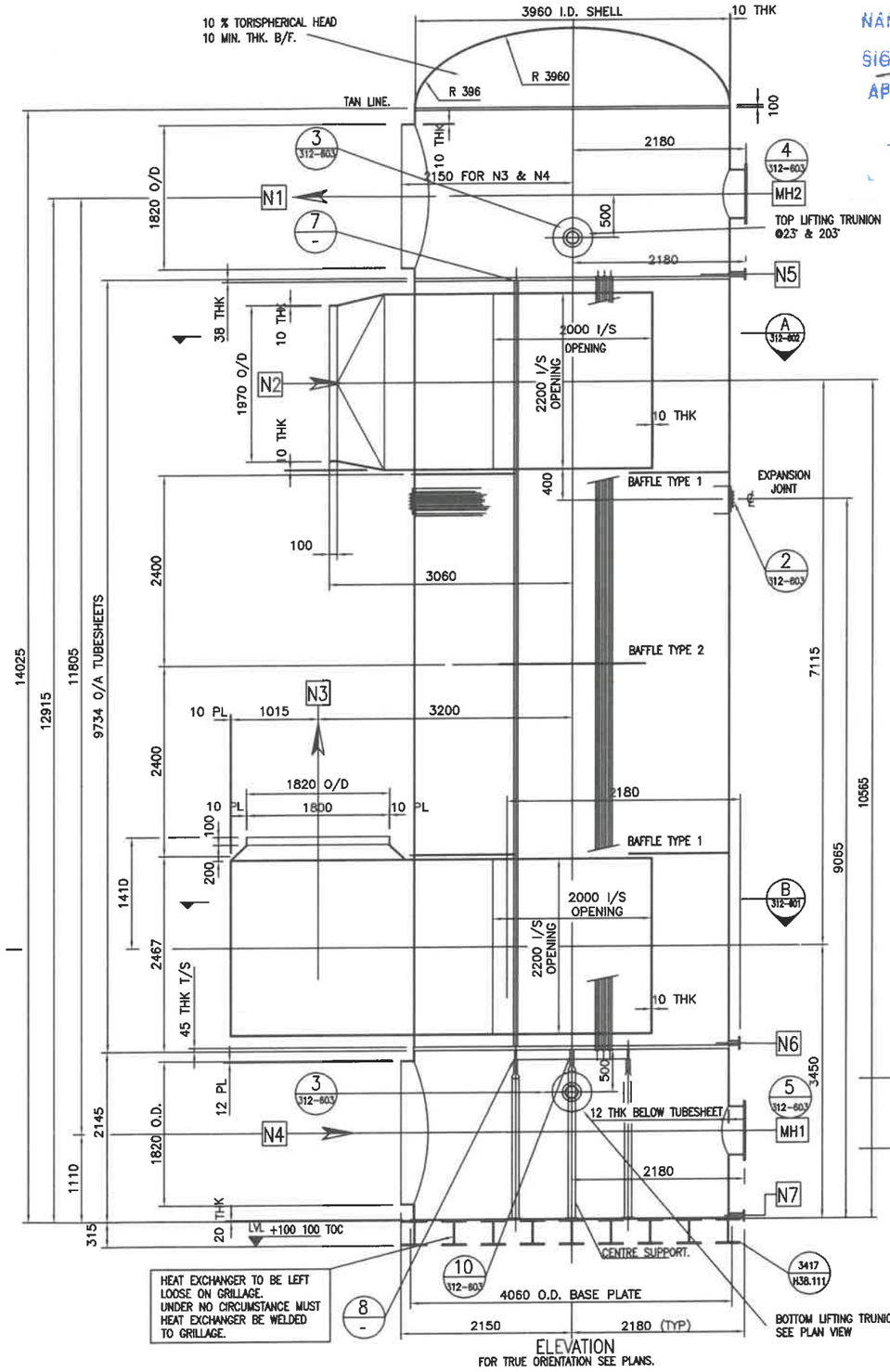
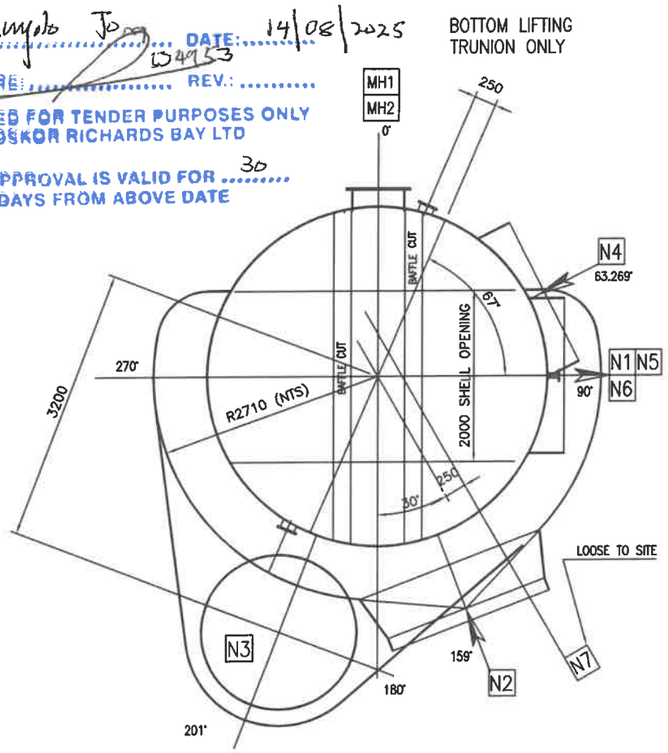
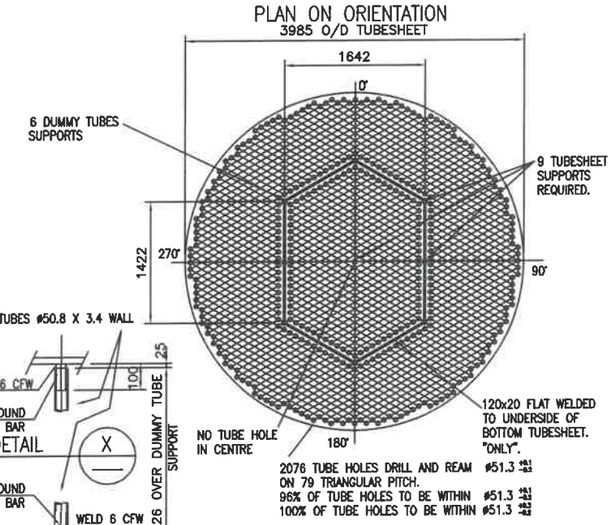
NAME: Lungelo Jo... DATE: 14/08/2025
SIGNATURE: ..... REV.: 134953
APPROVED FOR TENDER PURPOSES ONLY
FOSKOR RICHARDS BAY LTD
THIS APPROVAL IS VALID FOR 30 DAYS FROM ABOVE DATE



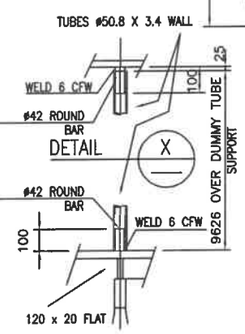
ELEVATION
FOR TRUE ORIENTATION SEE PLANS.



PLAN ON ORIENTATION



TUBESHEET DRILLING DETAIL



DESIGN DATA

DESIGN CODE: TUBE PLATE TO TEMA, SHELL TO ASME VIII DIV. 1, CONSTRUCTION & INSPECTION TO ASME VIII DIV. 1.LATEST EDITION

	SHELL SIDE:	TUBE SIDE:
DESIGN PRESSURE:	42 kPa(g)	29 KPa(g)
DESIGN TEMPERATURE:	445 °C	311 °C
OPERATING PRESSURE:	38 kPa(g)	25 kPa(g)
OPERATING TEMPERATURE:	IN 445°C / OUT 269°C	IN 80°C / OUT 310°C
PNEUMATIC TEST PRESSURE:	47 kPa(g)	31 kPa(g)
CAPACITY:	m^3	m^3
CONTENTS:		
DENSITY:	kg/m^3	kg/m

JOINT EFFICIENCY: SHELL: 0.85 HEADS: 1
CORROSION ALLOWANCE: SHELL: 2 mm HEADS: 2 mm NOZZLES: 2
WEIGHT OF VESSEL: EMPTY: 128 000 kg OPERATING: 128 000 kg EXCL. GRILLAGE
RADIOGRAPHY: ALL "T" WELDS TO BE 100% RADIOGRAPHED AND ALL OTHER WELDS 10% RADIOGRAPHED.
STRESS RELIEF: NO
INSPECTION AUTHORITY: KENNEDY AND DONKIN

INSULATION: 100 mm THK. DENSITY 80 / 100 kg/m3 MINERAL WOOL.SPECIFICATION
FOSKOR PROCEDURES

MARK	SIZE	QTY	FLG TYPE	FACING	RATING	SCH/W.T	PROJECTION	SERVICE
MH2	600 I/D	1	SEE DETAIL	S.O.F.F	–	10 PL	SEE DRG	MANHOLE (WELDED)
MH1	600 I/D	1	SEE DETAIL	S.O.F.F	–	12 PL	SEE DRG	MANHOLE (BOLTED)
N7	50 NB	1		S.O.R.F	PN 16	80	SEE DRG	DRAIN (SEE NOTE 12)
N6	50 NB	1		S.O.R.F	PN 16	80	SEE DRG	DRAIN (SEE NOTE 12)
N5	50 NB	1		S.O.R.F	PN 16	80	SEE DRG	DRAIN (SEE NOTE 12)
N4	1820 O/D	1	PE	–	–	12 PL	SEE DRG	GAS IN FROM INTERPASS
N3	1820 O/D	1	PE	–	–	10 PL	SEE DRG	GAS OUT TO ECONOM.
N2	1970 O/D	1	PE	–	–	10 PL	SEE DRG	GAS IN FROM CONVERT.
N1	1820 O/D	1	PE	–	–	10 PL	SEE DRG	GAS OUT TO H. EXCH.

NOZZLE SCHEDULE

MATERIALS OF CONSTRUCTION

PLATE	BS 1501-151-430A
TUBE SHEET	BS 1501-151-430A
TUBES ø50.8 X 3.4 WALL X 9754 LG. 2076 REQ'D.	DIN 17100 ST33
DUMMY TUBES ø50.8 X 3.4 WALL X 9626 LG. 6 REQ'D.	DIN 17100 ST33
PIPE	A 106 GR B
FLANGES (INCLUDING BLANKS)	BS 1501-151-430A
GASKETS 3 THK FULL FACE RING.	FIBRE
BOLTING	SABS 136 GR. 8.8
BAFFLES 16 THK	BS 1501-151-430A
SEALING STRIP 50 X 10 FLAT	BS 1501-151-430A

GENERAL NOTES FOR TUBE SHEETS

1. PRIOR TO DRILLING, TUBE SHEETS TO BE LEVELLED WITHIN ± 1,5 mm
2. HOLES TO BE DRILLED SUCH THAT DRILL DRIFT DOES NOT EXCEED 0,16 mm
3. FINAL MACHINING OPERATION OF HOLES IN ALL CASES SHALL PROVIDE A FINISHED SURFACE WHERE THE DIFFERENCE BETWEEN THE HIGH AND ADJACENT LOW SPOT OF ANY IMPERFECTION SHALL NOT BE MORE THAN 0,0016 mm
   REAMED FINISH 3,2 MICROMETERS OR BETTER

GENERAL NOTES: (UON)

1. ALL BOLT HOLES TO STRADDLE THE PRINCIPAL CENTRE LINES OF THE VESSEL U.O.S.
2. ALL DIMENSIONS ARE IN mm.
3. INTERNAL EDGES OF OPENINGS SHALL BE ROUNDED TO A MINIMUM RADIUS OF 3mm OR TO A RADIUS EQUAL TO ONE HALF OF THE PIPE WALL THICKNESS WHEN IT IS LESS THAN 6mm.
4. ALL FLANGED OPENINGS TO BE CLOSED WITH MILD STEEL PLATE COVERS & GASKETS AND SECURED BY BOLTING.
5. 3 SETS OF GASKETS ARE REQUIRED – ONE FOR TESTING TO BE SHIPPED IN PLACE & TWO FOR FINAL INSTALLATION PROPERLY BOXED & IDENTIFIED FOR SHIPMENT.
6. ALL MACHINED SURFACES & THREADS TO BE COATED WITH HEAVY RUST PREVENTATIVE GREASE.
7. THE EDGE OF ANY ORIFICE CUT IN SHELL MUST BE AT LEAST 40mm FROM WELD SEAMS.
8. IMPORTANT – ANY DEVIATION FROM THIS DRAWING MUST RECEIVE THE WRITTEN APPROVAL FROM FOSKOR PRIOR TO SUCH ALTERATIONS BEING MADE.
9. VESSEL TO BE CLEARLY IDENTIFIED BY PAINTING OR DYE STENCILLING THE ITEM NUMBER IN A CONSPICUOUS LOCATION ON THE SHELL.
10. GASKET CONTACT SURFACE ROUGHNESS 6,3 – 12,7 µm Ra MAX.
11. ALL NOZZLE PROJECTIONS ARE GIVEN FROM VESSEL CENTRE LINES TO EXTREME FACE OF FLANGE EXCEPT AS NOTED.
12. DRAIN NOZZLES TO BE SUPPLIED WITH BLANK FLANGE, GASKETS AND BOLTING.
13. EXCHANGER SHALL BE PURGED WITH NITROGEN BEFORE DISPATCH.
14. PAINTING SHALL BE AS PER FOSKOR SPEC'S.
15. N7,N6,N5 – FLANGES SHALL BE AS PER ANSIB-B-16.5

VENDOR NUMBER

REVISION 0 WORK ON LATEST

SCALE N.T.S

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.

FOSKOR RICHARDS-BAY
P.O.BOX 208
RICHARDS BAY
3900
TEL: (035) 9023111

PLANT	SULPHURIC A & B	DISCIPLINE	COLD HEAT EXCHANGER NO1

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SAP COLD HEAT EXCHANGER
GENERAL ARRANGEMENT
AND DETAIL

	NAME	DATE
DRAWN	H.ROSSOUW	08/12/2006
DESIGNED		
CHECKED	L.MBUYAZI	08/12/2006
SECT.ENG.	R.JOSHI	08/12/2006
ENG.MNGR.	A.KADIRVELU	08/12/2006

DWG.No.DA350262312601 REV0 A1

REFERENCE DRAWINGS	DWG. NUMBER
LAGGING DIAGRAM	DA350262312605
WELD DETAIL	DA350262312604
COLD HEAT EXCHANGER DETAILS	DA350262312603
BUSTLE DETAIL	DA350262312602

REV.No.	DATE	REVISIONS	BY	CHK	SECT.ENG	ENG.MNGR.