

P & I Design Ltd

Process Instrumentation Consultancy & Design

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INTER TERMINALS SEAL SANDS LTD

HCL PROJECT

DOCUMENTATION MANUAL

Rev	Date	By	Checked	Approved	Description	Client Ref.
A	25.09.14	D. Smith	PJP	PJP	Original Issue	
B	30.06.16	D. Smith	PJP	PJP	General Update	Document No. SI144001_MNL
						Page 1 of 4

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

Contents

1. Register Control System
2. Specifications
3. Drawings
4. Schedules
5. Handover



Section 1
Register Control System



CLIENT:
Inter Terminals Immingham Ltd
East Terminal

REV	DATE	BY	CHKD	APPD
A	12.06.14	DS	MM	MM
B	12.05.15	DS	MM	MM
C	15.07.16	DS	MM	MM

CLIENT REF.
Site Services
P & I REF.
SI353001_REG
SHT 1 OF 1

DRAWING NO	REVISION					DESCRIPTION
	ISSUE 0	A	B	C	D	
SI353001_DWG		B	C			Logic Panel Internal Layout
SI353002_DWG		B	D			Logic Panel Wiring Details
SI353003_DWG			A			Logic Drawing 1
SI353004_DWG			A	B		Logic Drawing 3
SI394005_DWG					D	Boiler Feed Water Low Pressure Loop Sheet
SI353002_SCH			B			PLC Control System Alarms Schedule

P & I Design Ltd.

Report Register

CLIENT:
Inter Terminals Immingham Ltd
East Terminal

REV	DATE	BY	CHKD	APPD
A	12.06.14	DS	MM	MM
B	20.10.15	DS	MM	MM
C	15.07.16	DS	MM	MM

CLIENT REF.
Site Services
P & I REF.
SI353002_REG
SHT 1 OF 1

REPORT NO	REVISION					DATE	DESCRIPTION
	ISSUE	0	A	B	C		
SI353001_RPT		A				30.09.13	Functional Specification
SI353002_RPT		A				09.12.13	Site Acceptance Test (CC 02.06.14)
SI353001_SCH		A	D	E		19.04.16	A680 I/O Schedule

P & I Design Ltd

CLIENT:
Inter Terminals Immingham Ltd
East Terminal

Specification Register

ISSUE DATE BY CHKD APPD
A 15.07.16 DS MM MM

CLIENT REF

P & I REF.
SI353003_REG
SHT 1 OF 1

P&I REF.	ISSUE 0	REVISION	SUPPLIER	TAG No.	ITEM
		A B C D E			
SI394001_SPC		A	Endress & Hauser	PT-004	Pressure Transmitter

CLIENT:
Inter Terminals Seal Sands Ltd

REV	DATE	BY	CHKD	APPD
A	25.06.14	DS	PJP	PJP
B	30.06.16	DS	PJP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144001_REG
PAGE 1 OF 1

DRAWING NO	REVISION					DESCRIPTION
	ISSUE 0	A	B	C	D E	
SEA/N/E/1691					D	Riverside Switchroom Remote I/O Rack Panel Layout
SEA/N/E/1693					E	Riverside Switchroom Remote Logic Drawing 2 PLC Rack
SI144001_DWG		F	H			Tank 14 HCL Storage Cable Overview
SI144005_DWG		D	E			Tank 14 HCL Storage Batchter Control Panel Layout
SI144006_DWG		D	E			Tank 14 HCL Storage Batchter Control Panel Logic 1
SI144007_DWG		D	E			Tank 14 HCL Storage Batchter Control Panel Logic 2
SI144008_DWG		C	D			Tank 14 HCL Storage Acid Batchter Termination Details
SI144009_DWG		C	E			Tank 14 HCL Storage Water Batchter Termination Details
SI144010_DWG		B				Tank 14 HCL Storage Scrubber Control Panel Connection Details
SI144011_DWG		B				Tank 14 HCL Storage Demin Water Control Panel Connection Details
SI144012_DWG		C				Tank 14 HCL Storage HCL Pump Starter Connection Details
SI144013_DWG		B				Tank 14 HCL Storage Road Tanker Earth Proving Loop Sheet
SI144014_DWG		B	C			Tank 14 HCL Storage Road Tanker High Level Loop Sheet
SI144015_DWG		B				Tank 14 HCL Storage Tank 14 High Level Probe Loop Sheet
SI144016_DWG		C	D			Tank 14 HCL Storage Tank 14 Import & Export Valve Loop Sheet
SI144017_DWG		B				Tank 14 HCL Storage Loading Valve Connection Details
SI144018_DWG		B				Tank 14 HCL Storage Batchter Control Panel / Annunciator Details
SI144019_DWG		B	D			Tank 14 HCL Storage JB 1401 HCL Pressure JB Connection Details
SI144020_DWG		D	E			Tank 14 HCL Storage Tank Leak Control Panel Layout
SI144021_DWG		E	G			Tank 14 HCL Storage Tank Leak Control Panel Logic Drawing 1
SI144023_DWG		B	D			Tank 14 HCL Storage Tank Leak Control Panel Logic Drawing 2
SI144024_DWG		A				Tank 14 HCL Storage JB1402 Pressure JB Connection Details
SI144025_DWG		D				Tank 14 HCL Storage JB1401 Zone 1 Leak Detection Loop Sheet
SI144026_DWG		D				Tank 14 HCL Storage JB1402 Zone 2 Leak Detection Loop Sheet
SI144027_DWG		D				Tank 14 HCL Storage JB1403 Zone 3 Leak Detection Loop Sheet
SI144028_DWG		D				Tank 14 HCL Storage JB1404 Zone 4 Leak Detection Loop Sheet
SI144029_DWG		D				Tank 14 HCL Storage JB1405 Zone 5 Leak Detection Loop Sheet
SI144030_DWG		D				Tank 14 HCL Storage JB1406 Zone 6 Leak Detection Loop Sheet
SI144031_DWG		D				Tank 14 HCL Storage JB1407 Tank Vent Pressure Loop Sheet
SI144032_DWG		B				Tank 14 HCL Storage JB1408 Jetty Line Pressure Loop Sheet
SI144033_DWG		B				Tank 14 HCL Storage JB1409 Gantry Vent Pressure Loop Sheet
SI144034_DWG		C				Tank 14 HCL Storage Leak Control Panel Alarm Connection Details Loop Sheet
SI144035_DWG		B				Tank 14 HCL Storage PT1410 Zone 6A Leak Detection Loop Sheet
<u>Schedules</u>						
SI144001_SCH		B				Cable Schedule

CLIENT:
Inter Terminals Seal Sands Ltd

ISSUE	DATE	BY	CHKD	APPD	CLIENT REF
A	25.06.14	DS	PJP	PJP	HCL Project
B	30.06.16	DS	PJP	PJP	P & I REF. SI144002_REG

SHT 1 OF 1

P&I REF.	ISSUE	REVISION					SUPPLIER	TAG No.	ITEM
		0	A	B	C	D			
SI144001_SPC			A				Newson Gale	EQ016294	Tank 14 HCL Earthing System
SI144002_SPC			A	B			Artisan	EQ016272	Hydrochloric Acid Batcher
SI144002_SPC			A	B			Artisan	EQ016273	Water Batcher
SI144003_SPC			B	B			-	-	Junction Box
SI144004_SPC			A				-	-	Batcher Comms
SI144005_SPC			B				TC	TE18A	LP18 Temperature Probe
SI144006_SPC			B				TC	TE18B	LP18 Temperature Probe
SI144007_SPC			C	D			Endress & Hauser	LSH-G18-LP**	Gantry 18 Loading Point Level Switch
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1401	Tank 14 Zone 1 Transmitter Power Supply / Trip Amplifier
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1402	Tank 14 Zone 2 Transmitter Power Supply / Trip Amplifier
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1403	Tank 14 Zone 3 Transmitter Power Supply / Trip Amplifier
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1404	Tank 14 Zone 4 Transmitter Power Supply / Trip Amplifier
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1405	Tank 14 Zone 5 Transmitter Power Supply / Trip Amplifier
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1406	Tank 14 Zone 6 Transmitter Power Supply / Trip Amplifier
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1407	Tank 14 Vent Transmitter Power Supply / Trip Amplifier
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1408	Tank 14 Jetty Transmitter Power Supply / Trip Amplifier
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1409	Tank 14 Jetty Gantry Vent Power Supply / Trip Amplifier
SI144008_SPC			C	D			Pepperl & Fuchs	PTB1410	Tank 14 Jetty Transmitter Power Supply / Trip Amplifier
SI144009_SPC			B	C			Endress & Hauser	-	Level Switch
SI144010_SPC			C				Endress & Hauser	LSH1401	Tank 14 High Level Switch
SI144011_SPC			B				Endress & Hauser	FT18A	Magnetic Flowmeter
SI144012_SPC			B				Endress & Hauser	FT18B	Mass Flowmeter
SI144013_SPC			A				Seitz	SV-1401-1	Tank 14 Inlet Solenoid Valve
SI144013_SPC			A				Seitz	SV-1402-1	Tank 14 Outlet Solenoid Valve
SI144014_SPC			A	B			Pyropress	-	Temperature Switch
SI144015_SPC			B	C			-	-	Pressure Transmitter
SI144016_SPC			B	C			-	-	Pressure Transmitter
SI144017_SPC			A	B			-	-	Pressure Transmitter
SI144018_SPC			A				-	-	Junction Box
SI144019_SPC			A				-	JB1401	Pressure Transmitter
SI144020_SPC			A				-	-	Pressure Transmitter
SI144021_SPC			A				CEAG	-	Tanker Remote 89206C Control Station
SI144022_SPC			A				Endress & Hauser	PI1407	Pressure Indicator
SI144023_SPC			A				-	JB1402	Junction Box

Register Control System

<u>Register No</u>	<u>Description</u>	<u>Issue</u>
SI144001_REG	Drawing Register	B
SI144002_REG	Specification Register	B



Section 2

Specifications



P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV DATE BY CHKD APPD
A 08.04.14 AMS PJP PJP

CLIENT REF.
Tank 14 HCL
P & I REF.
SI144001_SPC
SHT 1 OF 3

ITEM: Electrical
Component

GENERAL Tag Number n/a
Service See Sheet 2
Area Classification Zone 1 IIB T4

UNIT Type Earth Monitoring System
Functional Safety SIL 2
Supply 230V ac
Case Copper free cast alloy
Connections 5 x M20 cable entries
Mounting Surface
Enclosure Class IP65
Electrical Classification ATEX Ex II 2(1) GD EExd [ia] IIC T6
Certificate Reference SIRA 09ATEX2047 Issue 2

OUTPUT Type I.S. output to earthing clamp

Local Indicators on EExd unit :-
Green = Earth Healthy
Red = Earth Broken

Loop Resistance <10 Ohm.

2 Off 500VA 250V ac 5A max DPST contact for
earth status

OPTIONS (1) GRP junction box for clamp complete with stowage
pin. 3 x M20 cable entries

(2) 2 pole stainless steel earthing clamp complete with
10m. spiral wound cable.
Clamp certification Ex 1 GD T6

(3) Installers Kit – ER2KITA

(4)

(5)

MANUFACTURERS Supplier Newson Gale Ltd
DATA Model Number RTRMEA1A3A

DOCUMENTATION See attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued For Procurement (Excludes Options 4 and 5)

ZZ#-ECA2.SPC

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	08.04.14	AMS	PJP	PJP

CLIENT REF.
Tank 14 HCL
P & I REF.
SI144001_SPC
SHT 2 OF 3

TAG No. SERVICE

EQ016294 Tank 14 HCL Earthing System

CLIENT:
Simon Storage
Seal Sands Terminal

REV DATE BY CHKD APPD
A 08.04.14 AMS PJP PJP

CLIENT REF.
Tank 14 HCL
P & I REF.
SI144001_SPC
SHT 3 OF 3

Documentation Requirement

Item	Quantity	Description
1.	n/a	APPROVAL DOCUMENTATION To be supplied before manufacture commences
2.	n/a	GENERAL ARRANGEMENT DRAWING Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.	n/a n/a	MATERIALS TEST CERTIFICATES a. Mechanical. b. Chemical analysis.
4.	n/a	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.	n/a n/a	RECOMMEND SPARES QUOTATION a. Two years service. b. Commissioning only.
6.	1 1	INSTALLATION, OPERATING AND MAINTENANCE MANUALS To include calibration instructions where applicable. a. Paper Copy b. Electronic copy (Preferably Adobe Acrobat)
7.	n/a n/a	SOFTWARE a. Programming manual. b. Operating manual.
8.	n/a	PRESSURE VESSELS Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.	n/a n/a n/a	ELECTRICAL a. Schematic and circuit diagrams. b. Certificates of conformity (to include EMC Directive 89/336/EEC). c. Hazardous area certification.
10.	1 n/a 1	INSTRUMENTATION a. Certificates of conformity (to include EMC Directive 89/336/EEC). b. Calibration certificates. c. Hazardous area certification.
11.	1	SPECIAL REQUIREMENTS BS EN 61508 Certification details

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

CLIENT: Simon Storage Seal Sands Terminal	REV	DATE	BY	CHKD	APPD	CLIENT REF.
	A	08.04.14	AMS	PJP	PJP	Tank 14 HCL
	B	05.01.15	DRP	PJP	PJP	P & I REF. SI144002_SPC SHT 1 OF 4

ITEM: Batch
Controller
(Electronic)

GENERAL Tag Number See Sheet 3
Service See Sheet 3
Fluid See Sheet 3
Area Classification Zone 1 IIB T4

CONTROLLER Type Pre-Set Delivery System

INPUTS

Pulse / Frequency:	No.	Two (Meter Pulse's)
	Type	Dual Pulse from PD meter
Analogue:	No.	One (Temperature)
	Type	Spare
Digital :	No.	Three (DC)
	Type	Input 1 – Permissive 1 (ESD) Input 2 – Permissive 2 (Earth proving /Overfill) Input 3 - Spare

OUTPUTS

Pulse / Frequency:	No.	One Pulse Repeat
	Type	Spare
Digital :	No.	Six (2 Off DC & 4 Off AC)
	Type	Output 1 (DC) – SOV A Output 2 (DC) – SOV B Output 3 (AC) – Spare Output 4 (AC) – Pump Request Output 5 (AC) – Spare Output 6 (AC) – Spare

FUNCTIONS

Communications	No.	Four Ports
	Type	Three serial channels EIA-232 or EIA-485 One Ethernet Port
Power Supply		240Vac 50 Hz Single phase
Case		Cast Enclosure
Enclosure Class		IP 65
Connections		Terminals
Mounting		Wall
Electrical Class		ATEX II 2G EExd IIB T6
Certificate Reference		DEMKO 04ATEX 0403315

Continued on Sheet 2

CLIENT: Simon Storage Seal Sands Terminal	REV	DATE	BY	CHKD	APPD	CLIENT REF.
	A	08.04.14	AMS	PJP	PJP	Tank 14 HCL
	B	05.01.15	DRP	PJP	PJP	P & I REF. SI144002_SPC SHT 2 OF 4

ITEM: Batch Controller (Electronic) **Continued from sheet 1**

CONFIGURATION Front Panel Keypad
Remote Programmer No
PC software Standard

DISPLAY Type Liquid Crystal Display

OPTIONS

Engineering Notes

The preset controller is to control the quantity of material loaded into a road tanker via. a top loading arm.

Two hardwired permissives will be wired into the preset:

Permissive 1 – This is from the external Shutdown pushbuttons and is wired into Input 1. The microLoad must use this signal via. its internal stop relay to de-energise the Valves and Pump request, stopping the load. A display message stating “SHUTDOWN” is to be displayed on the LCD Display.

Permissive 2 – This is from an external Gantry Earth proving unit and the tanker overfill unit these signals are wired in series into Input 2. On loss of this input the microLoad is to stop all loading, remove the outputs to the Valves and Pump request. A display message stating “Earth Fault/Overfill” is to be displayed on the LCD Display.

The microLoad is to monitor all critical functions and parameters, loading must be stopped on a fault condition. The alarm relay is to be operated and a message displayed on the microLoad, giving a description of the fault.

MANUFACTURERS DATA Supplier Artisan Measurement & Control
Model Number Batcher - Microload ML-XP-STD-2

DOCUMENTATION See Attached Documentation Specification

P & I Design Ltd.

Instrument Specification

CLIENT:

Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	08.04.14	AMS	PJP	PJP
B	05.01.15	DRP	PJP	PJP

CLIENT REF.

Tank 14 HCL
P & I REF.
SI144002_SPC
SHT 3 OF 4

TAG No.

FQ-G18-01
FQ-G18-02

SERVICE

Hydrochloric Acid Batcher
Water Batcher

REVISION HISTORY

Rev	Description
A	Issued for Procurement
B	Tag number updated

###-FMA2.SPC

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	08.04.14	AMS	PJP	PJP	Tank 14 HCL
B	05.01.15	DRP	PJP	PJP	P & I REF. SI144002_SPC SHT 4 OF 4

Documentation Requirement

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

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###-FMB6.SPC

P & I Design Ltd.

Instrument Specification

CLIENT: Simon Storage Seal Sands	REV	DATE	BY	CHKD	APPD	CLIENT REF. T14 HCL Storage P & I REF. SI144003_SPC SHT 1 OF 3
	A	10/04/14	PP	PJP	PJP	
	B	03/06/14	PP	PJP	PJP	

ITEM:	Electrical Component		
GENERAL	Tag Number Service Area Classification	HCL Gantry Valve Junction Box Zone 1 IIB T4	
UNIT	Type Dimensions Supply Case Connections Mounting Enclosure Class Electrical Classification Certificate Reference	Stainless Steel Enclosure (1 bottom gland plate) Supplier to Confirm 230Vac Stainless Steel See OPTIONS Surface IP66 ATEX Ex II 2G Exe II T6 Supplier to Confirm	

OPTIONS Enclosure to be fitted with the following:-

- Terminals
 - 1-off Vertical row of 12-off WDU2.5 EEx'e' terminals.
 - Terminals to be identified with dekafix markers serially from 1 to 12.

- Cable Entries : Enclosure to be drilled for the following entries:-
 - 5 x 20mm

Note : All Holes to be Clearance

- Labels
 - White/Black/White traffolyte label with Tag Number and Service Details.
 - ATEX Certification Label.

MANUFACTURERS DATA Supplier
Model Number

DOCUMENTATION See attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Construction

CLIENT: Simon Storage Seal Sands	REV A B	DATE 10/04/14 03/06/14	BY PP PP	CHKD PJP PJP	APPD PJP PJP	CLIENT REF. T14 HCL Storage P & I REF. SI144003_SPC SHT 2 OF 3
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Documentation Requirement

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

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###-FMB6.SPC

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage Seal Sands Terminal

REV DATE BY CHKD APPD
A 03/06/14 DRP PJP PJP

CLIENT REF.
HCL Project
P & I REF.
SI144004_SPC
SHT 1 OF 2

ITEM: Electrical Component

GENERAL Tag Number Gantry 18
Service Gantry Batcher Comms
Area Classification Zone 1 IIB T4

UNIT Type GRP Enclosure
Supply 24Vdc
Case GRP
Connections Drilled as detailed below
Mounting Surface
Enclosure Class IP67
Electrical Classification ATEX II 2 G EEx'e'

ADDITIONAL DETAILS

Enclosure to be supplied with:-One horizontal rows of 20 off WDU 2.5 EEx'e' beige terminals. Terminals to be identified with dekafix markers serially from 1 to 20
With the following terminals linked; 1 & 2, 3 & 4, 5 & 6, 7 & 8, 9 & 10, 11 & 12, 13 & 14, and 15 & 16. Terminal dividers fitted between the following terminals; 2 & 3, 4 & 5, 6 & 7, 8 & 9, 10 & 11, 12 & 13, 14 & 15 & 16, and 17,18,19 & 20.
3 off WDU 2.5 EEx'e' beige terminals identified with dekafix terminals with the character 'S' for screen. All 3 terminals to be linked.

1 off earth continuity plate.

Enclosure to be drilled for the following gland entries.
4 x 20mm (Bottom)

Labels:
1. EExe Certification Label

MANUFACTURERS DATA Supplier
Model Number KLIPPON POK 6 - EX

DOCUMENTATION See attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Construction

CLIENT:
Simon Storage Seal Sands Terminal

REV DATE BY CHKD APPD
A 03/06/14 DRP PJP PJP

CLIENT REF.
HCL Project
P & I REF.
SI144004_SPC
SHT 2 OF 2

Documentation Requirement

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

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CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	15.04.14	PJP	DRP	PJP
B	21.05.14	AMS	PJP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144005_SPC
SHT 1 OF 4

ITEM: Thermowell

GENERAL Tag Number See Sheet 3
Service See Sheet 3

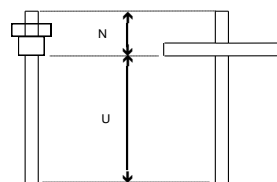
WELL CONSTRUCTION Type Solid Drilled
Process Conn.Size/Type 2" / ANSI 150
Internal Conn.Size/Type To suit thermocouple and head
Material 316L Stainless Steel
Insertion Length - U 185 mm
Extension Length - N 80 mm
Stem Diameter 12.7 mm
Tip Diameter 12.7 mm
Tip Length N/A
Internal Bore To suit thermocouple element
Element See Sheet 2
Test Pressure 50 barg

OPTIONS

PROCESS DATA Fluid See Sheet 3
Max. Temperature 40°C
Max Pressure 14.5 barg

MANUFACTURERS DATA Supplier T.C. Limited
Model Number 20WH-116-FL20/150RF-1/4"BSPP-185-8.48-12.7
C/W 16-1-6.0-4-LTSTW-CE22/
ATEX-R100-B-ACF16S

DOCUMENTATION See attached Documentation Specification



REVISION HISTORY	
Rev	Description
A	For Procurement
B	Updated Model Number & ATEX references

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	15.04.14	PJP	DRP	PJP
B	21.05.14	AMS	PJP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144005_SPC
SHT 2 OF 4

ITEM: Temperature
Transmitter
(TC)

GENERAL Tag Number See Sheet 3
Service See Sheet 3
Area Classification Zone 1 IIB T4

MEASURING ELEMENT Type Simplex RTD
Standard 4 Wire
Material PT100
Diameter 6mm
Length To suit Thermowell and head see sheet 1
Conn. Size/Type 1/4" BSPT

TRANSMISSION Type None required
Supply
Output
Location
Calibrated Range
Electrical Classification None (see head)
Certificate Reference None (see head)
Electrical Connection Terminals

HEAD Material Die Cast alloy
Enclosure Class IP67
Electrical Classification ATEX II 3G Ex nA II T6
Certificate Reference ITS10ATEX47054X
Electrical Connection 20mm ET

OPTIONS Well See Sheet 1

PROCESS DATA Fluid See Sheet
Temperature Max./Min 45°C / 5°C

MANUFACTURERS DATA Supplier T.C.Limited
Model Number See Sheet 1

DOCUMENTATION See Attached Document Specification

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	PJP	DRP	PJP	HCL Project
B	21.05.14	AMS	PJP	PJP	P & I REF. SI144005_SPC SHT 3 OF 4

TAG No.	SERVICE	PROBE LENGTH	CONNECTION	FLUID
TE18A	LP18 Temperature Probe	185 mm	2" ASA150	Water

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	15.04.14	PJP	DRP	PJP
B	21.05.14	AMS	PJP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144005_SPC
SHT 4 OF 4

Documentation Requirement

<u>Item</u>	<u>Quantity</u>	<u>Description</u>
1.	0	APPROVAL DOCUMENTATION To be supplied before manufacture commences
2.	1	GENERAL ARRANGEMENT DRAWING Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.	0	MATERIALS TEST CERTIFICATES a. Mechanical. 0 b. Chemical analysis.
4.	0	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.	0	RECOMMEND SPARES QUOTATION a. Two years service. b. Commissioning only.
6.	1	INSTALLATION, OPERATING AND MAINTENANCE MANUALS To include calibration instructions where applicable. 1 a. Paper Copy 1 b. Electronic copy (Preferably Adobe Acrobat)
7.	0	SOFTWARE a. Programming manual. b. Operating manual.
8.	1	PRESSURE VESSELS Calculation sheets, spark test certificates (for lined vessels), hydraulic test certificates.
9.	0	ELECTRICAL a. Schematic and circuit diagrams. b. Certificates of conformity (to include EMC Directive 89/336/EEC). c. Hazardous area certification.
10.	1	INSTRUMENTATION 1 a. Certificates of conformity (to include EMC Directive 89/336/EEC). 1 b. Calibration certificates. 1 c. Hazardous area certification.
11.		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

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	15.04.14	PJP	DRP	PJP
B	21.05.14	AMS	PJP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144006_SPC
SHT 1 OF 4

ITEM: Thermowell

GENERAL Tag Number See Sheet 3
Service See Sheet 3

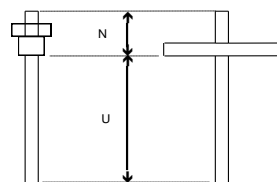
WELL CONSTRUCTION Type Solid Drilled
Process Conn.Size/Type 2" / ANSI 150
Internal Conn.Size/Type To suit thermocouple and head
Material PTFE Coated Wetted Parts
Insertion Length - U 185 mm
Extension Length - N 80 mm
Stem Diameter 12.7 mm
Tip Diameter 12.7 mm
Tip Length N/A
Internal Bore To suit thermocouple element
Element See Sheet 2
Test Pressure 50 barg

OPTIONS

PROCESS DATA Fluid See Sheet 3
Max. Temperature 40°C
Max Pressure 14.5 barg

MANUFACTURERS DATA Supplier T.C. Limited
Model Number 20WH-116-FL20/150RF-1/4"BSPP-185-8.48-12.7
C/W 16-1-6.0-4-LTSTW-CE22/
ATEX-R100-B-ACF16S- FEP ENCAPSULATED

DOCUMENTATION See attached Documentation Specification



REVISION HISTORY	
Rev	Description
A	For Tender
B	For Procurement – Updated Model number and ATEX Details

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	15.04.14	PJP	DRP	PJP
B	21.05.14	AMS	PJP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144006_SPC
SHT 2 OF 4

ITEM: Temperature
Transmitter
(TC)

GENERAL Tag Number See Sheet 3
Service See Sheet 3
Area Classification Zone 1 IIB T4

MEASURING ELEMENT Type Simplex RTD
Standard 4 Wire
Material PT100
Diameter 6mm
Length To suit Thermowell and head see sheet 1
Conn. Size/Type 1/4" BSPT

TRANSMISSION Type None required
Supply
Output
Location
Calibrated Range
Electrical Classification None (see head)
Certificate Reference None (see head)
Electrical Connection Terminals

HEAD Material Die Cast alloy
Enclosure Class IP67
Electrical Classification ATEX II 3G Ex nA T6
Certificate Reference ITS10ATEX47054X
Electrical Connection 20mm ET

OPTIONS Well See Sheet 1

PROCESS DATA Fluid See Sheet
Temperature Max./Min 45°C / 5°C

MANUFACTURERS DATA Supplier T.C.Limited
Model Number See Sheet 1

DOCUMENTATION See Attached Document Specification

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	PJP	DRP	PJP	HCL Project
B	21.05.14	AMS	PJP	PJP	P & I REF. SI144006_SPC SHT 3 OF 4

TAG No.	SERVICE	PROBE LENGTH	CONNECTION	FLUID
TE18B	LP18 Temperature Probe	185 mm	2" ASA150	HCL

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	15.04.14	PJP	DRP	PJP
B	21.05.14	AMS	PJP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144006_SPC
SHT 4 OF 4

Documentation Requirement

<u>Item</u>	<u>Quantity</u>	<u>Description</u>
1.	0	APPROVAL DOCUMENTATION To be supplied before manufacture commences
2.	1	GENERAL ARRANGEMENT DRAWING Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.	0	MATERIALS TEST CERTIFICATES a. Mechanical. 0 b. Chemical analysis.
4.	0	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.	0	RECOMMEND SPARES QUOTATION a. Two years service. b. Commissioning only.
6.	1	INSTALLATION, OPERATING AND MAINTENANCE MANUALS To include calibration instructions where applicable. 1 a. Paper Copy 1 b. Electronic copy (Preferably Adobe Acrobat)
7.	0	SOFTWARE a. Programming manual. b. Operating manual.
8.	1	PRESSURE VESSELS Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.	0	ELECTRICAL a. Schematic and circuit diagrams. b. Certificates of conformity (to include EMC Directive 89/336/EEC). c. Hazardous area certification.
10.	1	INSTRUMENTATION 1 a. Certificates of conformity (to include EMC Directive 89/336/EEC). 1 b. Calibration certificates. 1 c. Hazardous area certification.
11.		SPECIAL REQUIREMENTS

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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.

CLIENT:		REV	DATE	BY	CHKD	APPD	CLIENT REF.
Inter Terminals		A	15.04.14	AMS	PJP	PJP	HCL Project
Seal Sands Terminal		B	30.04.14	AMS	PJP	PJP	P & I REF.
		C	05.06.14	AMS	PJP	PJP	SI144007_SPC
		D	15.07.15	DRP	PJP	PJP	SHT 1 OF 4

ITEM: Level Switch
(Tuning Fork)

GENERAL Tag Number See Sheet 3
Service See Sheet 3
Area Classification Zone 1 IIB T4

DETECTOR ELEMENT Type Vibrating Fork
Location Classification Zone 0 Sensor Location
Material: Wetted Parts PFA Coated 316L stainless Steel
Seals N/A
Connections: Size 1"
Type Flanged
Rating ANSI 150
Mounting: Position Vertical
Probe Length 500mm

HOUSING Material Polyester
Housing IP66/67
Electrical Classification ATEX II 1/2GD Ex ia IIC T6
Certificate Reference BVS05ATEXE090X(4)
Electrical Connection M20

TRANSMISSION Type 2 Wire
Supply via FTL 325 for Overspill Protection
Output FEL57 Insert, two wire PFM transmission
Load 20mA
Action De-energise on high level & power failure
Electrical Connection Screw Terminals

OPTIONS

PROCESS DATA Fluid Hydrochloric Acid (37%)
Temperature Max./Min. 40°C / 20°C
Temperature Normal. Ambient to 40°C
Pressure Max./Min. 2 barg / 0 barg
Pressure Normal. Up to 2 barg
Specific Gravity 0.8 to 1.33

MANUFACTURERS DATA Supplier Endress & Hauser
Model Number Probe FTL51C

DOCUMENTATION See Attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Procurement
C	Reviewed with E&H and issued for formal quote.
D	Tag number added

CLIENT: Inter Terminals Seal Sands Terminal	REV	DATE	BY	CHKD	APPD	CLIENT REF.
	A	15.04.14	AMS	PJP	PJP	HCL Project
	B	30.04.14	AMS	PJP	PJP	P & I REF.
	C	05.06.14	AMS	PJP	PJP	SI144007_SPC
	D	15.07.15	DRP	PJP	PJP	SHT 2 OF 4

ITEM	Isolating Unit (IS)	
GENERAL	Tag Number Service Area Classification	LSH-G18-LP103/104 Gantry 18 Loading Point LP103/104 High Level Zone 1 IIB T4
UNIT	Type Supply Number of Channels Input Output Hazardous Area Limits: Voltage Max/Min Current Max/Min	Nivotester Control Unit 85–253Vac 1 Liquiphant FTL51 with electronic insert FEL57 1 x SPDT + 1 x alarm SPST To suit FEL 57 To suit FEL 57
HOUSING	Material Mounting Enclosure Class Electrical Classification: Load Unit Certificate Reference Electrical Connection	Polycarbonate Top-hat Rail IP20 n/a ATEX II (1) GD (EExia) IIC DMT01ATEXE052 Screw Terminal
OPTIONS		
MANUFACTURERS DATA	Supplier Model Number	Endress & Hauser FTL325P
DOCUMENTATION	See Attached Documentation Specification	

P & I Design Ltd.

Instrument Specification

CLIENT:

Inter Terminals
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	AMS	PJP	PJP	HCL Project
B	30.04.14	AMS	PJP	PJP	P & I REF.
C	05.06.14	AMS	PJP	PJP	SI144007_SPC
D	15.07.15	DRP	PJP	PJP	SHT 3 OF 4

TAG No.

SERVICE

LSH-G18-LP103/104 Gantry 18 Loading Point LP103/104 High Level

COMMENTS

PFA Coated Probe

CLIENT: Inter Terminals Seal Sands Terminal	REV	DATE	BY	CHKD	APPD	CLIENT REF.
	A	15.04.14	AMS	PJP	PJP	HCL Project
	B	30.04.14	AMS	PJP	PJP	P & I REF.
	C	05.06.14	AMS	PJP	PJP	SI144007_SPC
	D	15.07.15	DRP	PJP	PJP	SHT 4 OF 4

Documentation Requirement

Item	Quantity	Description
1.	n/a	APPROVAL DOCUMENTATION To be supplied before manufacture commences
2.	n/a	GENERAL ARRANGEMENT DRAWING Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.	n/a	MATERIALS TEST CERTIFICATES a. Mechanical. n/a b. Chemical analysis.
4.	n/a	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.	1	RECOMMEND SPARES QUOTATION a. Two years service. b. Commissioning only.
6.	1	INSTALLATION, OPERATING AND MAINTENANCE MANUALS To include calibration instructions where applicable. 1 a. Paper Copy 1 b. Electronic copy (Preferably Adobe Acrobat)
7.	n/a	SOFTWARE a. Programming manual. n/a b. Operating manual.
8.	n/a	PRESSURE VESSELS Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.	n/a	ELECTRICAL 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.	1	INSTRUMENTATION 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:

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CLIENT: Simon Storage Seal Sands Terminal	REV	DATE	BY	CHKD	APPD	CLIENT REF.
	A	15.04.14	AMS	PJP	PJP	HCL Project
	B	24.04.14	AMS	PJP	PJP	P & I REF.
	C	09.05.14	AMS	PJP	PJP	SI144008_SPC
	D	22.02.16	DRP	PJP	PJP	SHT 1 OF 3

ITEM Isolating Unit (IS)

GENERAL Tag Number See Sheet 2
 Service See Sheet 2
 Area Classification Safe Area

UNIT Type Transmitter Power Supply / Trip Amplifier
 Supply 24V dc (20...30Vdc)
 Number of Channels 1
 Input 4 to 20mA (Hart)
 Output 4 to 20mA

Hazardous Area Limits:
 Voltage Min >15 Vdc @ 20mA
 Current Max 33mA (Short Circuit)

TRIP AMPLIFIER

Input: Type Current 4 to 20 mA (Hart)
 Failure Mode Upscale on loss of input

Output 1: Type Relay
 Alarm Low
 Action SPDT
 Deadband User set (TBC)

Output 2: Type Relay
 Alarm Low
 Action SPDT
 Deadband User set (TBC)

Supply 24V dc

HOUSING Material Manufactures Standard
 Mounting DIN rail (Top Hat) or Power Rail
 Enclosure Class IP20
 Electrical Classification:
 Load EEXia IIC T4
 Unit ATEX II (1) GD [EEx ia] IIC
 ATEX Certification TUV01ATEX1701
 Electrical Connection Removable screw terminals

OPTIONS Suitable for use in a SIS SIL2 (IEC 61508)

MANUFACTURERS DATA Supplier Pepperl & Fuchs
 Model Number KFD2-CRG2-Ex1.D

DOCUMENTATION See Attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Procurement
C	Tank Vent and Jetty Added
D	Gantry Vent and Zone 6A added

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	AMS	PJP	PJP	HCL Project
B	24.04.14	AMS	PJP	PJP	P & I REF.
C	09.05.14	AMS	PJP	PJP	SI144008_SPC
D	22.02.16	DRP	PJP	PJP	SHT 2 OF 3

TAG No.	SERVICE	SETPOINT
PTB1401	Tank 14 Zone 1	TBC
PTB1402	Tank 14 Zone 2	TBC
PTB1403	Tank 14 Zone 3	TBC
PTB1404	Tank 14 Zone 4	TBC
PTB1405	Tank 14 Zone 5	TBC
PTB1406	Tank 14 Zone 6	TBC
PTB1407	Tank 14 Vent	TBC
PTB1408	Tank 14 Jetty	TBC
PTB1409	Gantry Vent	TBC
PTB1410	Tank 14 Zone 6A	TBC

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Simon Storage	A	15.04.14	AMS	PJP	PJP	HCL Project
Seal Sands Terminal	B	24.04.14	AMS	PJP	PJP	P & I REF.
	C	09.05.14	AMS	PJP	PJP	SI144008_SPC
	D	22.02.16	DRP	PJP	PJP	SHT 3 OF 3

Documentation Requirement

<u>Item</u>	<u>Quantity</u>	<u>Description</u>
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
	n/a	a. Two years service.
	n/a	b. Commissioning only.
6.		INSTALLATION, OPERATING AND MAINTENANCE MANUALS
		To include calibration instructions where applicable.
	n/a	a. Paper Copy
	n/a	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
	n/a	a. Certificates of conformity (to include EMC Directive 89/336/EEC).
	n/a	b. Calibration certificates.
	n/a	c. Hazardous area certification.
11.		SPECIAL REQUIREMENTS
	1	IEC 61508 PFD Certified Certificate of Conformity

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.

CLIENT: Inter Terminals Seal Sands Terminal	REV	DATE	BY	CHKD	APPD	CLIENT REF.
	A	15.04.14	AMS	PJP	PJP	HCL Project
	B	30.04.14	AMS	PJP	PJP	P & I REF.
	C	15.07.15	DRP	PJP	PJP	SI144009_SPC SHT 1 OF 2

ITEM: Level Switch
(Tuning Fork)

GENERAL Tag Number LSL-P01
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 PFA / PTFE Coated 316L Stainless Steel
 Seals n/a
Connections: Size 2"
 Type Flanged
 Rating ANSI 150
Mounting: Position Vertical
 Probe Length 148mm

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 Temperature Spacer

PROCESS DATA Fluid Hydrochloric Acid
Temperature Max./Min. 40°C / 20°C
Temperature Normal. Ambient to 40°C
Pressure Max./Min. 2 Barg / 0 Barg
Pressure Normal. Up to 2 Barg
Specific Gravity 0.8 to 1.33

MANUFACTURERS DATA Supplier Endress & Hauser
Model Number FTL51C-EAENBN4G7AB

DOCUMENTATION See Attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Procurement
C	Tag Number added

CLIENT:
Inter Terminals
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	AMS	PJP	PJP	HCL Project
B	30.04.14	AMS	PJP	PJP	P & I REF.
C	15.07.15	DRP	PJP	PJP	SI144009_SPC SHT 2 OF 2

Documentation Requirement

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

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

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	PJP	DRP	PJP	HCL Project
B	07.05.14	AMS	PJP	PJP	P & I REF.
C	05.06.14	AMS	PJP	ESP	SI144010_SPC SHT 1 OF 4

ITEM: Level Switch
(Tuning Fork)

GENERAL Tag Number See Sheet 3
Service See Sheet 3
Area Classification Zone 1 IIB T4

DETECTOR ELEMENT Type Vibrating Fork
Location Classification Zone 0 Sensor Location
Material: Wetted Parts PFA Coated 316L stainless Steel
Seals N/A
Connections: Size 2"
Type Flanged
Rating ANSI 150
Mounting: Position Vertical
Probe Length 807mm

HOUSING Material Polyester
Housing IP66/67
Electrical Classification ATEX II 1/2GD Ex ia IIC T6
Certificate Reference KEMA99ATEX0523 14
Electrical Connection M20

TRANSMISSION Type 2 Wire
Supply via FTL325 for Overspill Protection
Output FEL57 Insert, two wire PFM transmission
Load 20mA
Action De-energise on high level & power failure
Electrical Connection Screw Terminals

OPTIONS

PROCESS DATA Fluid Hydrochloric Acid (37%)
Temperature Max./Min. 40°C / 20°C
Temperature Normal. Ambient to 40°C
Pressure Max./Min. 2 barg / 0 barg
Pressure Normal. Up to 2 barg
Specific Gravity 0.8 to 1.33

MANUFACTURERS DATA Supplier Endress & Hauser
Model Number Probe FTL51C

DOCUMENTATION See Attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Procurement
C	Reviewed with E&H and issued for formal quote.

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	PJP	DRP	PJP	HCL Project
B	07.05.14	AMS	PJP	PJP	P & I REF.
C	05.06.14	AMS	PJP	PJP	SI144010_SPC SHT 2 OF 4

ITEM	Isolating Unit (IS)	
GENERAL	Tag Number Service Area Classification	See Sheet 3 See Sheet 3 Zone 1 IIB T4
UNIT	Type Supply Number of Channels Input Output Hazardous Area Limits: Voltage Max/Min Current Max/Min	Nivotester Control Unit 20–30Vac / 20–60Vdc 3 Liquiphant FTL51 with electronic insert FEL57 3 x SPDT + 1 x alarm SPST (2 Safety Outputs) To suit FEL 57 To suit FEL 57
HOUSING	Material Mounting Enclosure Class Electrical Classification: Load Unit Certificate Reference Electrical Connection	Polycarbonate Top-hat Rail IP20 n/a ATEX II (1) GD [EExia] IIC DMT01ATEXE052E Screw Terminal
OPTIONS		
MANUFACTURERS DATA	Supplier Model Number	Endress & Hauser FTL325P
DOCUMENTATION	See Attached Documentation Specification	

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	PJP	DRP	PJP	HCL Project
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C	05.06.14	AMS	PJP	PJP	SI144010_SPC SHT 3 OF 4

TAG No.	SERVICE	RANGE	COMMENTS
LSH1401	Tank 14 High Level		PFA Coated Probe

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	PJP	DRP	PJP	HCL Project
B	07.05.14	AMS	PJP	PJP	P & I REF.
C	05.06.14	AMS	PJP	PJP	SI144010_SPC SHT 4 OF 4

Documentation Requirement

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

IMPORTANT NOTICE:

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CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	AMS	PJP	PJP	HCL Project
B	30.04.14	AMS	PJP	PJP	P & I REF. SI144011_SPC SHT 1 OF 2

ITEM: Magnetic Flowmeter

GENERAL

Tag Number	FT18 A
Service	Tank 14-Gantry 18 LP**
Area Classification	Zone 1 IIB T4
Line Size / Rating / Material	4" / Sched 160 / Lined CS

MEASURING ELEMENT

Material:	Body	Carbon Steel
	Liner	PFA/PTFE (wetted parts)
	Electrode	Hastelloy C-22 (wetted parts)
Connections:	Size	2"
	Rating	150 ANSI
	Type	RF Flange
	Materials	Carbon Steel
Meter:	Casing Material	Aluminium
	Enclosure Class	IP67
	Power Supply	24 Vdc
	Electrical Class	ATEX II 2(1)G EExde [ia Ga] IIC/IIB T6..T1 Gb
	Indicator	Manufacturers standard

TRANSMISSION

Measuring Range:	Maximum	66m ³ /hr
	Minimum	0m ³ /hr
Output:	Current	4-20mA Rate of flow at Calibrated Range
	Pulse	Active 24VDC programmable pulse.
	Frequency	set to 1 pulses per litre

Power Supply	N/A
Calibrated Range	0 – 70,000 Litres/hr
Mounting	Compact
Electrical Classification	ATEX II 2(1)G EExde [ia Ga] IIC/IIB T6..T1 Gb
Certificate Reference	DMT 00 ATEX E017 X 1

OPTIONS

PROCESS DATA

Fluid	Hydrochloric Acid
Flowrate Maximum	60m ³ /hr
Velocity Maximum	1.98m/s @ 56m ³ /hr
Flowrate Normal	56m ³ /hr
Flowrate Minimum	5m ³ /hr
Pressure Maximum	4.5barg
Pressure Minimum	0barg
Meter Pressure Drop	N/A
Temperature Maximum	25 °C
Temperature Operating	-5 °C
Specific Gravity Operating	1.18
Fluid Conductivity	TBA s/m

MANUFACTURERS DATA DOCUMENTATION

Supplier	Endress & Hauser
Model Number	53P50-AL1BPBA0ABAA
See Attached Documentation Specification	

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Procurement

FT#-MGA3.SPC

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	15.04.14	AMS	PJP	PJP	HCL Project
B	30.04.14	AMS	PJP	PJP	P & I REF. SI144011_SPC SHT 2 OF 2

Documentation Requirement

Item	Quantity	Description
1.	n/a	APPROVAL DOCUMENTATION To be supplied before manufacture commences
2.	n/a	GENERAL ARRANGEMENT DRAWING Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.	n/a	MATERIALS TEST CERTIFICATES a. Mechanical. n/a b. Chemical analysis.
4.	n/a	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.	1	RECOMMEND SPARES QUOTATION a. Two years service. n/a b. Commissioning only.
6.	1	INSTALLATION, OPERATING AND MAINTENANCE MANUALS To include calibration instructions where applicable. a. Paper Copy 1 b. Electronic copy (Preferably Adobe Acrobat)
7.	n/a	SOFTWARE a. Programming manual. n/a b. Operating manual.
8.	n/a	PRESSURE VESSELS Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.	n/a	ELECTRICAL 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.	1	INSTRUMENTATION a. Certificates of conformity (to include EMC Directive 89/336/EEC). 1 b. Calibration certificates. 1 c. Hazardous area certification.
11.	n/a	SPECIAL REQUIREMENTS

IMPORTANT NOTICE:

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CLIENT: Simon Storage Seal Sands Terminal	REV	DATE	BY	CHKD	APPD	CLIENT REF.
	A	15.04.14	AMS	PJP	PJP	HCL Project
	B	30.04.14	AMS	PJP	PJP	P & I REF. SI144012_SPC SHT 1 OF 2

ITEM: Coriolis
Mass Flowmeter

GENERAL

Tag Number	FT18 B
Service	Tank 14-Gantry 18 LP**
Area Classification	Zone 1 IIB T4
Line Size / Rating / Material	4" / Sched 160 / SS

MEASURING ELEMENT

Material:	Body Wetted Parts	Stainless Steel
	Sensing Elements	Stainless Steel
	Seals	Stainless Steel
Connections:	Size	2"
	Rating	150 ANSI
	Type	Flange
Meter:	Case Material	Aluminium
	Enclosure Class	IP67 NEMA4X
	Electrical Connection	Manufacturers standard
	Power Supply	24VDC
	Location Class	
	Electrical Class	ATEX II 2GD EExde ia IIC T6
	Indicator	Manufacturers standard
Measuring Range:	Maximum	70m ³ /hr
	Minimum	0m ³ /hr

TRANSMISSION

Type		
Output:	Current	4-20mA Rate of flow
	Pulse	Active programmable pulse
	Frequency	set to 1pulse per litre
Power Supply		24VDC
Calibrated Range		0 – 70,000 Litres/hr
Electrical Connection		Gland M20
Mounting		Compact
Electrical Classification		ATEX II 2GD EExde ia IIC T6
Certificate Reference		DMT 00 ATEX E074 X Edition 3

OPTIONS

PROCESS DATA

Liquid	Demin Water
Flowrate Maximum/Minimum	60m ³ /hr / 0m ³ /hr
Inlet Pressure Maximum/Minimum	4.5barg / 0 barg
Meter Pressure Drop	TBA
Temperature Maximum/Minimum	25 °C / 5 °C
Density Operating	1
Viscosity Operating	1

MANUFACTURERS DATA DOCUMENTATION

Supplier	Endress & Hauser
Model Number	40E50-2LM2/0
See Attached Documentation Specification	

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Procurement

FT#-MSB2.SPC

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	15.04.14	AMS	PJP	PJP
B	30.04.14	AMS	PJP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144012_SPC
SHT 2 OF 2

Documentation Requirement

Item	Quantity	Description
1.	n/a	APPROVAL DOCUMENTATION To be supplied before manufacture commences
2.	n/a	GENERAL ARRANGEMENT DRAWING Cross-sectioned to show all details necessary for repair and maintenance purposes.
3.	n/a	MATERIALS TEST CERTIFICATES a. Mechanical. n/a b. Chemical analysis.
4.	n/a	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.	n/a	RECOMMEND SPARES QUOTATION n/a a. Two years service. n/a b. Commissioning only.
6.	1	INSTALLATION, OPERATING AND MAINTENANCE MANUALS To include calibration instructions where applicable. 1 a. Paper Copy 1 b. Electronic copy (Preferably Adobe Acrobat)
7.	n/a	SOFTWARE n/a a. Programming manual. n/a b. Operating manual.
8.	n/a	PRESSURE VESSELS Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.	n/a	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.	1	INSTRUMENTATION 1 a. Certificates of conformity (to include EMC Directive 89/336/EEC). 1 b. Calibration certificates. 1 c. Hazardous area certification.
11.	n/a	SPECIAL REQUIREMENTS

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CLIENT:
Simon Storage
Seal Sands Terminal

REV DATE BY CHKD APPD
A 15.04.14 PJP DRP PJP

CLIENT REF.
HCL Project
P & I REF.
SI144013_SPC
SHT 1 OF 3

ITEM: Solenoid Valve
Direct

GENERAL Tag Number See Sheet 2
Service Safety Instrument System Solenoid Valve
Area Classification Zone 1 IIB T4
Approval SIL4

BODY Type Safety Solenoid Valve (SIL4 IEC 61508)
Number of Ways 3/2
Action Spring Return
Construction Manufacturers Standard
Connections: Size/Type G 1/4"
Mounting Remote

SOLENOID Type 11 G 52
Voltage 24Vdc
Enclosure Class Manufacturers Standard
Electrical Classification ATEX II 2G Ex ia IIC T6
Electrical Connection Screw Terminals via M20 x 1.5 Cable Entry
Electrical Certification PTB 01 ATEX 2120

OPTIONS

PROCESS DATA Fluid Instrument Air
Pressure Max. 8 barg
Oper. Diff. Max./Min. 8 bar / 0 bar
Temperature Oper. Ambient

MANUFACTURERS DATA Supplier Seitz (Stockist Hima-Sella)
Model Number
Valve CP 0632 CPU oH
Solenoid 11 G 52 24Vdc

DOCUMENTATION See Attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Procurement

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	15.04.14	PJP	DRP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144013_SPC
SHT 2 OF 3

TAG No.	SERVICE	RANGE	COMMENTS
SV-****	Tank ** Inlet Valve Solenoid		
SV-****	Tank ** Inlet Valve Solenoid		

###-FMA2.SPC

CLIENT:
Simon Storage
Seal Sands Terminal

REV DATE BY CHKD APPD
A 15.04.14 PJP DRP PJP

CLIENT REF.
HCL Project
P & I REF.
SI144013_SPC
SHT 3 OF 3

Documentation Requirement

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

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###-FMB6.SPC

CLIENT: Simon Storage Seal Sands Terminal	REV	DATE	BY	CHKD	APPD	CLIENT REF. HCL Project P & I REF. SI144014_SPC SHT 1 OF 2
	A	29.04.14	AMS	PJP	PJP	
	B	22.02.16	DRP	PJP	PJP	

ITEM: Temperature Switch

GENERAL
Tag Number TSH-P01
Service Pump Protection Temperature Switch
Area Classification Zone 1 IIB T4

DETECTOR ELEMENT
Type Filled System
Material : Diaphragm Manufacturers Standard
Wetted Parts Stainless Steel

Process Connection 1" ANSI 150
Mounting Horizontal

SWITCH
Type Microswitch
Form 1 x SPDT
Rating 5A @ 30VDC
Supply 24v DC
Action Contacts Open on Rising Temperature
Set Point 40°C
Adjustable Range 25°C / 75°C
Switching Differential 6°C to 9°C with Pocket

HOUSING
Material Anodised Aluminium
Enclosure Class IP66
Electrical Classification ATEX II 2GD EExd IIB + H2 T5
Certificate Reference ITS09ATEX16146X
Electrical Connection M20 Conduit Thread to BS3643

OPTIONS Teflon coated FEP Thermowell
(150mm insertion length)

PROCESS DATA
Fluid Hydrochloric Acid
Temperature Maximum 40 Deg C
Temperature Minimum Ambient
Pressure Max / Min 2 Barg / 0 Barg
Pressure Normal Upto 2 Barg
Specific Gravity 0.8 to 1.33

MANUFACTURERS DATA
Supplier Pyropress
Model Number TF171A1B/175MT/P00XA

DOCUMENTATION See Attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued For Procurement
B	TSH-P01 tag number added

CLIENT:
Simon Storage
Seal Sands Terminal

REV	DATE	BY	CHKD	APPD
A	29.04.14	AMS	PJP	PJP
B	22.02.16	DRP	PJP	PJP

CLIENT REF.
HCL Project
P & I REF.
SI144014_SPC
SHT 2 OF 2

Documentation Requirement

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

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CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Inter Terminals	A	09.05.14	AMS	PJP	PJP	HCL Project
Seal Sands Terminal	B	20.05.14	AMS	PJP	PJP	P & I REF.
	C	15.07.15	DRP	PJP	PJP	SI144015_SPC
						SHT 1 OF 1

ITEM: Pressure Transmitter (Electronic)
with Diaphragm Seal

GENERAL Tag Number PT1409
Service Gantry Vent Pressure
Area Classification Zone 1 IIB T4

MEASURING UNIT Type
Materials: Diaphragm Ceraphire
Body Stainless Steel
Trim Stainless Steel
Seals 316L
Process Conn. : Size G1/2
Type Thread ISO228
Fill Fluid Silicone oil
Static Pressure: Max 10 Barg
Range: Limits 0 – 1 Bar G
Calibrated 0 – 100 mBar G
Elevation N/A
Suppression N/A

DIAPHRAGM SEAL Material: Diaphragm Flanged
Wetted Parts Tantalum
Fill Fluid
Process Connection:
Size / Type / Rating 3” / ANSI 150 / AISI316
Gauge Connection:
Size / Type / Rating ½” BSP Female/Capillary socket

TRANSMISSION Type 2 Wire
Supply 24V dc
Output 4 - 20mA HART with local LCD Display

HOUSING Material Aluminium Alloy
Enclosure Class IP66/67 NEMA 6P
Electrical Classification ATEX II 1/2 G EEx ia IIC T6
Certificate Reference KEMA 04ATEX1100 X Issue 5
Electrical Connection CM20

PROCESS DATA Fluid Hydrochloric Acid
Temperature Max./Min. 40°C / 20°C
Temperature Oper. Ambient to 40°C
Pressure Max./Min 0/100mBar
Pressure Oper. 55mBar
Calibrated Range 0 – 100 mBar G

MANUFACTURERS DATA Supplier
Model Number Transmitter PMP71-KMU0/0
Diaphragm Seal 83402609

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Procurement
C	Tag Number added

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Inter Terminals	A	09.05.14	AMS	PJP	PJP	HCL Project
Seal Sands Terminal	B	20.05.14	AMS	PJP	PJP	P & I REF.
	C	15.07.15	DRP	PJP	PJP	SI144016_SPC
						SHT 1 OF 1

ITEM: Pressure Transmitter (Electronic)
with Diaphragm Seal

GENERAL Tag Number PT1408
Service Jetty Line Pressure
Area Classification Zone 1 IIB T4

MEASURING UNIT Type
Materials: Diaphragm Ceraphire
Body Stainless Steel
Trim Stainless Steel
Seals 316L
Process Conn. : Size G1/2
Type Thread ISO228
Fill Fluid Silicone oil
Static Pressure: Max 40 Barg
Range: Limits 0 – 10 Bar G
Calibrated 0 – 10 Bar G
Elevation N/A
Suppression N/A

DIAPHRAGM SEAL Material: Diaphragm Flanged
Wetted Parts Tantalum
Fill Fluid
Process Connection:
Size / Type / Rating 2” / ANSI 150 / AISI316
Gauge Connection:
Size / Type / Rating ½” BSP Female/Capillary socket

TRANSMISSION Type 2 Wire
Supply 24V dc
Output 4 - 20mA HART with local LCD Display

HOUSING Material Aluminium Alloy
Enclosure Class IP66/67 NEMA 6P
Electrical Classification ATEX II 1/2 G EEx ia IIC T6
Certificate Reference KEMA 04ATEX1100 X Issue 5
Electrical Connection CM20

PROCESS DATA Fluid Hydrochloric Acid
Temperature Max./Min. 40°C / 20°C
Temperature Oper. Ambient to 40°C
Pressure Max./Min 0/10 Barg
Pressure Oper. 6.5 Barg
Calibrated Range 0 – 10 Bar G

MANUFACTURERS DATA Supplier
Model Number Transmitter PMP71-1913/0
Diaphragm Seal 83402609

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Procurement
C	Tag Number added

CLIENT:	REV	DATE	BY	CHKD	APPD	CLIENT REF.
Inter Terminals	A	20.05.14	AMS	PJP	PJP	HCL Project
Seal Sands Terminal	B	17.07.15	DRP	PJP	PJP	P & I REF. SI144017_SPC SHT 1 OF 1

ITEM: Pressure Transmitter (Electronic)
with Diaphragm Seal

GENERAL Tag Number PT1407
Service Tank Vent Pressure
Area Classification Zone 1 IIB T4

MEASURING UNIT Type
Materials: Diaphragm Ceraphire
Body Stainless Steel
Trim Stainless Steel
Seals 316L
Process Conn. : Size G1/2
Type Thread ISO228
Fill Fluid Silicone oil
Static Pressure: Max 10 Barg
Range: Limits 0 – 1 Bar G
Calibrated -50 to +50 mBar G
Elevation N/A
Suppression N/A

DIAPHRAGM SEAL Material: Diaphragm Flanged
Wetted Parts Tantalum
Fill Fluid
Process Connection: Size / Type / Rating 3” / ANSI 150 / AISI316
Gauge Connection: Size / Type / Rating ½” BSP Female/Capillary socket

TRANSMISSION Type 2 Wire
Supply 24V dc
Output 4 - 20mA HART with local LCD Display

HOUSING Material Aluminium Alloy
Enclosure Class IP66/67 NEMA 6P
Electrical Classification ATEX II 1/2 G EEx ia IIC T6
Certificate Reference KEMA 04ATEX1100 X Issue 5
Electrical Connection CM20

PROCESS DATA Fluid Hydrochloric Acid
Temperature Max./Min. 40°C / 20°C
Temperature Oper. Ambient to 40°C
Pressure Max./Min -25/+25 mBar G
Pressure Oper. -6 mBar G
Calibrated Range -50 to +50 mBar G

MANUFACTURERS DATA Supplier
Model Number Transmitter PMP71-KMU0/0
Diaphragm Seal 83402609

REVISION HISTORY	
Rev	Description
A	Issued for Procurement
B	Tag Number added

P & I Design Ltd.

Instrument Specification

CLIENT:
Simon Storage
Seal Sands Terminal

REV DATE BY CHKD APPD
A 03.06.14 PJP DRP PJP

CLIENT REF.
HCL Project
P & I REF.
SI144018_SPC
SHT 1 OF 2

ITEM: Electrical Component

GENERAL Tag Number Tank 14 Junction Box.
Service Tanks 14 High Level Systems
Area Classification Zone 1 IIB T4

UNIT Type Stainless Steel Sheet Enclosure
Supply 24Vdc
Case Stainless Steel
Connections 1 off Gland plate (drilled as detailed below)
Mounting Surface
Enclosure Class IP67
Electrical Classification ATEX II 2 G EEx'e'

ADDITIONAL DETAILS Enclosure to be supplied with:- One vertical row of 20 off WDU 2.5 EEx'i.s' Blue terminals.
Terminals to be identified with dekafix markers serially from 1 to 20
1 off earth rail c/w 5 off ZB4 earth clamps mounted at the bottom of the enclosure
Enclosure to be drilled for the following gland entries.
8 x 20mm (Bottom) 1 plugged

Refer to drawing SI144016_DWG for links

- Labels:
1. White/Black/White traffolyte label with Junction box tag number & Service details.
 2. Blue/White/Blue traffloyte label stating "IS Circuits"
 3. EExe Certification Label

MANUFACTURERS DATA Supplier
Model Number KLIPPON TB12EX Stainless Steel

DOCUMENTATION See attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Construction

CLIENT:
Simon Storage
Seal Sands Terminal

REV DATE BY CHKD APPD
A 03.06.14 PJP DRP PJP

CLIENT REF.
HCL Project
P & I REF.
SI144018_SPC
SHT 2 OF 2
ZZ#-ECA2.SPC

Documentation Requirement

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

IMPORTANT NOTICE:

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CLIENT:
Simon Storage
Seal Sands

REV **DATE** **BY** **CHKD** **APPD**
A 20/06/14 PP PJP PJP

CLIENT REF.
HCL Storage
P & I REF.
SI144019_SPC
SHT 1 OF 3

ITEM: Electrical
 Component

GENERAL Tag Number JB 1401
 Service HCL System Pressure Transmitters
 Area Classification Zone 1 IIB T4

UNIT Type Stainless Steel Enclosure (1 bottom gland plate)
 Dimensions Supplier to Confirm
 Supply 24Vdc
 Case Stainless Steel
 Connections See OPTIONS
 Mounting Surface
 Enclosure Class IP66
 Electrical Classification ATEX Ex II 2G Exe II T6
 Certificate Reference Supplier to Confirm

OPTIONS Enclosure to be fitted with the following:-

1. Terminals
 - 1-off Vertical row of 20-off WDU2.5 EEx'e' terminals.
 - Terminals to be identified with dekafix markers serially from 1 to 20.

2. Cable Entries : Enclosure to be drilled for the following entries:-
 - 1 x 25mm
 - 10x20mm (1 plugged)

Note : All Holes to be Clearance

3. Labels
 - White/Black/White traffolyte label with Tag Number and Service Details.
 - ATEX Certification Label.

MANUFACTURERS Supplier
DATA Model Number

DOCUMENTATION See attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Tender
B	Issued for Construction

CLIENT:
Simon Storage
Seal Sands

REV	DATE	BY	CHKD	APPD
A	20/06/14	PP	PJP	PJP

CLIENT REF.
HCL Storage
P & I REF.
SI144019_SPC
SHT 2 OF 3

Documentation Requirement

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

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###-FMB6.SPC

CLIENT:
Simon Storage
Seal Sands Terminal

REV DATE BY CHKD APPD
A 18.06.14 AMS PJP PJP

CLIENT REF.
HCL Project
P & I REF.
SI144020_SPC
SHT 1 OF 1

ITEM: Pressure Transmitter
(Electronic)

GENERAL Tag Number TBA
Service TBA
Area Classification Zone 1 IIB T4

MEASURING UNIT Type
Materials: Diaphragm Ceramic
Body Stainless Steel
Trim Stainless Steel
Seals SPDM
Process Conn. : Size
Type
Static Pressure: Max
Range: Limits
Calibrated 0-1 Bar
Elevation N/A
Suppression N/A

TRANSMISSION Type 2 Wire
Supply 24Vdc
Output 4-20ma HART

HOUSING Material Aluminium Alloy
Enclosure Class IP66/67 NEMA 6P
Electrical Classification ATEX II 2 G Exd [ia] IIC T6
Certificate Reference
Electrical Connection M20

OPTIONS

PROCESS DATA Fluid Demin Water
Temperature Max./Min. TBA
Temperature Oper. TBA
Pressure Max./Min TBA
Pressure Oper. TBA
Calibrated Range 0-1 Bar

MANUFACTURERS DATA Supplier Endress & Hauser
Model Number PMC71-23HD4/101

DOCUMENTATION See Attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Procurement

CLIENT:
Simon Storage
Seal Sands

REV	DATE	BY	CHKD	APPD	CLIENT REF.
A	20/06/14	AMS	DRP	PJP	HCL Storage P & I REF. SI144021_SPC SHT 1 OF 1

ITEM: Electrical Component

GENERAL Tag Number N/A
Service Tanker Remote 89206C
Area Classification Zone 1 IIB T4

UNIT Type 4 Gang Control Station
Dimensions 245mm x 100mm x 90mm
Supply 24V ac
Case GRP
Connections 2 x M20 (M25 + 20mm Reducer)
Mounting Surface
Enclosure Class ATEX II 2 G Exde IIC T6
Electrical Classification PTB00ATEX3117

ADDITIONAL DETAILS 2 Off Red Indicator
1 Off Start Push Button, no/nc contacts
1 Off Emergency Stop Push button, no/nc contacts

MANUFACTURERS DATA Supplier CEAG
Model Number GHG434/H606L

DOCUMENTATION See attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Procurement

CLIENT:
Simon Storage
Seal Sands

REV	DATE	BY	CHKD	APPD
A	03.09.14	DRP	PJP	PJP

CLIENT REF.

P & I REF.
SI144022_SPC
SHT 1 OF 2

ITEM: Indicator
(Electronic)

GENERAL	Tag Number	PI1407
	Service	Tank 14 Vent Pressure
	Area Classification	Safe Area

INDICATING UNIT	Display	5 Digit LCD with 17mm character height
	Range/Scale	-50 to 50 mBar
	Supply	Loop Powered
	Input	4 – 20mA (HART)
	Mounting	Front of Panel
	Case	Manufacturer's Standard
	Enclosure Class	IP65
	Electrical Classification	N/A
	Certificate Reference	N/A
	Electrical Connection	Screw Terminals

OPTIONS

MANUFACTURERS DATA	Supplier	Endress & Hauser
	Model Number	RIA15-AAA1

DOCUMENTATION See Attached Document Specification

REVISION HISTORY	
Rev	Description
A	Original Issue
B	
C	

CLIENT:
Simon Storage
Seal Sands

REV DATE BY CHKD APPD
A 03.09.14 DRP PJP PJP

CLIENT REF.
P & I REF.
SI144022_SPC
SHT 2 OF 2

Documentation Requirement

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

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###-FMB6.SPC

P & I Design Ltd.

Instrument Specification

CLIENT:
Inter Terminals Ltd
Seal Sands

REV DATE BY CHKD APPD
A 07/12/15 DRP PJP PJP

CLIENT REF.
HCL Storage
P & I REF.
SI144023_SPC
SHT 1 OF 3

ITEM: Electrical Component

GENERAL Tag Number JB 1402
Service Tank 14 Pressure Monitoring System
Area Classification Zone 1 IIB T4

UNIT Type Stainless Steel Enclosure (1 bottom gland plate)
Dimensions Supplier to Confirm
Supply 24Vdc
Case Stainless Steel
Connections See OPTIONS
Mounting Surface
Enclosure Class IP66
Electrical Classification ATEX Ex II 2G Exe II T6
Certificate Reference Supplier to Confirm

OPTIONS Enclosure to be fitted with the following:-

- Terminals
 - 1-off Vertical row of 20-off WDU2.5 EEx'e' terminals.
 - Terminals to be identified with dekafix markers serially from 1 to 20.

- Cable Entries : Enclosure to be drilled for the following entries:-
 - 1 x 25mm
 - 10x20mm (1 plugged)

Note : All Holes to be Clearance

- Labels
 - White/Black/White traffolyte label with Tag Number and Service Details.
 - ATEX Certification Label.

MANUFACTURERS DATA Supplier
Model Number

DOCUMENTATION See attached Documentation Specification

REVISION HISTORY	
Rev	Description
A	Issued for Procurement
B	

ZZ#-ECA1.SPC

CLIENT:
Inter Terminals Ltd
Seal Sands

REV DATE BY CHKD APPD
A 07/12/15 DRP PJP PJP

CLIENT REF.
HCL Storage
P & I REF.
SI144023_SPC
SHT 2 OF 3

Documentation Requirement

<u>Item</u>	<u>Quantity</u>	<u>Description</u>
1.	n/a	APPROVAL DOCUMENTATION To be supplied before manufacture commences
2.	n/a	GENERAL ARRANGEMENT DRAWING Cross-sectioned to show all details necessary for repair and maintenance purposes.
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4.	n/a	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.	n/a	RECOMMEND SPARES QUOTATION a. Two years service. n/a b. Commissioning only.
6.	n/a	INSTALLATION, OPERATING AND MAINTENANCE MANUALS To include calibration instructions where applicable. n/a a. Paper Copy n/a b. Electronic copy (Preferably Adobe Acrobat)
7.	n/a	SOFTWARE a. Programming manual. n/a b. Operating manual.
8.	n/a	PRESSURE VESSELS Calculation sheets, spark test certificates (for lined vessels),hydraulic test certificates.
9.	n/a	ELECTRICAL a. Schematic and circuit diagrams. 1 b. Certificates of conformity (to include EMC Directive 89/336/EEC). 1 c. Hazardous area certification.
10.	n/a	INSTRUMENTATION a. Certificates of conformity (to include EMC Directive 89/336/EEC). n/a b. Calibration certificates. n/a c. Hazardous area certification.
11.	n/a	SPECIAL REQUIREMENTS

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###-FMB6.SPC

Section 3

Drawings



NOTES

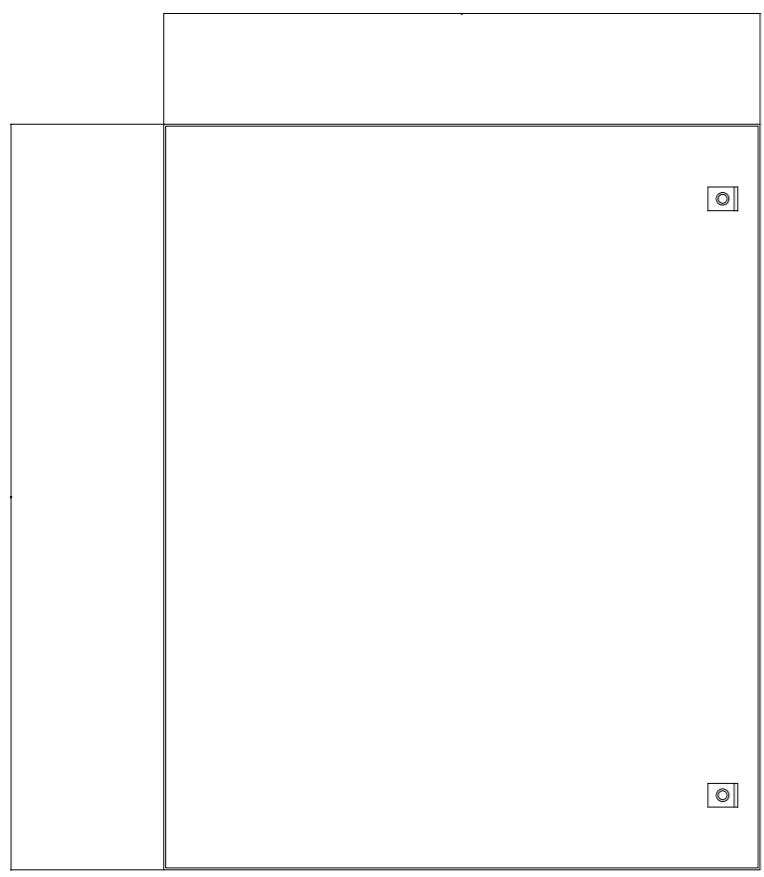
PANEL - RITTAL

ENCLOSURE MODEL No. AE1180.500
 PAINT FINISH RAL 7035
 PROTECTION IP56
 SUPPLY 230Vac 50Hz
 INCOMING CABLES TOP ENTRY
 OUTGOING CABLES TOP EXIT

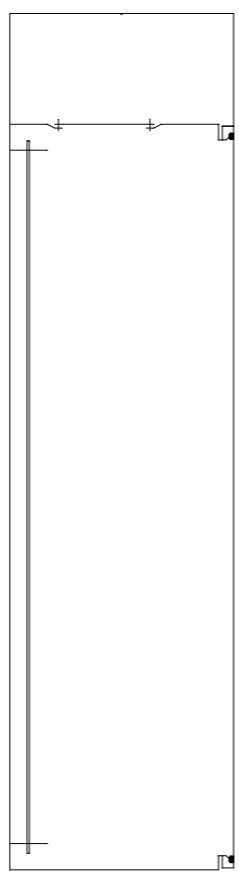
TERMINAL BLOCKS

1) TB-SPARES : 10-off
 WEIDMULLER WDU 2.5 (102000000)

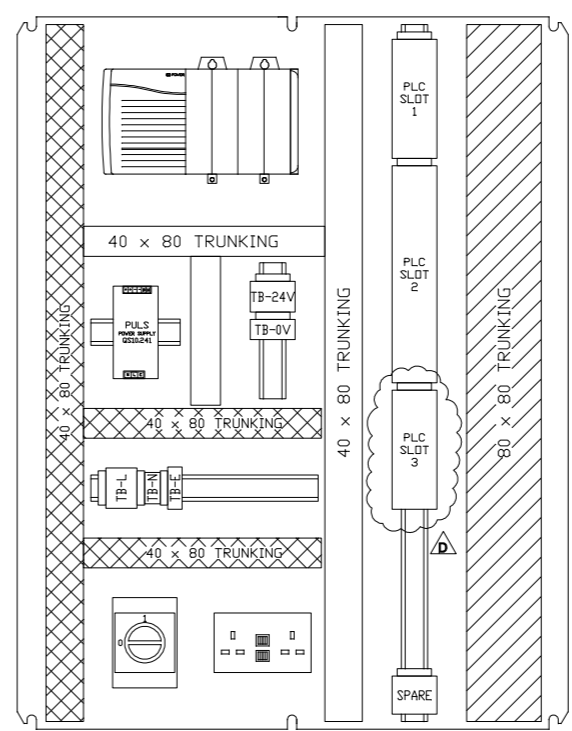
FOR ALL OTHER BLOCKS SEE LOGIC DRAWINGS FOR MODEL TYPE & QUANTITY.



FRONT ELEVATION



SIDE ELEVATION



VIEW ON BACKPLATE

WIRING DETAILS

DESCRIPTION

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

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	06/10/10	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR TENDER
B	18/10/10	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
C	09/10/12	W.G.		C.E.		SS DWG No. ASSIGNED
D	08/12/15	P.P.	P.P.	D.R.P	P.J.P	CARD ADDED TO PLC SLOT 3

Inter terminals

Seal Sands Storage Ltd.
 Seal Sands
 Middlesbrough
 Cleveland
 TS2 1UB
 Tel: 01642 546775
 Fax: 01642 546076

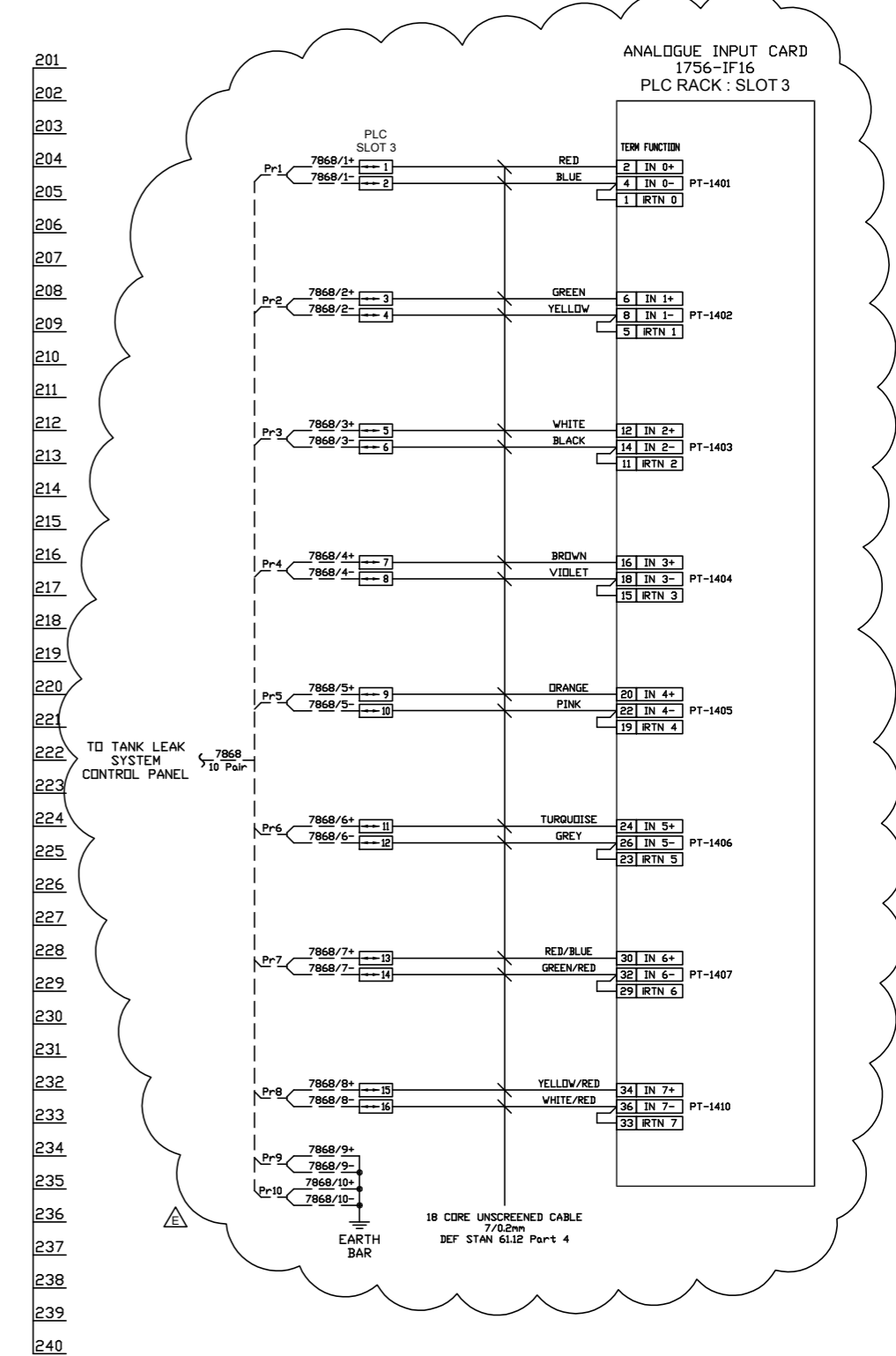
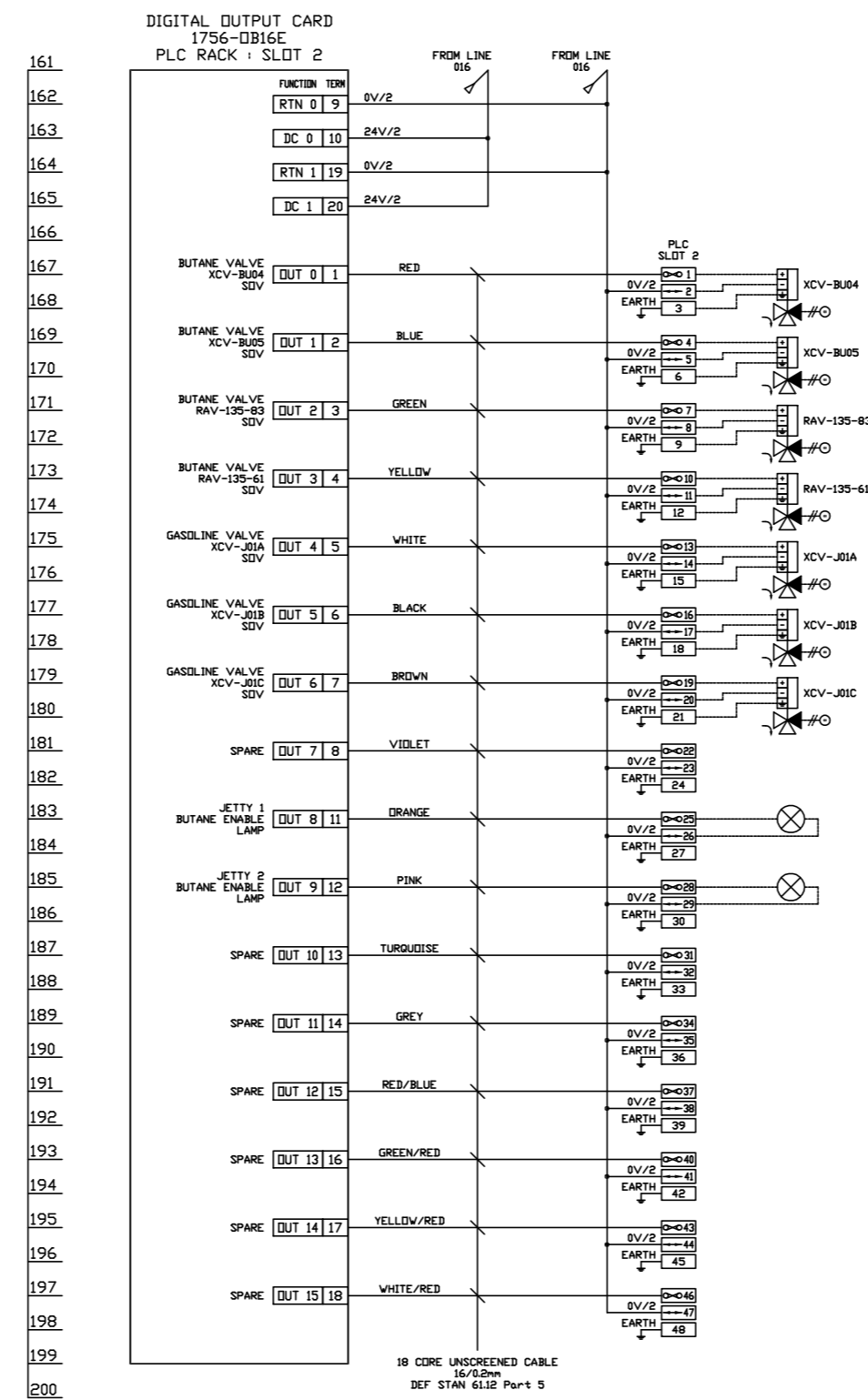
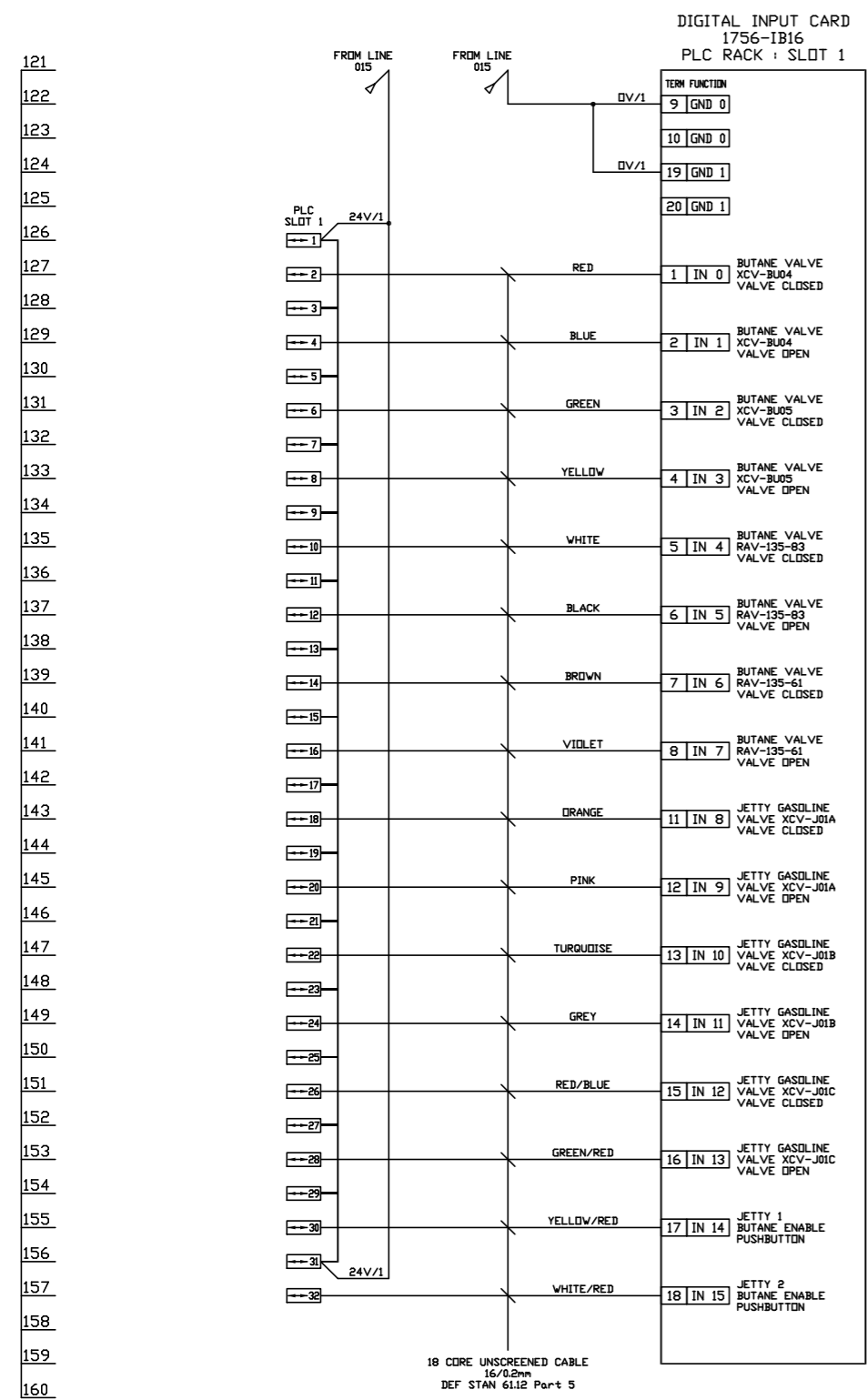
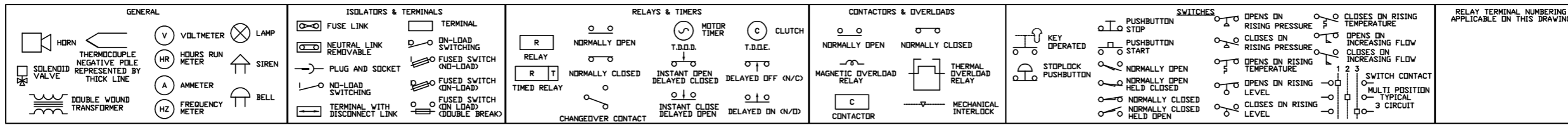
PROJECT
 INTER TERMINALS SEAL SANDS : HARVEST PROJECT

TITLE
 RIVERSIDE SWITCHROOM REMOTE I/O RACK - PANEL LAYOUT

Client No. SI100120 DRG. No. SEA/N/E/1691 REV. D

	GREY TRUNKING - FIELD CABLES (24Vdc)
	BLACK TRUNKING - 230Vac
	GREY TRUNKING - PANEL WIRING (24Vdc)

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



NOTES

- 1) TB-SLOT 1 : 32-off WEIDMULLER WTR 2.5 (1855610000)
- 2) TB-SLOT 2 : 16-off WEIDMULLER WSI 6 (1011000000)
16-off WEIDMULLER WTR 2.5 (1855610000)
16-off WEIDMULLER WDU 2.5 (1020000000)
- 3) TB-SLOT 3 : 16-off WEIDMULLER WTR 2.5 (1855610000)

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	05/10/10	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR TENDER
B	18/10/10	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
C	04/11/11	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT
D	09/10/12	W.G.	C.E.			SS DWG No. ASSIGNED
E	08/12/15	P.P.	P.P.	D.R.P	P.J.P	CARD ADDED TO PLC SLOT 3

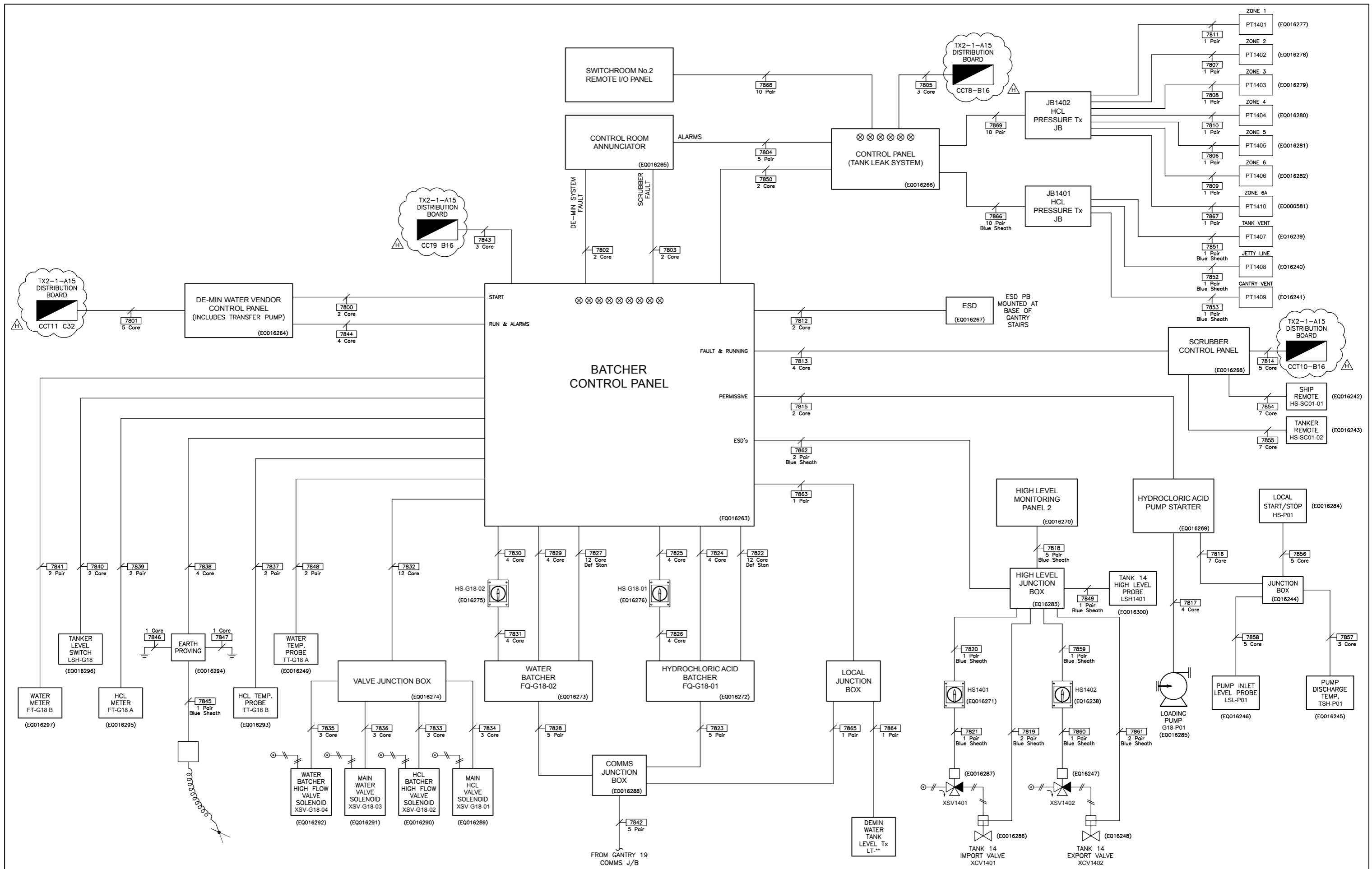
inter terminals

Seal Sands Storage Ltd.
Seal Sands
Middlesbrough
Cleveland
TS2 1UB
Tel: 01642 546775
Fax: 01642 546076

PROJECT
INTER TERMINALS SEAL SANDS : HARVEST PROJECT

TITLE
RIVERSIDE SWITCHROOM REMOTE I/O RACK
LOGIC DRAWING 2 : PLC RACK

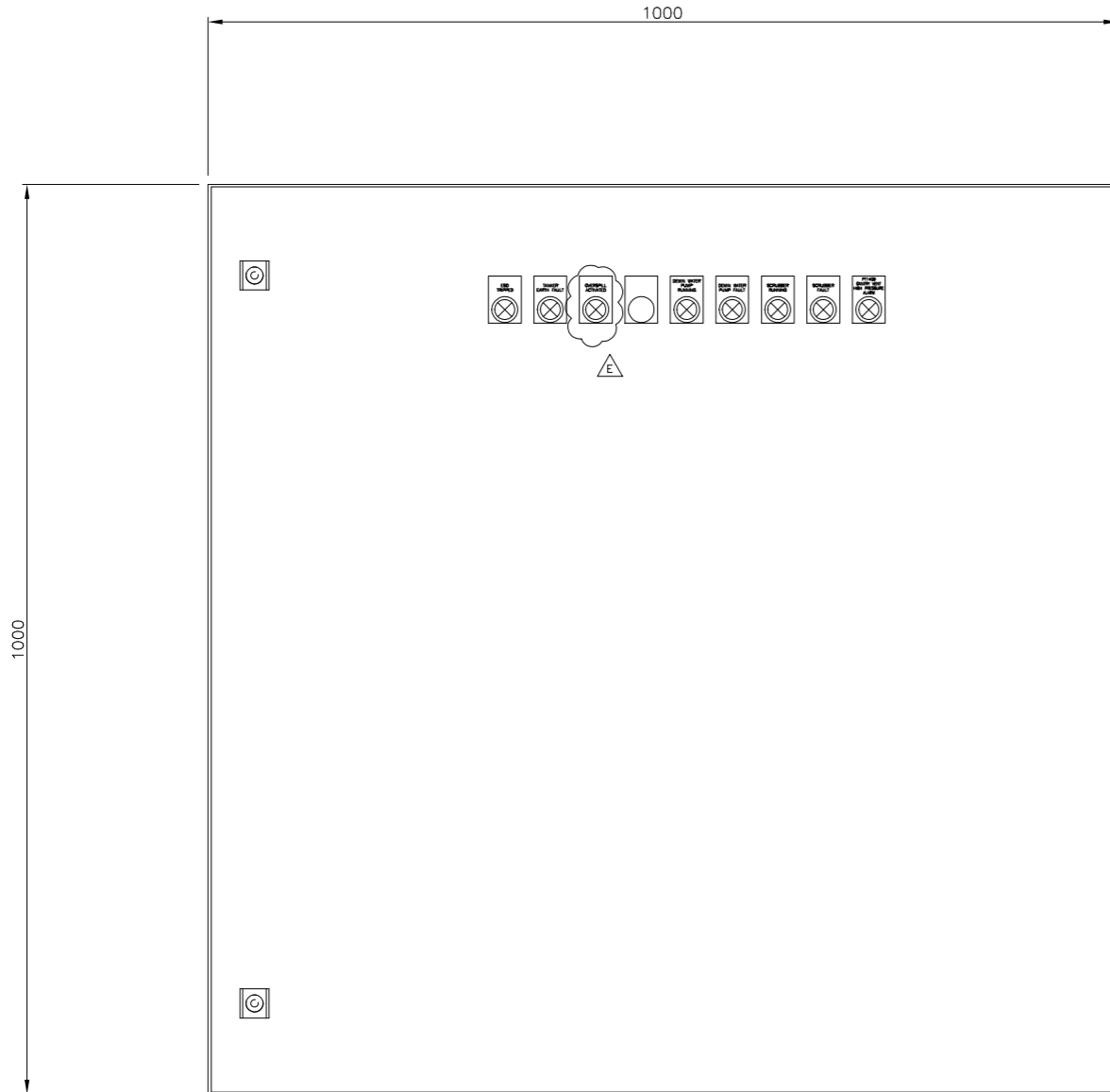
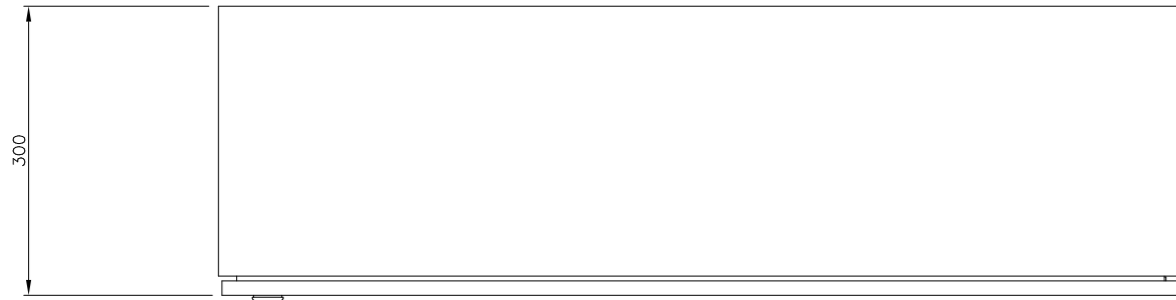
Client No. S1100122 DRG. No. SEA/N/E/1693 REV. E



IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
H	15/02/16	D.R.P.	P.P.	D.R.P.	P.J.P.	POWER DETAILS ADDED	A	04/04/14	P.P.	P.P.	P.J.P.	M.M.	ISSUED FOR TENDER
							B	28/04/14	P.P.	P.P.	P.J.P.	P.J.P.	REVISED FOR TENDER
							C	29/05/14	P.P.	P.P.	P.J.P.	P.J.P.	ISSUED FOR CONSTRUCTION
							D	16/06/14	D.R.P.	D.A.Y.	P.J.P.	P.J.P.	DEMIN WATER LT ADDED
							E	11/07/14	D.R.P.	D.A.Y.	P.J.P.	P.J.P.	CABLE MOVED & TAG UPDATED
							F	17/06/15	D.R.P.	D.A.Y.	D.R.P.	P.J.P.	AS BUILT
							G	08/12/15	D.R.P.	P.P.	D.R.P.	P.J.P.	PT1410 ADDED

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE CABLE OVERVIEW
CLIENT DRG. No.	P&I DESIGN
	inter terminals
	Seal Sands Storage Co Ltd
	Seal Sands Terminal
	Seal Sands
	Middlesbrough
	TS2 1UB
	Tel. 01642 617444
	www.pidesign.co.uk
	SHEET 1 OF 1
	P&I DRG No. S1144001_DWG



RELAY No.	TYPE
R019	6-Pole Guided Contact
R020	4-Pole Guided Contact 230Vac
R029	6-Pole Guided Contact
R039	4-Pole Standard
R056	4-Pole Standard
R077	4-Pole Guided Contact 24Vdc
R096	4-Pole Standard
R165	
R167	
R175	4-Pole Standard
R177	4-Pole Standard
R183	4-Pole Standard
R185	4-Pole Standard

NOTES

- 1) ENCLOSURE :-
RITTAL STAINLESS STEEL ENCLOSURE TYPE AE 1018.600

RELAYS

- A) 6-POLE GUIDED CONTACT RELAYS :-
FINDER TYPE 7S.16.8.230.0420
- B) 4-POLE GUIDED CONTACT RELAYS (230Vac) :-
FINDER TYPE 7S.14.8.230.0310
- C) STANDARD 4-POLE RELAYS :-
BASE - FINDER TYPE 94.04.0 (Black)
RELAY - FINDER 55.34.8.230.00540
- D) 4-POLE GUIDED CONTACT RELAYS (24Vdc) :-
FINDER TYPE 7S.14.9.024.0310

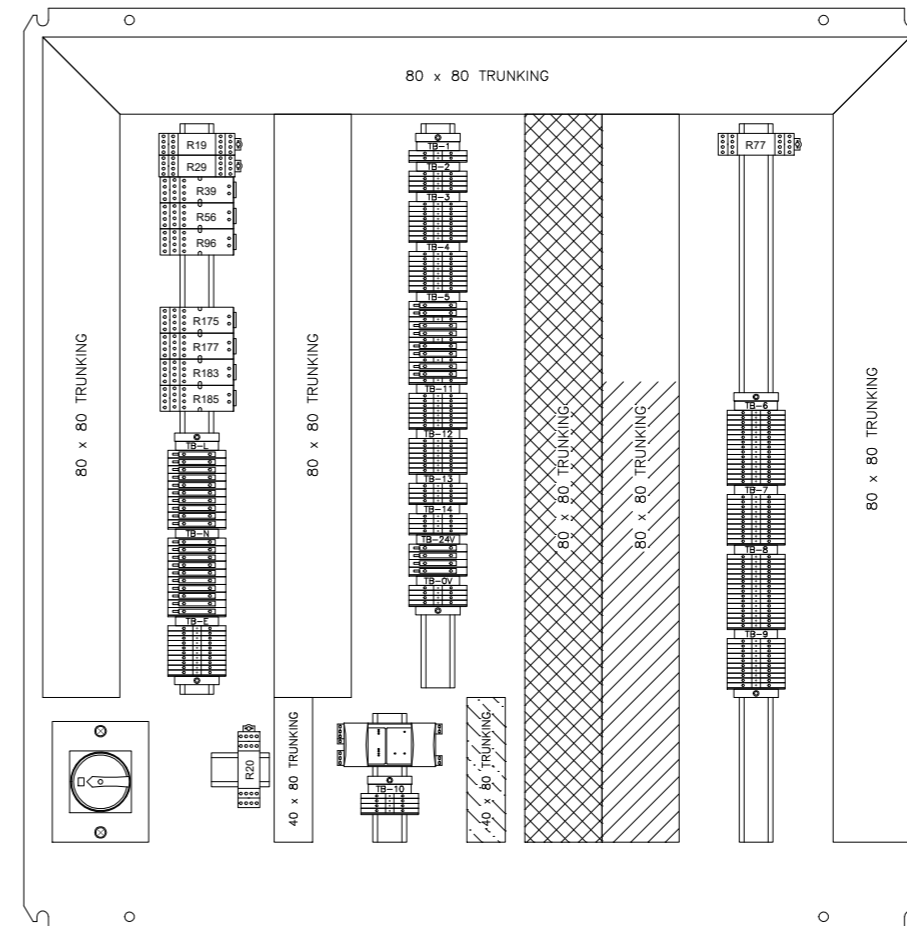
TERMINAL BLOCKS

BLOCK	QTY	DESCRIPTION
TB-L	10	WSI 6 (Wiedmuller 1011000000)
TB-N	10	WSI 6 (Wiedmuller 1011000000)
TB-E	10	WPE 2.5 (Wiedmuller 1010000000)
TB-1	2	WDU 2.5 (Wiedmuller 1020000000)
TB-2	4	WDU 2.5 (Wiedmuller 1020000000)
TB-3	8	WDU 2.5 (Wiedmuller 1020000000)
TB-4	8	WDU 2.5 (Wiedmuller 1020000000)
TB-5	8	WSI 6 (Wiedmuller 1011000000)
	4	WPE 2.5 (Wiedmuller 1010000000)
TB-6	15	WDU 2.5 (Wiedmuller 1020000000)
TB-7	10	WDU 2.5 (Wiedmuller 1020000000)
TB-8	15	WDU 2.5 (Wiedmuller 1020000000)
TB-9	10	WDU 2.5 (Wiedmuller 1020000000)
TB-10	4	WDU 2.5 BL (Wiedmuller 1020080000)
TB-11	7	WDU 2.5 (Wiedmuller 1020000000)
TB-12	7	WDU 2.5 (Wiedmuller 1020000000)
TB-13	4	WDU 2.5 (Wiedmuller 1020000000)
TB-14	4	WDU 2.5 (Wiedmuller 1020000000)
TB-24V	4	WSI 6 (Wiedmuller 1011000000)
TB-0V	4	WDU 2.5 (Wiedmuller 1010000000)

WIRING DETAILS

DESCRIPTION

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



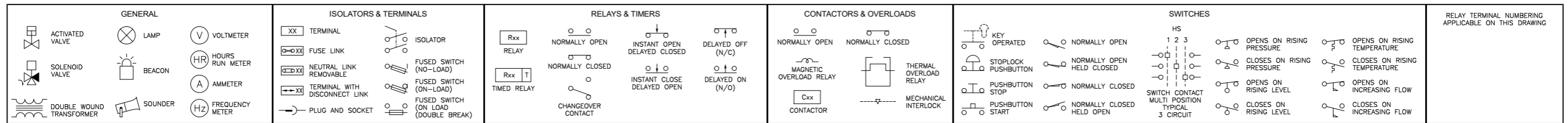
	BLACK TRUNKING - FIELD CABLES (230Vac)
	GREY TRUNKING - FIELD WIRING (12Vdc)
	BLUE TRUNKING - FIELD CABLES (I.S.)
	BLACK TRUNKING - PANEL WIRING

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

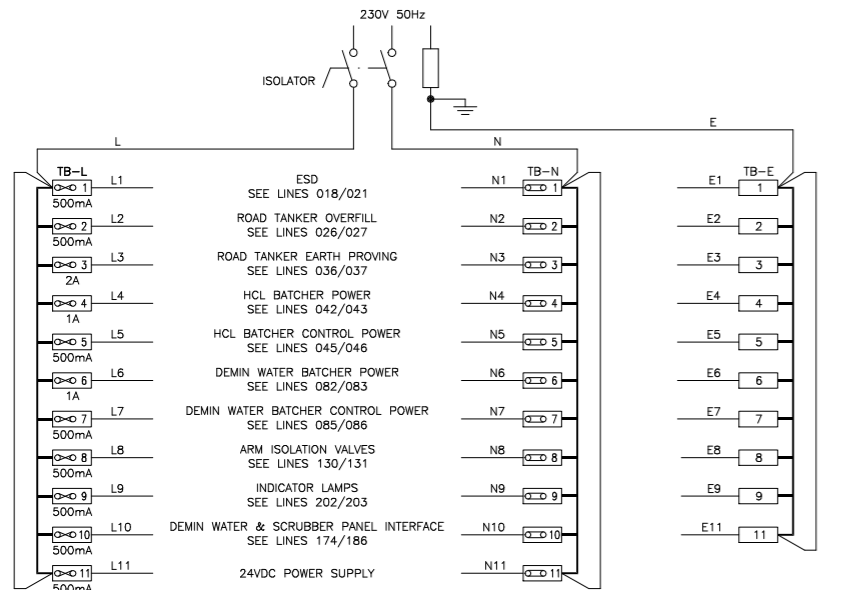
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A	17/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR TENDER
B	28/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
C	30/05/14	P.P.	P.P.	P.J.P	P.J.P	REVISED FOR CONSTRUCTION
D	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT
E	24/10/14	D.R.P	P.P.	D.R.P	P.J.P	OVERSPILL LAMP ADDED

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE BATCHER CONTROL PANEL LAYOUT
	SEAL SANDS STORAGE Ltd, SEAL SANDS TERMINAL, WOODLESBROUGH, TS2 1UB.
	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
CLIENT DRG. No.	SHEET 1 OF 1 P&I DRG No. SI144005_DWG

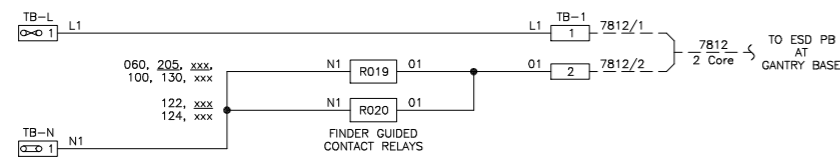
LEGEND OF GRAPHICAL SYMBOLS (ALL CONTACTS SHOWN IN THE DE-ENERGISED STATE)



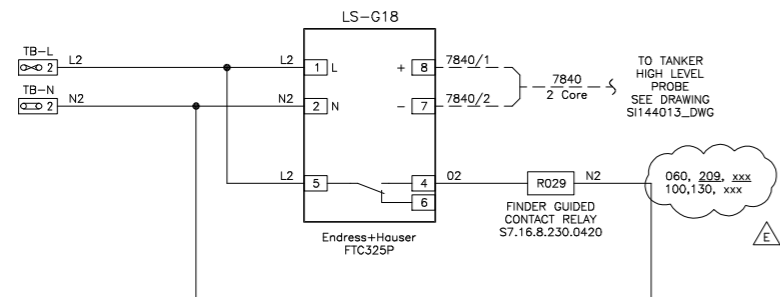
230Vac POWER DISTRIBUTION



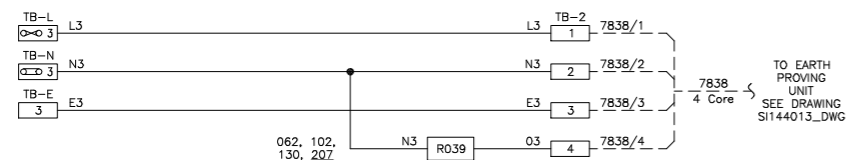
SITE ESD



TANKER OVERFILL

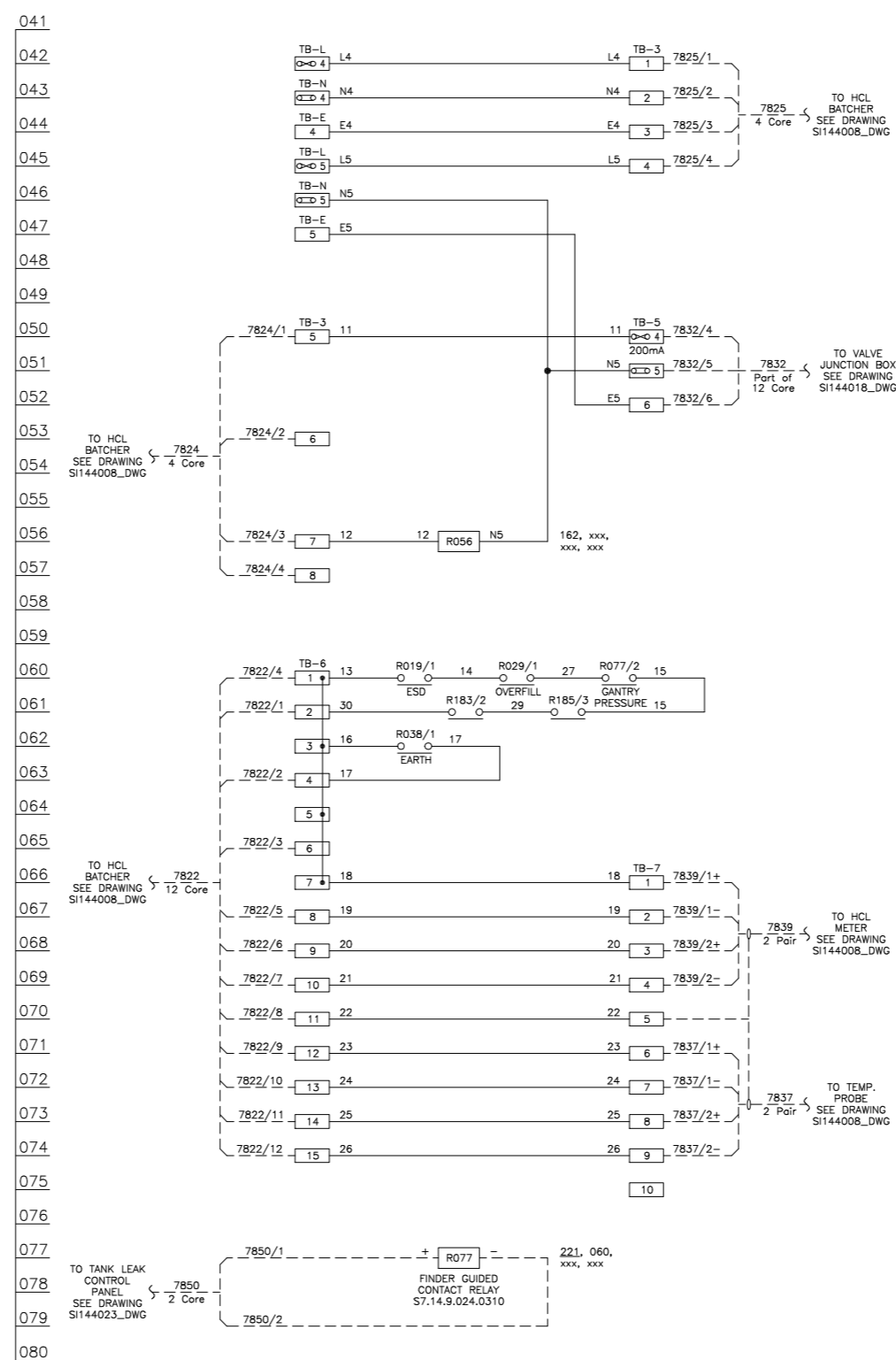


TANKER EARTH PROVING



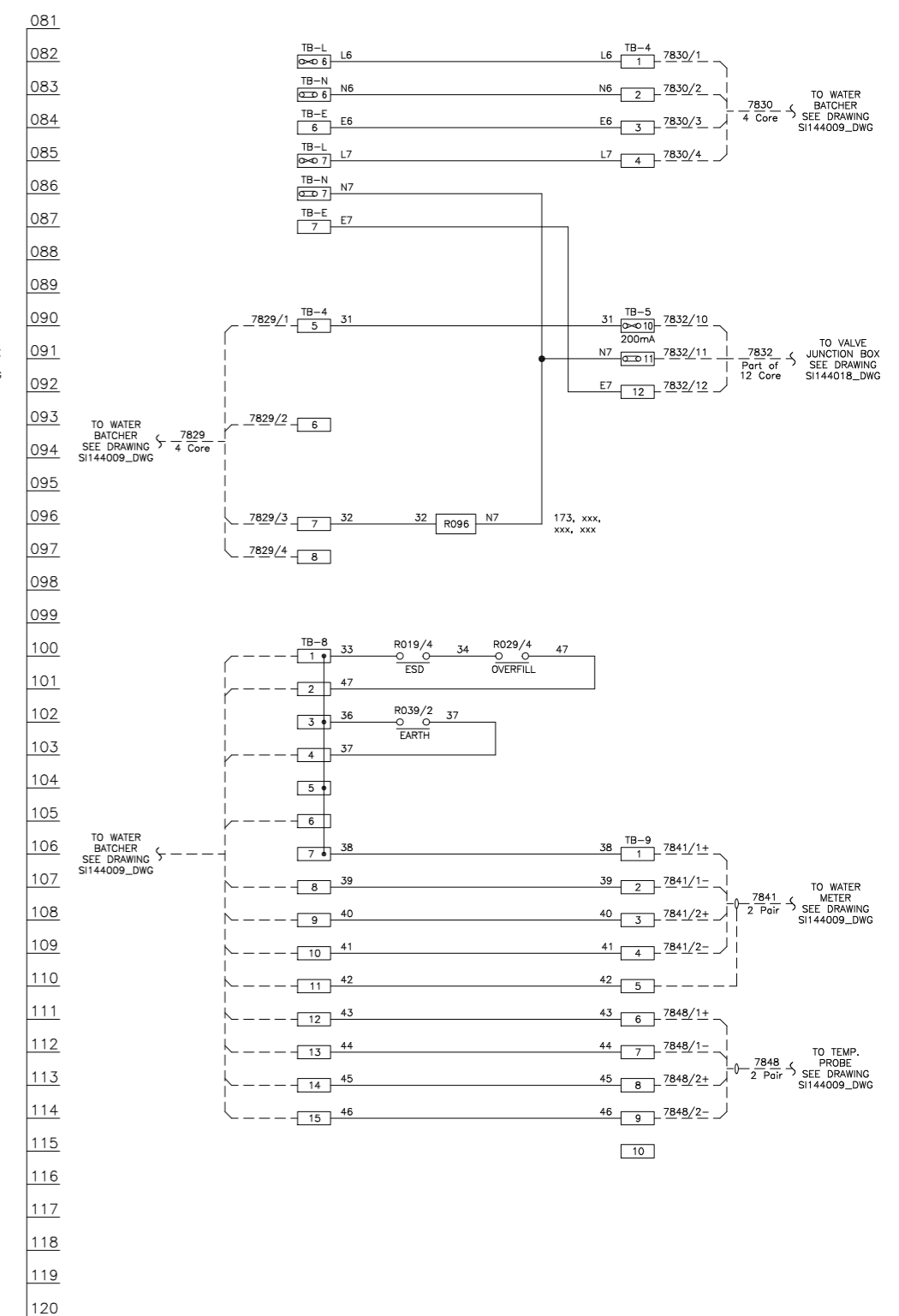
LAST NUMBER USED : 03
 SPARE TO : 10

FQ-G18-01 HYDROCHLORIC ACID BATCHER



LAST NUMBER USED : 30
 SPARE TO : --

WATER BATCHER



LAST NUMBER USED : 47
 SPARE TO : 50

NOTES
 1)

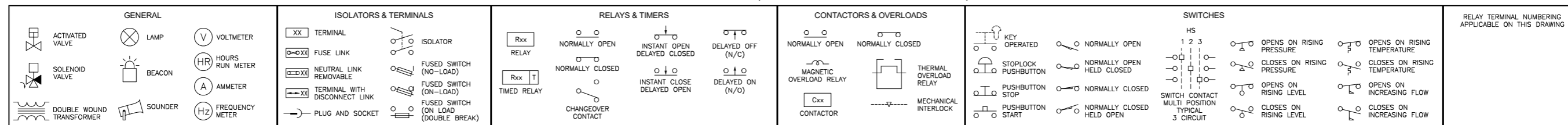
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED							SEAL SANDS STORAGE LTD	
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	PLANT	TITLE
A	17/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR TENDER		TANK 14 HYDROCHLORIC ACID STORAGE BATCHER CONTROL PANEL LOGIC DRAWING 1
B	28/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION		
C	30/05/14	P.P.	P.P.	P.J.P	P.J.P	REVISED FOR CONSTRUCTION		
D	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT		
E	24/10/14	D.R.P	P.P.	D.R.P	P.J.P	OVERSPILL LAMP ADDED		

SEAL SANDS STORAGE LTD,
SEAL SANDS TERMINAL,
WODLESBROUGH,
TS2 1UB.

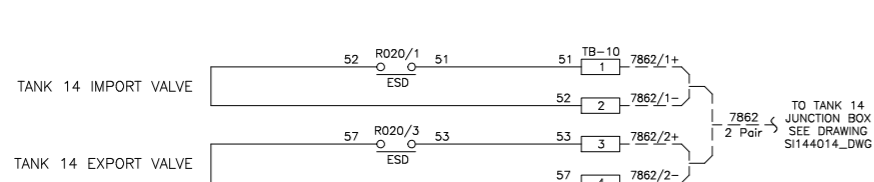
P & I Design Ltd
Tel. 01642 617444
www.pidesign.co.uk

CLIENT DRG. No. P&I DRG No. S1144006_DWG SHEET 1 OF 1

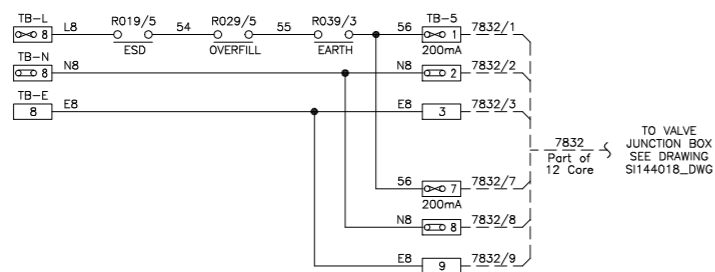
LEGEND OF GRAPHICAL SYMBOLS (ALL CONTACTS SHOWN IN THE DE-ENERGISED STATE)



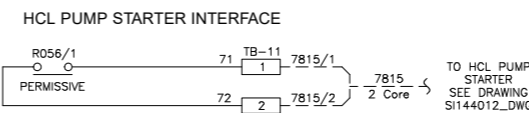
VALVES



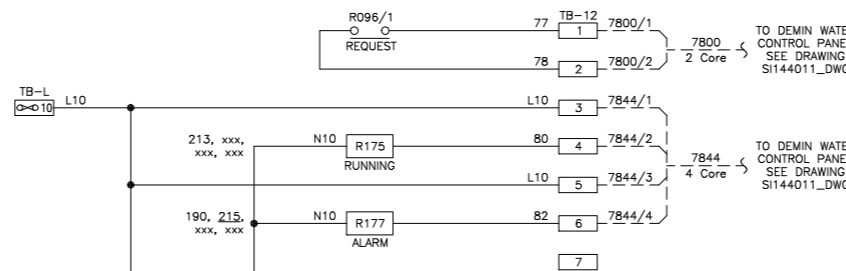
HCL & DEMIN WATER ARM ISOLATION VALVES



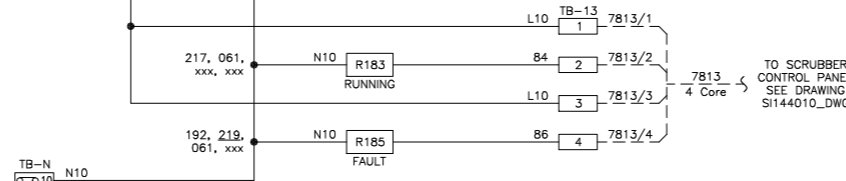
EXTERNAL PANEL INTERFACE



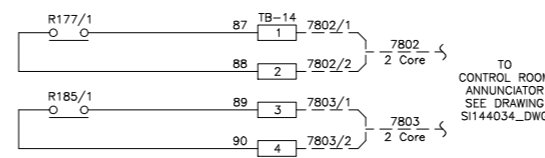
DEMIN WATER CONTROL PANEL INTERFACE



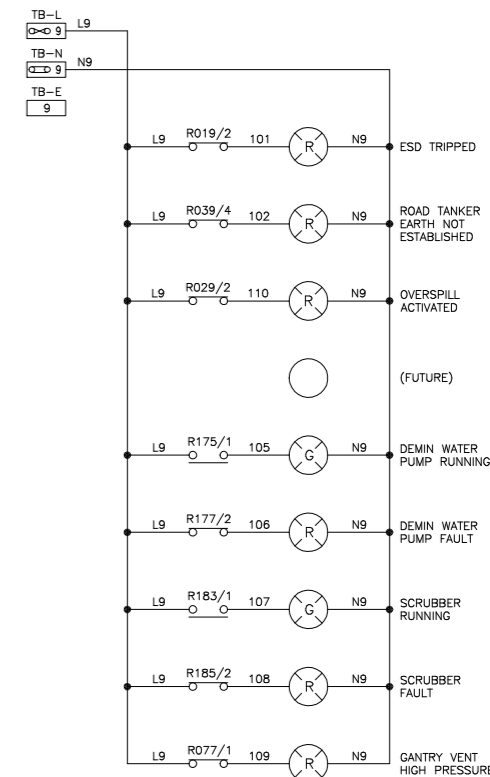
SCRUBBER CONTROL PANEL INTERFACE



CONTROL ROOM ANNUNCIATOR INTERFACE



INDICATION LAMPS



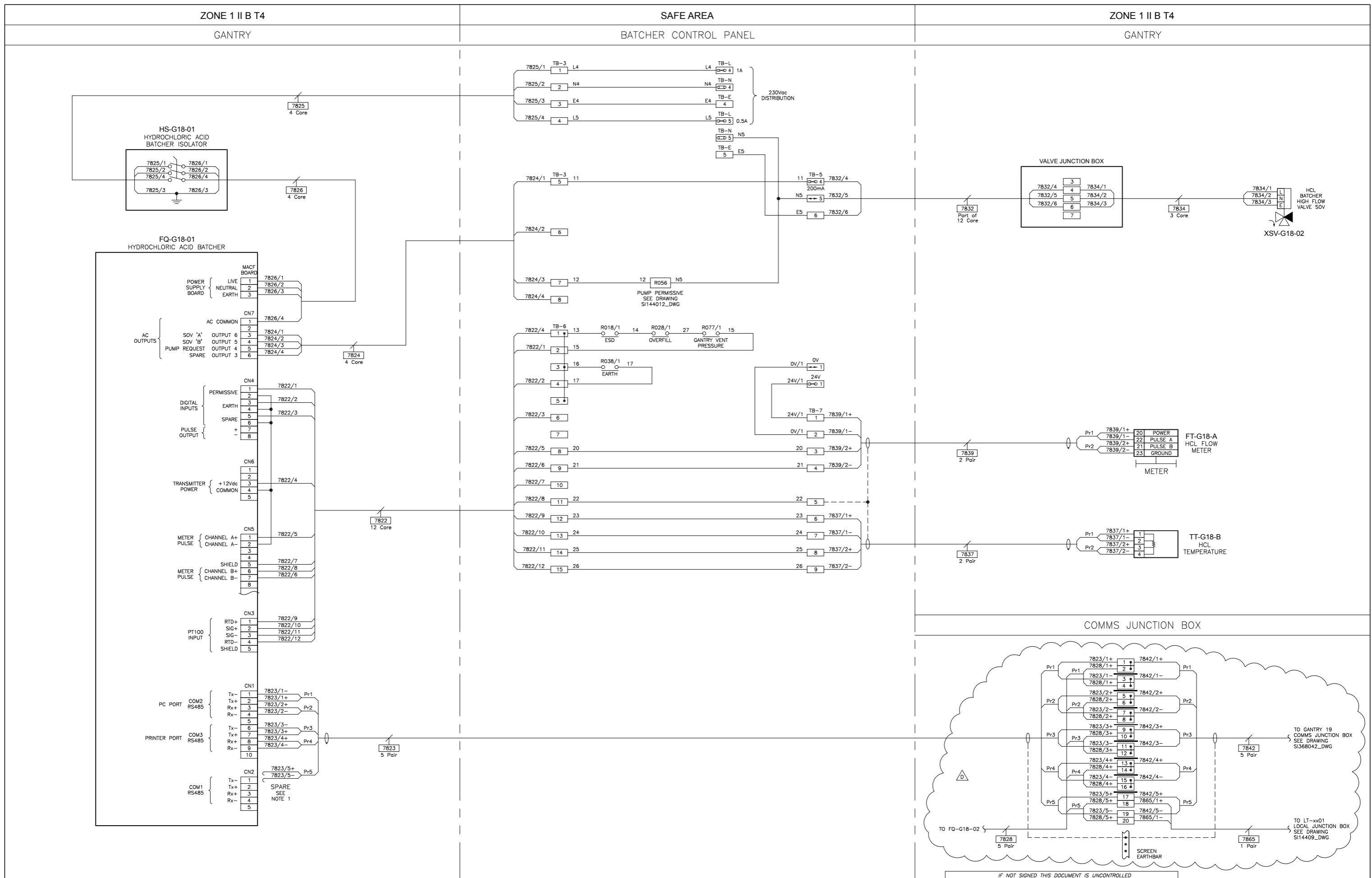
LAST NUMBER USED : 57
SPARE TO : 70

LAST NUMBER USED : 90
SPARE TO : 100

LAST NUMBER USED : 110
SPARE TO

NOTES
1)

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED							PLANT	SEAL SANDS STORAGE LTD
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	TITLE	TANK 14 HYDROCHLORIC ACID STORAGE BATCHER CONTROL PANEL LOGIC DRAWING 2
A	17/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR TENDER	SEAL SANDS STORAGE LTD SEAL SANDS TERMINAL WIDDLESBROUGH, TS2 1UB.	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
B	28/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION		
C	30/05/14	P.P.	P.P.	P.J.P	P.J.P	REVISED FOR CONSTRUCTION		
D	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT		
E	24/10/14	D.R.P	P.P.	D.R.P	P.J.P	OVERSPILL LAMP ADDED		
							CLIENT DRG. No.	P&I DRG No. SI144007_DWG



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
FQ-G18-01	DEMKO 04 ATEX 0403315	Ex II 2 G EEx d IIB T6	N/A
HS-G18-02	ATEX	Ex	N/A
FT-G18-A	DMT 00 ATEX E017X	Ex II 2 G EEx de [e] IIC T6	N/A
TT-G18-B	ITS 10 ATEX 47054X	Ex II 3 G EEx nA II T6	N/A

NOTES
 1) SPARE PAIR CORES TO BE CONNECTED TO LOCAL EARTH.

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED							
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	PLANT
A	28/05/14	P.P.	P.P.	P.J.P.	P.J.P.	ISSUED FOR CONSTRUCTION	SEAL SANDS STORAGE LTD
B	16/06/14	D.R.P.	D.A.Y.	P.J.P.	P.J.P.	FLOWMETER CONNECTION MOD	TANK 14 HYDROCHLORIC ACID STORAGE
C	18/09/14	D.R.P.	D.A.Y.	P.J.P.	P.J.P.	AS BUILT	HYDROCHLORIC ACID BATCHER TERMINATION DETAILS
D	17/06/15	D.R.P.	P.P.	D.R.P.	P.J.P.	COMMS DETAILS ADDED	

inter terminals
 Seal Sands Storage Co Ltd
 Seal Sands Terminal
 Seal Sands
 Middlesbrough
 TS2 1UB
 CLIENT DRG. No.

P & I Design Ltd
 Tel. 01642 617444
 www.pidesign.co.uk
 SHEET 1 OF 1
 P&I DRG No. SI144008_DWG

ZONE 1 IIB T4

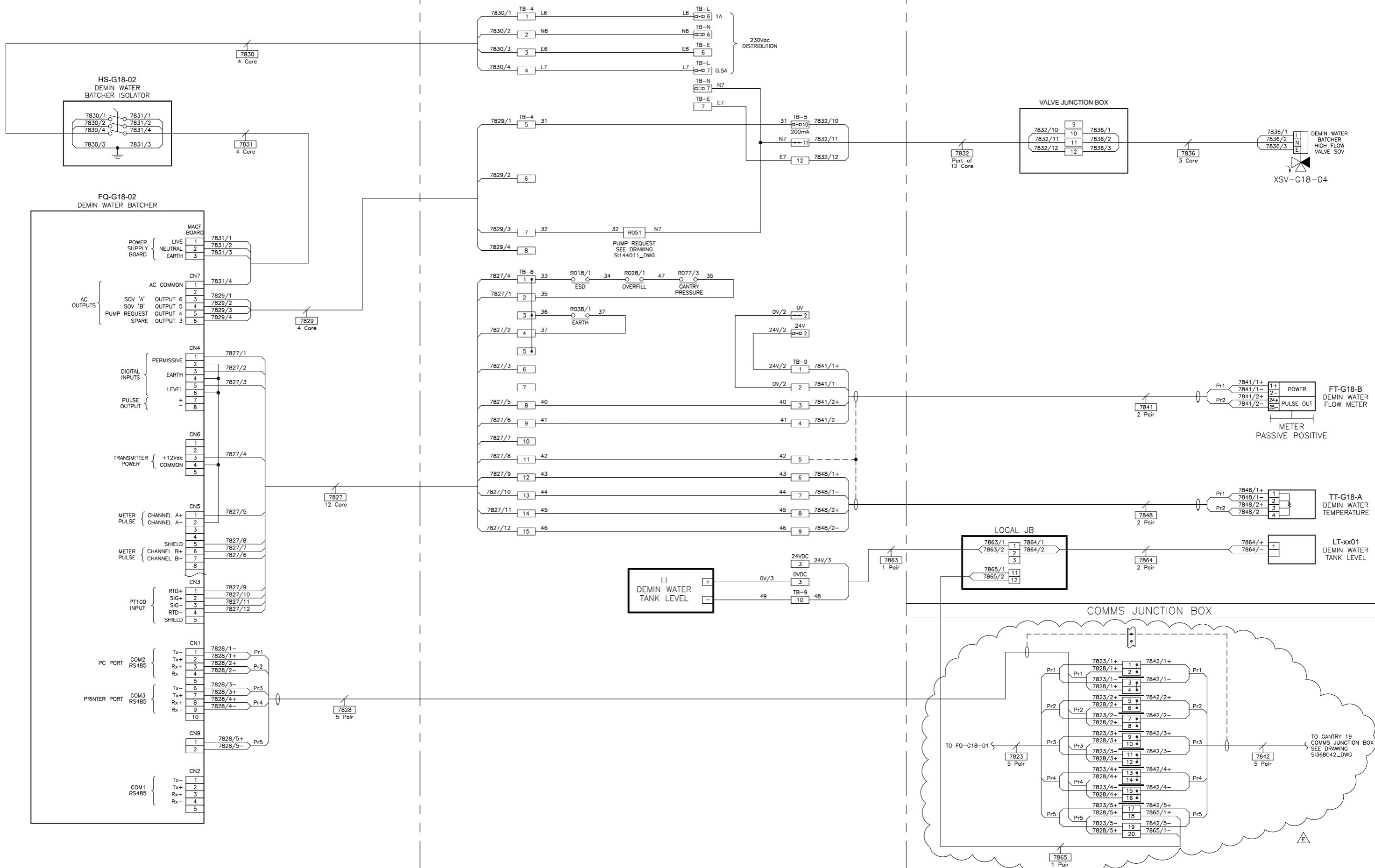
SAFE AREA

ZONE 1 IIB T4

GANTRY

BATCHER CONTROL PANEL

GANTRY



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
FQ-G18-02	DEMKO 04 ATEX 0403315	Ex II 2 G EEx d IIB T6	N/A
HS-G18-02	ATEX	Ex	N/A
FT-G18-B	DMT 00 ATEX E074X	Ex II 2 GD EEx de ic IIC T6	N/A
TT-G18-A	ITS 10 ATEX 47054X	Ex II 3 G EEx nA II T6	N/A

NOTES
 1) SPARE PAIR CORES TO BE CONNECTED TO LOCAL EARTH.

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	28/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	16/06/14	D.R.P	D.A.Y	P.J.P	P.J.P	DEMIN WATER LI ADDED
C	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT
D	19/03/15	D.R.P	D.A.Y	P.J.P	P.J.P	DEMIN WATER LI ADDED
E	17/06/15	D.R.P	P.P.	D.R.P	P.J.P	COMMS DETAILS ADDED

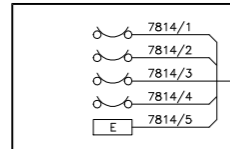
PLANT: SEAL SANDS STORAGE LTD
 TITLE: TANK 14 HYDROCHLORIC ACID STORAGE DEMIN WATER BATCHER CONNECTION DETAILS

CLIENT DRG. No. **inter terminals**
 Seal Sands Storage Co Ltd
 Seal Sands Terminal
 Seal Sands
 Middlebrough
 TS2 1UB

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

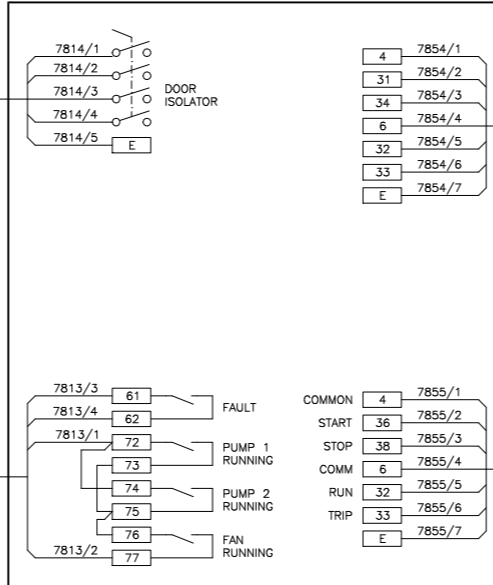
SHEET 1 OF 1
 P&I DRG No. S1144009 DWG

DISTRIBUTION BOARD



7814
5 Core

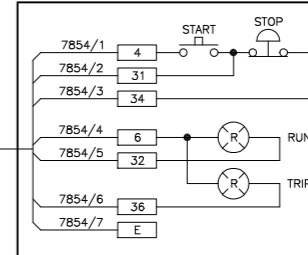
SCRUBBER CONTROL PANEL



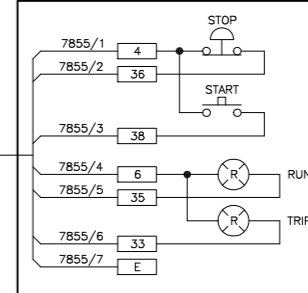
7854
7 Core

7855
7 Core

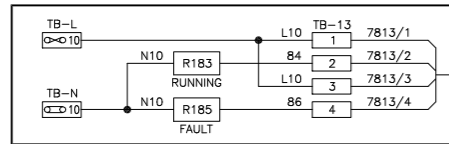
HS-SC01-01
SHIPPING REMOTE PANEL



HS-SC01-02
TANKER REMOTE PANEL



BATCHER CONTROL PANEL




7813
4 Core

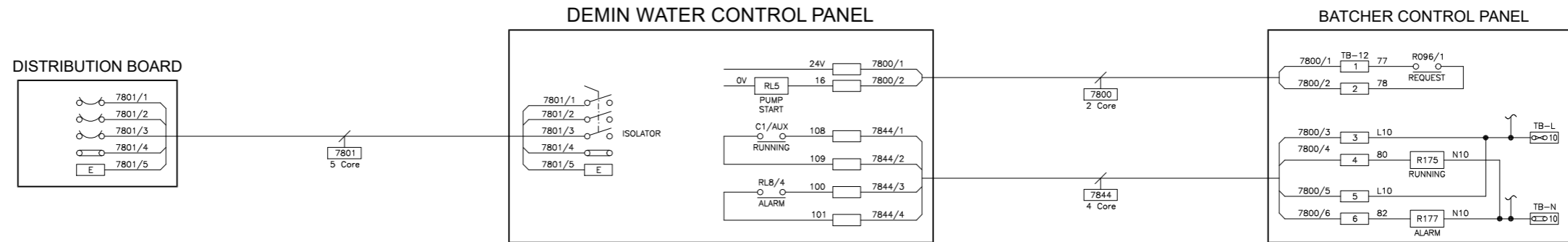
REFER TO P&I PANEL DESIGN LOGIC DRAWING
SI144007_DWG FOR CONTROL DETAILS

REFER TO FORBES PANEL WIRING DRAWING
D30433/P89206 FOR CONTROL DETAILS

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	28/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE SCRUBBER CONTROL PANEL CONNECTION DETAILS
CLIENT DRG. No.	SEAL SANDS STORAGE LTD, SEAL SANDS TERMINAL, MIDDLESBROUGH, TS2 1UB.
	 P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
	SHEET 1 OF 1
	P&I DRG No. SI144010_DWG





REFER TO VENDOR PANEL WIRING DRAWINGS
PRJ099E01 to PRJ099E04 FOR CONTROL DETAILS

REFER TO P&I PANEL DESIGN LOGIC DRAWING
SI144007_DWG FOR CONTROL DETAILS

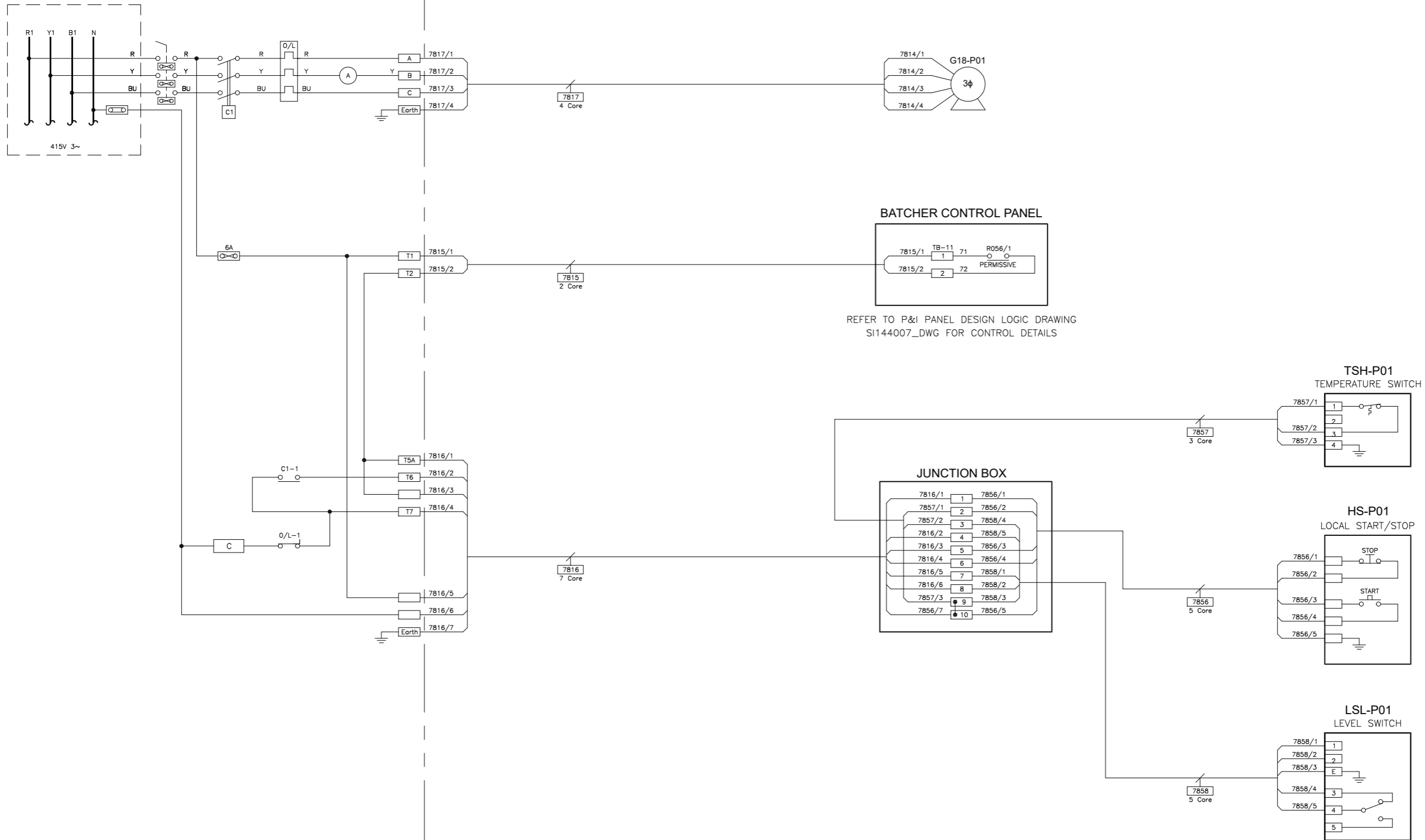
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	29/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE DEMIN WATER CONTROL PANEL CONNECTION DETAILS
 SEAL SANDS STORAGE LTD, SEAL SANDS TERMINAL, WIDDLESBROUGH, TS2 1UB.	 P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
CLIENT DRG. No.	P&I DRG No. SI144011_DWG
SHEET 1 OF 1	

No.1 SWITCHROOM

TX1-1A-A20 PANEL





BATCHER CONTROL PANEL

REFER TO P&I PANEL DESIGN LOGIC DRAWING
SI144007_DWG FOR CONTROL DETAILS

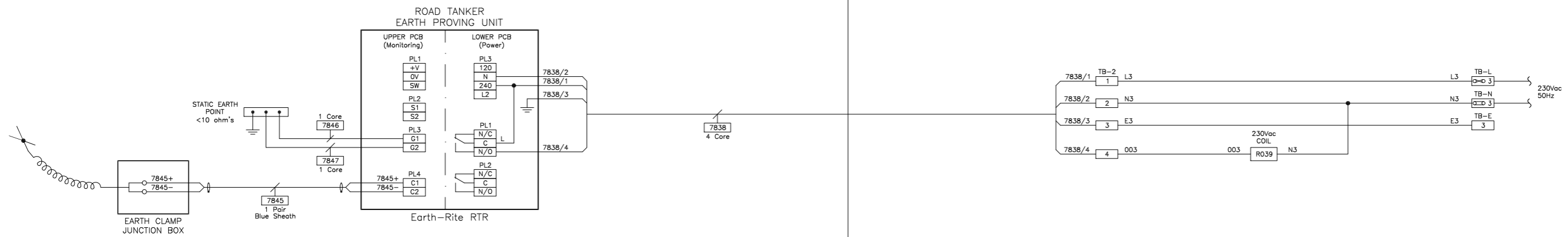
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	29/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	11/07/14	P.P.	P.P.	P.J.P	P.J.P	J/B CONNECTIOND REVISED
C	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE HCL PUMP STARTER CONNECTION DETAILS
 SEAL SANDS STORAGE LTD, SEAL SANDS TERMINAL, WIDDLESBROUGH, TS2 1UB.	 P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
CLIENT DRG. No.	P&I DRG No. SI144012_DWG

ROAD LOADING GANTRY

BATCHER CONTROL PANEL



REFER TO LOGIC DRAWING
SI144006_DWG
FOR PROVING UNIT FULL
FUNCTIONALITY

CERTIFIED EQUIPMENT

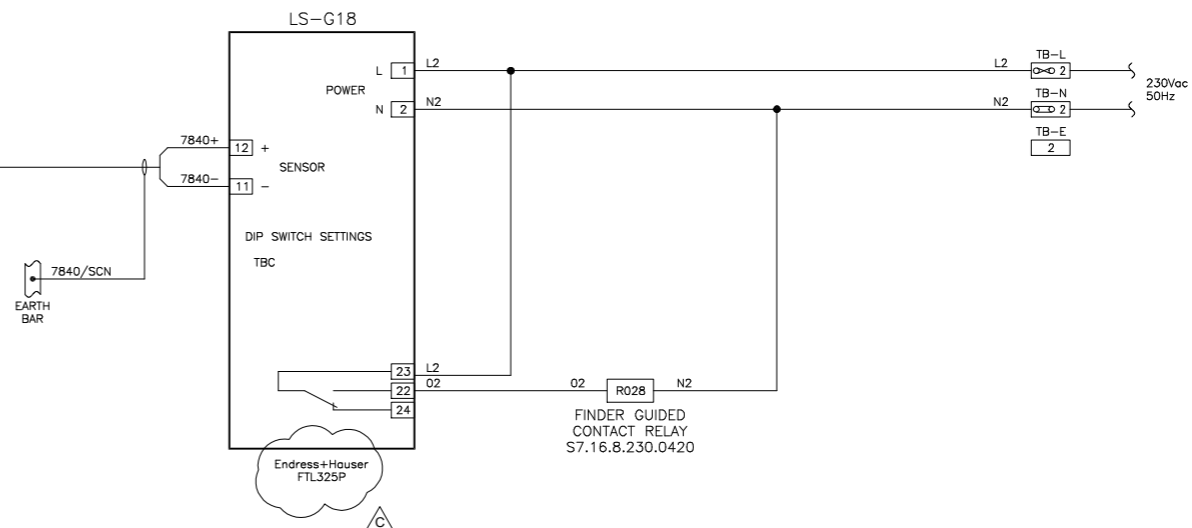
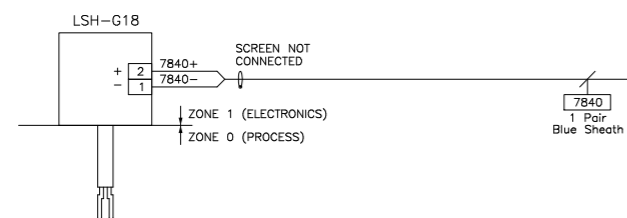
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
PROVING UNIT	SIRA 09 ATEX 2047	Ex II 2 GD EEx d(t) IIC T6	N/A

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	29/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE ROAD TANKER EARTH PROVING LOOP SHEET
CLIENT DRG. No.	SEAL SANDS STORAGE LTD, SEAL SANDS TERMINAL, WOODLESBROUGH, TS2 1UB.
	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
	SHEET 1 OF 1
	P&I DRG No. SI144013_DWG

REFER TO COMPARTMENT WIRING DRAWING
SI144006_DWG FOR CONTROL DETAILS



CERTIFIED EQUIPMENT

TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
LSH-G18	KEMA 99 ATEX 0523	Ex II 1/2 G EEx ia IIC T6	SI144xxx_CAL
LS-G18	DMT 01 ATEX E 052	Ex II (1) GD [EEx ia] IIC	

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

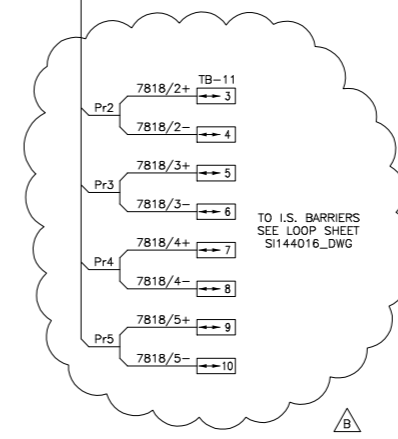
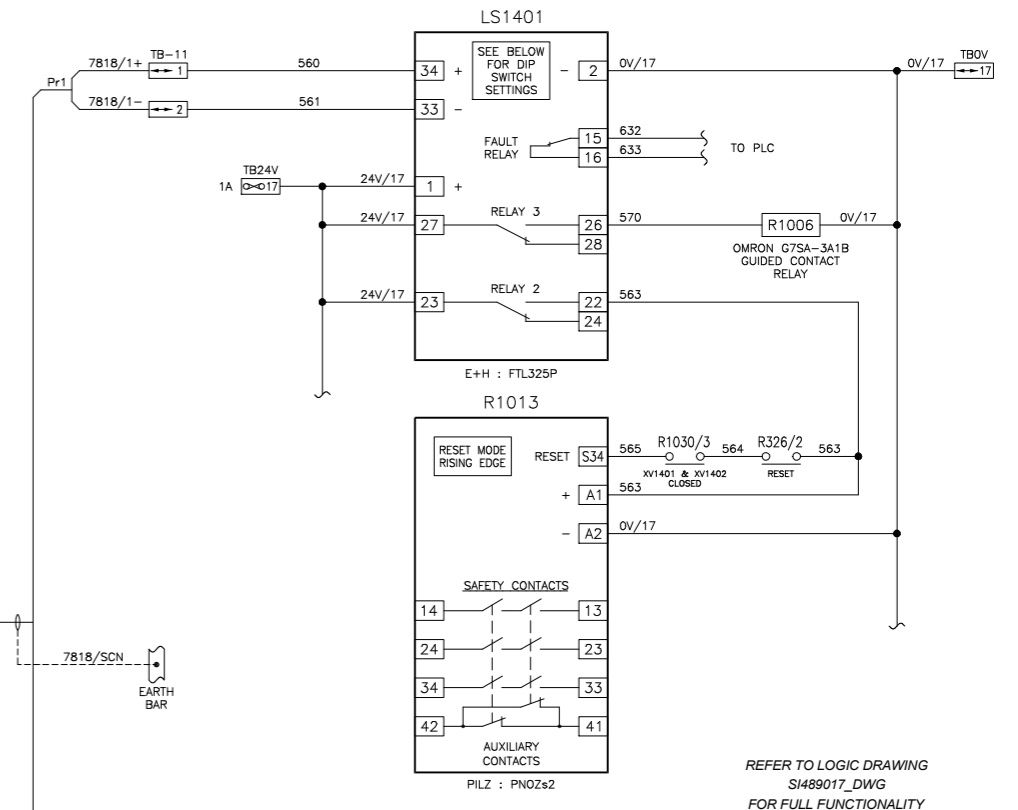
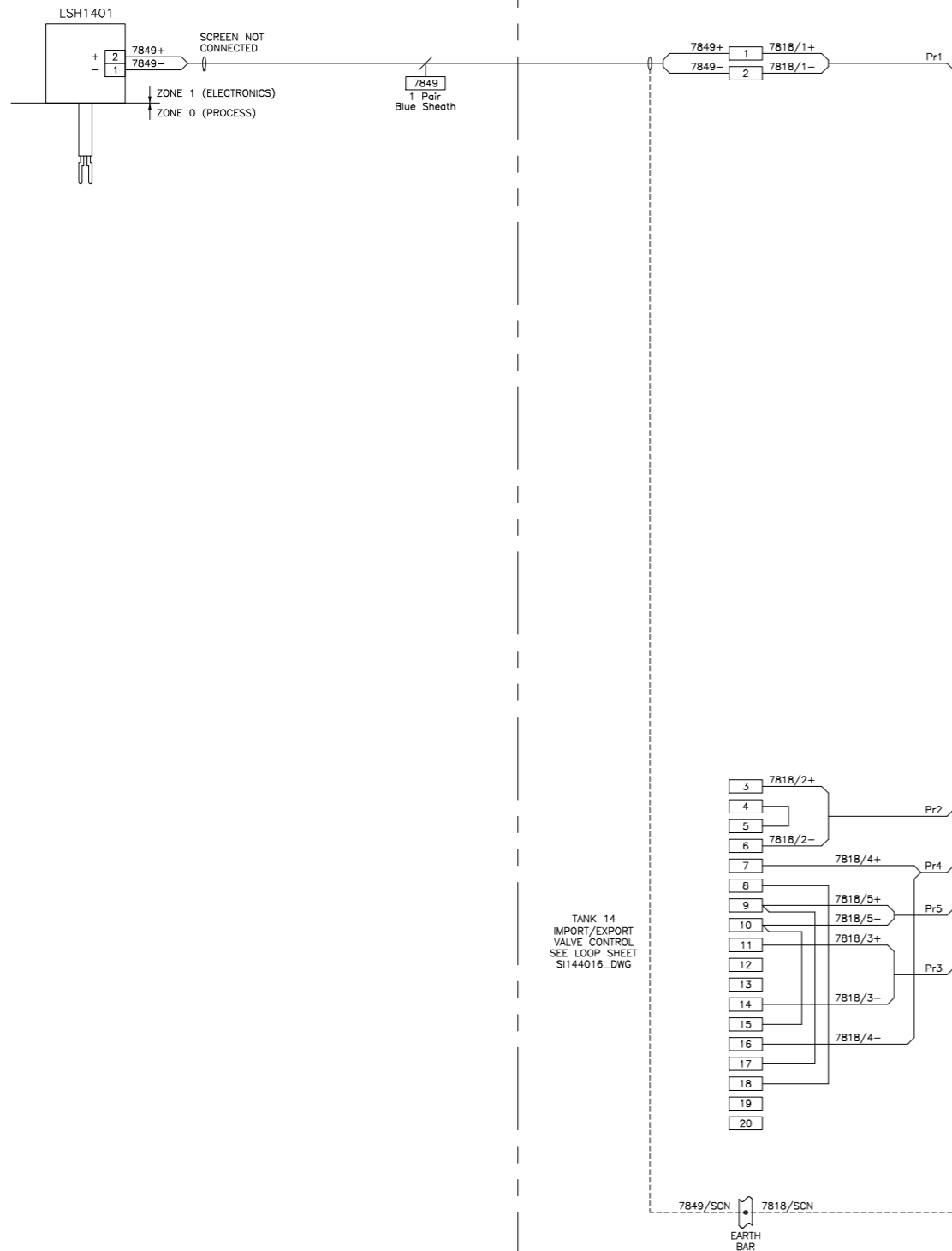
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	29/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT
C	22/02/16	D.R.P	P.P.	D.R.P	P.J.P	DETAIL CORRECTED

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE TANKER HIGH LEVEL LOOP SHEET
CLIENT DRG. No.	inter terminals Seal Sands Storage Ltd. Seal Sands Terminal Seal Sands Middlebrough TS2 1UB
P&I DRG No.	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
SHEET 1 OF 1	
P&I DRG No. SI144014_DWG	

TANK 14

TANK 14 JUNCTION BOX

HIGH LEVEL MONITORING PANEL



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
LSH1401	KEMA 99 ATEX 0523	Ex II 1/2 G EEx ia IIC T6	SI144xxx_CAL
LS1401	DMT 01 ATEX E 052	Ex II (1) GD [EEx ia] IIC	
Junction Box			

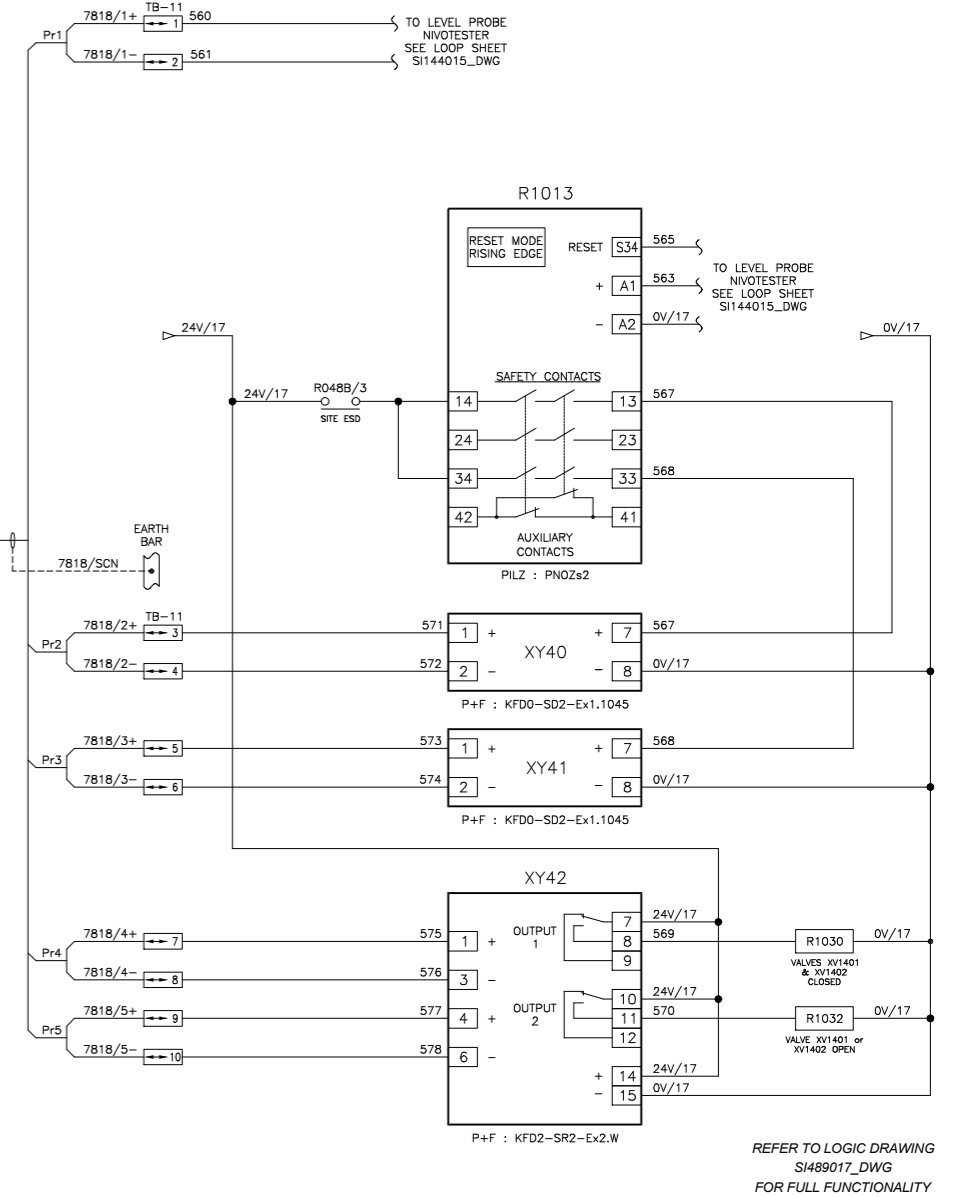
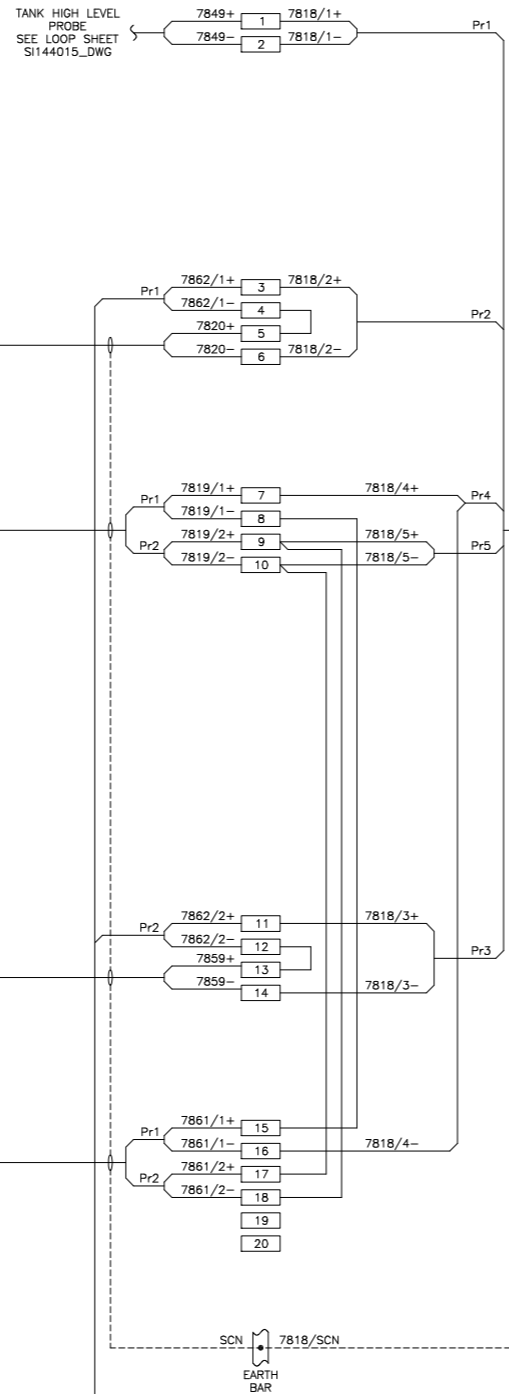
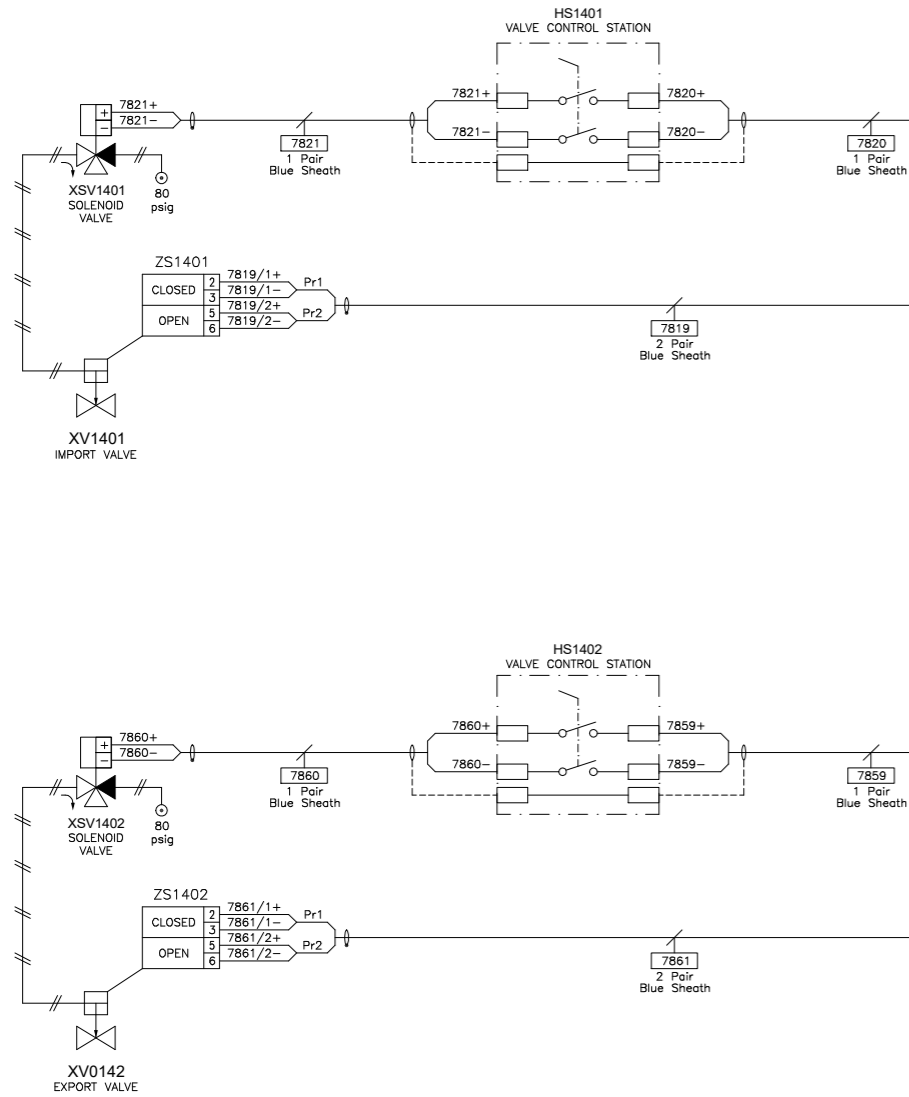
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	29/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	25/07/14	P.P.	P.P.	P.J.P	P.J.P	TB-11 / 3 to 10 ADDED

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE TANK 14 HIGH LEVEL PROBE LOOP SHEET
CLIENT DRG. No.	SEAL SANDS STORAGE LTD, SEAL SANDS TERMINAL, WIDDLESBROUGH, TS2 1UB.
P&I DESIGN	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
SHEET 1 OF 1	
P&I DRG No.	SI144015_DWG

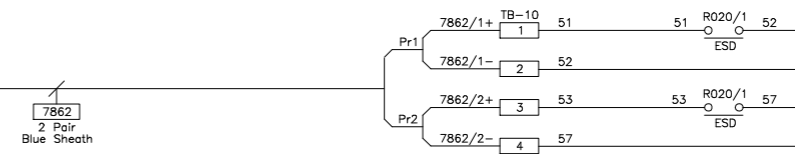
TANK 14

TANK 14 JUNCTION BOX

HIGH LEVEL MONITORING PANEL



BATCHER CONTROL PANEL



REFER TO LOGIC DRAWING SI144007_DWG FOR FULL FUNCTIONALITY

CERTIFIED EQUIPMENT				CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION	TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
XSV1401	ATEX	Ex II 1/2 G EEx ia IIC T6		ZS1401			SI144xxx_CAL
HS1401			SI144xxx_CAL	ZS1402			SI144xxx_CAL
XY40	BASEEFA 06 ATEX 0252	Ex II (1) GD [EEx ia] IIC		XY42	PTB 00 ATEX 2080	Ex II (1) GD [EEx ia] IIC	
XSV1402				Junction Box			
HS1402			SI144xxx_CAL				
XY41	BASEEFA 06 ATEX 0252	Ex II (1) GD [EEx ia] IIC					

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

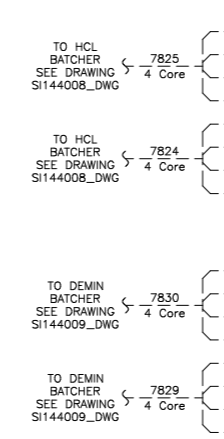
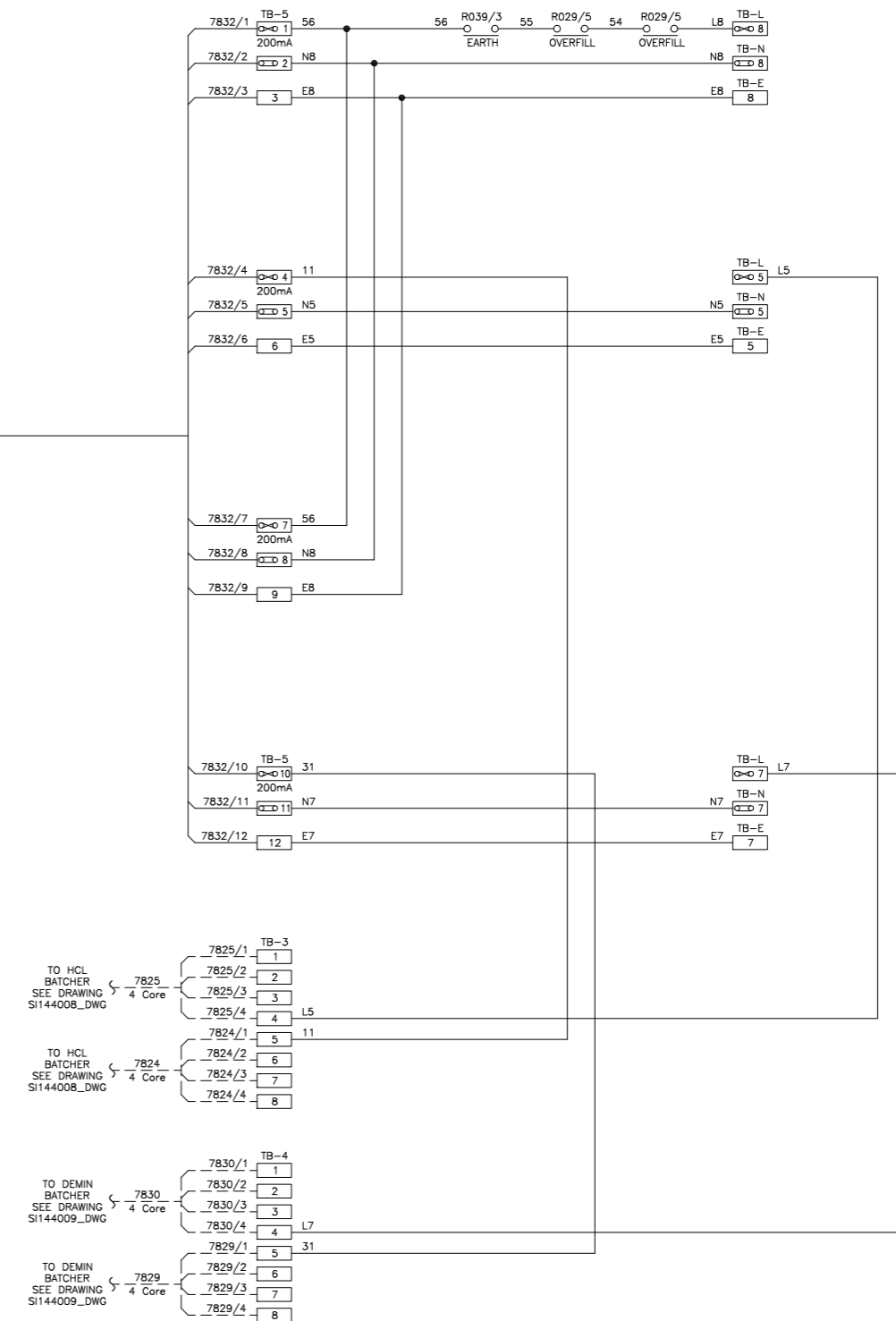
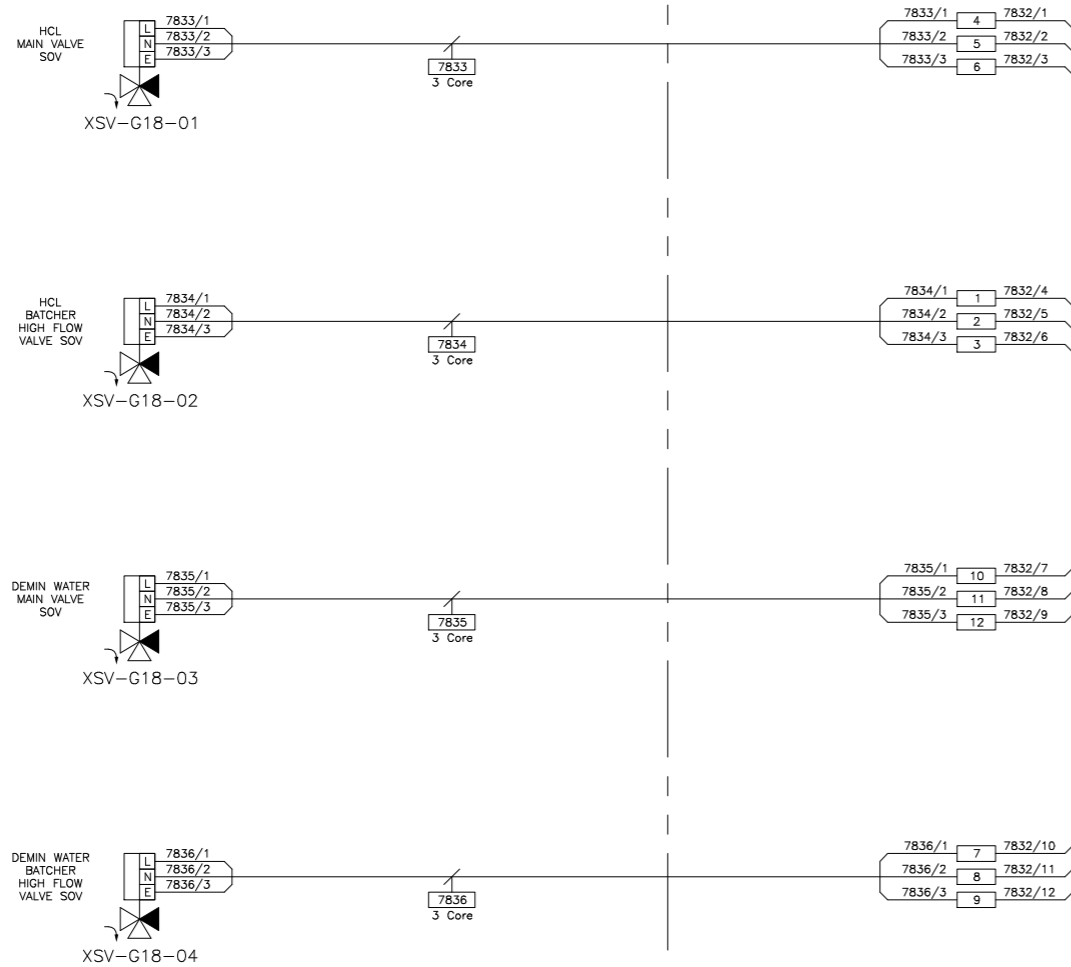
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	29/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	25/07/14	P.P.	P.P.	P.J.P	P.J.P	TB-11 / 3 to 10 ADDED
C	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT
D	22/02/16	D.R.P	P.P.	D.R.P	P.J.P	DETAIL CORRECTED

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE TANK 14 IMPORT & EXPORT VALVE LOOP SHEET
CLIENT DRG. No.	inter terminals Seal Sands Storage Ltd. Seal Sands Terminal Seal Sands Middlebrough TS2 1UB
P&I DRG No.	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
	SHEET 1 OF 1
	P&I DRG No. SI144016_DWG

GANTRY 18

VALVE JUNCTION BOX

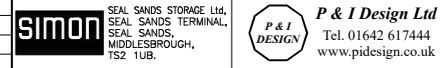
HIGH LEVEL MONITORING PANEL



IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	30/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE LOADING VALVES CONNECTION DETAILS
CLIENT DRG. No.	P&I DRG No. SI144017_DWG

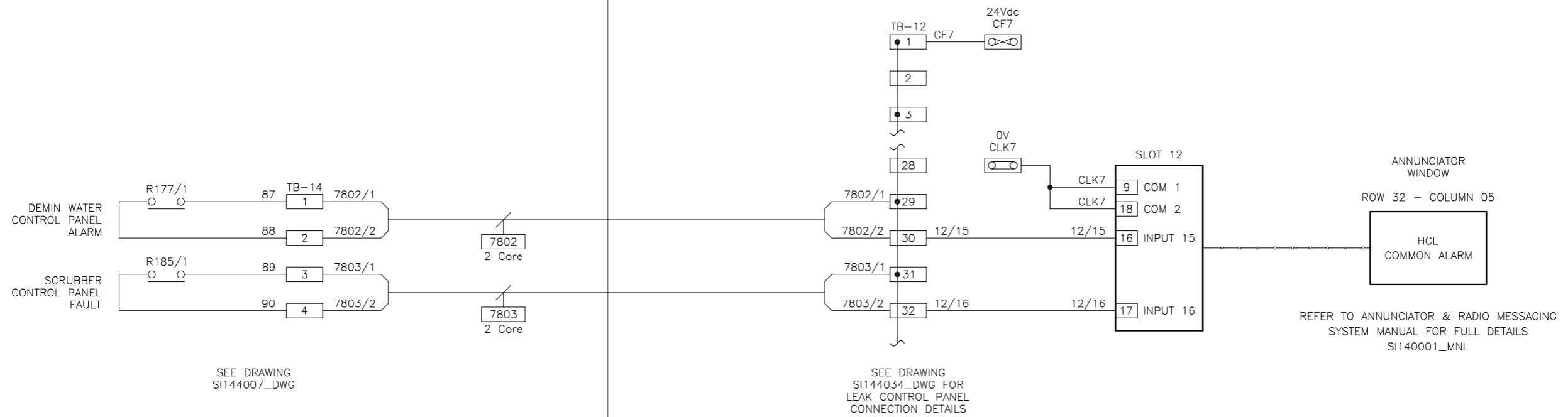


CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION

NOTES
1)

BATCHER CONTROL PANEL

CONTROL ROOM ANNUNCIATOR PANEL

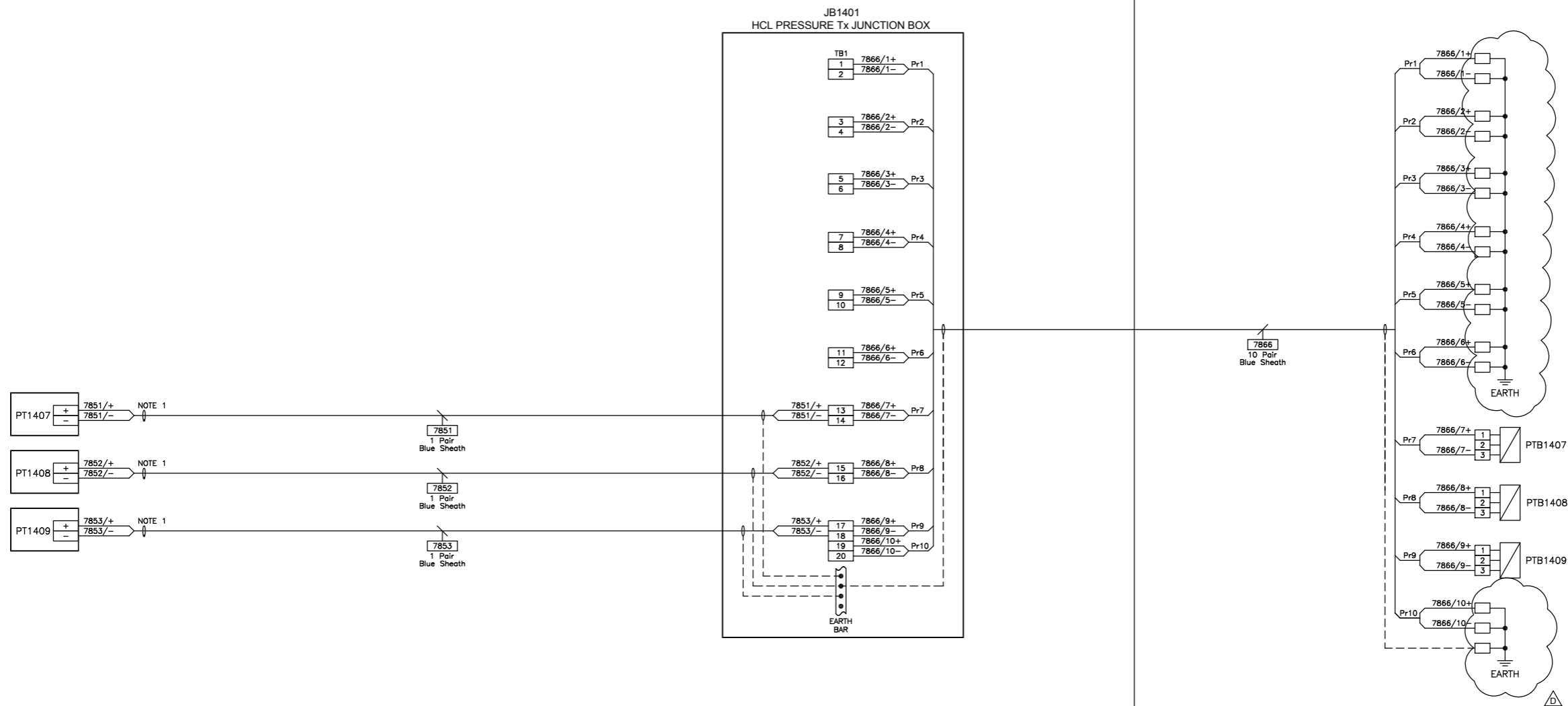


SEE DRAWING
SI144007_DWG

SEE DRAWING
SI144034_DWG FOR
LEAK CONTROL PANEL
CONNECTION DETAILS

REFER TO ANNUNCIATOR & RADIO MESSAGING
SYSTEM MANUAL FOR FULL DETAILS
SI140001_MNL

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED							PLANT	SEAL SANDS STORAGE LTD		
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	TITLE	TANK 14 HYDROCHLORIC ACID STORAGE		
A	12/06/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION	BATCHER CONTROL PANEL/ANNUNCIATOR CONNECTION DETAILS			
B	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT				
							SEAL SANDS STORAGE LTD, SEAL SANDS TERMINAL, WIDDLESBROUGH, TS2 1UB.		P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk	
							SHEET 1 OF 1		P&I DRG No. SI144018_DWG	
							CLIENT DRG. No.			



NOTES
 1) SCREEN INSULATED & LEFT FLOATING

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED								SEAL SANDS STORAGE LTD	
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	PLANT	TITLE	CLIENT DRG. No.
A	02/07/14	D.A.Y	D.A.Y	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION	JB1401	TANK 14 HYDROCHLORIC ACID STORAGE	
B	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT			
C	08/12/15	D.R.P	P.P.	D.R.P	P.J.P	PT1410 ADDED			
D	15/02/16	D.R.P	P.P.	D.R.P	P.J.P	TERMINALS ADDED FOR SPARE CORES			
								inter terminals Seal Sands Storage Ltd. Seal Sands Terminal Seal Sands Middlesbrough TS2 1UB	
								P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk	
								SHEET 1 OF 1	
								P&I DRG No. SI144019_DWG	

NOTES

- 1) ENCLOSURE :-
RITTAL STAINLESS STEEL ENCLOSURE TYPE AE 1010.600

TERMINAL BLOCKS

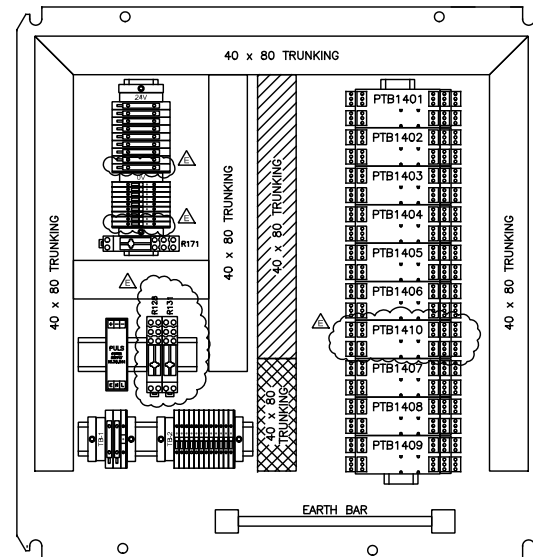
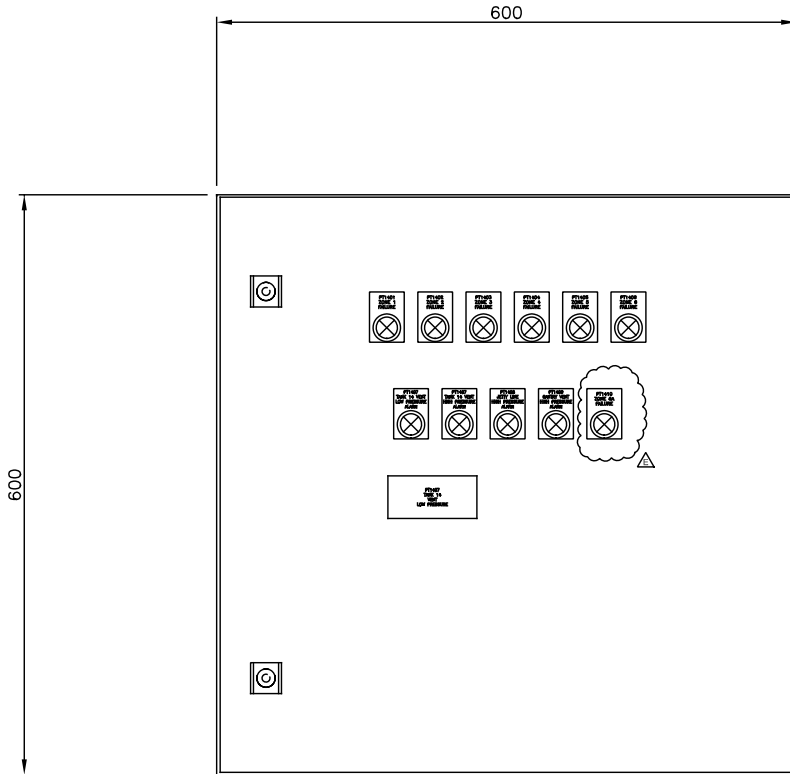
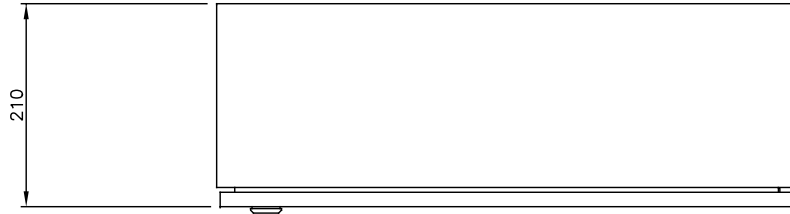
BLOCK	QTY	DESCRIPTION
24V	8	WSI 6 (Wiedmuller 1011000000)
OV	8	WTR 2.5 (Wiedmuller 1855610000)
TB-1	2	WSI 6 (Wiedmuller 1011000000)
	1	WPE 2.5 (Wiedmuller 1010000000)
TB-2	12	WTR 2.5 (Wiedmuller 1855610000)

RELAYS

- 2-POLE GUIDED CONTACT RELAYS : 1-off REQUIRED
BASE - ALLEN-BRADLEY TYPE 700-HN123
RELAY - ALLEN-BRADLEY TYPE 700-HPS2224
- 2-POLE RELAYS :- 2-off REQUIRED
BASE - FINDER TYPE 97.02 (BLACK)
RELAY - FINDER 46.52.9.024.0.0740

DESCRIPTION

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



- GREY TRUNKING - FIELD CABLES
- BLUE TRUNKING - FIELD CABLES (I.S.)
- GREY TRUNKING - PANEL WIRING (24Vdc)

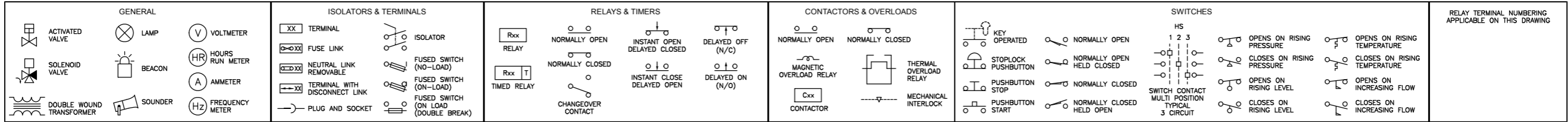
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED

REV	DATE	BY	DRN	CHKD	APPD	DESCRIPTION
A	17/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR TENDER
B	28/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
C	20/05/14	P.P.	P.P.	P.J.P	P.J.P	3-WAY TRANSMITTERS ADDED
D	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	IS BUILT
E	08/12/15	D.R.P	P.P.	P.J.P	P.J.P	PT1410 ADDED

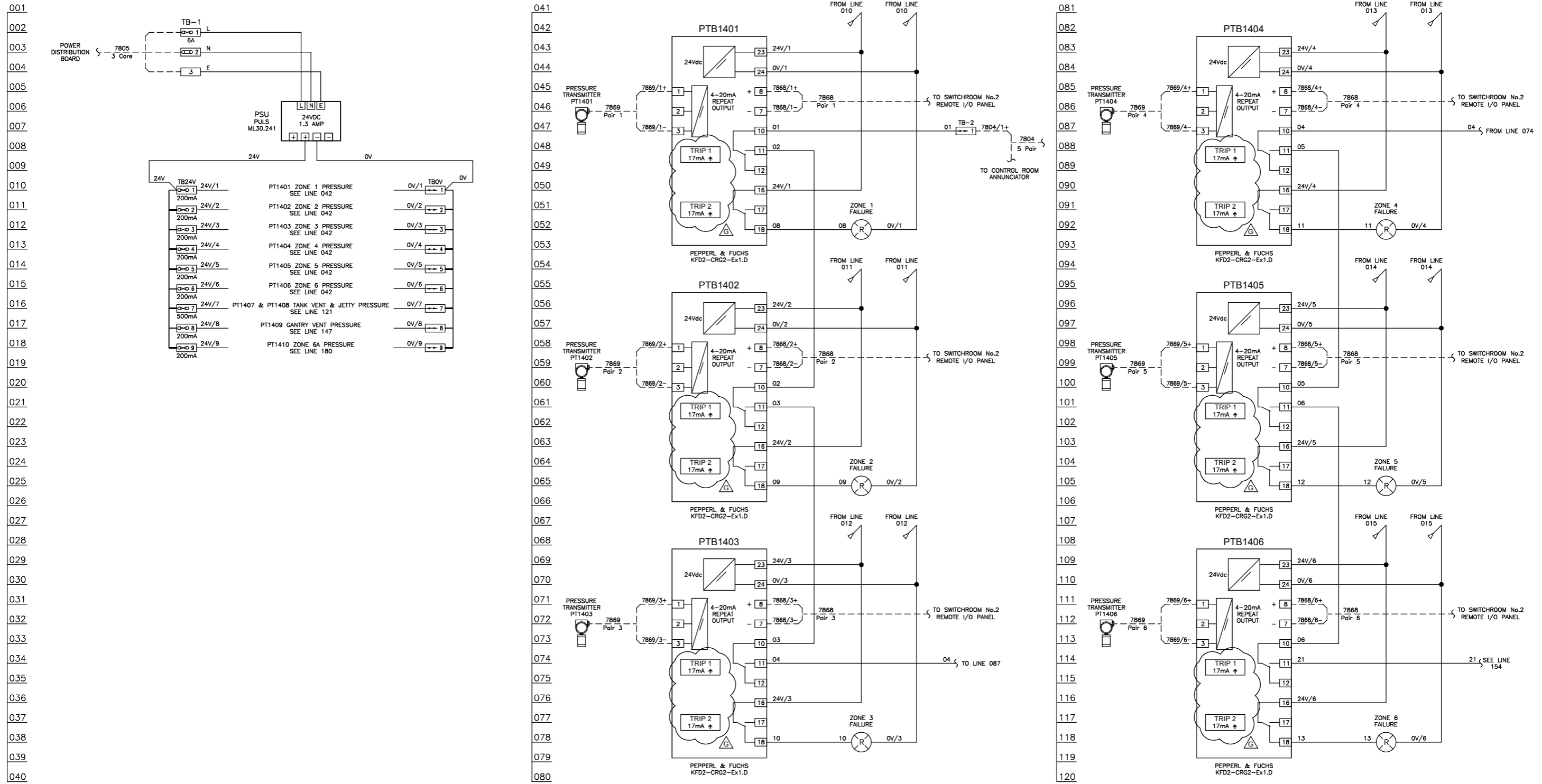
PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE TANK LEAK CONTROL PANEL LAYOUT
inter terminals <small>Seal Sands Storage Ltd Seal Sands, Fremantle Seal Sands 08/32666000 TEL: 01139</small>	P & I Design Ltd <small>Tel: 01642 517444 www.pandidesign.co.uk</small>
CLIENT DRG. No.	P&I DRG No. SI144020 DWG

SHEET 1 OF 1

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



POWER DISTRIBUTION



LAST NUMBER USED : 13
 SPARE TO : 20

NOTES
 1)

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED							SEAL SANDS STORAGE LTD	
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	PLANT	TITLE
A	17/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR TENDER	TANK 14 HYDROCHLORIC ACID STORAGE	TANK LEAK DETECTION CONTROL PANEL LOGIC DRAWING 1
B	28/04/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION		
C	20/05/14	P.P.	P.P.	P.J.P	P.J.P	3-off TRANSMITTERS ADDED		
D	02/07/14	D.R.P	D.A.Y	P.J.P	P.J.P	TAGS ADDED / AMENDED		
E	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT		
F	08/12/15	D.R.P	D.R.P	P.J.P	P.J.P	PT1410 ADDED		
G	15/02/16	D.R.P	D.R.P	P.J.P	P.J.P	TRIP DETAILS ADDED		

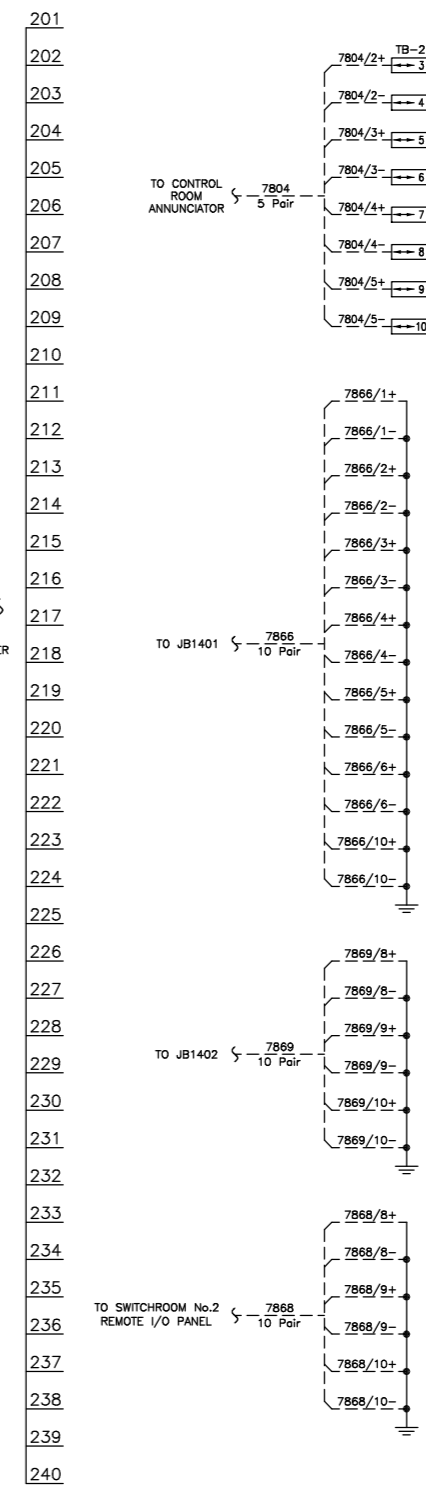
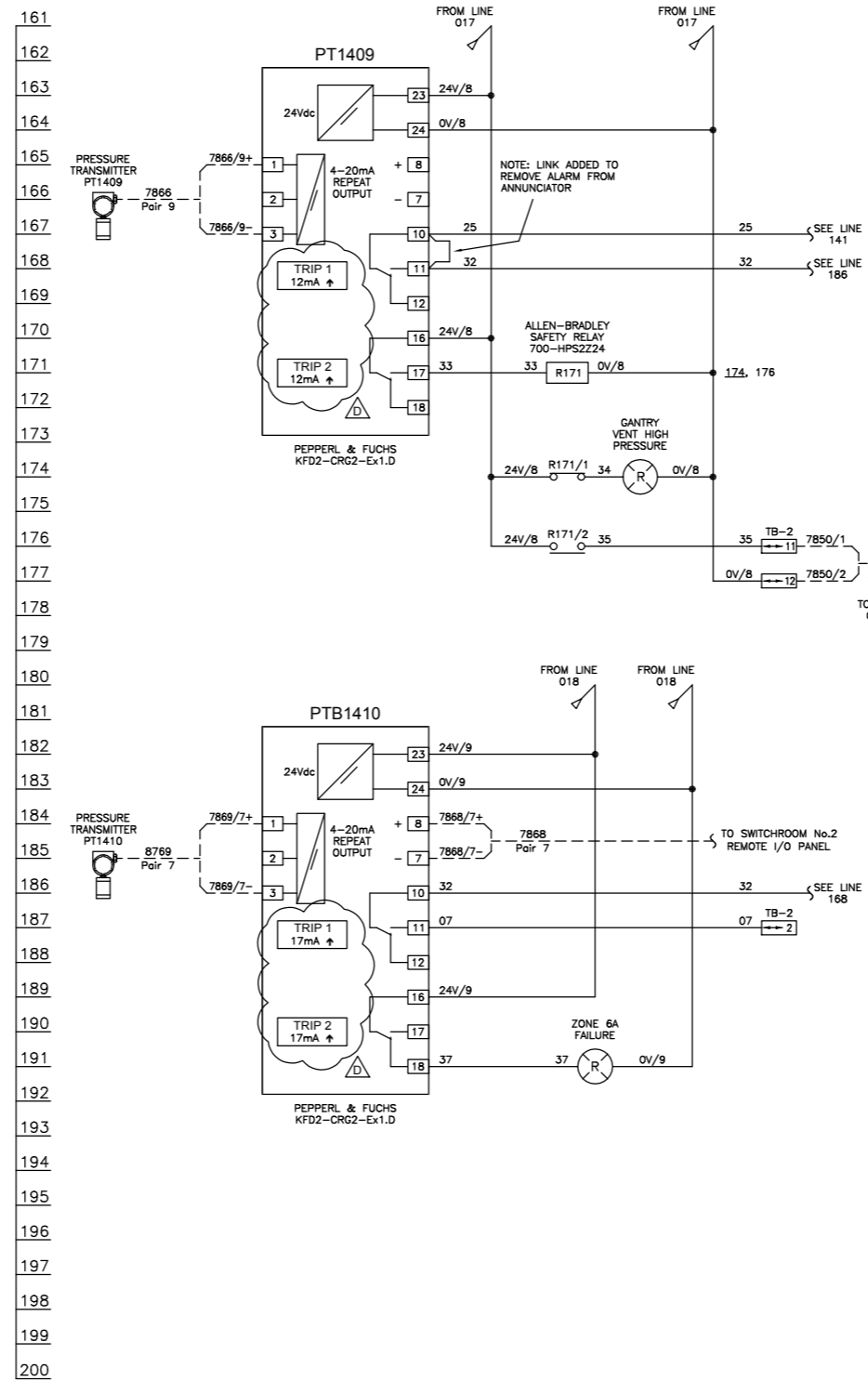
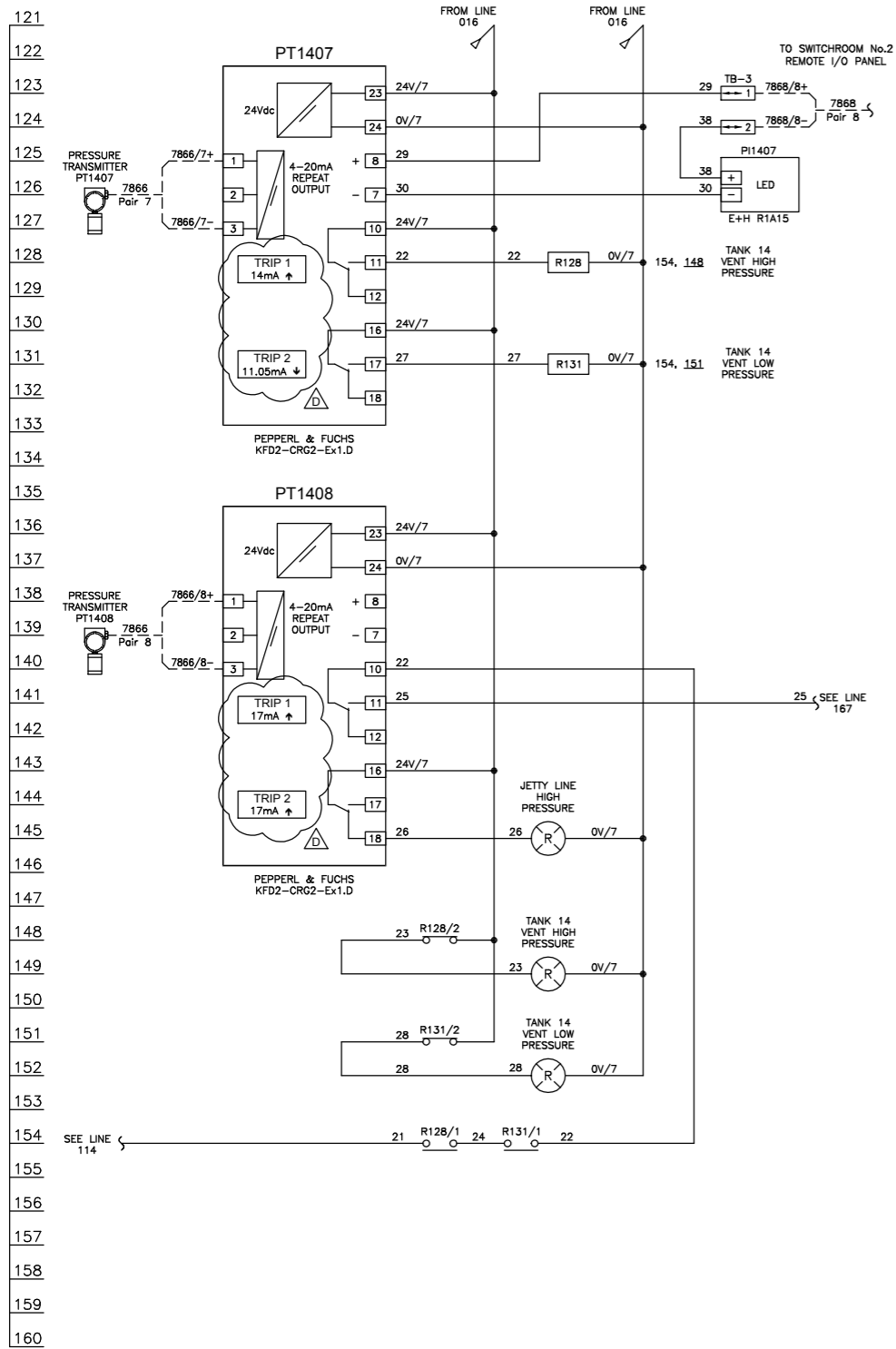
inter terminals
 Seal Sands Storage Ltd.
 Seal Sands Terminal
 Seal Sands
 Middlesbrough
 TS2 1UB

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

CLIENT DRG. No. SHEET 1 OF 1
 P&I DRG No. S1144021_DWG

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

GENERAL ACTIVATED VALVE SOLENOID VALVE DOUBLE WOUND TRANSFORMER LAMP BEACON SOUNDER VOLTMETER HOURS RUN METER AMMETER FREQUENCY METER			ISOLATORS & TERMINALS TERMINAL FUSE LINK NEUTRAL LINK REMOVABLE TERMINAL WITH DISCONNECT LINK PLUG AND SOCKET ISOLATOR FUSED SWITCH (NO-LOAD) FUSED SWITCH (ON-LOAD) FUSED SWITCH (ON LOAD (DOUBLE BREAK))			RELAYS & TIMERS RELAY TIMED RELAY NORMALLY OPEN NORMALLY CLOSED INSTANT OPEN INSTANT CLOSE DELAYED OFF (N/C) DELAYED ON (N/O) CHANGEOVER CONTACT			CONTACTORS & OVERLOADS NORMALLY OPEN CONTACTOR NORMALLY CLOSED CONTACTOR MAGNETIC OVERLOAD RELAY THERMAL OVERLOAD RELAY MECHANICAL INTERLOCK			SWITCHES KEY OPERATED STOPLOCK PUSHBUTTON PUSHBUTTON STOP PUSHBUTTON START NORMALLY OPEN NORMALLY OPEN HELD CLOSED NORMALLY CLOSED NORMALLY CLOSED HELD OPEN HS SWITCH CONTACT MULTI POSITION TYPICAL 3 CIRCUIT OPENS ON RISING PRESSURE CLOSES ON RISING PRESSURE OPENS ON RISING LEVEL CLOSES ON RISING LEVEL OPENS ON RISING TEMPERATURE CLOSES ON RISING TEMPERATURE OPENS ON INCREASING FLOW CLOSES ON INCREASING FLOW			RELAY TERMINAL NUMBERING APPLICABLE ON THIS DRAWING
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LAST NUMBER USED : 38
SPARE TO :

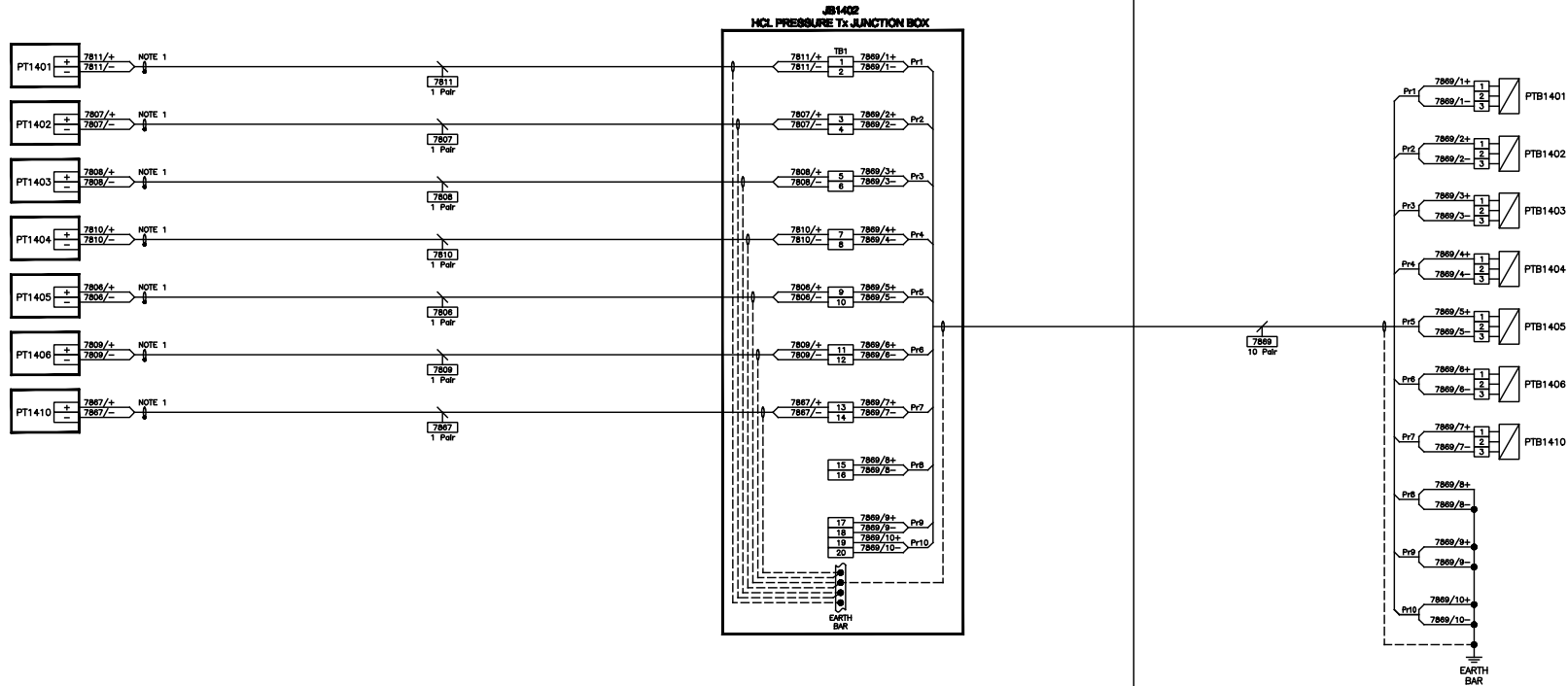
LAST NUMBER USED :
SPARE TO :

NOTES
1)

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED							PLANT	SEAL SANDS STORAGE LTD
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	TITLE	TANK 14 HYDROCHLORIC ACID STORAGE TANK LEAK DETECTION CONTROL PANEL LOGIC DRAWING 2
A	20/05/14	P.P.	P.P.	P.J.P	P.J.P	3-off TRANSMITTERS ADDED		
B	18/09/14	D.R.P	D.A.Y	P.J.P	P.J.P	AS BUILT		
C	08/12/15	D.R.P	P.P.	D.R.P	P.J.P	PT1410 ADDED		
D	15/02/16	D.R.P	P.P.	D.R.P	P.J.P	TRIP DETAILS ADDED		
							inter terminals Seal Sands Storage Ltd. Seal Sands Terminal Seal Sands Middlesbrough TS2 1UB	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
							CLIENT DRG. No.	P&I DRG No. S1144023_DWG

FIELD

LEAK DETECTION CONTROL PANEL



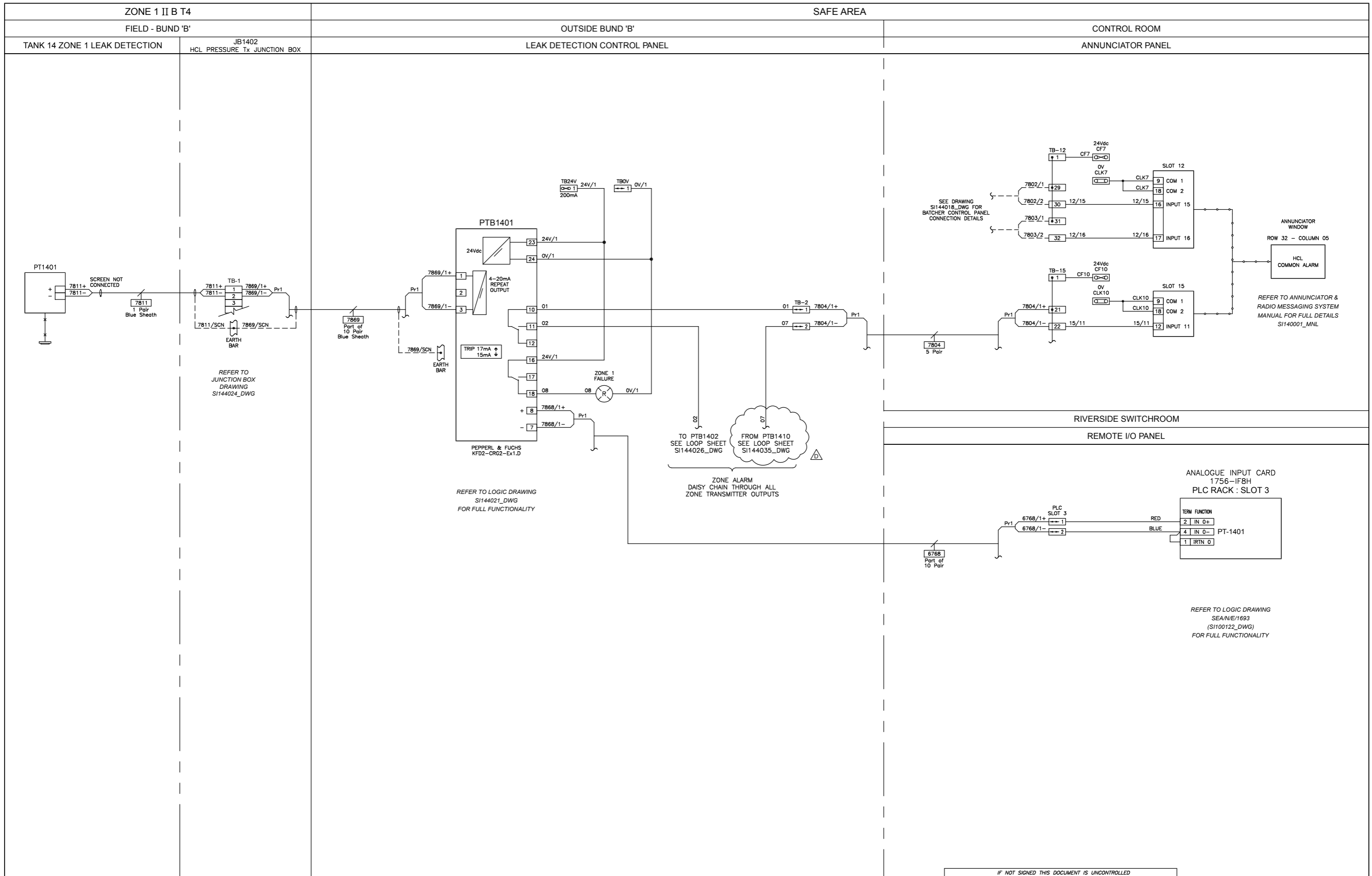
NOTES
 1) SCREEN INSULATED & LEFT FLOATING

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED							PLANT	SEAL SANDS STORAGE LTD
REV	DATE	BY	DRN	CHKD	APP'D	DESCRIPTION	TITLE	TANK 14 HYDROCHLORIC ACID STORAGE
A	06/12/15	D.R.P.	P.P.	D.R.P.	P.J.P.	ISSUED FOR CONSTRUCTION	JB1402 HCL PRESSURE JUNCTION BOX CONNECTION DETAILS	

Seal Sands Storage Ltd
 Seal Sands Terminal
 Seal Sands
 Halesworth
 788 5UB

Tel: 0142 61744
 www.pandjdesign.co.uk

SHEET 1 OF 1
 CLIENT DRG. No. P&J DRG No. **8144024 DWG**



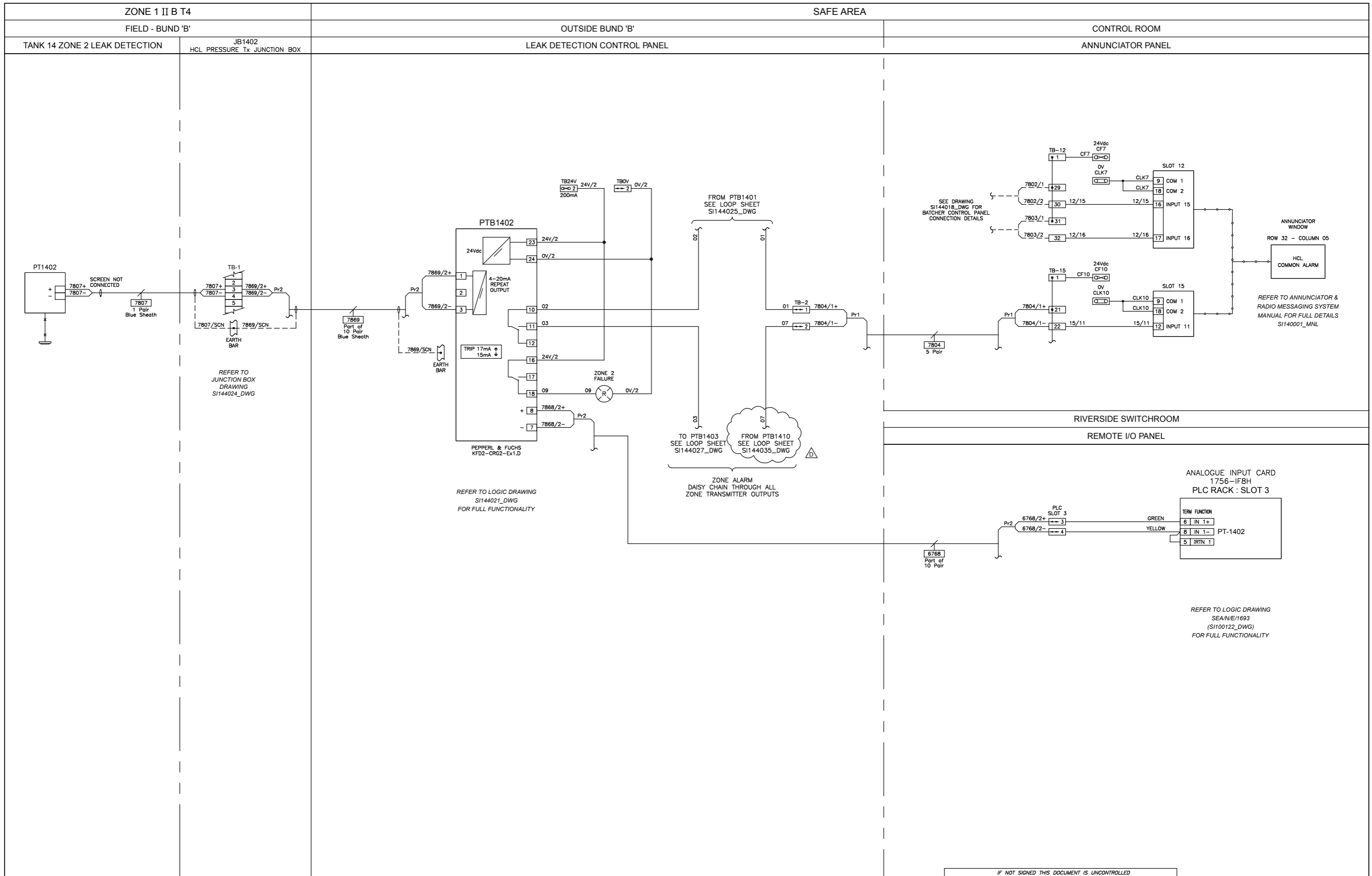
CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
PT1401	KEMA 04 ATEX 2018	Ex II 2 G EEx d Ia IIC T4	N/A
PTB1401	TUV 01 ATEX 1701	Ex II (1) G [EEx ia] IIC	

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	30/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	23/06/15	D.B.F	P.P.	D.B.F	P.J.P	AS BUILT
C	14/12/15	P.P.	P.P.	D.R.P	P.J.P	LINK TO PLC ADDED
D	15/02/16	D.R.P	P.P.	D.R.P	P.J.P	DRAWING UPDATE

PLANT	TITLE
SEAL SANDS STORAGE LTD	TANK 14 HYDROCHLORIC ACID STORAGE
	PT1401 : ZONE 1 LEAK DETECTION LOOP SHEET

 Seal Sands Storage Co Ltd Seal Sands Terminal Seal Sands Middlesbrough TS2 1UB	 P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
--	--

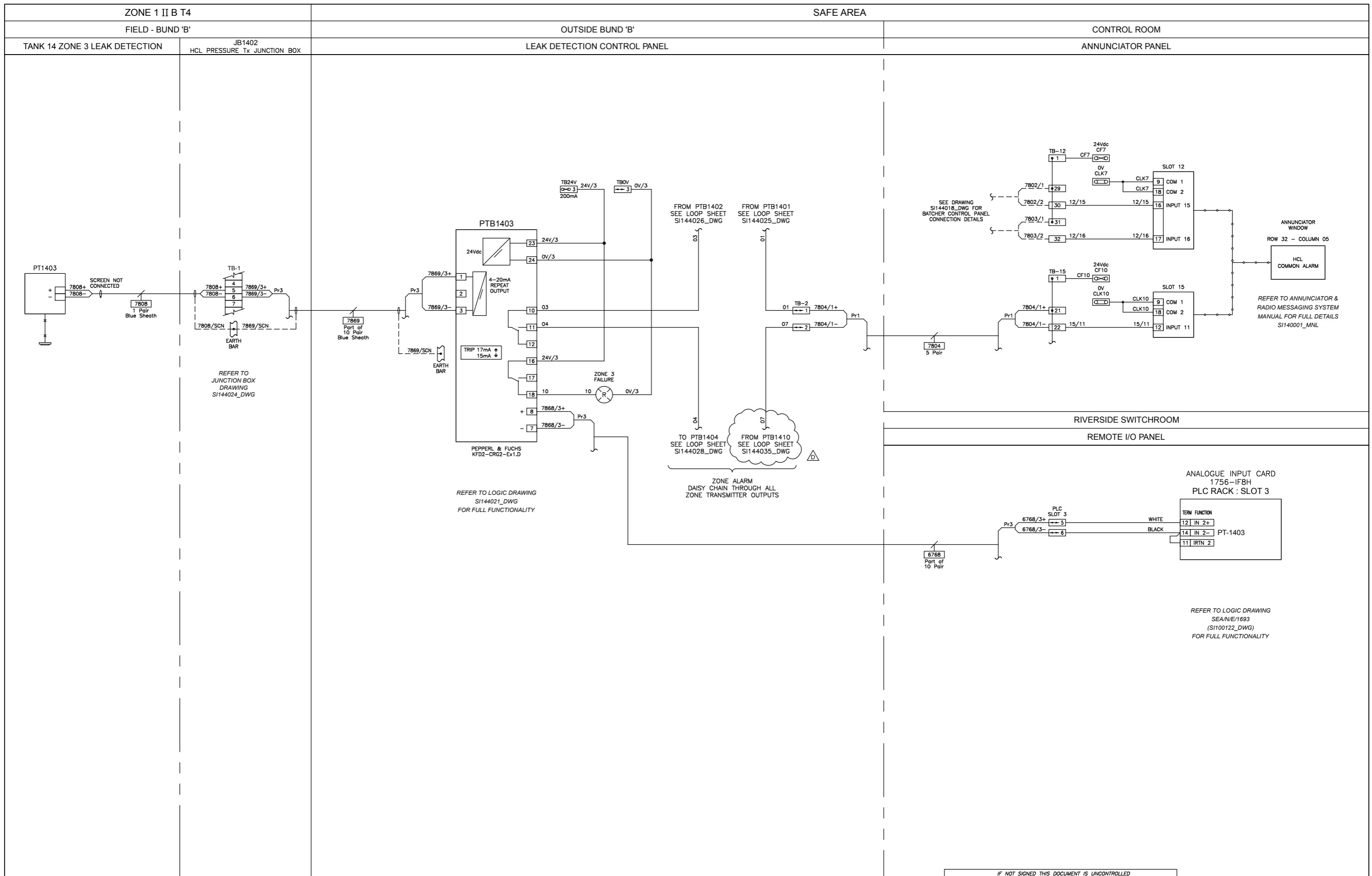
CLIENT DRG. No. P&I DRG No. SI144025_DWG



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
PT1402	KEMA 04 ATEX 2018	Ex II 2 G EEx d Ia IIC T4	N/A
PTB1402	TUV 01 ATEX 1701	Ex II (1) G [EEx ia] IIC	

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/06/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	23/06/15	D.B.F	P.P.	D.B.F	P.J.P	AS BUILT
C	14/12/15	P.P.	P.P.	D.R.P	D.R.P	LINK TO PLC ADDED
D	15/02/16	D.R.P	P.P.	D.R.P	P.J.P	DRAWING UPDATE

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE PT1402 : ZONE 2 LEAK DETECTION LOOP SHEET
CLIENT DRG. No.	P&I DRG No. SI144026_DWG
Seal Sands Storage Co Ltd Seal Sands Terminal Seal Sands Middlesbrough TS2 1UB	
P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk	
SHEET 1 OF 1	



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
PT1403	KEMA 04 ATEX 2018	Ex II 1/2 G EEx d [Ic] IIC T6	N/A
PTB1403	TUV 01 ATEX 1701	Ex II (1) G [EEx ic] IIC	N/A

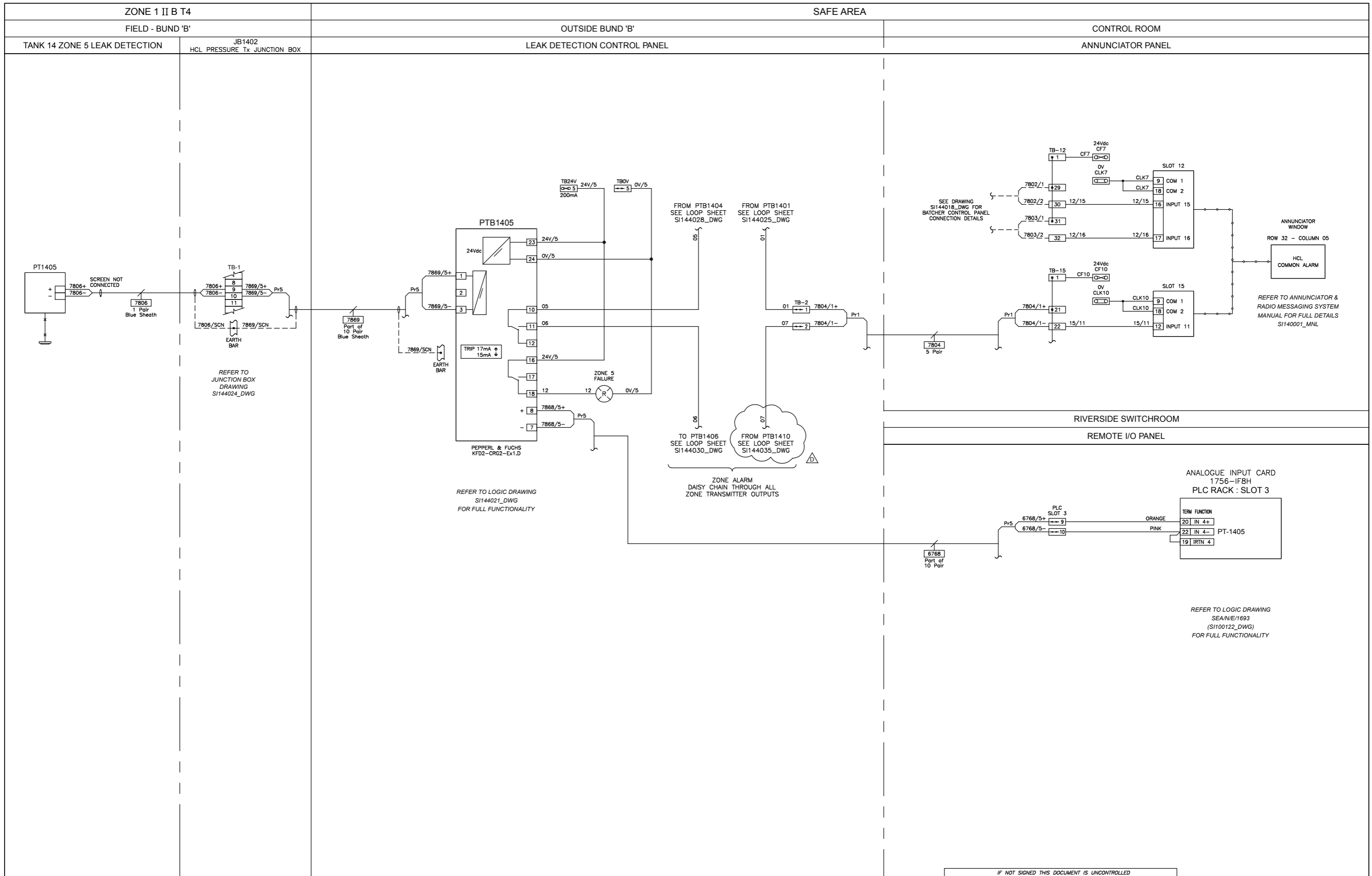
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/06/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	23/06/15	D.B.F	P.P.	D.B.F	P.J.P	AS BUILT
C	14/12/15	P.P.	P.P.	D.R.P	P.J.P	LINK TO PLC ADDED
D	15/02/16	D.R.P	P.P.	D.R.P	P.J.P	DRAWING UPDATE

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE PT1403 : ZONE 3 LEAK DETECTION LOOP SHEET
CLIENT DRG. No.	P&I DRG No. SI144027_DWG

Seal Sands Storage Co Ltd
 Seal Sands Terminal
 Seal Sands
 Middlesbrough
 TS2 1UB

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

SHEET 1 OF 1



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
PT1405	KEMA 04 ATEX 2018	Ex II 1/2 G EEx d [Ic] IIC T6	N/A
PTB1405	TUV 01 ATEX 1701	Ex II (1) G [EEx ic] IIC	N/A

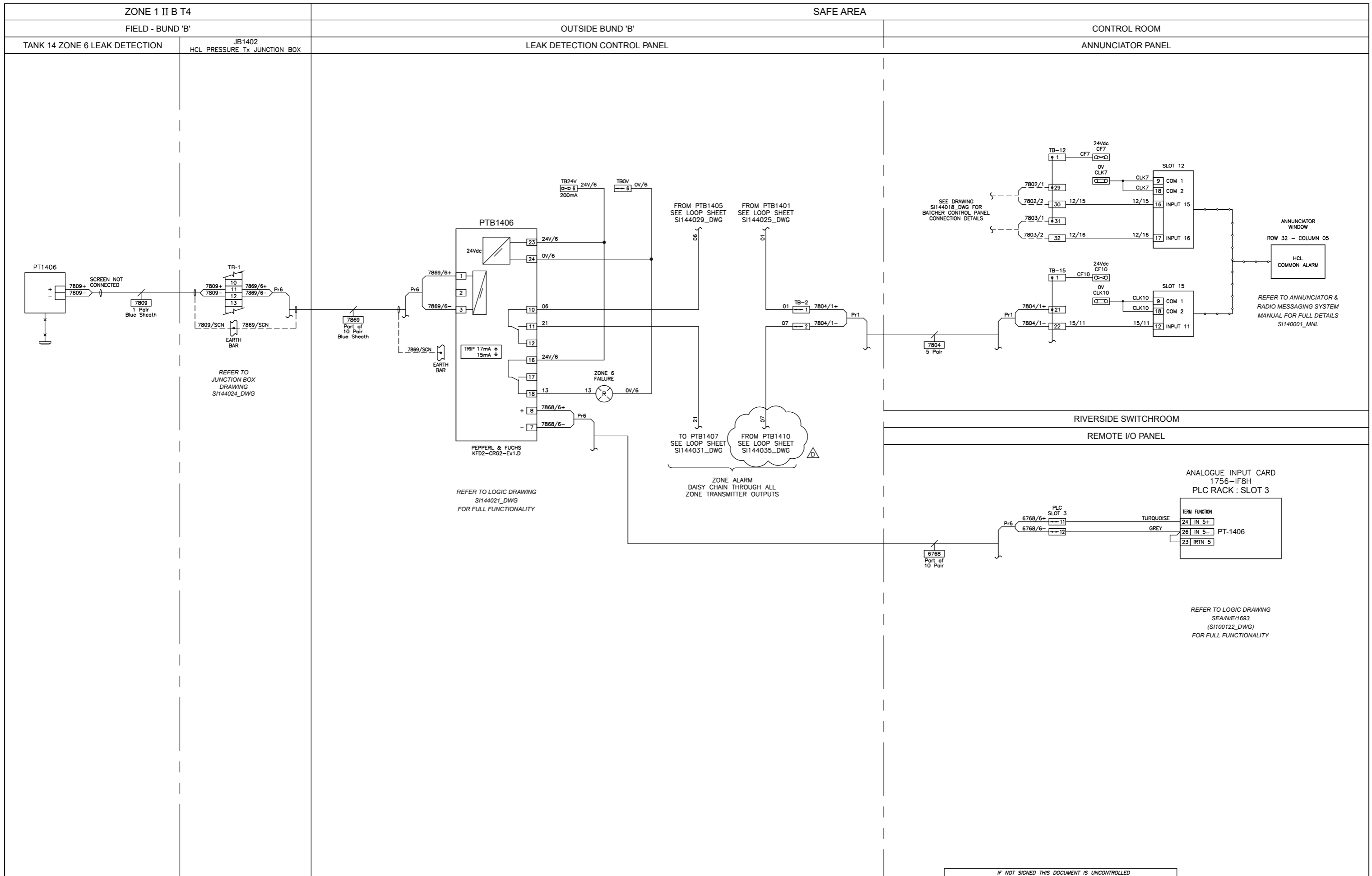
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/06/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	23/06/15	D.B.F	P.P.	D.B.F	P.J.P	AS BUILT
C	14/12/15	P.P.	P.P.	D.R.P	P.J.P	LINK TO PLC ADDED
D	15/02/16	D.R.P	P.P.	D.R.P	P.J.P	DRAWING UPDATE

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE PT1405 : ZONE 5 LEAK DETECTION LOOP SHEET
CLIENT DRG. No.	P&I DRG No. SI144029_DWG

Seal Sands Storage Co Ltd
 Seal Sands Terminal
 Seal Sands
 Middlesbrough
 TS2 1UB

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

SHEET 1 OF 1



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
PT1406	KEMA 04 ATEX 2018	Ex II 1/2 G EEx d [Ic] IIC T6	N/A
PTB1406	TUV 01 ATEX 1701	Ex II (1) G [EEx ic] IIC	N/A

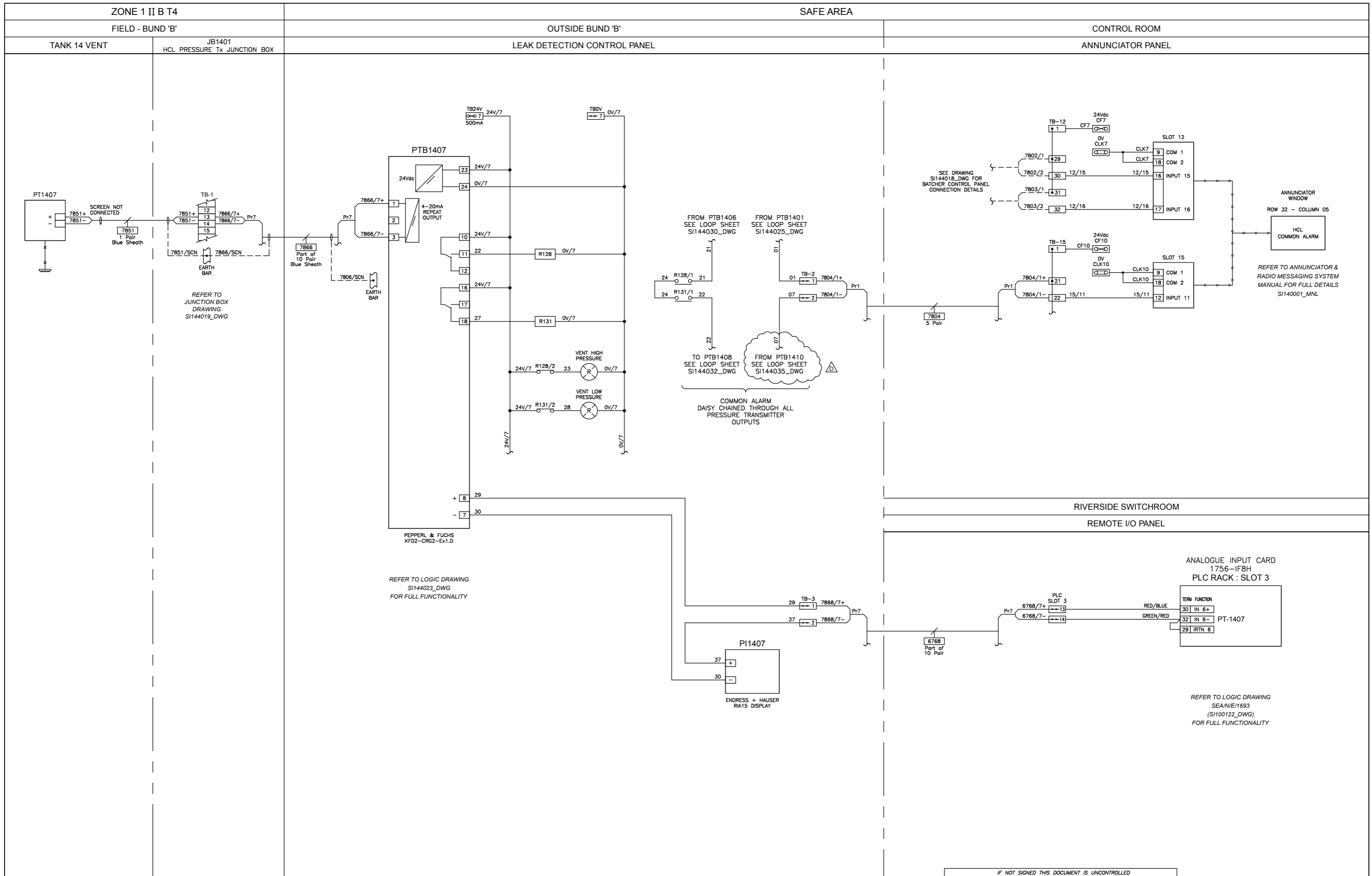
IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/06/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	23/06/15	D.B.F	P.P.	D.B.F	P.J.P	AS BUILT
C	14/12/15	P.P.	P.P.	D.R.P	D.R.P	LINK TO PLC ADDED
D	15/02/16	D.R.P	P.P.	D.R.P	P.J.P	DRAWING UPDATE

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE PT1406 : ZONE 6 LEAK DETECTION LOOP SHEET
CLIENT DRG. No.	P&I DRG No. SI144030_DWG

inter terminals
Seal Sands Storage Co Ltd
Seal Sands Terminal
Seal Sands
Middlesbrough
TS2 1UB

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

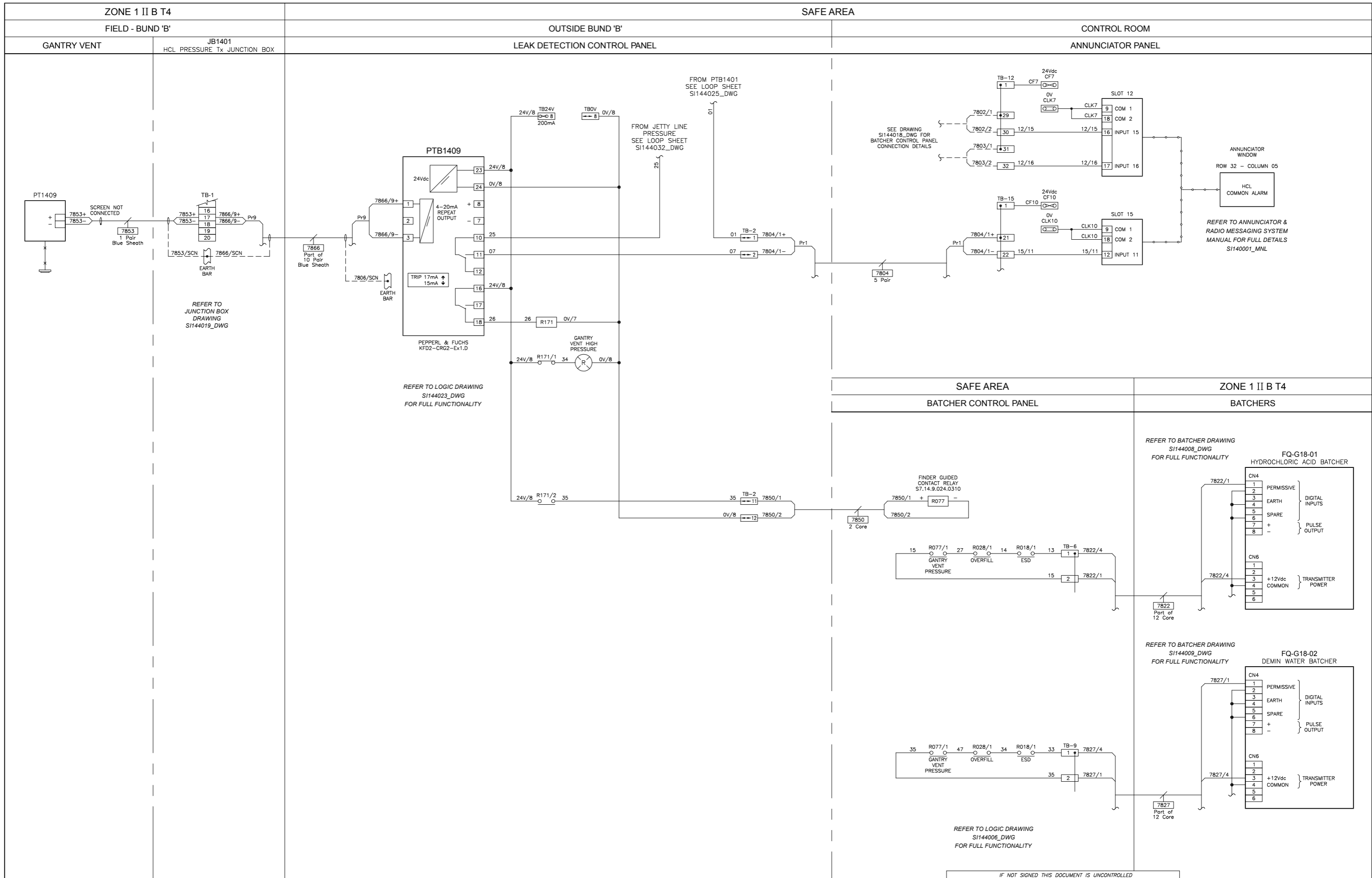
SHEET 1 OF 1



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
PT1407	KEMA 04 ATEX 1100X	Ex II 1/2 G EEx ia IIC T6	SI144001_CAL
PTB1407	TUV 01 ATEX 1701	Ex II (1) G [EEx ia] IIC	

IF NOT SIGNED THIS DOCUMENT IS UNCONTROLLED						
REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	02/06/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION
B	23/06/15	D.B.F	P.P.	D.B.F	P.J.P	AS BUILT
C	22/12/15	D.R.P	P.P.	D.R.P	P.J.P	OUTPUT TO REMOTE I/O ADDED
D	15/02/16	D.R.P	P.P.	D.R.P	P.J.P	DRAWING UPDATE

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE PT1407 : TANK VENT PRESSURE LOOP SHEET
CLIENT DRG. No.	SEA/N/E/1693 (SI100122_DWG) FOR FULL FUNCTIONALITY
	inter terminals Seal Sands Storage Co Ltd Seal Sands Terminal Seal Sands Middlesbrough TS2 1UB
	P & I Design Ltd Tel. 01642 617444 www.pidesign.co.uk
	SHEET 1 OF 1
	P&I DRG No. SI144031_DWG



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
PT1409	KEMA 04 ATEX 1100X	Ex II 1/2 G EEx ia IIC T6	SI144001_CAL
PTB1409	TUV 01 ATEX 1701	Ex II (1) G [EEx ia] IIC	
FQ-G18-01	DEMKO 04 ATEX 0403315	Ex II 2 G EEx d IIB T6	N/A
FQ-G18-02	DEMKO 04 ATEX 0403315	Ex II 2 G EEx d IIB T6	N/A

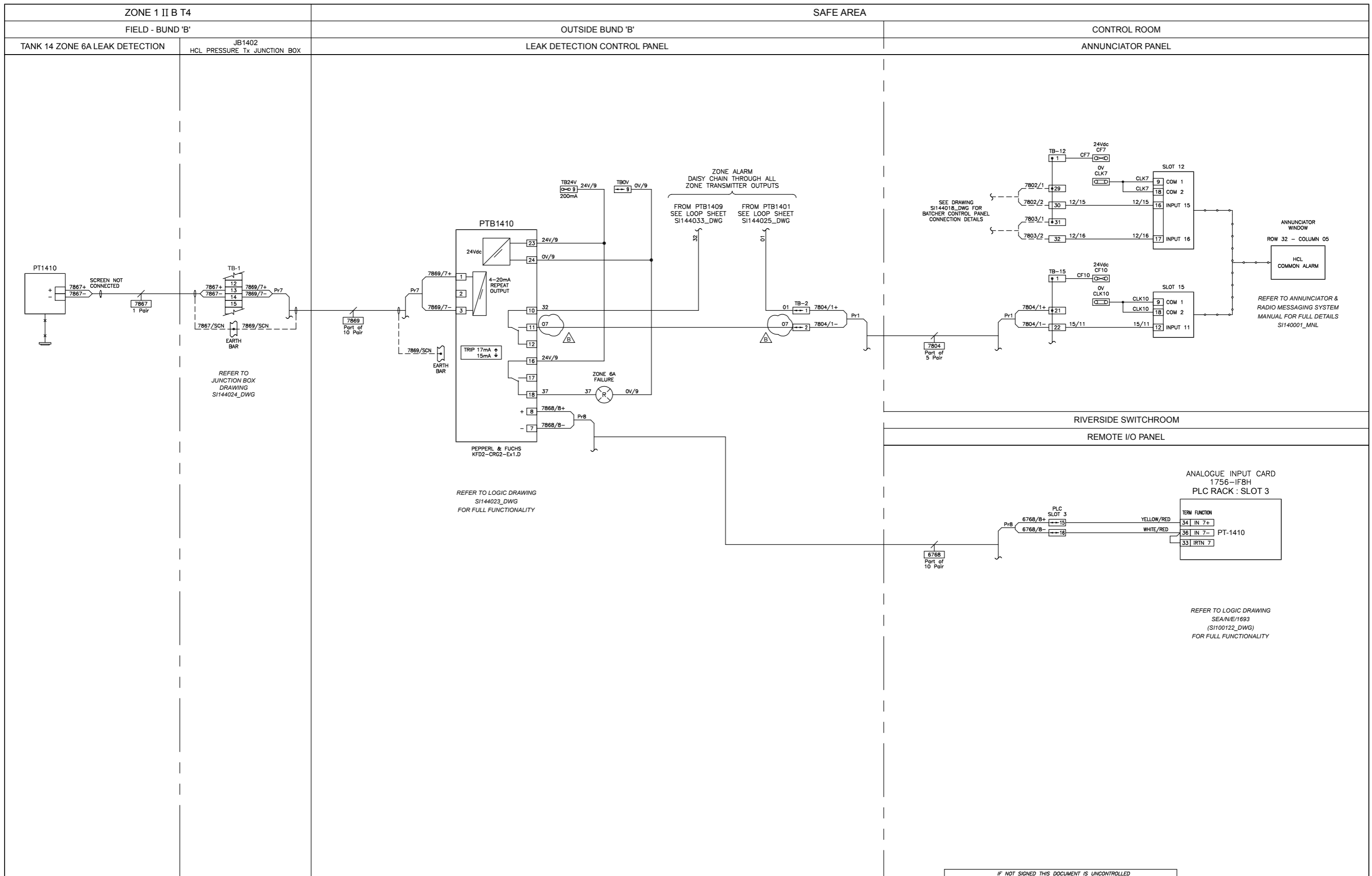
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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION	
A	29/05/14	P.P.	P.P.	P.J.P	P.J.P	ISSUED FOR CONSTRUCTION	
B	23/06/15	D.B.F	P.P.	D.B.F	P.J.P	AS BUILT	

PLANT: SEAL SANDS STORAGE LTD
 TITLE: TANK 14 HYDROCHLORIC ACID STORAGE
 PT1409 - GANTRY VENT PRESSURE LOOP SHEET

inter terminals
 Seal Sands Storage Co Ltd
 Seal Sands Terminal
 Seal Sands
 Middlebrough
 TS2 1UB

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

SHEET 1 OF 1
 CLIENT DRG. No. P&I DRG No. SI144033_DWG



CERTIFIED EQUIPMENT			
TAG No.	CERTIFICATE No.	ATEX CERTIFICATION	I.S. CALCULATION
PT1410	KEMA 04 ATEX 2018	Ex II 2 G EEx d Ia IIC T4	N/A
PTB1410	TUV 01 ATEX 1701	Ex II (1) G [EEx ia] IIC	

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REV	DATE	BY	DRN	CHK'D	APP'D	DESCRIPTION
A	08/12/15	P.P.	P.P.	D.R.P	D.R.P	ISSUED FOR CONSTRUCTION
B	15/02/16	D.R.P	P.P.	D.R.P	P.J.P	DRAWING UPDATE

PLANT	SEAL SANDS STORAGE LTD
TITLE	TANK 14 HYDROCHLORIC ACID STORAGE PT1410 : ZONE 6A LEAK DETECTION LOOP SHEET
CLIENT DRG. No.	P&I DRG No. SI144035_DWG

inter terminals
Seal Sands Storage Co Ltd
Seal Sands Terminal
Seal Sands
Middlesbrough
TS2 1UB

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

SHEET 1 OF 1

Section 4

Schedules



INSTRUMENT/ELECTRICAL CABLE SCHEDULE

CABLE		CONDUCTORS		CABLE ROUTE				APPROX. LENGTH METRES	REMARKS
REFERENCE	TYPE	AREA mm ²	No.	FROM	GLAND TYPE	TO	GLAND TYPE		
7800	J02	1.5	2 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	De-Min Water Vendor Control Panel (EQ016264)	ATEX II 2 G EExed	20	
7801	J05	6.0	5 Core	Demin Water Vendor Control Panel (EQ016264)	ATEX II 2 G EExed	Power Distribution Board	ATEX II 2 G EExed	180	
7802	J02	1.5	2 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Control Room Annunciator (EQ016265)	ATEX II 2 G EExed	180	
7803	J02	1.5	2 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Control Room Annunciator (EQ016265)	ATEX II 2 G EExed	180	
7804	E05	0.75	5 Pair	Control Room Annunciator (EQ016265)	ATEX II 2 G EExed	Tank Leak System Control Panel (EQ016266)	ATEX II 2 G EExed	140	
7805	J03	2.5	3 Core	Tank Leak System Control Panel (EQ016266)	ATEX II 2 G EExed	Power Distribution Board	ATEX II 2 G EExed	140	
7806	E011	0.75	1 Pair	Tank Leak System Control Panel (EQ016266)	ATEX II 2 G EExed	PT1401 Leak Detector (EQ016277)	ATEX II 2 G EExed	25	Blue Sheath
7807	E011	0.75	1 Pair	Tank Leak System Control Panel (EQ016266)	ATEX II 2 G EExed	PT1402 Leak Detector (EQ016278)	ATEX II 2 G EExed	25	Blue Sheath
7808	E011	0.75	1 Pair	Tank Leak System Control Panel (EQ016266)	ATEX II 2 G EExed	PT1403 Leak Detector (EQ016279)	ATEX II 2 G EExed	25	Blue Sheath
7809	E011	0.75	1 Pair	Tank Leak System Control Panel (EQ016266)	ATEX II 2 G EExed	PT1404 Leak Detector (EQ016280)	ATEX II 2 G EExed	25	Blue Sheath
7810	E011	0.75	1 Pair	Tank Leak System Control Panel (EQ016266)	ATEX II 2 G EExed	PT1405 Leak Detector (EQ016281)	ATEX II 2 G EExed	25	Blue Sheath
7811	E011	0.75	1 Pair	Tank Leak System Control Panel (EQ016266)	ATEX II 2 G EExed	PT1406 Leak Detector (EQ016282)	ATEX II 2 G EExed	25	Blue Sheath
7812	J02	1.5	2 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	ESD Panel (EQ016267)	ATEX II 2 G EExed	40	
7813	J04	1.5	4 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Scrubber Control Panel (EQ016268)	ATEX II 2 G EExed	40	
7814	J03	6.0	3 Core	Scrubber Control Panel (EQ016268)	ATEX II 2 G EExed	Power Distribution Board	ATEX II 2 G EExed	190	
7815	J02	1.5	2 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Hydrochloric Acid Pump Starter (EQ016269)	ATEX II 2 G EExed	180	
7816	J07	1.5	7 Core	Hydrochloric Acid Pump Starter (EQ016269)	ATEX II 2 G EExed	Local Stop/Start Control Station (EQ016284)	ATEX II 2 G EExed	180	
7817	J04	10.0	4 Core	Hydrochloric Acid Pump Starter (EQ016269)	ATEX II 2 G EExed	Hydrochloric Acid Pump Motor (EQ016285)	ATEX II 2 G EExed	180	
7818	E05I	0.75	5 Pair	Tank 14 High Level Panel (EQ016270)	ATEX II 2 G EExed	High Level Junction Box (EQ016283)	ATEX II 2 G EExed	180	Blue Sheath
7819	E02	0.75	2 Pair	High Level Junction Box (EQ016283)	ATEX II 2 G EExed	Tank 14 Import Valve Limit Switches (EQ016286)	ATEX II 2 G EExed	140	Blue Sheath
7820	E011	0.75	1 Pair	High Level Junction Box (EQ016283)	ATEX II 2 G EExed	HS1401 Valve Control Switch (EQ016271)	ATEX II 2 G EExed	50	Blue Sheath
7821	E011	0.75	1 Pair	HS1401 Valve Control Switch (EQ016271)	ATEX II 2 G EExed	Tank 14 Import Valve SOV (EQ016287)	ATEX II 2 G EExed	25	Blue Sheath
7822	L12	0.5	12 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Hydrochloric Acid Batcher (EQ016272)	ATEX II 2 G EExed	50	Def Stan 61-12
7823	E05	0.75	5 Pair	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Comms Junction Box (EQ016288)	ATEX II 2 G EExed	5	
7824	J04	1.5	4 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Hydrochloric Acid Batcher (EQ016272)	ATEX II 2 G EExed	50	
7825	J04	1.5	4 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	HS-G18-01 Acid Batcher Isolator (EQ016276)	ATEX II 2 G EExed	50	
7826	J04	1.5	4 Core	HS-G18-01 Acid Batcher Isolator (EQ016276)	ATEX II 2 G EExed	Hydrochloric Acid Batcher (EQ016272)	ATEX II 2 G EExed	5	
7827	L12	0.5	12 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Water Batcher (EQ016273)	ATEX II 2 G EExed	50	Def Stan 61-12
7828	E05	0.75	5 Pair	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Comms Junction Box (EQ016288)	ATEX II 2 G EExed	5	
7829	J04	1.5	4 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Water Batcher (EQ016273)	ATEX II 2 G EExed	50	
7830	J04	1.5	4 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	HS-G18-02 Water Batcher Isolator (EQ016275)	ATEX II 2 G EExed	50	
7831	J04	1.5	4 Core	HS-G18-02 Water Batcher Isolator (EQ016275)	ATEX II 2 G EExed	Water Batcher (EQ016273)	ATEX II 2 G EExed	5	
7832	J12	1.5	12 Core	Batcher Control Panel (EQ016263)	ATEX II 2 G EExed	Valve Junction Box (EQ016274)	ATEX II 2 G EExed	50	
7833	J03	1.5	3 Core	Valve Junction Box (EQ016274)	ATEX II 2 G EExed	Main Hydrochloric Acid Valve SOV (EQ16289)	ATEX II 2 G EExed	5	
7834	J03	1.5	3 Core	Valve Junction Box (EQ016274)	ATEX II 2 G EExed	Hydrochloric Acid Batcher Valve SOV (EQ16290)	ATEX II 2 G EExed	5	
7835	J03	1.5	3 Core	Valve Junction Box (EQ016274)	ATEX II 2 G EExed	Main Water Valve SOV (EQ162291)	ATEX II 2 G EExed	5	
							TOTAL	2580	

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	04/04/14	P.P.	P.P.	PJP	MM	PJP	MM	Issued for Tender
B	29/05/14	P.P.	P.P.	PJP		PJP		Issued for Construction

PLANT	Seal Sands Storage Ltd		
TITLE	Tank 14 HCL Storage Project - Cable Schedule		
 <small>bulk liquid & gas network</small>			
CLIENT DRG No		SHEET 1 OF 2	
		REF No. S1144001_SCH	

Section 5

Handover

