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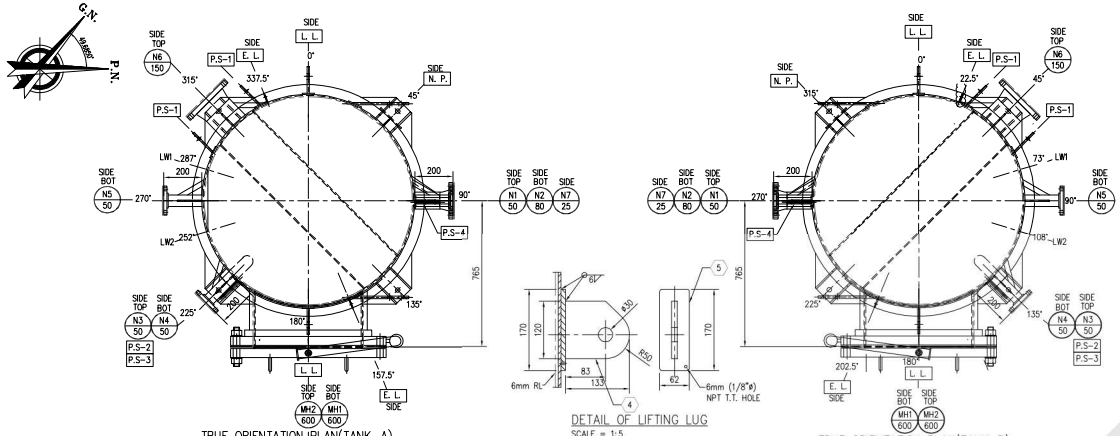

BILL OF MATERIAL

ITEM	DESCRIPTION	QTY	MATERIAL	REMARKS
1	SHELL	1	SA-516M Gr.485	1100 I.D x 3800 S.H x 6.35t
2	ANGLE PLATE	1	SA-36M or EQUIV.	∠ 50 x 50 x 6t
3	BOTTOM PLATE	1	SA-516M Gr.485	1212 O.D x 9.53t
4	LIFTING LUG	2	SA-516M Gr.485	120W x 133L x 12.7t
5	LIFTING LUG PAD	2	SA-516M Gr.485	62W x 170H x 6.35t
6	SUPPORT BRACKET	6	SA-516M Gr.485	9.53t
7	PAD	6	SA-516M Gr.485	6.35t
8	LUG BASE PLATE	4	SA-516M Gr.485	9.53t
9	GUSSET PLATE	8	SA-516M Gr.485	9.53t
10	EARTHING LUG	2	SS 316/ SS 304	6t
11	SUPPORT BRACKET	4	SA-516M Gr.485	9.53t
12	PAD	4	SA-516M Gr.485	62W x 150H x 6.35t

NOZZLES DATA

NOZZLE MARK	SERVICE	QTY.	SIZE	SCH.	FLANGE STD./TYPE	RATING CL.150	REMARK
N1	INLET	1	DN50	80	ANSI SOFF	CL.150	
N2	OUTLET/BACKWASH	1	DN80	40	ANSI WNFF	CL.150	
N3	OVER FLOW	1	DN50	80	ANSI SOFF	CL.150	
N4	DRAIN	1	DN50	80	ANSI SOFF	CL.150	
N5	BLOWER INLET	1	DN50	80	ANSI SOFF	CL.150	
N6	OUTLET TO FEED CHAMBER	1	DN150	40	ANSI WNFF	CL.150	
N7	PDS TAPPING POINT	1	DN25	80	ANSI SOFF	CL.150	W/BLIND
MH1	MANHOLE	1	DN600	6.35t	ANSI SOFF	CL.150	W/BLIND
MH2	MANHOLE	1	DN600	6.35t	ANSI SOFF		1
TAG NO.	(A) 00GNB24BB101	SERIAL NO.	VESB-V2442		UNIT		1
	(B) 00GNB25BB101		VESB-V2443				

NOTE:
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. ALL COMPENSATING PAD REQUIRE 6mm (1/4" DIA.) NPT TELL-TALE HOLE HOLE WITH GREASE.
3. MINIMUM THICKNESS INCLUSIVE CORROSION ALLOWANCE.
4. ALL FILLET WELD SIZE TOLERANCE SHALL BE −0/+5mm.
5. THE ACCEPTANCE OF NOZZLE PROJECTION AND ALIGNMENT SHALL FOLLOW QCP009 LATEST REVISION.
6. WELDING PROCEDURE VESB/WPS/79/03 SHALL BE USED FOR ALL EXTERNAL ATTACHMENT WELDING.
7. FLANGES RAISE FACE TO BE MACHINED DOWN FLAT FOR RUBBER LINING.

DESIGN CODE	API 650, 2013 ED. (AS A GUIDANCE)
MATERIAL OF CONSTRUCTION	
SHELL	SA-516M Gr.485
TOP PLATE	SA-516M Gr.485
BOTTOM PLATE	SA-516M Gr.485
MANHOLE & COVER	SA-105M
MANHOLE NECK	SA-516M Gr.485
FLANGE	SA-105M
NECK	SA-106M Gr. B
BOLTS & NUTS	SA-193 Gr. B7 & SA-194 Gr.2H (H.D.G)
GASKET	EPDM
EARTHING LUG	SS 316 / SS 304
LIFTING LUG	SA-516M Gr.485
NAME PLATE BRACKET	SA-516M Gr.485
NAME PLATE	SS 304

VESSEL DESIGN CONDITIONS

Design Pressure	MPag	FULL WATER	External Design Presssure	NO
Operating Pressure	MPag	ATM	Specific Gravity	1.5
Design Temperature	(°C)	45	Corrosion Allowance (mm)	0
Operating Temperature	(°C)	ATM	Capacity / Volume (m³)	12.9
Full Water Test		YES		
Vessel Content		CLARIFIED WATER & FILTER MEDIA (SAND/GRAVEL)		

NDT EXAMINATION REQUIREMENT

Radiography	DPI/MT	UT	PWHT	HARDNESS
100%	100% ON ALL WELD	N/A	N/A	N/A

EXTERNAL PAINTING SPECIFICATION (-)

PROCESS	GENERIC NAME (SPECIFIC NAME)	No. Of COAT	DFT (micron)
Surface Preparation	BLAST TO SA 2.5		
1st COAT	POLYAMDE CURED ZINC RICH EPOXY (JOTUN: BARRIER)	1	80
2nd COAT	POLYAMDE CURED EPOXY (JOTUN : PENGUARD MIDCOAT MIO)	1	125
3rd COAT	POLYAMDE CURED EPOXY (JOTUN : PENGUARD MIDCOAT MIO)	1	125
4th COAT	POLYURETHANE (JOTUN : HARDTOP XP)	1	80
FINAL COLOUR	CREAM (RAL 9001)		
	TOTAL		410

INTERNAL PAINTING SPECIFICATION

PROCESS	GENERIC NAME (SPECIFIC NAME)	No. Of COAT	DFT (micron)
Surface Preparation	BLAST TO SA 2.5		
1st COAT	6mmt HARD RUBBER LINING	–	–
	SHORE D, 75±10 HARDNESS		–

VESSEL WEIGHT IN − KG

EMPTY	MAX. OPERATING	HYDROTEST
2596	7145	8000

NO	DD/MMM/YY	REVISIONS AND RECORD OF ISSUE	BY	DES	CHKD	PDE	APPD
0	30-OCT-17	ISSUE FOR CONSTRUCTION	YX		JON		AD

OWNER: PT.Bhumi Jati Power

PROJECT TITLE: TANJUNG JATI B EXPANSION (JAWA-4) COAL FIRED STEAM POWER PLANT 2 x 1,000 MW

OWNER'S ENGINEER: PÖYRY

EPC CONTRACTORS: Sumitomo Corporation; PT. Wasa Mitra Engineering; AvantPower Japan Ltd.

VESB DRAWING NO.: DWG-5679 (1 of 5)

VESB JOB NO.: V5377

ENGINEERING & FABRICATOR: VESSELTECH ENGINEERING SDN. BHD. (312672-T)
LOT 1779, JALAN KPB 4, BUKIT BELIMBING, BALAKONG
43300 SERI KEMBANGAN, SELANGOR DARUL EHSAN.
TEL : 603-8961 3209, FAX : 603-8961 2807.

PROJECT DRAWING NO.: TJB56-L3-OFF-C-GNB-M-DGA-0010 REV. 0

OUTLINE DRAWING FOR GRAVITY FILTER (A / B)

APPD/ENGR	ANDREW	BY	NANIE	UNITS	VIEW
CHKD	JON	DD/MMM/YY	25.10.2017	MM/M	00/FWF/03/30

EPC LOT3 SUB-CONTRACTOR: BLACK & VEATCH

SPEC NAME: AMMONIA REMOVAL SYSTEM

SPEC NO.: 179956.65.2101

EPC LOT3 SUB-CONTRACTOR DRAWING NO.: GNB-M-DGA-0010

BESTEAD SALCON WATER SOLUTIONS

SHEET NO. 1 OF 6 REV. 0

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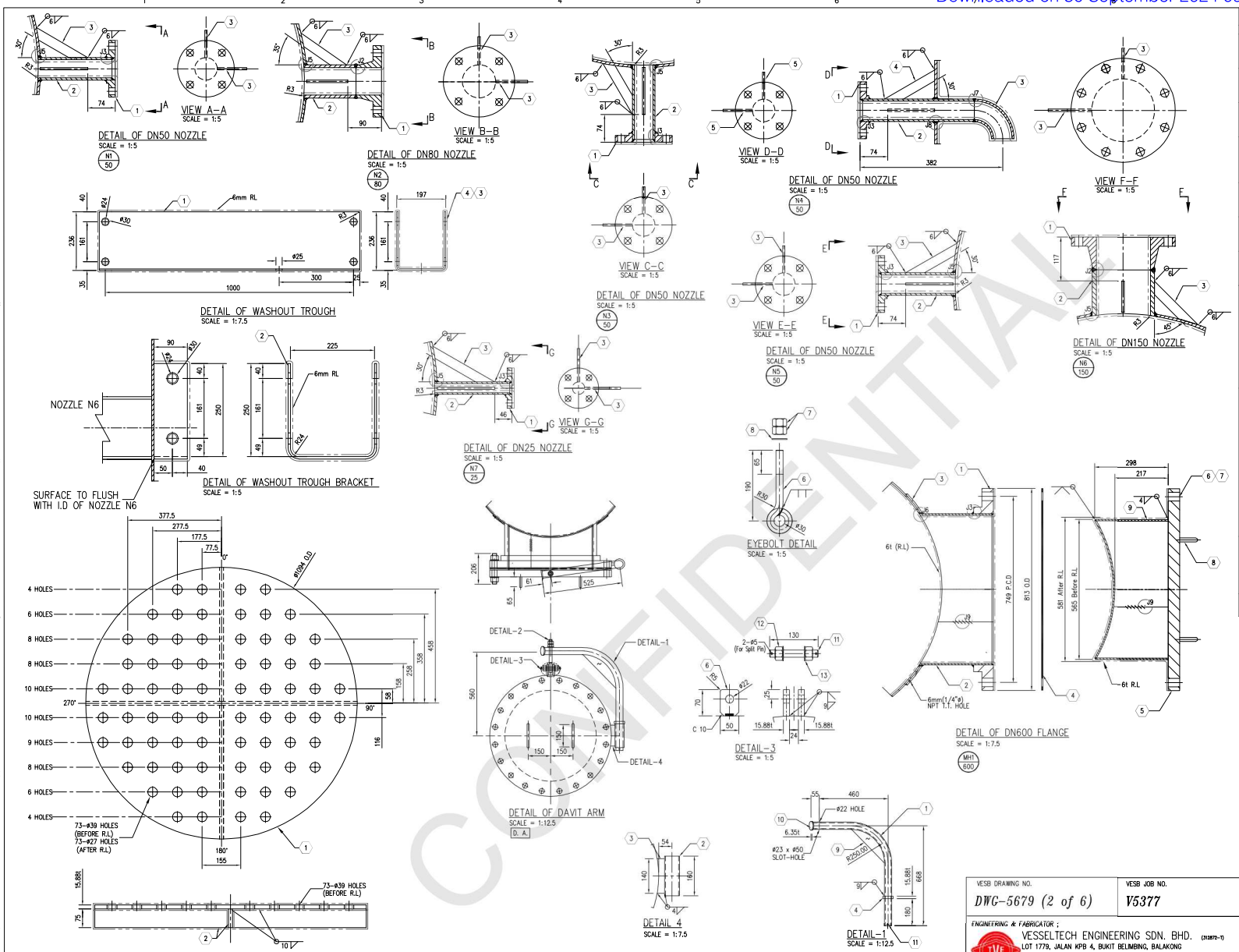

BILL OF NOZZLES MATERIAL

ITEM	NO.	DESCRIPTION	QTY.	MATERIAL	REMARK
N1	1	FLANGE	1	SA-105M	DN50 SOFF CL 150
	2	NECK	1	SA-106M Gr. B	DN50 Sch.80
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N2	1	FLANGE	1	SA-105M	DN80 WNRF CL 150 Sch.40
	2	NECK	1	SA-106M Gr. B	DN80 Sch.40
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N3	1	FLANGE	1	SA-105M	DN50 SOFF CL 150
	2	NECK	1	SA-106M Gr. B	DN50 Sch.80
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N4	1	FLANGE	1	SA-105M	DN50 SOFF CL 150
	2	NECK	1	SA-106M Gr. B	DN50 Sch.80
	3	90° ELBOW (LR)	1	SS-234M Gr.WPB	DN50 Sch.80
	4	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N5	1	FLANGE	1	SA-105M	DN50 SOFF CL 150
	2	NECK	1	SA-106M Gr. B	DN50 Sch.80
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N6	1	FLANGE	1	SA-105M	DN150 WNFF CL 150 Sch.40
	2	NECK	1	SA-106M Gr. B	DN150 Sch.40
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
N7	1	FLANGE	1	SA-105M	DN25 SOFF CL 150
	2	NECK	1	SA-106M Gr. B	DN25 Sch.80
	3	GUSSET PLATE	2	SA-516M Gr. 485	25.4W x 6.35t
MH1 & MH2	1	FLANGE	2	SA-105M	DN600 SOFF CL 150
	2	NECK	2	SA-516M Gr.485	609.6 O.D x 6.35t
	3	PAD	2	SA-516M Gr.485	761.6 O.D x 6.35t
	4	GASKET	2	EPDM	5t
	5	BLIND FLANGE	2	SA-105M	DN600 BLFF CL 150
	6	STUD BOLT	32	SA-193 Gr. B7	M22 x 210L (H.D.G)
	7	NUT c/w WASHER	64	SA-194M Gr. 2H	M22 (H.D.G)
	8	HANDLE	4	SA-36M or EQUIV.	RB 16#
	9	COLLAR	2	SA-516M Gr.485	6t
D.A	1	DAVIT ARM	4	SA-106M Gr. B	DN40 Sch 80
	2	SLEEVE	4	SA-516M Gr.485	DN50 Sch 80
	3	PLATE	4	SA-106M Gr. B	15.88t
	4	RING	4	SA-516M Gr.485	70 O.D x 50 I.D x 15.88t
	5	EYE BOLT HOLDER	4	SA-516M Gr.485	15.88t
	6	EYE BOLT	4	SA-36M	RB 16# x 220L (H.D.G)
	7	NUT	8	SA-164M Gr. 2H	M16 (H.D.G)
	8	WASHER	4	CS	M16 (H.D.G)
	9	SUPPORT PLATE	4	SA-516M Gr.485	9.53t
	10	END PLATE	4	SA-516M Gr.485	ø60 x 6.35t
	11	STUD BOLT	4	SA-193M Gr. B7	3/4" x 130L
	12	HEX. NUT	8	SA-194M Gr. 2H	3/4"
	13	WASHER	8	CS	3/4"
WASHOUT TROUGH	1	PLATE	1	SA-516M Gr.485	6.35t
	2	PLATE BRACKET	2	SA-516M Gr.485	6.35t
	3	STUD BOLT	4	SA 790 UNS NO S 31803	7/8" x 50L
	4	NUT c/w WASHER	8	SA 182 F51	7/8"
NOZZLE PLATE	1	NOZZLE PLATE	1	SA-516M Gr.485	1094 O.D x 15.88t
	2	PLATE STIFFENER	3	SA-516M Gr.485	75W x 15.88t

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OWNER: PT.Bhumi Jati Power

PROJECT TITLE: TANJUNG JATI B EXPANSION (JAWA-4)
COAL FIRED STEAM POWER PLANT 2 x 1,000 MW

OWNER'S ENGINEER: PÖYRY

EPC CONTRACTORS: Sumitomo Corporation; PT. Wasa Mitra Engineering; AvantPower Japan Ltd.

VESB DRAWING NO.: DWG-5679 (2 of 6)
VESB JOB NO.: V5377

ENGINEERING & FABRICATOR:
VESSELTECH ENGINEERING SDN. BHD. (313572-T)
LOT 1779, JALAN KPB 4, BUKIT BELIMBING, BALAKONG
43300 SERI KEMBANGAN, SELANGOR DARUL EHSAN.
TEL : 603-8961 3209, FAX : 603-8961 2807.

PROJECT DRAWING NO.: TJB56-L3-OFF-C-GNB-M-DGA-0010 REV. 0

NOZZLE DETAIL DRAWING FOR GRAVITY FILTER (A / B)

APPD/ENGR	ANDREW	BY	NANIE	UNITS	VIEW
CHKD	JON	DD/MMM/YY	25.10.2017	MM/M	89/NM/90/00

EPC LOT3 SUB-CONTRACTOR: BLACK & VEATCH
SPEC NAME: AMMONIA REMOVAL SYSTEM
SPEC NO.: 179956.65.2101
EPC LOT3 SUB-CONTRACTOR DRAWING NO.: GNB-M-DGA-0010
BOLSTEAD BALDWIN WATER SOLUTIONS
SHEET NO. 2 OF 6 REV. 0

NO	DD/MMM/YY	REVISIONS AND RECORD OF ISSUE	BY	DES	CHKD	PDE	APPD
0	30.OCT.18	ISSUE FOR CONSTRUCTION	Y.X	JON	AD		

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