CORE)
SEE DRAWING SI039013 FOR MUX 3&4 HEATER TERMINATION

LOCAL 3-POLE ISOLATOR
740932/1 — 740912/1
740932/2 — 740912/2
740932/3 — 740912/3
740912 (3 CORE)

SCREEN EARTH BAR

740909/1/1, 740909/1/2 → 7 MTL 3052 BARRIER (MUX 1) 6 → 3 101, 2 100 → SEE DWG. NO. SI039003 & SI039004
740909/2/1, 740909/2/2 → 7 MTL 3052 BARRIER (MUX 2) 6 → 3 201, 2 200 → SEE DWG. NO. SI039004

740912/1 → TB240V 29 L7
740912/2 → TB240V 30 N7
740912/3 → TB240V 31 E7
→ SEE DWG. NO. SI039002

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT					CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY		TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. LAMPS, SELECTOR SWITCH & ASSOCIATED WIRING HIGHLIGHTED TO BE REMOVED FROM THE LOCAL CONTROL PANEL & THE HOLES BLANKED.
4. DECOMMISSIONED BATCHING SYSTEM.

simon — bulk liquid & gas network

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM MUX 1 & 2 PANEL LOOP
	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
	P & I Design Ltd, Tel. 01642 617444, www.pidesign.co.uk
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039012_DWG

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
CONTROL SYS. FAULT
ESD OPERATED
LEVEL SWITCH OPERATED
PUMP RUNNING
PUMP FAULT/IN AUTO (FLASHES)
MANUAL VALVE FAULT
POLLING PC COMMS FAILURE
CONTROL SYSTEM IN BATCHER STAND ALONE MODE
PUMP 1
PUMP 2
PUMP 1 SELECTED
PUMP 2 SELECTED

740917/1 740917/2 740917/3 740917/4 740917/5 740917/6 740917/7 740917/8 740917/9 740917/10 740917/11 740917/12 740917/13 740917/14 740917/18 740917/19 740917/15 740917/16 740917/17

MUX 1 & 2 PANEL

MUX 1 (NORTH SIDING) S1–S16

MUX 2 (SOUTH SIDING) S1–S16

NOTE 1

740909/1/1 740909/1/2

740909/2/1 740909/2/2

LS1 LEVEL SWITCH
LS2 LEVEL SWITCH
LS3 LEVEL SWITCH
S7 LEVEL SWITCH
S8 LEVEL SWITCH
S9 LEVEL SWITCH

740960 (1 PAIR)
740957 (1 PAIR)
740954 (1 PAIR)
740953 (2 PAIR)
740952 (2 PAIR)
740956 (2 PAIR)
740955 (2 PAIR)
740959 (2 PAIR)
740958 (2 PAIR)
740969 (1 PAIR)
740966 (1 PAIR)
740963 (1 PAIR)
740962 (2 PAIR)
740961 (2 PAIR)
740965 (2 PAIR)
740964 (2 PAIR)
740968 (2 PAIR)
740967 (2 PAIR)

XV1 XV2 XV3 XV7 XV8 XV9

XCV1 XCV2 XCV3 XCV7 XCV8 XCV9

COM ZSO ZSC COM SOL

740921/1 740921/2 XSV1 740921 (2 CORE)
740922/1 740922/2 XSV2 740922 (2 CORE)
740923/1 740923/2 XSV3 740923 (2 CORE)
740924/1 740924/2 XSV7 740924 (2 CORE)
740925/1 740925/2 XSV8 740925 (2 CORE)
740926/1 740926/2 XSV9 740926 (2 CORE)

740917 (19 CORE)
740918/1 740918/2 ESD AT CONTROL STATION END
740918 (2 CORE)
740919/1 740919/2 ESD AT FAR END
740919 (2 CORE)
740997/1 740997/2 ESD AT CENTRE
740997 (2 CORE)

DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

SCREEN BAR

TB1

740917/1 740917/2 740918/1 740918/2 740919/1 740919/2 740997/1 740997/2 740917/3 740917/4 740917/5 740917/6 740917/7 740917/8 SPARE SPARE 740921/1 740922/1 740923/1 740921/2 740922/2 740923/2 740924/1 740925/1 740924/2 740925/2 740926/1 740926/2 740917/9 740920/1 740917/10 740917/11 740917/12 740917/13 740920/2 740917/18 740917/19 740917/17 740917/15 740917/16 TB2, 11 TB3, 11

740910/1 740910/2 740910/3 740910/4 740910/5 740910/6 740910/7 740910/8 740910/9 740910/10 740910/11 740910/12 740910/13 740910/14 740910/15 740910/16 740910/17 740910/18 740910/19 740914/1 740914/2 740914/3 740914/4 740914/5 740914/6 740914/7 TB2, 5 TB3, 5 740914/8 740914/9 740914/10 740914/11 740914/12 740914/13 740914/15 740914/16 740914/17 740914/18 740914/19 740914/14

740920/1 740920/2 HORN
740920 (2 CORE)

FOR XV4, 5, 6, 10, 11, 12 & FOR MUX 3&4 PANEL SEE DRG. SI039013

740910 (19 CORE)
740914 (19 CORE)
740903 (4 CORE)

FINA DERV M.C.C

SEE DRAWING SI039009 FOR MORE DETAIL

PUMP RUNNING
PUMP FAULT
AUTO SELECTED

740903/1 740903/2 740903/3 740903/4

PUMP 1

740910/1 740910/2 740910/3 740910/4 740910/5 740910/6 740910/7 740910/8 740910/9 740910/10 740910/11 740910/12 740910/13 740910/14 740910/15 740910/16 740914/1 740914/2 740914/3 740914/4 740914/5 740914/6 740914/7 740914/8 740914/9 740914/10 740914/11 740914/12 740914/13 740914/15 740914/16 740914/17 740914/18 740914/19 740914/14 740903/1 740903/2 740903/3 740903/4

57 58 24V/3 68 24V/3 507 24V/3 508 24V/3 209 0V/4 572 573 574 575 0V/4 576 577 578 579 0V/4 580 581 582 583 0V/5 620 621 622 623 624 625 SPARE 628 629 24V/3 69 70 24V/3 71 72 73 24V/3 74 75 76

FUTURE PUMP CONNECTIONS

SEE DRG. SI039002 & SI039007

740909/1/1 740909/1/2 MTL 3052 BARRIER (MUX 1) 101 100 SEE DWG. NO. SI039003 & SI039004
740909/2/1 740909/2/2 MTL 3052 BARRIER (MUX 2) 201 200

SCREEN EARTH BAR

740912/1 740912/2 740912/3 TB240V L7 N7 E7 SEE DWG. NO. SI039002

740909 (2 PAIR)

ANTI-CONDENSATION HEATER BARTEC E N L FLYING LEADS

2 OFF SAK2.5 Ex'e' TERMINALS
740948/1 740948/2 740948/3
1 OFF EK2.5 Ex'e' TERMINALS

740948 (3 CORE)

AC JB
SEE DRAWINGS SI039010 & 011 FOR TB1-48

740948/1 740948/2 740948/3 740932/1 740932/2 740932/3

SEE DRAWING SI039013 FOR MUX 3&4 HEATER TERMINATION

740932 (3 CORE)

LOCAL 3-POLE ISOLATOR

740932/1 740932/2 740932/3 740912/1 740912/2 740912/3

740912 (3 CORE)

SEE DRAWING SI039003 & 4 FOR MORE DETAIL

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY
2. FOR COMMUNICATIONS INTERCONNECTIONS SEE DRAWING SI039014

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		GENERAL UPDATE

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	MUX 1 & 2 PANEL LOOP
	02/07/99

SIMON Storage Terminals — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

INSTRUMENT LOOP SHEET FOR USE IN HAZARDOUS AREA — SHEET 01 OF 01

CLIENT DRG. No. — P&I DRG No. SI039012

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
NOTE 3
CONTROL SYS. FAULT
ESD OPERATED
LEVEL SWITCH OPERATED
PUMP RUNNING
PUMP FAULT/IN AUTO (FLASHES)
MANUAL VALVE FAULT
POLLING PC COMMS FAILURE
CONTROL SYSTEM IN BATCHER STAND ALONE MODE
PUMP 1
PUMP 2
PUMP 1 SELECTED
PUMP 2 SELECTED
NOTE 3

740917/1 … 740917/19

MUX 3 & 4 PANEL

MUX 3 (NORTH SIDING)
MUX 4 (SOUTH SIDING)
S1 … S16
NOTE 1

LS4 LEVEL SWITCH
LS5 LEVEL SWITCH
LS6 LEVEL SWITCH
LS10 LEVEL SWITCH
LS11 LEVEL SWITCH
LS12 LEVEL SWITCH

740970 (1 PAIR)
740973 (1 PAIR)
740976 (1 PAIR)
740971 (2 PAIR)
740972 (2 PAIR)
740974 (2 PAIR)
740975 (2 PAIR)
740977 (2 PAIR)
740978 (2 PAIR)
740979 (1 PAIR)
740982 (1 PAIR)
740985 (1 PAIR)
740980 (2 PAIR)
740981 (2 PAIR)
740983 (2 PAIR)
740984 (2 PAIR)
740986 (2 PAIR)
740987 (2 PAIR)

740915/1/1
740915/1/2
740915/2/1
740915/2/2

XV4 XV5 XV6 XV10 XV11 XV12
XCV4 XCV5 XCV6 XCV10 XCV11 XCV12
XSV4 XSV5 XSV6 XSV10 XSV11 XSV12
MANUAL CONTROL

740938/1 740938/2 740938 (2 CORE)
740939/1 740939/2 740939 (2 CORE)
740940/1 740940/2 740940 (2 CORE)
740941/1 740941/2 740941 (2 CORE)
740942/1 740942/2 740942 (2 CORE)
740943/1 740943/2 740943 (2 CORE)

740917 (19 CORE)
740918/1 740918/2 740918 (2 CORE) ESD AT GANTRY BOTTOM CONTROL STATION END
740919/1 740919/2 740919 (2 CORE) ESD AT GANTRY BOTTOM FAR END
740997/1 740997/2 740997 (2 CORE) ESD AT GANTRY BOTTOM CENTRE

740920/1 740920/2 740920 (2 CORE) HORN

DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

SCREEN BAR
TB1
740917/1 … 740917/8
SPARE
SPARE
740938/1
740938/2
740939/1
740940/1
740939/2
740940/2
740941/1
740942/1
740943/1
740941/2
740942/2
740943/2
740917/9
740920/1
740917/10 … 740917/19
740917/15
740917/16
740920/2
SPARE
740917/18
740917/19
740917/17
740917/15
740917/16
TO TB2, 11
TO TB3, 11
740910/1 … 740910/11
740910/12 … 740910/16
740910/17 … 740910/19
740914/1
740914/2
740914/3 … 740914/7
TB2, 5
TB3, 5
740914/8 … 740914/14
SPARE

FOR XV1, 2, 3, 7, 8, 9 & FOR MUX 1&2 PANEL SEE DRG. SI039012

D
40820/1 40820/2 C40820 (2 CORE) ESD AT GANTRY TOP CONTROL STATION END
40821/1 40821/2 C40821 (2 CORE) ESD AT GANTRY TOP CENTRE
40822/1 40822/2 C40822 (2 CORE) ESD AT GANTRY TOP FAR END

740910 (19 CORE)
740914 (19 CORE)
740903 (4 CORE)

FINA DERV M.C.C
SEE DRAWING SI039009 FOR MORE DETAIL
TB1
PUMP RUNNING 740903/1 … 740903/4
PUMP FAULT
AUTO SELECTED
PUMP 1
FUTURE PUMP CONNECTIONS

NOTE 4

TB1
740910/1 … 740910/19
740914/1 … 740914/19
740903/1 … 740903/4
1 … 46
57 58 24V/3 68 24V/3 507 24V/3 508 24V/3 209 0V/4 572 573 574 575 0V/4 576 577 578 579 0V/4 580 581 582 583 0V/5 620 621 622 623 624 625 626 628 629 24V/3 69 70 24V/3 71 72 73 24V/3 74 75 76

SEE DRG. SI039002 & SI039007

ANTI-CONDENSATION HEATER
BARTEC
E N L
FLYING LEADS

2 OFF SAK2.5 Ex'e' TERMINALS
740949/1
740949/2
740949/3
1 OFF EK2.5 Ex'e' TERMINALS

AC JB
SEE DRAWINGS SI039010 & 011 FOR TB1-48
740949/1 … 740949/3
740932/1 … 740932/3
49 … 54

740949 (3 CORE)
740932 (3 CORE)
SEE DRAWING SI039012 FOR MUX 1&2 HEATER TERMINATION

LOCAL 3-POLE ISOLATOR
740932/1 … 740932/3
740912/1 … 740912/3
740912 (3 CORE)

740915 (2 PAIR)

SCREEN EARTH BAR

740915/1/1
740915/1/2
740915/2/1
740915/2/2
MTL 3052 BARRIER (MUX 3)
MTL 3052 BARRIER (MUX 4)
7 6 3 2
301 300 401 400
SEE DWG. NO. SI039005 & SI039006

740912/1 … 740912/3
TB240V
29 30 31
L7 N7 E7
SEE DWG. NO. SI039002

SEE DRAWING SI039005 & 6 FOR MORE DETAIL

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

PI

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY.
2. FOR COMMUNICATION INTERCONNECTIONS SEE DRAWING SI039014.
3. LAMPS, SELECTOR SWITCH & ASSOCIATED WIRING HIGHLIGHTED TO BE REMOVED FROM THE LOCAL CONTROL PANEL & THE HOLES BLANKED.
4. DECOMMISSIONED BATCHING SYSTEM.

simon
bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
D	14/09/10	D.B.F	P.P.	M.M.	M.M.	SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM MUX 3 & 4 PANEL LOOP

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039013_DWG

FIELD

CONTROL PANEL

OPERATOR LOCAL CONTROL PANEL

ESD
RESET
HORN SILENCE
LAMP TEST
CONTROL SYS. FAULT
ESD OPERATED
LEVEL SWITCH OPERATED
PUMP RUNNING
PUMP FAULT/IN AUTO (FLASHES)
MANUAL VALVE FAULT
POLLING PC COMMS FAILURE
CONTROL SYSTEM IN BATCHER STAND ALONE MODE
PUMP 1
PUMP 2
PUMP 1 SELECTED
PUMP 2 SELECTED

740917/1 … 740917/19

MUX 3 & 4 PANEL

MUX 3 (NORTH SIDING)
MUX 4 (SOUTH SIDING)

LS4 LEVEL SWITCH
LS5 LEVEL SWITCH
LS6 LEVEL SWITCH
LS10 LEVEL SWITCH
LS11 LEVEL SWITCH
LS12 LEVEL SWITCH

740970 (1 PAIR)
740973 (1 PAIR)
740976 (1 PAIR)
740971 (2 PAIR)
740972 (2 PAIR)
740974 (2 PAIR)
740975 (2 PAIR)
740977 (2 PAIR)
740978 (2 PAIR)
740979 (1 PAIR)
740982 (1 PAIR)
740985 (1 PAIR)
740980 (2 PAIR)
740981 (2 PAIR)
740983 (2 PAIR)
740984 (2 PAIR)
740986 (2 PAIR)
740987 (2 PAIR)

740915/1/1
740915/1/2
740915/2/1
740915/2/2

XV4 XCV4 XSV4 740938/1 740938/2 740938 (2 CORE)
XV5 XCV5 XSV5 740939/1 740939/2 740939 (2 CORE)
XV6 XCV6 XSV6 740940/1 740940/2 740940 (2 CORE)
XV10 XCV10 XSV10 740941/1 740941/2 740941 (2 CORE)
XV11 XCV11 XSV11 740942/1 740942/2 740942 (2 CORE)
XV12 XCV12 XSV12 740943/1 740943/2 740943 (2 CORE)

NOTE 1

740917 (19 CORE)
740918/1 740918/2
740918 (2 CORE)
ESD AT CONTROL STATION END
740919/1 740919/2
740919 (2 CORE)
ESD AT FAR END
740997/1 740997/2
740997 (2 CORE)
ESD AT CENTRE

740920/1 740920/2
740920 (2 CORE)
HORN

DC JB
FOR TB3 SEE SI039010
FOR TB3 SEE SI039011

SCREEN BAR
TB1

740917/1 … 740917/8 → 740910/1 … 740910/8
SPARE, SPARE → 740910/9, 740910/10, 740910/11
740938/1 → 740910/12
740938/2 → 740910/13
740939/1 → 740910/14
740940/1 → 740910/15
740939/2 → 740910/16
740940/2 → 740910/17
740941/1 → 740910/18
740942/1 → 740910/19
740943/1 → 740914/1
740941/2 → 740914/2
740942/2 → 740914/3
740943/2 → 740914/4
740917/9 → 740914/5
740920/1 → 740914/6
TB2, 5 / TB3, 5 → 740914/7
740917/10 → 740914/8
740917/11 → 740914/9
740917/12 → 740914/10
740917/13 → 740914/11
740917/14 → 740914/12
740920/2 → 740914/13
SPARE → 740914/15
740917/18 → 740914/16
740917/19 → 740914/17
740917/17 → 740914/18
740917/15 → 740914/19
740917/16 → 740914/14
TO TB2, 11 / TO TB3, 11
SPARE

FOR XV1, 2, 3, 7, 8, 9 & FOR MUX 1&2 PANEL SEE DRG. SI039012

740910 (19 CORE) → TB1 740910/1 … 740910/19 → 57, 58, 24V/3, 68, 24V/3, 507, 24V/3, 508, 24V/3, 209, 0V/4, 572, 573, 574, 575, 0V/4, 576, 577, 578, 579, 0V/4, 620, 0V/5, 620, 621, 622, 623, 624, 625, 626, 628, 629, 24V/3, 69, 70, 24V/3, 71, 72, 73, 24V/3, 74, 75, 76

740914 (19 CORE) → SEE DRG. SI039002 & SI039007

740903 (4 CORE) → FINA DERV M.C.C
SEE DRAWING SI039009 FOR MORE DETAIL
TB1 740903/1 … 740903/4
PUMP RUNNING
PUMP FAULT
AUTO SELECTED
PUMP 1
FUTURE PUMP CONNECTIONS → 740903/1 … 740903/4 → 24V/3, 74, 75, 76

740915 (2 PAIR) → SCREEN EARTH BAR
740915/1/1 740915/1/2 → MTL 3052 BARRIER (MUX 3) → 301, 300
740915/2/1 740915/2/2 → MTL 3052 BARRIER (MUX 4) → 401, 400
SEE DWG. NO. SI039005 & SI039006

740912 (3 CORE) → TB240V
740912/1 740912/2 740912/3 → L7, N7, E7
SEE DWG. NO. SI039002

BARTEC ANTI-CONDENSATION HEATER
3 N L
FLYING LEADS

2 OFF SAK2.5 Ex'e' TERMINALS
740949/1
740949/2
740949/3
1 OFF EK2.5 Ex'e' TERMINALS
740949 (3 CORE)

AC JB
SEE DRAWINGS SI039010 & 011 FOR TB1-48
740949/1 … 740949/3 → 49, 50, 51, 52, 53, 54
740932/1 740932/2 740932/3
740932 (3 CORE)
SEE DRAWING SI039012 FOR MUX 1&2 HEATER TERMINATION

LOCAL 3-POLE ISOLATOR
740932/1 740932/2 740932/3
740912/1 740912/2 740912/3
740912 (3 CORE)

SEE DRAWING SI039005 & 6 FOR MORE DETAIL

SAFETY PROTECTION	FLAMEPROOF & INCREASED SAFETY	
	REQUIRED	ACHIEVED
AREA CLASS	ZONE 1	XXXX
GAS GROUP	IIB	XXXX
TEMPERATURE CLASS	T3	XXXX

PI

CERTIFIED EQUIPMENT				CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY	TAG No.	CERTIFICATE No.	CERTIFICATION	AUTHORITY

NOTES
1. ALL SCREENS NOT SHOWN FOR CLARITY
2. FOR COMMUNICATIONS INTERCONNECTIONS SEE DRAWING SI039014

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	15/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	MUX BOX UPDATED
C	02/07/99	D.P.	A.J.H	D.R.R		D.R.R		GENERAL UPDATE

PLANT	FINA DERV RAIL OFFLOADING SYSTEM
TITLE	MUX 3 & 4 PANEL LOOP
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
INSTRUMENT LOOP SHEET FOR USE IN HAZARDOUS AREA	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039013

RAIL LOADING SIDING

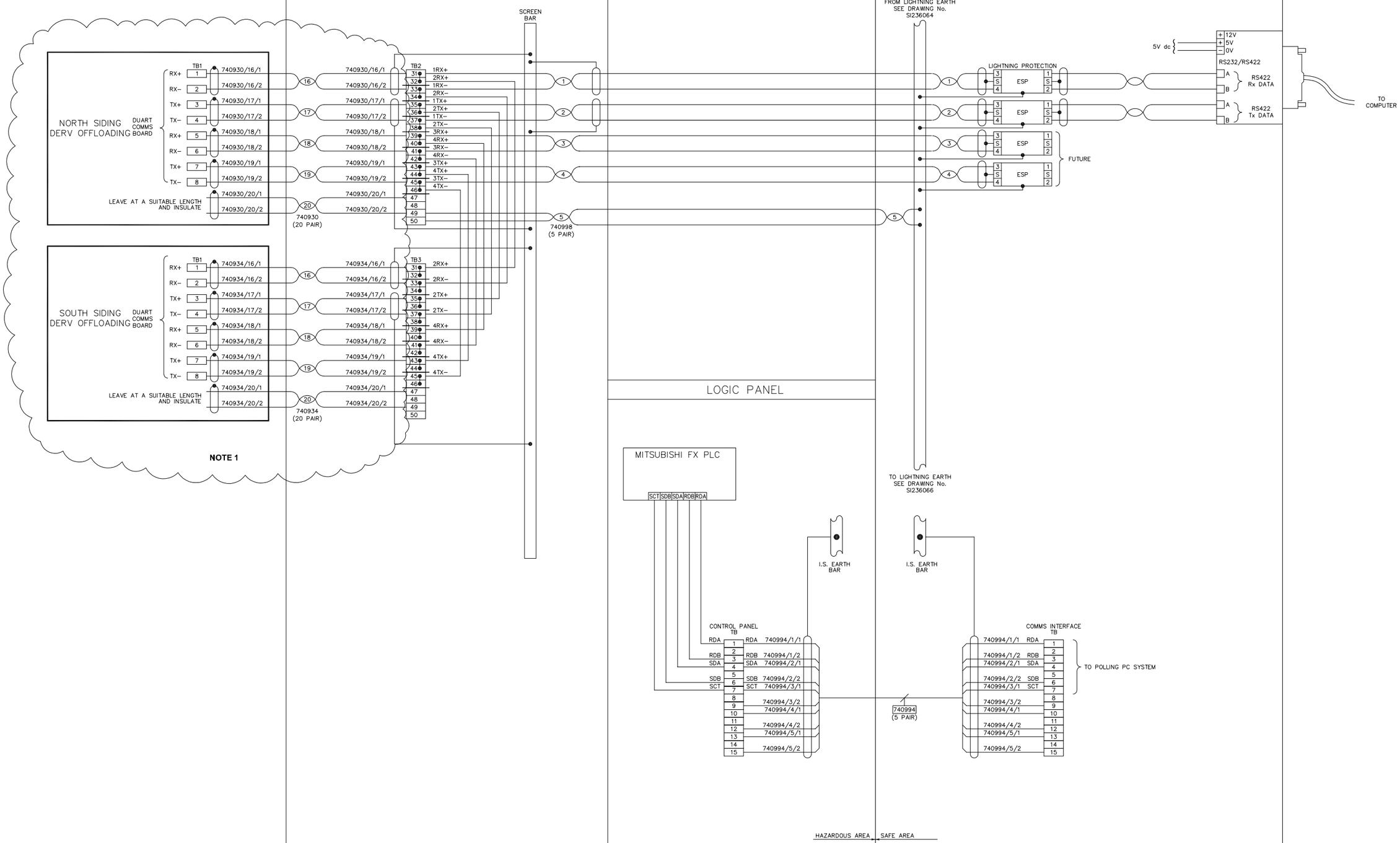
COMMICATIONS INTERFACE PANEL

DANLOAD 6000

DC JUNCTION BOX

LINE TERMINATION CABINET

PROTOCOL MANAGEMENT UNIT



NOTES

1. DECOMMISSIONED BATCHING SYSTEM. FIELD EQUIPMENT REMOVED.

simon

bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	13/07/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	CABLE 740994 ADDED
C	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM DANLOAD TO PC COMMUNICATIONS DIAGRAM

simon — IMMINGHAM STORAGE Co Ltd., IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI039014_DWG

RAIL LOADING SIDING

COMMICATIONS INTERFACE PANEL

DANLOAD 6000

DC JUNCTION BOX

LINE TERMINATION CABINET

PROTOCOL MANAGEMENT UNIT

NORTH SIDING DERV OFFLOADING

DUART COMMS BOARD

TB1

RX+ 1 740930/16/1

RX− 2 740930/16/2

TX+ 3 740930/17/1

TX− 4 740930/17/2

RX+ 5 740930/18/1

RX− 6 740930/18/2

TX+ 7 740930/19/1

TX− 8 740930/19/2

LEAVE AT A SUITABLE LENGTH AND INSULATE

740930/20/1

740930/20/2

16 740930/16/1 — 740930/16/2

17 740930/17/1 — 740930/17/2

18 740930/18/1 — 740930/18/2

19 740930/19/1 — 740930/19/2

20 740930/20/1 — 740930/20/2

740930 (20 PAIR)

TB2

31 1RX+

32 2RX+

33 1RX−

34 2RX−

35 1TX+

36 2TX+

37 1TX−

38 2TX−

39 3RX+

40 4RX+

41 3RX−

42 4RX−

43 3TX+

44 4TX+

45 3TX−

46 4TX−

47

48

49

50

SCREEN BAR

1 — 740930/16/1 — 740930/16/2

2 — 740930/17/1 — 740930/17/2

3 — 740930/18/1 — 740930/18/2

4 — 740930/19/1 — 740930/19/2

5 — 740930/20/1 — 740930/20/2

740998 (5 PAIR)

SOUTH SIDING DERV OFFLOADING

DUART COMMS BOARD

TB1

RX+ 1 740934/16/1

RX− 2 740934/16/2

TX+ 3 740934/17/1

TX− 4 740934/17/2

RX+ 5 740934/18/1

RX− 6 740934/18/2

TX+ 7 740934/19/1

TX− 8 740934/19/2

LEAVE AT A SUITABLE LENGTH AND INSULATE

740934/20/1

740934/20/2

16 740934/16/1 — 740934/16/2

17 740934/17/1 — 740934/17/2

18 740934/18/1 — 740934/18/2

19 740934/19/1 — 740934/19/2

20 740934/20/1 — 740934/20/2

740934 (20 PAIR)

TB3

31 2RX+

32 2RX−

33

34

35 2TX+

36 2TX−

37

38 4RX+

39

40 4RX−

41

42

43 4TX+

44

45 4TX−

46

47

48

49

50

LOGIC PANEL

MITSUBISHI FX PLC

SCT SDB SDA RDB RDA

FROM LIGHTNING EARTH SEE DRAWING No. SI236064

TO LIGHTNING EARTH SEE DRAWING No. SI236066

LIGHTNING PROTECTION

ESP

FUTURE

5V dc

+ 12V

+ 5V

− 0V

RS232/RS422

A B RS422 Rx DATA

A B RS422 Tx DATA

TO COMPUTER

I.S. EARTH BAR

I.S. EARTH BAR

CONTROL PANEL TB

RDA 1 RDA 740994/1/1

2

RDB 3 RDB 740994/1/2

SDA 4 SDA 740994/2/1

5

SDB 6 SDB 740994/2/2

SCT 7 SCT 740994/3/1

8 740994/3/2

9 740994/4/1

10

11 740994/4/2

12 740994/5/1

13

14 740994/5/2

15

740994 (5 PAIR)

COMMS INTERFACE TB

740994/1/1 RDA 1

740994/1/2 RDB 2

740994/2/1 SDA 3

4

740994/2/2 SDB 5

740994/3/1 SCT 6

7

740994/3/2 8

740994/4/1 9

10

740994/4/2 11

740994/5/1 12

13

740994/5/2 14

15

TO POLLING PC SYSTEM

HAZARDOUS AREA | SAFE AREA

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	07/04/99	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	13/07/99	A.J.H	A.J.H	D.R.R	D.R.R	CABLE 740994 ADDED

PLANT	FINA DERV RAIL LOADING SYSTEM
TITLE	DANLOAD TO PC COMMUNICATIONS DIAGRAM
	13/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039014

No.5 SWITCHROOM

MCC 5/2 COMPARTMENT A1

TB2

STOP	1	50582/1
	2	50582/2
START	3	50582/3
	4	50582/4
INSTRUMENT POWER	5	50582/5
	6	50582/6
LOW SUCTION	7	50582/7
DISCHARGE TEMP.	8	50582/8
RUNNING	9	50582/9
EARTH	10	50582/10
	11	50582/11
	12	50582/12
STOP	13	50585/1
	14	50585/2
START	15	50585/3
	16	50585/4
RUNNING	17	50585/5
	18	50585/6
EARTH	19	50585/7

REFERENCE DRAWING SI208102_.DWG

FIELD

JB5/61

C50582 12 Core

50582/1	1	50583/1
50582/2	2	50583/2
50582/3	3	50583/3
50582/4	4	50583/4
50582/10	E	50583/5
50582/5	5	50584/1
50582/6	6	50584/2
50582/11	E	50584/3
	7	50584/4
50582/7	8	50584/5
	9	50585/1
50582/8	10	50585/2
50582/12	E	50585/3
50582/9	14	
	15	

PUMP RAFT

C50583 5 Core

P5/12

50583/1	STOP
50583/2	
50583/3	START
50583/4	
50583/5	

LOCAL CONTROL STATION

C50584 5 Core

LS5/12

50584/1	1 +
50584/2	2 −
50584/3	E
50584/4	3
50584/5	4
	5

SUCTION LEVEL

C50585 3 Core

TS5/12

50585/1	1
50585/2	3
50585/3	E

DISCHARGE TEMPERATURE

4−EAST RAIL LOADING GANTRY

GANTRY TOP − BUFFER END CONTROL STATION

C50485 7 Core

STATION 1

STOP	50485/1	50486/1
	50485/2	50486/2
START	50485/3	50485/4
	50486/3	50486/4
RUNNING	50485/5	50485/6
	50486/5	50486/6
	50485/7	50486/7

GANTRY CONTROL STATION

C50486 7 Core

GANTRY TOP − CENTRE CONTROL STATION

C50487 7 Core

STATION 2

STOP	50487/1	50486/1
	50487/2	50486/2
START	50487/3	50487/4
	50486/3	50486/4
RUNNING	50487/5	50487/6
	50486/5	50486/6
	50487/7	50486/7

GANTRY CONTROL STATION

GANTRY TOP − FAR END CONTROL STATION

STATION 3

STOP	50487/1	50488/1
	50487/2	50488/2
START	50487/3	50487/4
	50487/5	50487/6
RUNNING		
	50487/7	

GANTRY CONTROL STATION

C50488 2 Core

No.4 SWITCHROOM

4E RAIL LOADING LOGIC PANEL

TB1

50488/1	51	SHUTDOWN LOGIC SEE DRAWING SI039008_DWG
50488/2	52	

NOTES
1)

bulk liquid & gas network

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	01/10/10	P.P.	P.P.	D.B.F		M.M.		ISSUED FOR CONSTRUCTION

PLANT	IMMINGHAM STORAGE Co. − EAST TERMINAL
TITLE	4−EAST RAIL LOADING SYSTEM − PUMP P5/12 CONTROL JUNCTION BOX INTERCONNECTION DETAILS

IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI760002_.DWG

No.2 SWITCHROOM

MCC COMPARTMENT 2BE

STOP 20800/1 20800/2
START 20800/3 20800/4
RUNNING 20800/5 20800/6
LOW SUCTION POWER 20800/7 20800/8
EARTH 20800/9 20800/10 20800/11 20800/12

FIELD

JB2–111

20800/1 → 1 → 20801/1
20805/1 → 2 → 20801/2
20800/2 → 3 → 20805/2
20800/3 → 4 → 20801/3
5 → 20805/3
20800/4 → 6 → 20801/4
7 → 20805/4
20800/5 → 8 → 20805/5
20800/6 → 9 → 20805/6
20800/7 → 10 → 20801/5
20800/8 → 11 → 20801/6
20800/9 → 12 → 20801/7
20800/10 → 13 → 20805/7
20800/11 → 14
20800/12 → 15

C20800 12 Core

C20801 7 Core

JB2–112

20801/1 → 1 → 20802/1
20804/1 → 2 → 20802/2
20804/2 → 3 → 20803/5
20801/3 → 4 → 20802/3
20801/4 → 5 → 20802/4
20804/3 → 6 → 20802/5
20801/7 → 7 → 20803/3
20801/5 → 8 → 20803/1
20801/6 → 9 → 20803/2
20801/2 → 10 → 20803/4

C20802 5 Core

C20803 5 Core

C20804 3 Core

PUMP RAFT

P2/25
20802/1 STOP
20802/2
20802/3 START
20802/4
20802/5
LOCAL CONTROL STATION

LS2/25
20803/1 + 1
20803/2 – 2
20803/3 E
20803/4 3
20803/5 4 5
SUCTION LEVEL

TS2/25
20804/1 1
20804/2 3
20804/3 E
DISCHARGE TEMPERATURE

4–EAST RAIL LOADING GANTRY

GANTRY TOP – FAR END CONTROL STATION

C20805 7 Core

STATION 3
STOP 20805/1 20806/1
20805/2 20806/2
START 20805/3 20805/4 20806/3 20806/4
RUNNING 20805/5 20805/6 20806/5 20806/6
RED
20805/7 20806/7
GANTRY CONTROL STATION

C20806 7 Core

GANTRY TOP – CENTRE CONTROL STATION

C20807 7 Core

STATION 2
STOP 20807/1 20806/1
20807/2 20806/2
START 20807/3 20807/4 20806/3 20806/4
RUNNING 20807/5 20806/5 20807/6 20806/6
RED
20807/7 20806/7
GANTRY CONTROL STATION

GANTRY TOP – BUFFER END CONTROL STATION

STATION 1
STOP 20807/1 20808/1
20807/2 20808/2
START 20807/3 20807/4
RUNNING 20807/5 20807/6
RED
20807/7 20808/3
20808/6 20808/4
20808/7 20808/5
GANTRY CONTROL STATION

C20808 7 Core

No.4 SWITCHROOM

4E RAIL LOADING LOGIC PANEL

TB1
20808/1 49 – SHUTDOWN LOGIC SEE DRAWING SI039008_DWG
20808/2 50
20808/3
20808/4
20808/5
20808/6
20808/7
EARTH BAR

NOTES
1)

bulk liquid & gas network

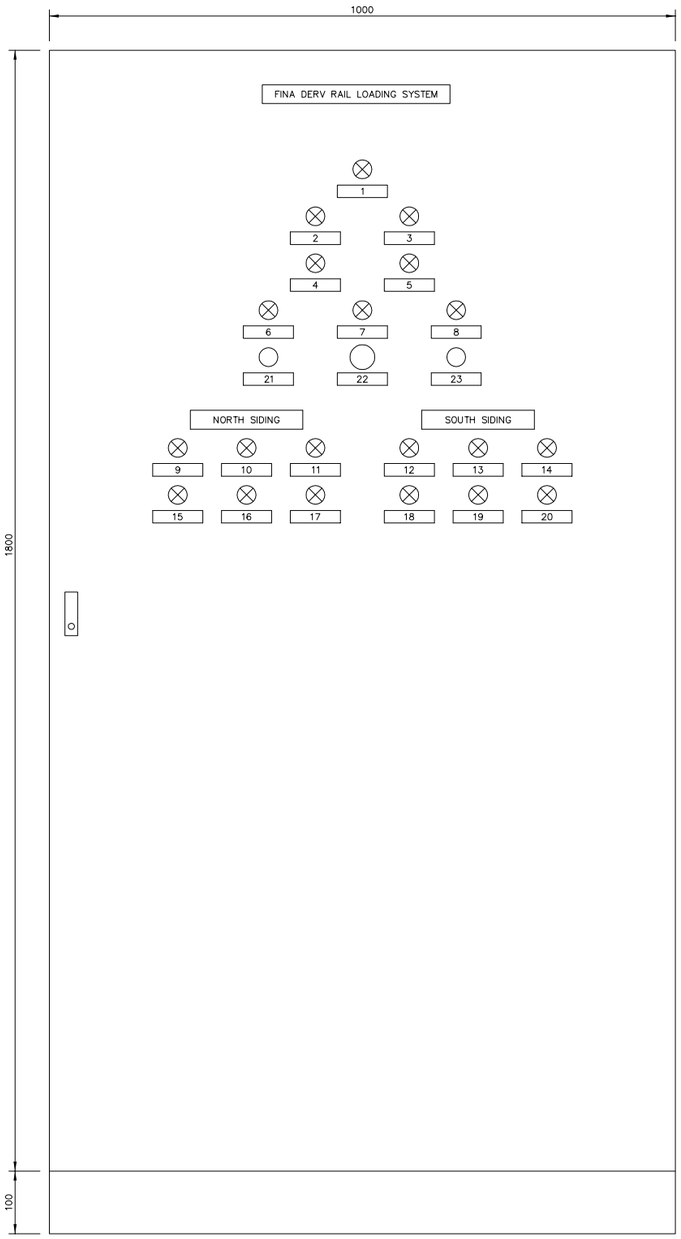
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	01/10/10	P.P.	P.P.	D.B.F		M.M.		ISSUED FOR CONSTRUCTION

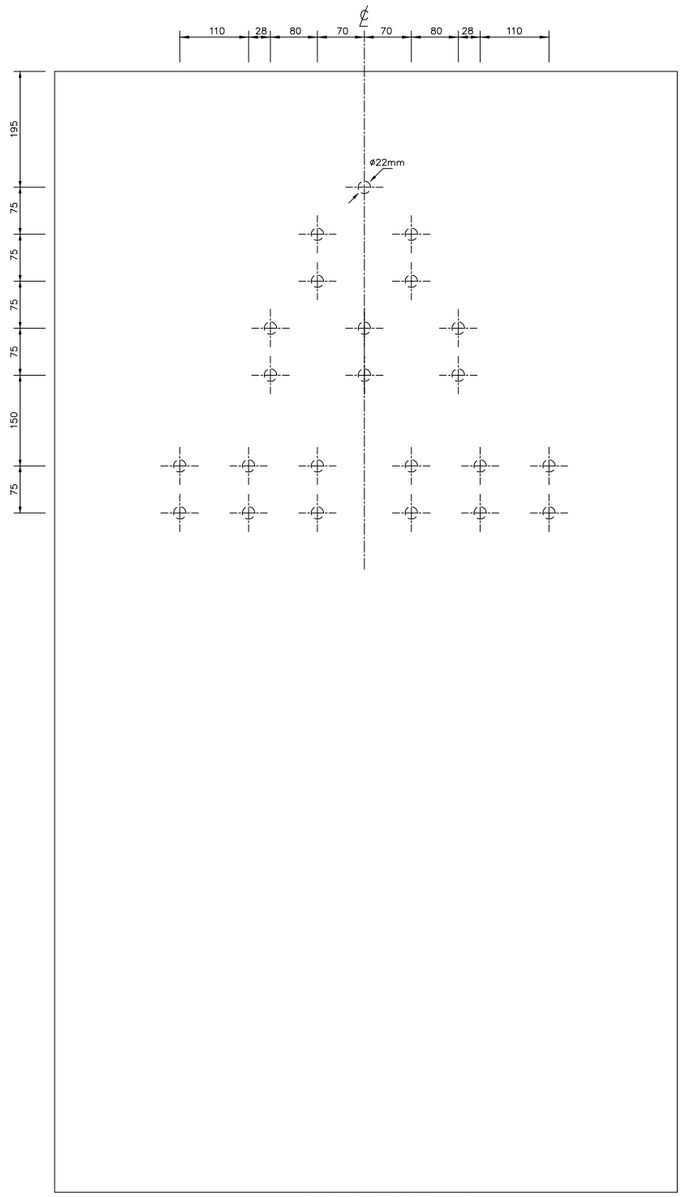
PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM – PUMP P2/25 CONTROL JUNCTION BOX INTERCONNECTION DETAILS
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI760001_DWG

IMMINGHAM STORAGE Co Ltd.
IMMINGHAM EAST TERMINAL,
IMMINGHAM DOCK,
IMMINGHAM,
SOUTH HUMBERSIDE

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

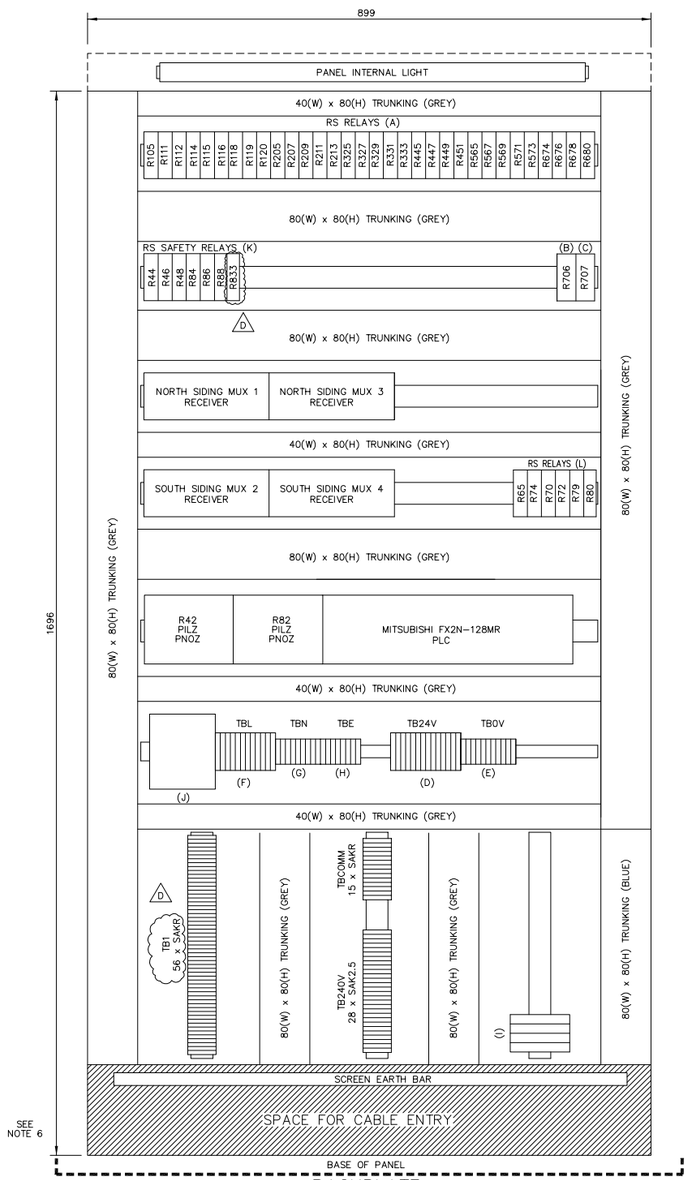


RITTAL ES 5084.600
FRONT OF PANEL LAYOUT



CUT–OUT DETAILS

ITEMS			
LOCATION	QUANTITY	DESCRIPTION	STOCK CODE
A	38	RS 4–POLE RELAYS, 24Vdc COIL	RS 213–0793
B	1	RS 4–POLE TIMER RELAYS, 24Vdc COIL (ON DELAY)	RS 328–140
C	1	RS 4–POLE TIMER RELAYS, 24Vdc COIL (OFF DELAY)	RS 328–140
D	15	ASK1	XXXX
E	15	SAK 2.5	XXXX
F	12	ASK1	XXXX
G	12	SAK2.5	XXXX
H	12	EK2.5	XXXX
I	4	MTL 3052	XXXX
J	1	ISOLATOR 25A	XXXX
K	4	RS 4 POLE SAFETY RELAYS, 24Vdc COIL	RS 260–4373
L	6	RS 4–POLE RELAYS, 240VAC COIL	RS 213–0838



BACKPLATE

LABELS	
LOCATION	DETAILS
1	PUMP RUNNING (FLASHES IF NOT IN AUTO OR IN FAULT)
2	POLLING PC COMMS FAILURE
3	CONTROL SYSTEM IN BATCHER STAND ALONE
4	MANUAL VALVE FAULT
5	LEVEL SWITCH OPERATED
6	SYSTEM FAULT
7	ESD OPERATED
8	WATCHDOG FAULT
9	LEVEL SWITCH 1 OPERATED
10	LEVEL SWITCH 2 OPERATED
11	LEVEL SWITCH 3 OPERATED
12	LEVEL SWITCH 7 OPERATED
13	LEVEL SWITCH 8 OPERATED
14	LEVEL SWITCH 9 OPERATED
15	LEVEL SWITCH 4 OPERATED
16	LEVEL SWITCH 5 OPERATED
17	LEVEL SWITCH 6 OPERATED
18	LEVEL SWITCH 10 OPERATED
19	LEVEL SWITCH 11 OPERATED
20	LEVEL SWITCH 12 OPERATED
21	STAND ALONE MODE
22	ESD
23	LAMP TEST

DO NOT SCALE: CONTRACTOR TO CHECK DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

NOTES
1. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
2. INGRESS PROTECTION: IP 56
3. CABLE ENTRY: BOTTOM
4. PANEL DEPTH: 400
5. LABELS TO BE WHITE TRAFFOLYTE WITH BLACK ENGRAVING
6. 2–GANG 240VAC SOCKET & COUTANT LAMBDA DRP240–1 PSU TO BE MOUNTED ON THE PANEL SIDE.

SCALE 1:5 WHEN FULL A1

bulk liquid & gas network

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

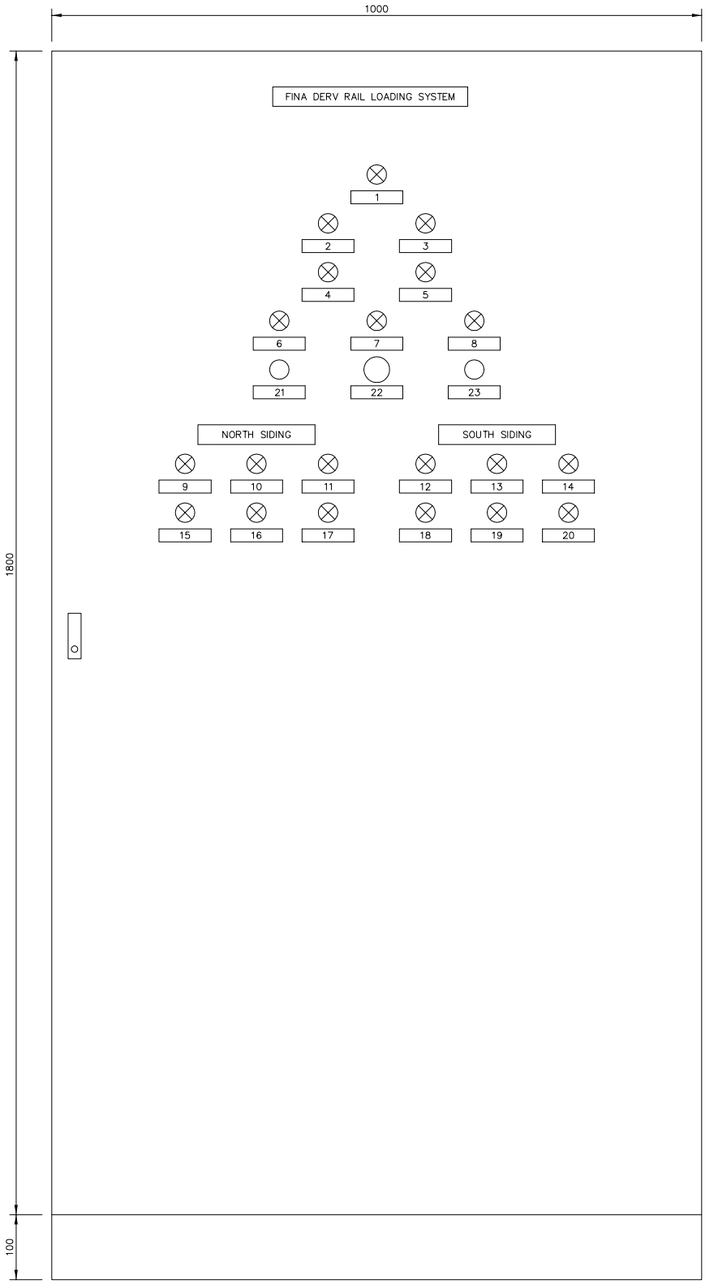
REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/03/99	A.J.H	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	D.R.R	D.R.R	TB COMMS ADDED
D	14/09/10	D.B.F	P.P.	M.M.		M.M.		SI760 MODIFICATIONS

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM CONTROL PANEL LAYOUT
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI039016_DWG

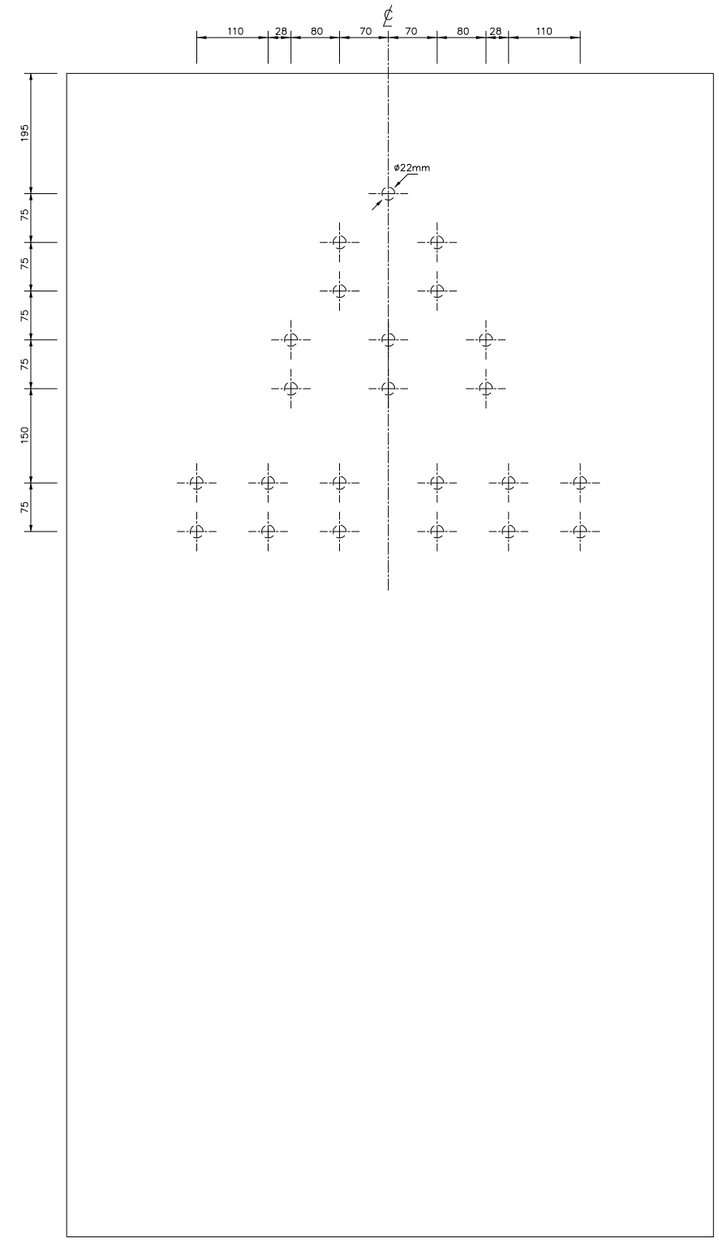
IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

P & I DESIGN

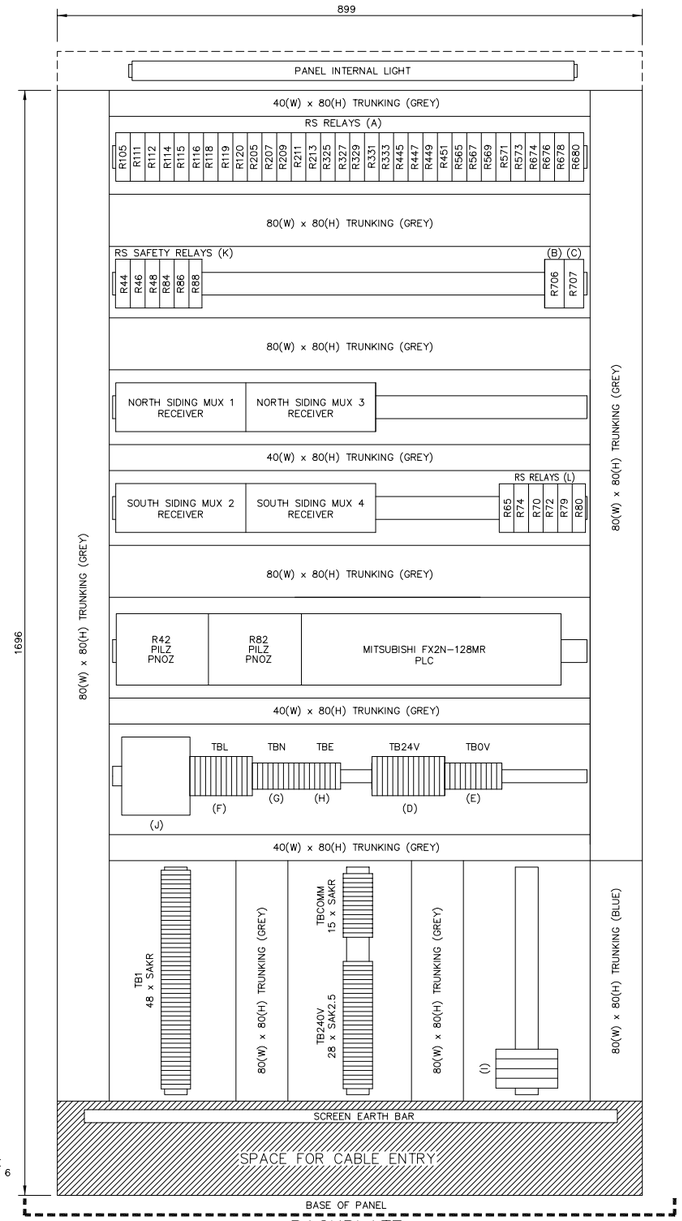
P & I Design Ltd
Tel. 01642 617444
www.pidesign.co.uk



RITTAL ES 5084.600
FRONT OF PANEL LAYOUT



CUT-OUT DETAILS



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20	LEVEL SWITCH 12 OPERATED
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ITEMS			
LOCATION	QUANTITY	DESCRIPTION	STOCK CODE
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I	4	MTL 3052	XXXX
J	1	ISOLATOR 25A	XXXX
K	4	RS 4 POLE SAFETY RELAYS, 24Vdc COIL	RS 260-4373
L	6	RS 4-POLE RELAYS, 240VAC COIL	RS 213-0838

DO NOT SCALE: CONTRACTOR TO CHECK DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

NOTES

1. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
2. INGRESS PROTECTION: IP 56
3. CABLE ENTRY: BOTTOM
4. PANEL DEPTH: 400
5. LABELS TO BE WHITE TRAFFOLYTE WITH BLACK ENGRAVING
6. 2-GANG 240VAC SOCKET & COUTANT LAMBDA DRP240-1 PSU TO BE MOUNTED ON THE PANEL SIDE.

SCALE 1:5
WHEN PRINTED TO FULL A1 SIZE ONLY

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	08/04/99	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	14/04/99	A.J.H	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
C	02/07/99	D.P.	A.J.H	D.R.R	D.R.R	TB COMMS ADDED

PLANT	FINA RAIL LOADING SYSTEM
TITLE	CONTROL PANEL LAYOUT
	02/07/99
SIMON Storage Terminals	IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN	
	SHEET 01 OF 01
CLIENT DRG. No.	P&I DRG No. SI039016

Appendix II

Schedules

Cable Schedule
SI760001_SCH_A

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	REMARKS
P2-25									
M20132	*J04*	*70*	*4 Core*	*No.2 Switchroom MCC Compartment 2BE*	*ATEX II 2 G EExed*	*P2-25 - Bund R Rail Loading Pump*	*ATEX II 2 G EExed*	*100*	*Cable Extended*
M20132/1	J04	70	4 Core	No.2 Switchroom MCC Compartment 2BE	ATEX II 2 G EExed	P2-25 - Bund R Rail Loading Pump	ATEX II 2 G EExed	160	*Extention*
C20133	J04	N/A	4 Core	No.2 Switchroom MCC Compartment 2BE	ATEX II 2 G EExed	P2-25 Local Controls	ATEX II 2 G EExed	100	Remove
C20134	J02	N/A	2 Core	P2-25 Local Controls	ATEX II 2 G EExed	TS2-25 Discharge Temperature Switch	ATEX II 2 G EExed	5	Remove
C20800	J12	1.5	12 Core	No.2 Switchroom MCC Compartment 2BE	ATEX II 2 G EExed	JB2/111 - P2-25 Junction Box	ATEX II 2 G EExed	100	
C20801	J07	1.5	7 Core	JB2/111 - P2-25 Junction Box	ATEX II 2 G EExed	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	5	
C20802	J05	1.5	5 Core	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	P2-25 Stop/Start Station	ATEX II 2 G EExed	5	
C20803	J05	1.5	5 Core	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	LS2-25 Dry Run Protection Switch	ATEX II 2 G EExed	5	
C20804	J03	1.5	3 Core	JB2/112 - P2-25 Local Junction Box	ATEX II 2 G EExed	TS2-25 Discharge Temperature Switch	ATEX II 2 G EExed	5	
C20805	J07	1.5	7 Core	JB2/111 - P2-25 Junction Box	ATEX II 2 G EExed	P2-25 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	Reuse C40279	Station 3 @ Far End
C20806	J07	1.5	7 Core	P2-25 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	P2-25 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 2 @ Centre
C20807	J07	1.5	7 Core	P2-25 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	P2-25 Stop/Start/Run Station 1 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 1 @ Control End
C20808	J02	1.5	2 Core	P2-25 Stop/Start/Run Station 1 at 4 East rail Gantry	ATEX II 2 G EExed	4 East Switch Room Rail Loading Logic Panel	ATEX II 2 G EExed	TBC	Re-use C40279 7c Option
P5-12									
C50485	J07	1.5	7 Core	No.5 Switchroom MCC 5/2 Compartment A1	ATEX II 2 G EExed	P5-12 Stop/Start/Run Station 1 at 4 East Rail Gantry	ATEX II 2 G EExed	TBC	Station 1 @ Control End
C50486	J07	1.5	7 Core	P5-12 Stop/Start/Run Station 1 at 4 East Rail Gantry	ATEX II 2 G EExed	P5-12 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 2 @ Centre
C50487	J07	1.5	7 Core	P5-12 Stop/Start/Run Station 2 at 4 East Rail Gantry	ATEX II 2 G EExed	P5-12 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	40	Station 3 @ Far End
C50488	J02	1.5	2 Core	P5-12 Stop/Start/Run Station 3 at 4 East Rail Gantry	ATEX II 2 G EExed	4 East Switch Room Rail Loading Logic Panel	ATEX II 2 G EExed	TBC	Re-use X40356 1 Pr Option
4 EAST RAIL GANTRY									
C40820	J03	1.5	3 Core	JB 4-86 DC Junction Box	ATEX II 2 G Eexed	ESD @ Gantry Top Control End	ATEX II 2 G EExed	TBC	
C40821	J03	1.5	3 Core	JB 4-86 DC Junction Box	ATEX II 2 G Eexed	ESD @ Gantry Top Centre	ATEX II 2 G EExed	TBC	
C40822	J03	1.5	3 Core	JB 4-86 DC Junction Box	ATEX II 2 G Eexed	ESD @ Gantry Top Far End	ATEX II 2 G EExed	TBC	
C40823	J03	1.5	3 Core	No.4 Switchroom Rail Loading Control Panel	ATEX II 2 G Eexed	ESD Valve Solenoid	ATEX II 2 G EExed	TBC	
4 EAST SWITCHROOM									
C40824	J02	1.5	2 Core	No.4 Switchroom Rail Loading Control Panel	ATEX II 2 G Eexed	No.4 Switchroom Extension Annunciator Node Panel	ATEX II 2 G EExed	30	
C40825	J02	1.5	2 Core	No.4 Switchroom Rail Loading Control Panel	ATEX II 2 G Eexed	No.4 Switchroom Dupline Panel	ATEX II 2 G EExed	20	
							TOTAL	695	

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

REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	30/09/10	DBF	DBF	MM		MM		Issued for Tender

PLANT	Immingham East - 4 East
TITLE	4 East Rail Loading Cable Schedule
	SHEET 1 OF 1
CLIENT DRG No	REF No. SI760001_SCH

SIMON Storage Terminals

P & I DESIGN

Appendix III

Cable Specifications

Type ‘E’
Type ‘J’

TYPE	J
DESCRIPTION	XLPE Insulated Power Cable - Armoured
MANUFACTURING SPECIFICATION	BS5467
SERVICE	Power Distribution / Control (Max. 440V ac.)
VOLTAGE	600/1000V.
CONDUCTORS	Stranded Copper
INSULATION	XLPE (Cross Linked Polyethylene)
CORE COLOUR CODE	1 core Brown 2 cores Brown, Blue 3 cores Brown, Black, Grey 4 cores Brown, Black, Grey, Blue 5 cores Brown, Black, Grey, Blue, Green/Yellow 7 cores, 12 cores, 19 cores, 27 cores, 37 cores, 48 cores: White insulation with core number indelibly marked at regular maximum intervals of 50mm
SHEATH	Black PVC
ARMOUR BEDDING	PVC
ARMOUR	Single Core - Aluminium Wire Multi Core - Galvanised Steel Wire
NOTES	The cable type shall be followed by a number that defines the number of cores within a given cable. e.g. J12 indicates a twelve core type J cable.

TYPE	E
DESCRIPTION	Twisted Pairs, Collectively Screened - Armoured One pair, Two pair, Five pair, Ten pair or Twenty pair.
MANUFACTURING SPECIFICATION	BS5308 Part 1 Type 2
SERVICE	24V dc (Nominal) Digital, Pulse and Analogue Instrument Signals
CONDUCTORS	Stranded Copper 0.5mm^2 to 1.5 mm^2
INSULATION	Polyethylene, with one core black and one core blue.
MULTI-PAIR IDENTIFICATION	Both cores of each pair shall be indelibly numbered with the pair number at regular maximum intervals of 50mm
LAYING UP	Cores twisted together in pairs.
COLLECTIVE SCREEN	Laminated tape with the metallic side down and in continuous contact with a tinned copper drain wire.
ARMOUR BEDDING	Polyethylene
ARMOUR	Galvanised Steel Wire
SHEATH	PVC For intrinsically safe circuits the sheath colour shall be blue, for other circuits the sheath colour shall be black (See Notes).
NOTES	The cable type shall be followed by a number that defines the number of cores / pairs / triads within a given cable. In addition a suffix may be added where applicable as follows. Suffix Description I Intrinsically Safe Circuit e.g. E10I indicates a ten pair type E cable with a blue sheath.

Appendix IV

Standard Specification for Instrument & Electrical installations

SI003001_INS_A

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

SIMON STORAGE LTD.

IMMINGHAM EAST TERMINAL

STANDARD SPECIFICATION FOR

INSTRUMENT & ELECTRICAL INSTALLATION

CONTENTS

APPENDICES

1 INTRODUCTION

This document details the specifications required to install instrument and electrical equipment and associated systems at Simon Storage Ltd. ISCO East Terminal. This document covers all aspects of industrial instrument and electrical installation work and may contain sections that may not be relevant to every project.

2 GENERAL REQUIREMENTS

The Contractor is to supply all labour, cables, cable tray/ladder racking, equipment and materials necessary to complete the works detailed.

2.1 General Conditions of Contract

The Contractor is required to work to the Employer's Condition of Contract;

2.2 Requirement of Contract

To carry out works to install the instrument and electrical element of the project. Works will be carried out while surrounding systems are under construction and care must be taken to avoid any clash with other trades. It may be necessary to carry out some of the works during agreed shutdowns. The Engineer will liaise closely with the Contractor to ensure that the required systems are made available.

2.3 Safety

The Contractor is required to work to the Employer's Safety Conditions.

Following Tender assessment, the successful Tenderer will be required to attend a meeting and participate fully in the formulation and regular update of the final Health and Safety Plan for the Project.

2.4 Installation

All labour, including unskilled, skilled and supervisory staff involved in the off-loading of equipment at the site and in the complete installation, assembly and testing of all the items included in the contract.

All materials required for the contract including earth conductors and furse clamp/fixings, cable ladder, tray, channel, supports, cable as detailed in the schedules.

All tools and equipment, including lifting equipment, scaffolding, general plant required in the performance of the contract and all necessary testing equipment.

The provision of all site facilities and any temporary electricity supplies.

All builders work including drilling and fixing to the civil structure, any necessary grouting and the sealing of holes, ducts and trenches after cable installations. All fixings, nuts, bolts,

2.4 Installation (Cont.)

studs, washers, gaskets and any other appurtenances necessary to provide a complete and operational installation.

3 METHODS OF WORK AND MATERIALS

3.1 Installation Standards

Equipment and installation shall comply with all relevant standards, statutory instruments, regulations and authorities current and governing at the time, with particular reference to those detailed in Appendix IV.

If interpretation of the standards shall prejudice any part of this specification, where requirements may be in excess of those called for in the standards, the Purchaser's standards shall apply.

3.2 Materials

All materials used in manufacture, construction or installation shall be new and specifically suited for their duty or purpose.

The Contractor shall provide all miscellaneous materials, not of free-issue nor specifically defined by the Company, which are necessary to complete any installation to the required standard.

3.3 Electrical Contractor

All work carried out shall be performed by a qualified electrical contractor, approved by the National Inspection Council for Electrical Installation (NICEIC). Work shall comply with the relevant British Standards. The contractor shall ensure that either:-

All electricians employed on the project have suitable experience of working on hazardous area equipment or a qualification for working on Electrical Equipment in Hazardous Areas (CompEx),

or,

that the complete installation is checked and certified by a CompEx certified person.

3.4 Position of Electrical Equipment and Appliances

The approximate positions of electrical apparatus such as motors, instruments, and distribution boards are shown on the drawings, but their exact positions shall be determined on site by an appointed representative of the Engineer.

The position of electrical apparatus shown on the drawings shall be assumed to be correct for the purposes of tendering, but they may be reasonably varied without extra cost.

The Contractor shall ascertain on site that his work will not foul other engineering services or equipment and any work which has to be re-done, due to negligence, in this respect shall be his responsibility.

3.5 Segregation of Service

All cable supports and cables shall be prevented from coming into contact with process equipment and piping by a spacing of 150mm.

Cables operating at a voltage of 110V AC and above shall be segregated from cables operating at a voltage of 24V DC and below.

Intrinsically safe circuits shall not share multicore cables with none intrinsically safe circuits.

3.6 Fixings

No structural steelwork shall be drilled for any purposes without the approval of the Engineer. In general, all fixing to steelwork shall be by means of studs welded to the steelwork or by clamp brackets or hook bolts. Permission shall be obtained from the Engineer for any other type of fixing. Any protective coating damaged by welding, etc. should be made good by a method approved by the Engineer.

The supply and fixing of all support brackets, clamps and spacers and any other steelwork, whether or not shown in detail on the drawings or otherwise, which may be required for the proper and effective fixing of any equipment shall be considered to be included in the material and labour for the supply and fixing of that equipment, unless this work is specifically detailed in the Schedules.

Where PVC sheathed cable is used, cable cleats and supports shall be as recommended by the cable manufacturer. They shall be designed to avoid any damage to the PVC sheaths by sharp edges and excess pressure.

Cables erected on walls or steelwork shall, so far as is practicable, be so supported that no flexing can occur. Generally cables shall be supported on cleats which clamp the cables to prevent longitudinal movement.

Lightweight equipment and conduit saddles may be fixed to the building structure by means of screws in metal or plastic plugs. Wood or fibre plugs shall not be used.

Fixing to brickwork shall be made in the bricks and not in the joint. If it is not possible to make all the fixings in the brickwork, then the equipment shall be positioned to enable the upper fixings to be made in the brickwork.

Shot fixing bolts shall not be used.

Any additional scaffolding required will be included within the Contractor’s Scope of Work. Note: Existing scaffold in place to assist with the Mechanical Pipework Installation may be used.

3.7 Clean Up

During and on completion of installation work the Contractor shall remove all surplus equipment and material and leave areas in a 'brush clean' condition. Refuse shall be disposed of as directed by the Engineer.

Prior to testing (where damage could arise) and before offering any part of the installation for acceptance, the Contractor shall clean out all electrical enclosures and wipe down painted surfaces. If necessary, damage to paintwork shall be made good by touch-up.

Before finally leaving the site, the Contractor shall remove all his accommodation, plant, tackle and tools of the trade to the satisfaction of the Engineer.

3.8 Earthing

3.8.1 General Soil Conditions

No information is available.

3.8.2 System Earthing

The neutral shall not be regarded as an earth conductor.

In areas where earth rods are to be driven into the ground, it shall be the contractors responsibility to ensure that there are no other underground services in the immediate vicinity.

3.8.3 Equipment Earthing

The main earthing bar as identified in the specific project documentation will be connected by a separate earth conductor to its main earth point. All non-live metalwork shall be directly or indirectly bonded to the main earth bar. Such metalworks will include electrical equipment enclosures, motor frames, tray/ladder rack to be continuously bonded, cable armouring and glands. All glands which are through clearance holes require an earth tag and connection to the earth system by 6 sq.mm cable. Care must be taken to ensure that paint, etc. is cleaned away from under earth connections so that there is good earth continuity.

Direct bonding shall be taken to mean dedicated earth conductors within, or separate from, plant cable. Separate conductors shall be multi-stranded copper with a green/yellow sheath, size as specified in the drawings. Indirect bonding shall be taken as earth paths through armouring.

Note: (Dedicated earth conductors preferred).

However, a combination of both may be employed, providing that the value of the earth loop impedance allows flow of fault current sufficient to rupture associated protective fuses within five (5) seconds.

3.8.4 Lightning Protection

Lightning protection is not anticipated for the plant.

3.9 Cabling

3.9.1 General

The schedules detail the cables with the estimated lengths for tendering purposes only. It is the Installation contractors responsibility to site measure prior to any cable installation and any cost variation must be advised to the Engineer for approval before installation.

All cables above 16 sq mm section shall have shaped conductors.

Before any armoured cable is installed, triplicate copies of the test certificate giving details of these tests shall be submitted to the Engineer for approval.

When delivered to site, each coil of cable shall have attached the manufacturer's test certificate.

When cables are steel wire armoured, the conductance of the armour shall be not less than 50% of the conductance of one phase core.

3.9.2 Installation

Bending radii shall conform to the maker's recommendations but in no case shall be less than:
8 x OD for armoured cables.

Cables shall be identified with durable, non-corrodible tags, of the Critchley K type or equivalent, inscribed with the reference number allocated in the cable schedules and fixed securely to the cable.

All cables shall be tagged as follows:

a. At each termination.
b. Where they enter and leave underground ducts.
c. At each side of any barrier through which they run.
d. Where they rise from one level to another.

All cores shall be terminated using approved crimped lugs of appropriate size. Spare cores shall be made off to unused terminals.

The cores of cables of section larger than 4mm² shall be connected by a means approved by the Engineer.

3.9.2 Installation (Cont.)

Cable joints shall not be used unless specified or on the written authority of the Engineer.

Cores shall be marked to comply with the references given in the cable schedules using Critchley Z type or equivalent. They shall be identified having black characters reading from the terminals outwards. Clip-on ferrules will not be accepted.

Insulated cables shall have standard compression type gland of the appropriate size. Particulaer ATEX certification requirements will be detailed on cable schedules.

Each gland shall be bonded to its cable armouring, where applicable and unless otherwise specified, and to be complete with earth tag and locknut.

Cables shall be protected against mechanical damage at vulnerable points. This particularly applies in exposed locations where cables emerge from ground or floor.

3.9.3 Cables in Ground

When excavating trenches for underground cables, due account shall be taken of ground conditions. Cables in normal ground shall be laid in trenches 500mm deep minimum unless agreed otherwise. Before any excavation starts, the Contractor shall check if there is any record of other underground services along the route.

Trench bottoms shall be cleared of irregular and sharp objects before applying bedding.

Cables shall be laid the appropriate distance apart (dictated by rating factors) on a bed of clean, dry, builders' sand, 75mm deep.

Cables shall be blinded with a similar layer as soon as possible after installation.

The trench shall be backfilled a further 150mm with riddled, excavated spoil.

Interlocking cable tiles or continuous marker tape, giving clear warning or danger, shall be placed over each cable or closely associated groups of cables.

Backfill to surface shall be allowed to settle before final topping and grading.

Approved route markers shall be installed where cables enter of leave buildings, at changes of direction and at appropriate intermediate intervals.

Pilot cables shall run continuously with their associated main cable, where the route is common.

3.10 CABLE SUPPORTS

3.10.1 Cable Ladder

Cable ladder should be installed as required in this specification.

The ladder shall be Swift type which is Hot Dip Galvanised to BS729:1971.

Standard metric widths shall be used.

Radius bends, tees, sets, reducers or other fittings shall be proprietary type by the ladder manufacturer and his installation instructions shall be followed. Earth Continuity connectors are to be fitted to all racking.

It shall be the contractors responsibility to provide the main supports for the racks as well as the fixing of the racks to the main supports.

Non Standard fittings will only be allowed where expressly agreed.

Cables shall not be tiered more than two deep, in which case the larger should be nearer to the end of the ladder.

Ladders shall be supported over their full width and secured to each support.

All bolts, nuts or washers shall be metric and sheradised, plated or otherwise effectively protected against corrosion.

Excessive bolt projections which may make the removal of nuts at a later date difficult will not be accepted.

When fully loaded, no span shall have a sag detectable by the eye.

Ladder runs shall be completely erected before cable laying commences and any rags, burrs or raw edges suitable treated.

3.10.2 Cable Trays

Cable trays shall be heavy-duty pattern formed from galvanised sheet steel. The tray shall have side flanges not less than 25mm deep with returned edges and be coated fabrication. Material gauge shall be 1.5mm (16 SWG) minimum except that for tray widths less than 400mm, the gauge may be reduced subject to the flange depth and the approval of the engineer. Factory made tee sections and bends shall be used where possible.

The cutting of trays shall be kept to a minimum but where unavoidable, the edges shall be suitably treated. Fasteners shall not present any obstruction on the tray. Capacity amounting to 25% usable tray area shall be left spare.

For those portions of cable route where the cables are to be laid on cable tray, they shall be laid flat and straight and shall be properly dressed into position and fastened to the tray at intervals not greater than 500mm. Where the tray is run horizontally but arranged in the vertical plane, fastener spacing shall be as detailed in the IEE Regulations. Care shall be taken to space the cables to allow adequate cooling in accordance with the IEE Wiring Regulations and not more than two layers of cables shall be run on one tray.

3.10.3 Channel

"Unistrut" type channel may be used for individual cable runs. Where cables are installed in the channel, capping is to be fitted. The channel and capping are to be of the galvanised type.

Where channel is to be used it must be with the approval of the Engineer.

3.10.4 Routes

Specific routing will be influenced by local circumstances.

Final details of all routes shall also be agreed with the Engineer before commencing pulling.

In all cases particular attention shall be paid to installation to as to prevent:

a. Cable support fixings adversely affecting the strength of structures to which they are attached.

b. Cable routes fouling access to other equipment and plant areas.

c. Cables being at risk of damage caused by normal circumstances.

3.11 Testing and Commissioning

3.11.1 Testing

On completion of any installation work the Contractor shall carry out tests to ensure that it has been correctly executed and is safe to commission. This section provides a guide to the minimum normal requirements. Additional or special testing of particular equipment or components may be necessary and if so shall be carried out in accordance with any applicable instructions or recommendations.

On completion of the installation, an inspection of hazardous area equipment is to be conducted as detailed in EN60079-17 Type: Initial, Grade: Detailed. All results are to be fully recorded. These tests must be carried out by a CompEx or equivalent certified person.

Safety Procedures, for any tests which may involve danger to personnel, the Contractor shall 'tape off' the area and display warning notices.

Earth Tests, as soon as possible after establishment, the value of the plant earth(s) shall be measured, preferably using an instrument specifically for this purpose. Tests shall preferably be carried out in dry weather.

Continuity of all earth paths shall be checked, loop impedance values shall be measured and recorded for all or sample circuits at the discretion of the Engineer. Any sample testing shall involve circuits furthest from the point of supply.

Insulation Tests, insulation tests shall be carried out on all cables and equipment using a 'Megger' of appropriate voltage. Low voltage devices (e.g. electronic circuitry) which could suffer damage thereby, shall be disconnected prior to testing.

Di-electric tests on insulating oil shall be carried out only if required by the Engineer.

Pressure Tests, it may be assumed that pressure testing (over-potential) of equipment will have taken place at works prior to despatch and need be repeated only if required by the Engineer.

In general and unless expressly excluded, all HV cables shall undergo a site pressure test prior to energising.

Injection Tests, injection tests on protective relays shall be carried out at the discretion of the Engineer.

Phase Rotation, supplies to principle load centres shall be checked for correct phase rotation.

3.11.1 Testing (Cont.)

Rotating Machines, all motors shall be 'jogged' on agreement with the Engineer, for direction then run on light load (with overload relays set low) to check for noise and vibration. Any drain plugs shall be removed to check for condensation, then replaced.

Lighting Levels, illumination levels shall be measured against specification in the absence of daylight.

Noise Levels, will not normally require measuring unless required by the Engineer.

Witnessing, the Contractor shall give reasonable notice of testing to the Engineer who may wish to witness same.

Records, all test results shall be recorded.

3.11.2 Commissioning

Electrical

The installation shall be pre-commissioned by carrying out full functional tests at rated voltages.

These operations will normally be carried out jointly by the Engineer and the Contractor and will include:-

Prolonged running of rotating machines (on load if possible) to check for smooth operation and temperature rise. During these tests the Contractor shall check metered currents, where applicable, and set overload relays and ammeter markers to suit conditions.

Active tests on all circuits to ensure that all components are operating correctly.

Sequence tests on all circuits to prove interlock and alarm features.

If required by the Engineer, the Contractor shall provide qualified assistance on a standby basis during full plant commissioning under process conditions.

Rates would be agreed in advance, in this event.

APPENDIX I

Applicable Standards

Specifications and Codes of Practice of the BSI

Regulations under the Electricity Acts

Requirements of HM Factory Inspectorate

Any applicable requirements of other National or Local Authorities

Simon Storage Safety Regulations for Contractors

Simon Storage General Conditions of Contract. (Latest Edition)

The Contractor is to request a copy of Simon Storage Regulations and Conditions of contract if not already in possession.

British Standard EN60079-14 Electrical Installation in hazardous areas.

British Standard EN60079-17 Inspection and Maintenance of electrical installations in hazardous areas.

British Standard BS7671:2008 Requirements for Electrical Installations (IEE Wiring Regulations 17th Edition)

P & I Design Ltd

Process Instrumentation Consultancy & Design

2 Reed Street, Gladstone Industrial Estate,
Thornaby, TS17 7AF, United Kingdom.
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Web Site: www.pidesign.co.uk

IMMINGHAM STORAGE Co LTD

ISCo EAST TERMINAL

INSTRUMENT & ELECTRICAL INSTALLATION

INSTALLATION SCOPE OF WORK

600 SERIES ROSOVs

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	02.12.10	D.B.Faulkner	MM	MM	Issued for Construction	
						Document No. SI760002_INS
						Page 1 of 3

CONTENTS

APPENDIX

Revision History

Revision A – Original issue

1 INTRODUCTION

This document details the scope of work to provide the Instrument/electrical installation works for 600 series tank 601, 602 & 603 rail loading export ROSOVs at ISCo East Terminal. It is to be read in conjunction with specification SI003001_INS - Standard Specification for Instrument & Electrical Installations.

This scope is a variation to the main installation contract defined in document SI760001_INS. All terms and conditions applicable to the main contract apply to these variation works also.

2 SCOPE OF WORK

The scope of work is as detailed in the following sections and as shown on the documentation listed below.

Cable Schedules	SI760002_SCH_A
Junction Box Schedules	SI277010_SCH_C
Loop Sheets	SI760005_DWG_A
MCC Drawing	SI478006_DWG_H

2.1 Scope of Work – No2 Switchroom

Modifications and tie ins to MCC compartments B2E & B2F.

2.2 Scope of Work – Field

Cables and containment to be installed from No.2 switchroom MCC panel to new valve assemblies XV60103, XV60203 & XV60303. Valve assemblies will be mechanically installed by others. Air lines to be installed from air header within 10 meters of the valves. JB4/89 is existing, contractor to modify or replace.
Note - 24Vdc power in JB4/89 from No4 switchroom SIS logic panel, contractor to apply relevant warning label and comply with SIS modification procedures.

2.3 Contractor Supplied Equipment

The contractor shall supply and install the following equipment. All equipment shall be suitably rated for the environment in which it is to be installed (site hazardous area drawing available on request). Where not fully specified, equipment shall conform with normal site standards for similar installations.

ROSOV Local Controls

- 3 off Pneumatic Open/Close Stations
- 1 off JB4/89 See section 2.2

Switchroom Equipment

- 1 off PILZ PNOZ s2 Safety relay.
- Terminals & Fuses

2.4 Free Issue Equipment

No Free Issue equipment.

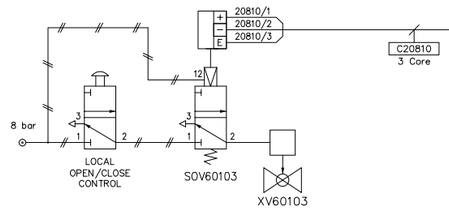
Appendix I

Drawings

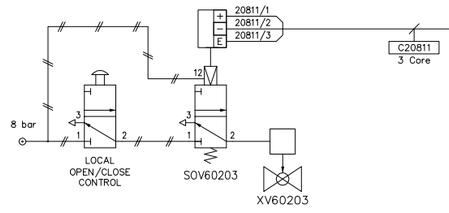
SI760005_DWG_A
SI478006_DWG_H

600 SERIES TANK FARM

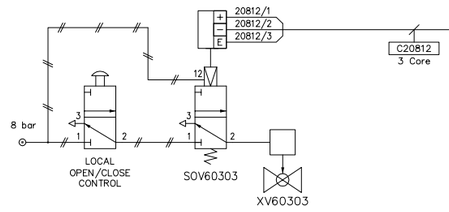
TANK 601 RAIL LOADING VALVE XV60103



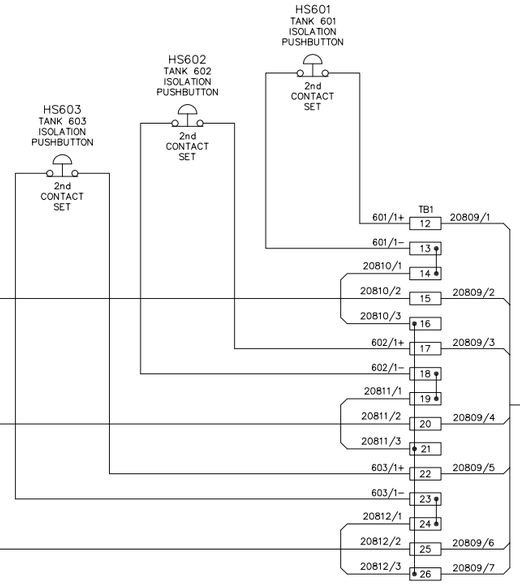
TANK 602 RAIL LOADING VALVE XV60203



TANK 603 RAIL LOADING VALVE XV60303

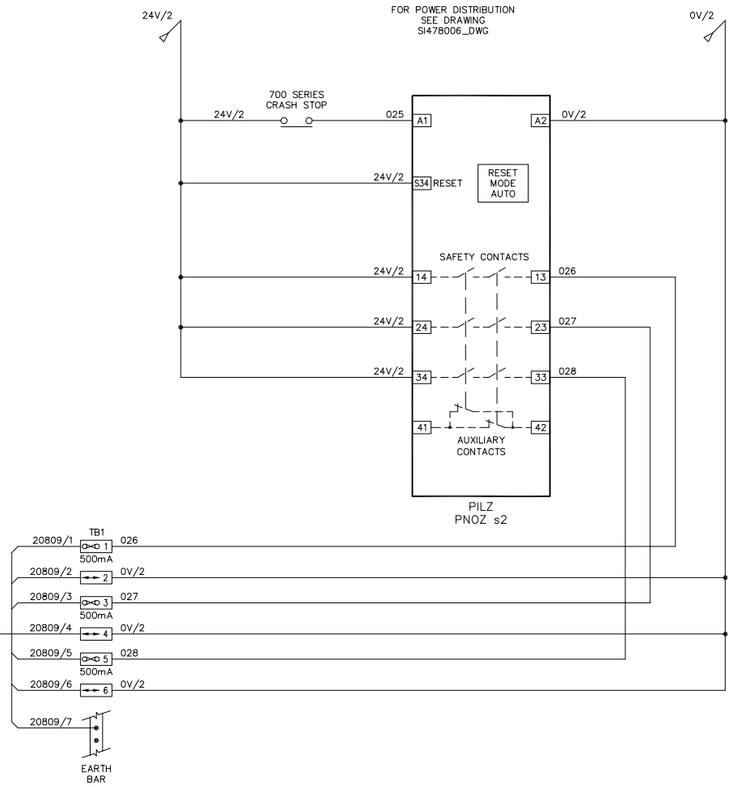


JB4/89
TANK ISOLATION PUSHBUTTON JUNCTION BOX



SAFE AREA

No.2 SWITCHROOM - MCC COMPARTMENT B2F



NOTE

PUSHBUTTON CONTACT SET 1 IS FED FROM No.4 SWITCHROOM AND IS PART OF THE SIS SYSTEM

NOTES
1)

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	30/11/10	P.P.	P.P.	D.B.F	M.M.	ISSUED FOR CONSTRUCTION

simon
bulk liquid & gas network

PLANT	IMMINGHAM STORAGE Co. – EAST TERMINAL
TITLE	4–EAST RAIL LOADING SYSTEM TANK 601, 602 & 603 RAIL LOADING VALVE LOOP SHEET
	SHEET 1 OF 1
CLIENT DRG. No.	P&I DRG No. SI760005_DWG

simon — IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE
P & I DESIGN — P & I Design Ltd, Tel. 01642 617444, www.pidesign.co.uk

No.2 SWITCHROOM - MCC COMPARTMENT B2E

FIELD

BUSBARS R Y B N

4Q1 KLOCKNER MOELLER NZM7-125N-M SET at 100A

150/5A

4K1M

4K2M

4A1

230V AC

RUN

4F0 MCB DOUBLE POLE 2A Type C

240Vac/24Vdc POWER SUPPLY

24V DC

PILZ SAFETY RELAY

START-UP OVERRIDE OMRON H3DE-M2 DELAY ON TIMER RELAY SET to 30sec : Mode 'A'

ROSOV VALVES SEE DRAWING SI760005_DWG

4x1

P2/25 3Φ 55kW

M20132 4 Core

CONTROL STATION

STOP

START

RUNNING

DISCHARGE TEMPERATURE

SUCTION LEVEL

SEE DRAWING SI760001_DWG

4x2

GANTRY CONTROL PANEL

4x3

C20790 7 Core

REFER TO LOGIC DRAWING SI478002_DWG

C20791 3 Core

CRASH STOP

No.2 SWITCHROOM - MCC COMPARTMENT B2F

NOTES

1) JETTY STOP – RELAY ENERGIZED TO STOP DRIVE.
2) THIS DRAWING REPLACES SITE DRAWING SPW-03-688.DWG

simon bulk liquid & gas network

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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
H	30/11/10	P.P.	P.P.	D.B.F	M.M.	ROSOV VALVE POWER ADDED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	10/12/98	A.J.H	A.J.H	D.R.R	D.R.R	ORIGINAL ISSUE
B	19/01/99	A.J.H	A.J.H	D.R.R	D.R.R	GENERAL UPDATE
C	01/02/99	A.J.H	A.J.H	D.R.R	D.R.R	SOFT START CHANGED
D	17/03/99	A.J.H	A.J.H	D.R.R	D.R.R	PANEL TEST MODS.
E	23/06/00	M.M.	A.B.	D.R.R	D.R.R	SOFT START MODS.
F	19/10/10	P.P.	P.P.	D.B.F	D.R.R	COMPARTMENT RE-WIRED
G	28/10/10	P.P.	P.P.	D.B.F	M.M.	PUMP CONTROLS REVISED

PLANT: IMMINGHAM STORAGE Co. – EAST TERMINAL

TITLE: P2/25 PUMP MCC DIAGRAM

simon IMMINGHAM STORAGE Co Ltd, IMMINGHAM EAST TERMINAL, IMMINGHAM DOCK, IMMINGHAM, SOUTH HUMBERSIDE

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

SHEET 1 OF 1

CLIENT DRG. No.

P&I DRG No. SI478006_DWG

Appendix II

Schedules & Specifications

SI760002_SCH_A
SI277010_SCH_C

INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX.	
REFERENCE	TYPE	AREA mm^2	No.	FROM	GLAND TYPE	TO	GLAND TYPE	LENGTH METRES	REMARKS
C20809	J07	1.5	7 Core	No.2 Switchroom MCC Compartment B2F	ATEX II 2 G EExed	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	100	Note 2
C20810	J03	1.5	3 Core	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	Tank 601 Rail Loading Valve - XSV60103 Soleniod	ATEX II 2 G EExed	220	
C20811	J03	1.5	3 Core	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	Tank 602 Rail Loading Valve - XSV60203 Soleniod	ATEX II 2 G EExed	190	
C20812	J03	1.5	3 Core	JB4_89 Tank Isolation Pushbutton Junction Box	ATEX II 2 G EExed	Tank 603 Rail Loading Valve - XSV60303 Soleniod	ATEX II 2 G EExed	160	
							TOTAL	670	

NOTES:

1) Refer to P&I Design Cable Specifications for details on Cable Type. 2) Cables to be relocated to ROSOV Control Panel in future, allow spare length.

	Denotes Cable Modified
	Denotes Cable Deleted
	Denotes Cable Added
	Future Cables

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REV	DATE	BY	DRN	CHK'D		APP'D		DESCRIPTION
A	30/11/10	DBF	DBF	MM		MM		Issued for Construction

PLANT	Immingham East - 2 East
TITLE	600 Series ROSOVs Cable Schedule
	SHEET 1 OF 1
CLIENT DRG No	REF No. SI760002_SCH

FIELD							JB4/89						SWITCHROOM 4 - TANK OVERFILL MONITORING PANEL (SIS)								
FIELD INSTRU-MENT	TERMINAL No.	CABLE DETAILS					TERMINAL No.	JUNCTION BOX DETAILS					TERMINAL No.	PANEL TERMINATION DETAILS					INST. TERMINAL No.	INST. LOOP DIAGRAM	REMARKS
		CABLE No.	TYPE	CORE No.	FERRULE No.	LENGTH METRES		CABLE No.	TYPE	CORE No.	FERRULE No.	LENGTH METRES		CABLE No	TYPE	CORE No.	FERRULE No.	LENGTH METRES			
							TB1						TB3								
HS601	12		1 Core		601+		1	X40358	E05	Pr 1+	40358/1+		27								Tank 601 Isolation
	11		1 Core		601-		2			Pr 1-	40358/1-		28								
HS602	12		1 Core		602+		3			Pr 2+	40358/2+		29								Tank 602 Isolation
	11		1 Core		602-		4			Pr 2-	40358/2-		30								
HS603	12		1 Core		603+		5			Pr 3+	40358/3+		31								Tank 603 Isolation
	11		1 Core		603-		6			Pr 3-	40358/3-		32								
							7			Pr 4+	40358/4+		Earth Bar								Spare
							8			Pr 4-	40358/4-		Earth Bar								
							9			Pr 5+	40358/5+		Earth Bar								Spare
							10			Pr 5-	40358/5-		Earth Bar								
							11			SCN	40358/SCN		Earth Bar								Screen

FIELD							JB4/89						SWITCHROOM 2 - 600 SERIERS ROSOV CONTROL PANEL								
FIELD INSTRU-MENT	TERMINAL No.	CABLE DETAILS					TERMINAL No.	JUNCTION BOX DETAILS					TERMINAL No.	PANEL TERMINATION DETAILS					INST. TERMINAL No.	INST. LOOP DIAGRAM	REMARKS
		CABLE No.	TYPE	CORE No.	FERRULE No.	LENGTH METRES		CABLE No.	TYPE	CORE No.	FERRULE No.	LENGTH METRES		CABLE No	TYPE	CORE No.	FERRULE No.	LENGTH METRES			
							TB1						TB1								
HS601	22		1 Core		601/1+		12	C20809	J07	Core 1	20809/1		1								Tank 601 Solenoid +ve
	21		1 Core		601/1-		13														
XSV60103	+	C20910	3 Core	1	20810/1		14														
	-			2	20810/2		15			Core 2	20809/2		2								Tank 601 Solenoid -ve
	E			3	20810/3		16														
HS602	22		1 Core		602/1+		17			Core 3	20809/3		3								Tank 602 Solenoid +ve
	21		1 Core		602/1-		18														
XSV60203	+	C20911	3 Core	1	20811/1		19														
	-			2	20811/2		20			Core 4	20809/4		4								Tank 602 Solenoid -ve
	E			3	20811/3		21														
HS603	22		1 Core		603/1+		22			Core 5	20809/5		5								Tank 603 Solenoid +ve
	21		1 Core		603/1-		23														
XSV60303	+	C20912	3 Core	1	20812/1		24														
	-			2	20812/2		25			Core 6	20809/6		6								Tank 603 Solenoid -ve
	E			3	20812/3		26			Core 7	20809/7		Earth Bar								Earth

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ABBREVIATIONS	REFERENCE DRAWINGS
Revision C Modifications	SI277120_DWG
	SI277121_DWG
	SI277122_DWG
	SI277123_DWG
	SI277124_DWG
	SI277125_DWG
	SI760005_DWG

REV	DATE	BY	DRN	CHECKED		APPROVED		DESCRIPTION
A	27/03/08	P.P.	P.P.	D.S.R	D.S.R	D.R.R	D.R.R	Issued for Tender
B	24/04/08	P.P.	P.P.	D.S.R	D.S.R	D.R.R	D.R.R	Issued for Construction
C	30.11.10	DBF	DBF	MM		MM		Issued for Construction

PLANT: ISCo EAST - TANK OVERFILL SIS

TITLE: JB4/89 TANK ISOLATION PUSHBUTTON J/B CONNECTION SCHED.

simon bulk liquid & gas network

P & I DESIGN

SHEET 1 OF 1

CLIENT DRG No.

REF No. SI277010_SCH

P & I Design Ltd

Process Instrumentation Consultancy & Design

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

Instrument Calibration Certificate

Certificate Number: LS2-25-0

Client:	Immingham Storage Co. Ltd	**Tag No:**	LS2-25	**Date:**	12/10/2010
Location:	Simon Terminals	**Service:**	Pump Dry Run Protection		
Manufacturer:	Endress & Hauser	**Model No:**	FTL51–IAE2JB(200mm)4G7A	**Serial No:**	DA00BC01027
Job No:	760	**Type:**	Vibronic Level Switch	**Asset No:**	

	Cap No	Serial No	Test Equipment	Traceability Certificate No.
1	022	90810090	Digital Multimeter	INLB54191
2				
3				
4				

Test Equipment Traceable to NPL Standards.

Calibration Details

Input: to **units** **Output:** to **units**

☐ **Square Root Extraction** **Required Accuracy:** %

Rising Inputs				Falling Inputs			
Input	**Output**		**%Error FSD**	**Input**	**Output**		**%Error FSD**
	Desired	**Actual**			**Desired**	**Actual**	

Remarks ☐ **Adjustments Made** ☐ **Calibration Failed**

Function checked by immersion in water.

Switch settings MIN and 0.7

Calibration Frequency: 12 **(Months)** **Next Calibration:** 12/10/2011

Calibrated By: A.Newton **Witnessed By:**

ARMAH Switchgear Ltd.
A Powerful Force Protecting Supplies
7 Parsons Road, Parsons Industrial Estate, District 2, Washington, Tyne & Wear NE37 1EZ
Telephone: (0191) 419 2000 Fax: (0191) 419 1000

TEST CERTIFICATE

CUSTOMER	P & I DESIGN
ORDER No.	039/6169
WORKS REF.	C861A
DRAWING No.	S1039016
DESCRIPTION	FINA DERV RAIL LOADING SYSTEM LOGIC PANEL
SUPPLY VOLTAGE	240V 50Hz
CONTROL VOLTAGE	24Vdc

PHYSICAL INSPECTION	R Hewitson	
REMARKS	Panel in unmarked condition	

INSTRUMENTATION	
	N/A

OPERATIONAL TEST	
	All saftey circuits operated
	All I/O operated

REMARKS	
	All connections checked for tightness

INSPECTED / DATE	R Hewitson	17/05/1999
WITNESSED	D Pearson	17/05/1999
TESTED / DATE	R Hewitson	17/05/1999

FINAL REMARKS	
	Panel passed final inspection prior to delivery

ARMAH Switchgear Ltd.
A Powerful Force Protecting Supplies
7 Parsons Road, Parsons Industrial Estate, District 2, Washington, Tyne & Wear NE37 1EZ
Telephone: (0191) 419 2000 Fax: (0191) 419 1000

TEST CERTIFICATE

CUSTOMER	P & I DESIGN		
ORDER No.	039/6169		
WORKS REF.	C861B		
DRAWING No.	S1039009		
DESCRIPTION	DERV OFF LOADING PUMP 1 MCC		
SUPPLY VOLTAGE	3Ph & N 50Hz	**CONTROL VOLTAGE**	240Vac

PHYSICAL INSPECTION	**R Hewitson**	R A Hewitson
REMARKS	**Panel in unmarked condition**	

INSTRUMENTATION	
N/A	

OPERATIONAL TEST	
Full operational test carried out	

REMARKS	
All connections checked for tightness	

INSPECTED / DATE	**R Hewitson**	R A Hewitson	**17/05/1999**
WITNESSED	**D Pearson**	D P	**17/05/1999**
TESTED / DATE	**R Hewitson**	R A Hewitson	**17/05/1999**

FINAL REMARKS	
Panel passed final inspection prior to delivery	

CLIENT: ISCo East	**PROJECT REF: PO100**	**DOC REF: PO100001_HDR**
PROJECT: Mabanaft Rail Loading	**LOCATION: Immingham East**	**DATE: 26/08/10**
PLANT SECTION: 4 East	**PLANT UNIT: Rail Loading**	**PAGE: 1 OF 1**

This certificate covers the functional testing of the following Equipment :-

All loading arm actuated valves function tested and found to physically open and close, air lines blown clear prior to testing. The following systems had the faults listed –
XSV2 – Solenoid valve grub screw U/S.
XSV3 - Solenoid valve grub screw U/S, solenoid terminal block corroded.
XSV4 – Solenoid U/S.
XSV5 – Solenoid terminal block corroded.
XSV6 – Solenoid valve grub screw U/S. Air supply line leak.
XSV7 – Solenoid terminal block corroded.
XSV8 – Solenoid valve grub screw U/S. No internal inspection carried out.
XSV9 – Solenoid valve grub screw U/S.
XSV11 – Solenoid terminal block corroded.
XSV12 – Solenoid U/S.

All rail car high level float switches function tested. The following systems had the faults listed –
All floats require cleaning, 3off found to be initially stuck when immersed in water.
Switch 3 U/S
Switches 1, 2, 3, 6, 7 & 9 all found to have water ingress in JB, water drained and dried.
Switch 6 needs physical repair to protection tube.
Switches 2 & 4 only have 2 locating screws in protection tube.
All switches left at ground level.

All gantry ESD pushbuttons function tested, no faults found.

All gantry control panel lamps and pushbuttons (lamp test, horn silence etc) function tested, no faults found.

Gantry horn function tested and found correct.

Approvals

P & I DESIGN LTD: D.B.Faulkner DATE: 26.08.10

CLIENT: DATE: