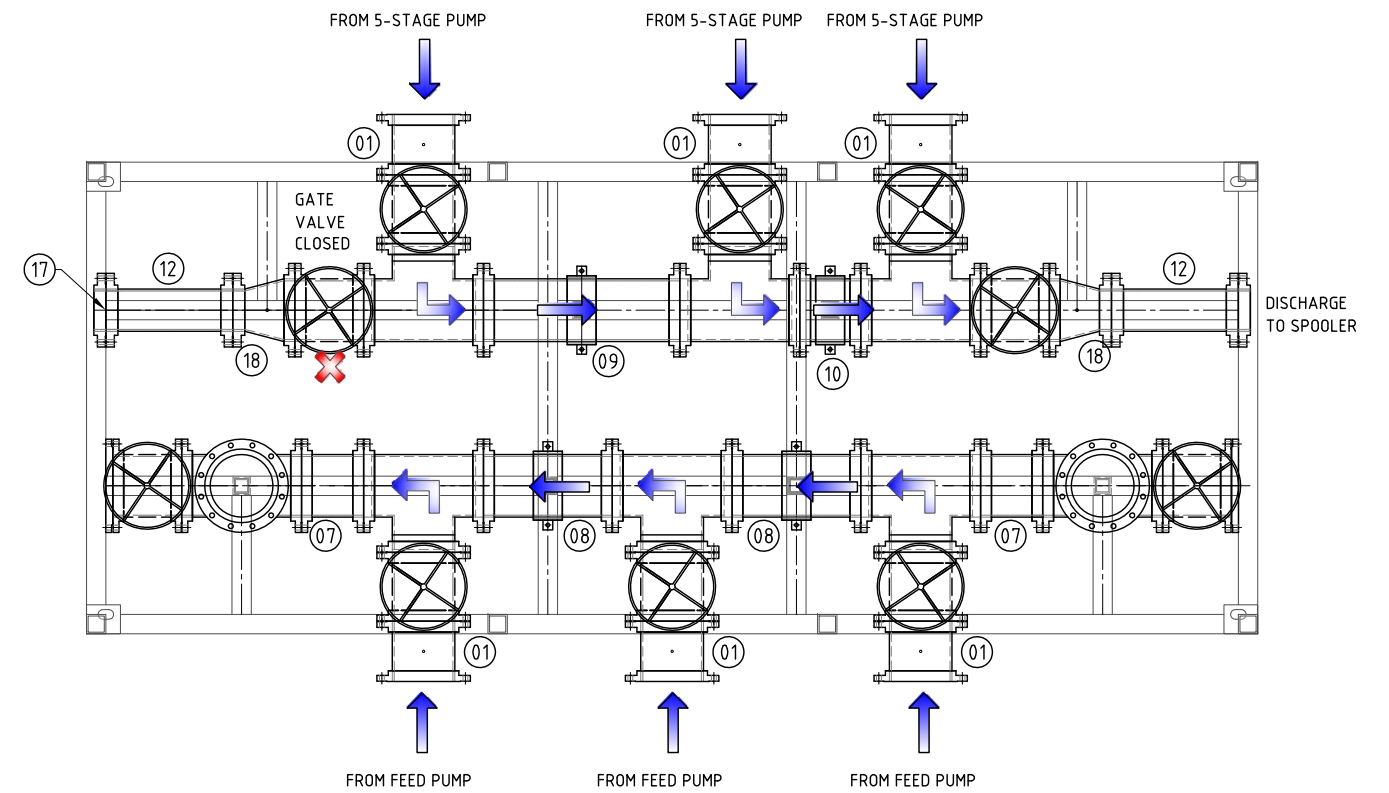
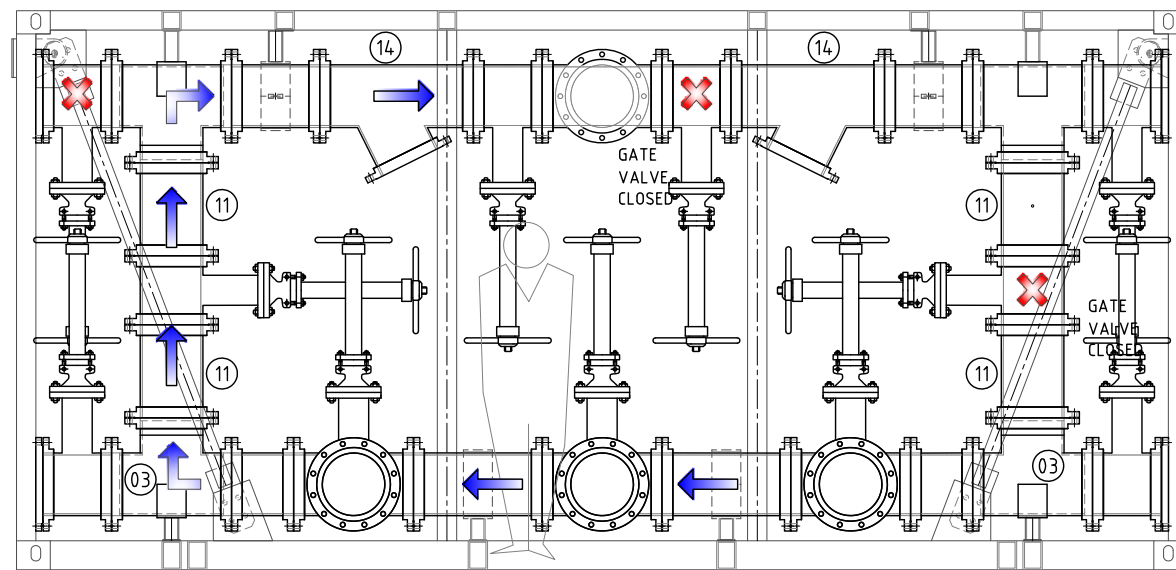


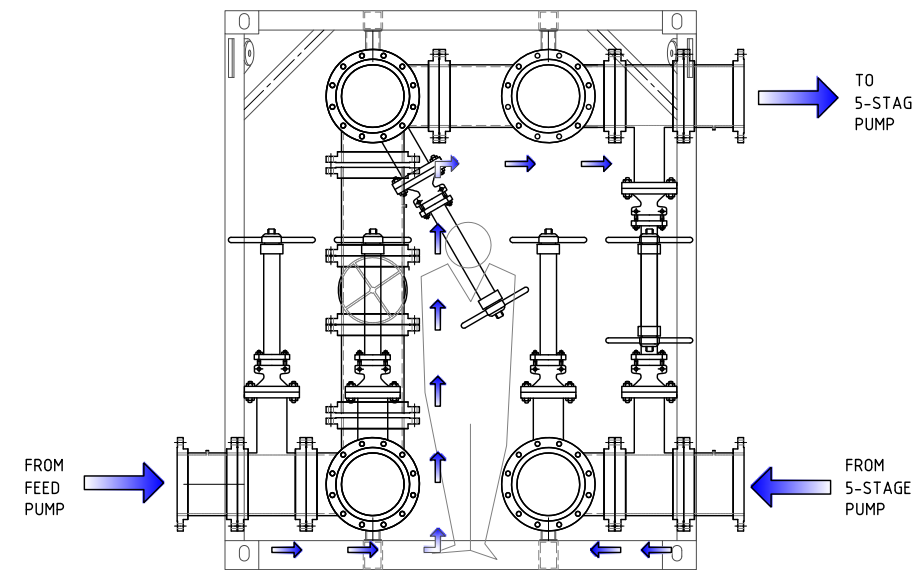
PLAN VIEW (TOP)
SCALE 1: 40



PLAN VIEW (BOTTOM)
SCALE 1: 40



ELEVATION VIEW
SCALE 1: 40



SIDE VIEW
SCALE 1: 40

OPERATION:

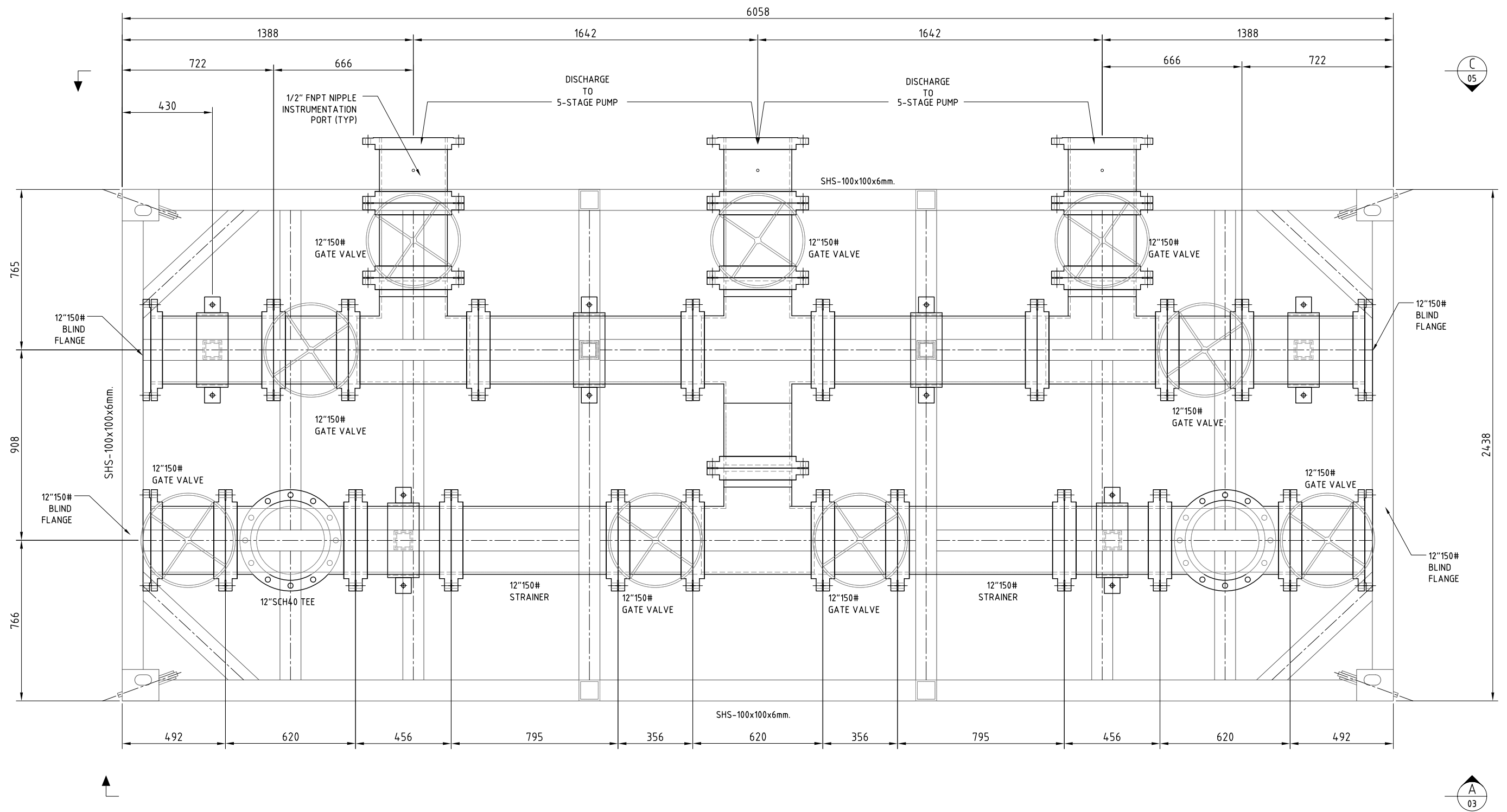
1. FROM FEED PUMPS TO LEFT OR RIGHT DEPENDING ON W/C GATE VALVE IS OPEN. SEE SECTION A.
2. TO TOP THRU STRAINER THEN ACROSS TO TOP DISCHARGE TO 5-STAGE PUMP. SEE PLAN VIEW (TOP)
3. FROM 5-STAGE PUMP FROM BOTTOM TO LEFT OR RIGHT DISCHARGE TO SPOOLER. SEE PLAN VIEW (BOTTOM)
4. SEE SECTION B FOR AN OVERVIEW OF THE FLOW FROM FEED PUMP, TO MANIFOLD TO 5-STAGE PUMP, BACK TO MANIFOLD THEN DISCHARGE TO SPOOLER.
5. DIRECTION OF FLOW CAN BE VICE VERSA.

0	RZ	07.06.13	APPROVED FOR CONSTRUCTION	LB	KEJ				
E	RZ	3.06.13	ISSUED FOR REVIEW	LB	KEJ				
D	PSR	16.05.13	ISSUED FOR REVIEW	LB	KEJ				
C	PSR	09.05.13	ISSUED FOR REVIEW	LB	KEJ				
B	KZA	06.02.13	ISSUED FOR REVIEW	LB	KEJ				
REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING	



OCS	
DRAWN : LUIS	DATE: 16.11.12
CHECKED :	DATE:
ENGINEER :	DATE:
OCS APPD :	DATE:

PIGGING/JETTING MANIFOLD (SHEET 1 OF 7) OPTION2			
SCALE AS SHOWN	DWG NO DRW-OCS-20/CSJM-01	SIZE A3	REV 0



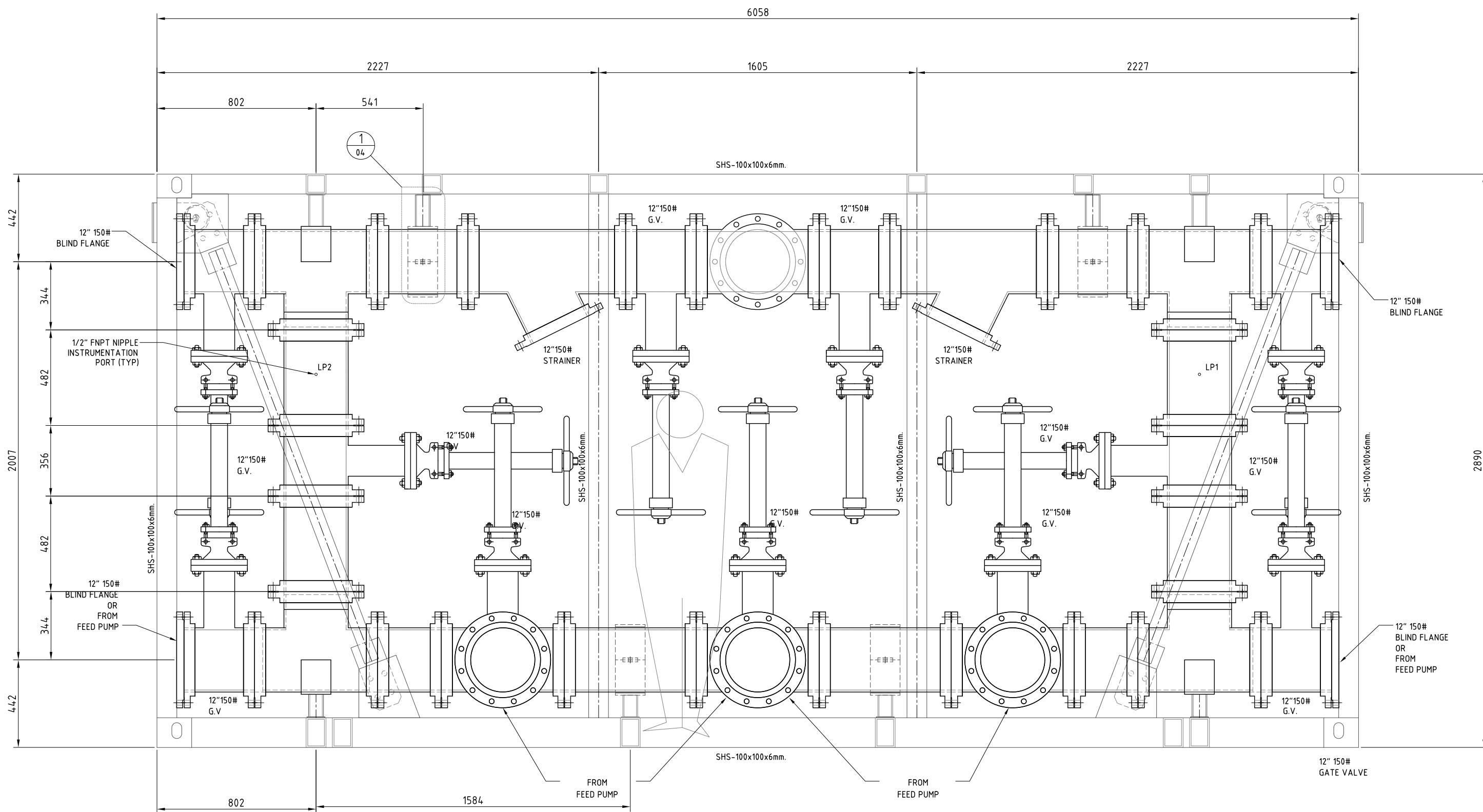
PLAN VIEW (TOP)
SCALE 1: 20

REV	BY	DATE	REVISION DESCRIPTIONS	DRAFTG CHECK	ENG	APP	DATE	MASTER DRAWING
0	RZ	07.06.13	APPROVED FOR CONSTRUCTION	LB	KEJ			
E	RZ	02.06.13	ISSUED FOR REVIEW	LB	KEJ			
D	PSR	16.05.13	ISSUED FOR REVIEW	LB	KEJ			
C	PSR	09.05.13	ISSUED FOR REVIEW	LB	KEJ			
B	KZA	06.02.13	ISSUED FOR REVIEW	LB	KEJ			



OCS	
DRAWN : LUIS	DATE: 16.11.12
CHECKED :	DATE:
ENGINEER :	DATE:
OCS APPD :	DATE:

PIGGING/JETTING MANIFOLD (SHEET 2 OF 7)			
SCALE AS SHOWN	DWG NO DRW-OCS-20/CSJM-02	SIZE A3	REV 0



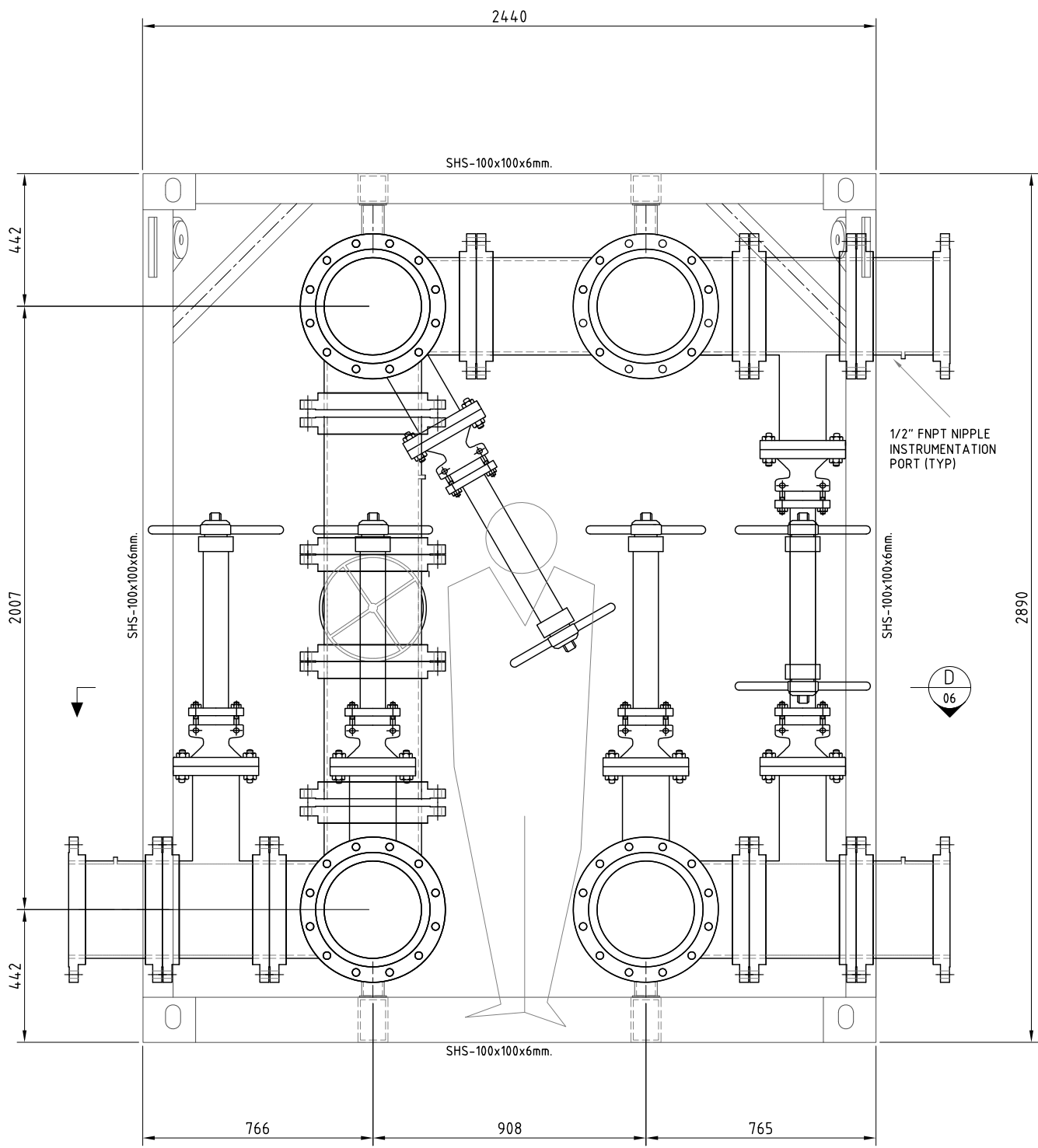
SECTION A
SCALE 1: 20

REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING
0	RZ	07.06.13	APPROVED FOR CONSTRUCTION	LB	KEJ			
D	RZ	02.06.13	ISSUED FOR REVIEW	LB	KEJ			
C	PSR	09.05.13	ISSUED FOR REVIEW	LB	KEJ			
B	KZA	06.02.13	ISSUED FOR REVIEW	LB	KEJ			
A	LB	16.11.12	ISSUED FOR REVIEW	LB	KEJ			

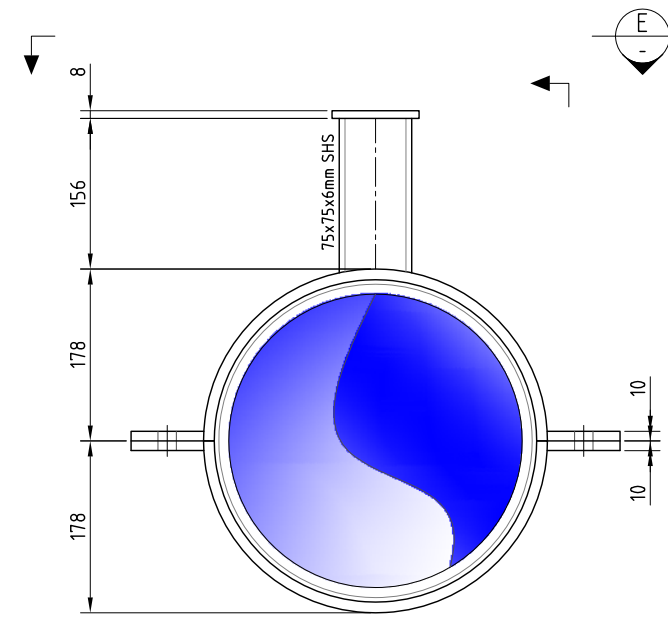


OCS	
DRAWN : LUIS	DATE: 16.11.12
CHECKED :	DATE:
ENGINEER :	DATE:
OCS APPD :	DATE:

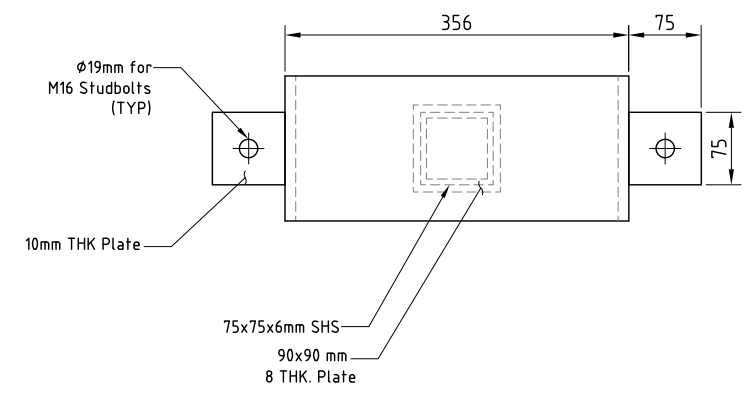
PIGGING/JETTING MANIFOLD (SHEET 3 OF 7)			
SCALE AS SHOWN	DWG NO DRW-OCS-20/CSJM-03	SIZE A3	REV 0



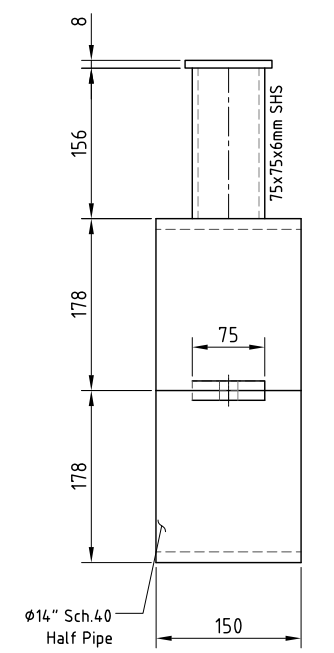
SECTION B
SCALE 1: 20



DETAIL 1
SCALE 1: 8



SECTION E
SCALE 1: 8



SECTION F
SCALE 1: 8

MATERIAL TAKE-OFF:

NO.	ITEM	TOTAL LENGTH (MM.)	QTY	WEIGHT (Kg)	TOTAL WEIGHT (Kg)
1	DIA.12" SCH 40 PIPE	312	9	24.86	223.8
2	DIA.12" SCH 40 PIPE	586	2	49.42	98.84
3	12" SCH 40 EQUAL TEE		13	64.96	844.48
4	DIA.12" SCH 40 PIPE	1022	1	81.48	81.48
5	DELETED	-	-	-	-
6	DIA.12" SCH 40 PIPE	456	2	36.36	72.71
7	DIA.12" SCH 40 PIPE	322	2	25.67	51.35
8	DIA.12" SCH 40 PIPE	666	2	53.10	106.20
9	DIA.12" SCH 40 PIPE	1016	1	81.01	81.01
10	DIA.12" SCH 40 PIPE	316	1	25.19	25.19
11	DIA.12" SCH 40 PIPE	482	4	41.05	164.2
12	DIA.8" SCH 40 PIPE	622	2	52.28	104.57
13	12" 150# GATE VALVE		21	304.26	6389.46
14	12" 150# STRAINER		2	213	426
15	12" 150# FLANGE		91	50	4550
16	12" 150# BLIND FLANGE		6	13.83	27.66
17	8" 300# FLANGE		6	36	216
18	12" 150# TO 8" 300# REDUCER		2	13.83	27.66
19	12" 150# 4 WAY TEE		1	64.96	64.96
				TOTAL	13598.07

Drive: Directory:

REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING
0	RZ	07.06.13	APPROVED FOR CONSTRUCTION	LB	KEJ			
E	RZ	02.06.13	ISSUED FOR REVIEW	LB	KEJ			
D	PSR	16.05.13	ISSUED FOR REVIEW	LB	KEJ			
C	PSR	09.05.13	ISSUED FOR REVIEW	LB	KEJ			
B	KZA	06.02.13	ISSUED FOR REVIEW	LB	KEJ			

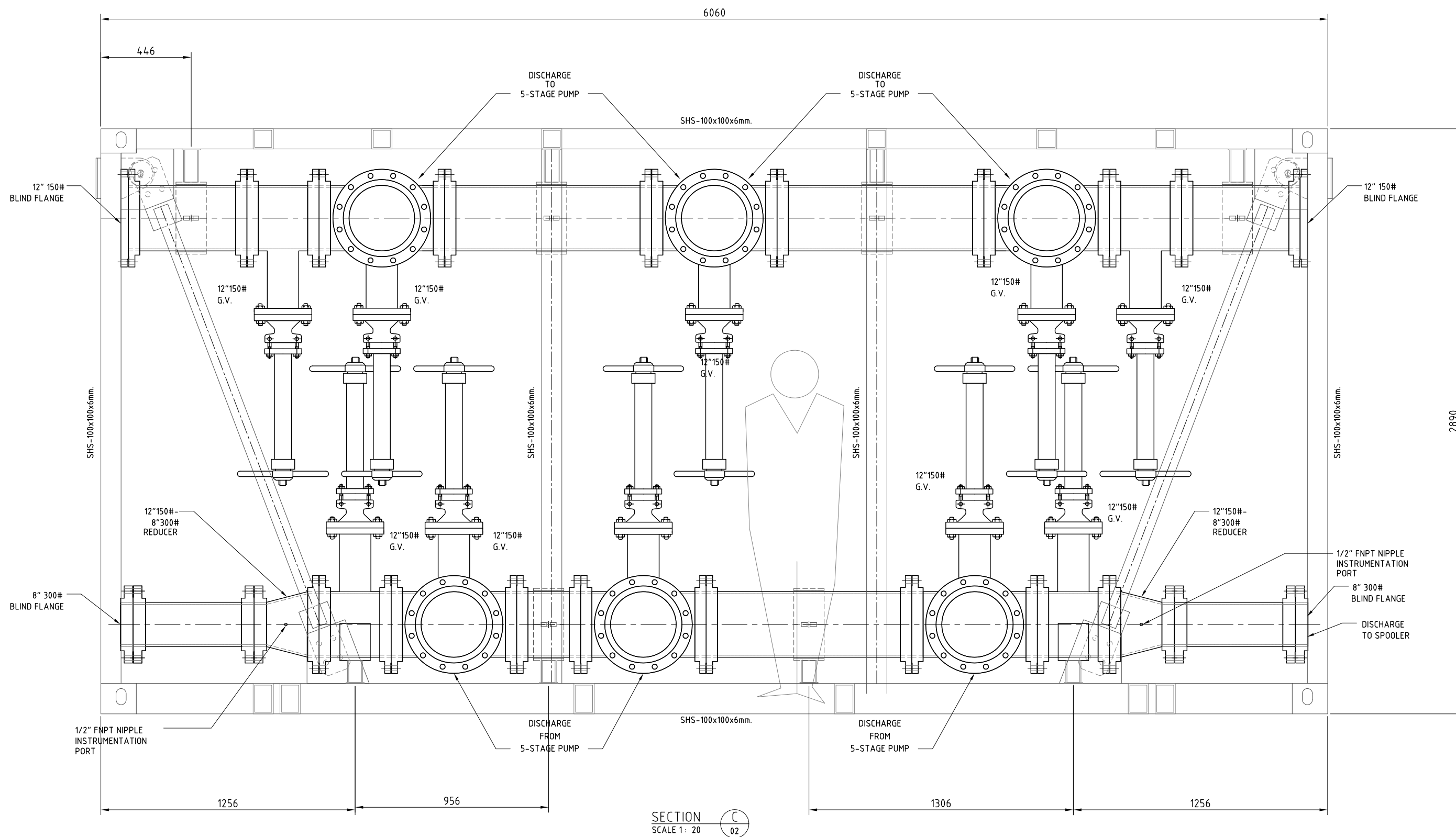
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OCS
OFFSHORE CONSTRUCTION SPECIALISTS

DRAWN : LUIS	DATE: 16.11.12
CHECKED :	DATE:
ENGINEER :	DATE:
OCS APPD :	DATE:

PIGGING/JETTING MANIFOLD (SHEET 4 OF 7)

SCALE AS SHOWN	DWG NO DRW-OCS-20/CSJM-04	SIZE A3	REV 0
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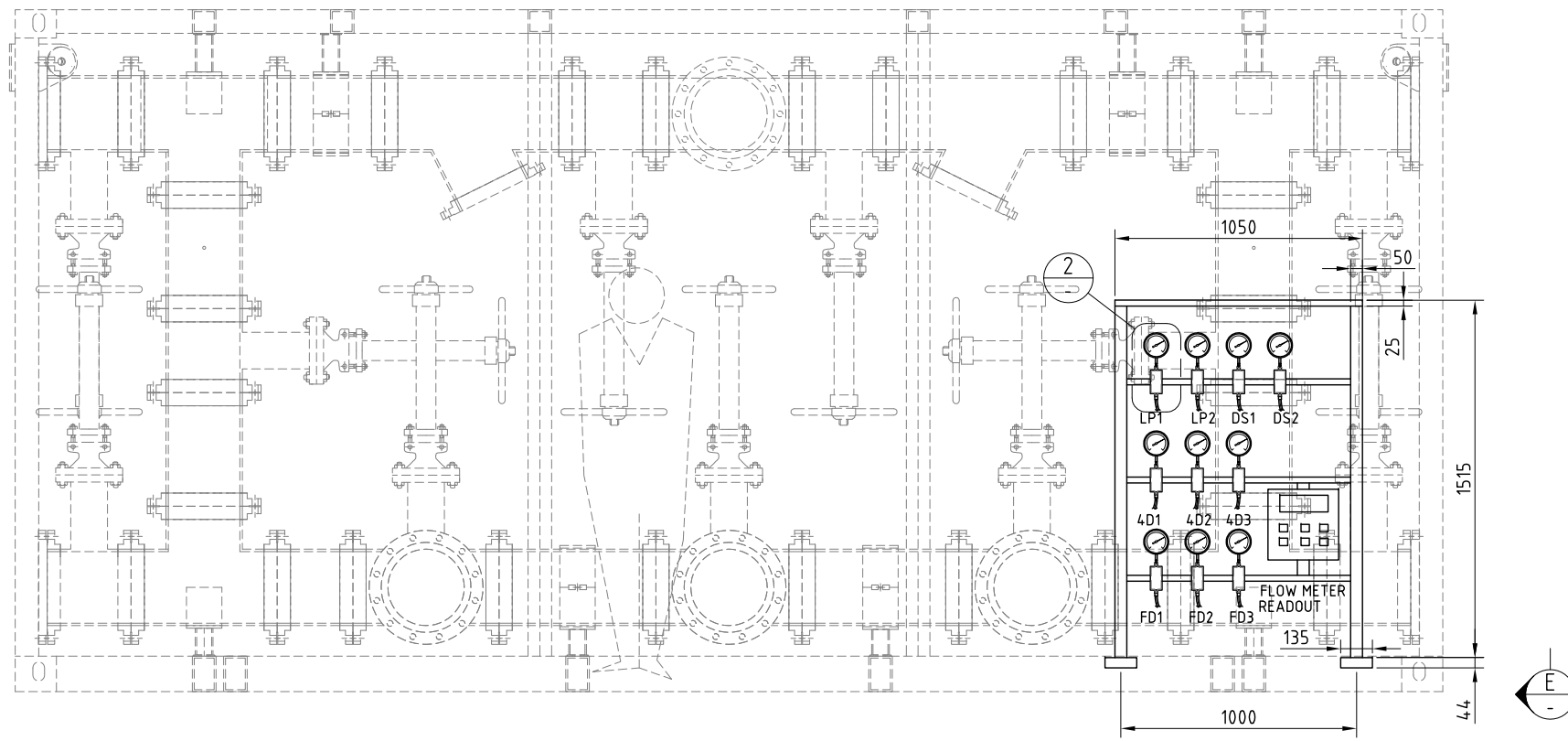
SECTION C
SCALE 1: 20

REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING
0	RZ	07.06.13	APPROVED FOR CONSTRUCTION	LB	KEJ			
E	RZ	02.06.13	ISSUED FOR REVIEW	LB	KEJ			
D	PSR	16.05.13	ISSUED FOR REVIEW	LB	KEJ			
C	PSR	09.05.13	ISSUED FOR REVIEW	LB	KEJ			
B	KZA	06.02.13	ISSUED FOR REVIEW	LB	KEJ			

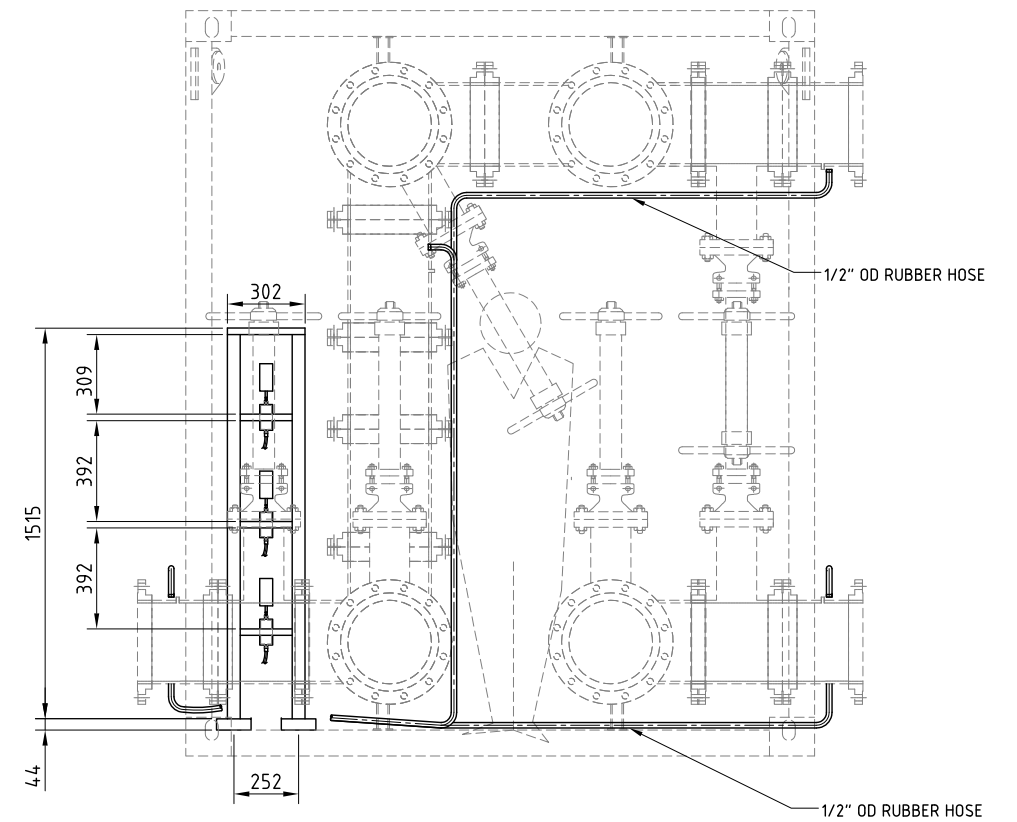


OCS	
DRAWN :	LUIS
DATE:	16.11.12
CHECKED :	
DATE:	
ENGINEER :	
DATE:	
OCS APPD :	
DATE:	

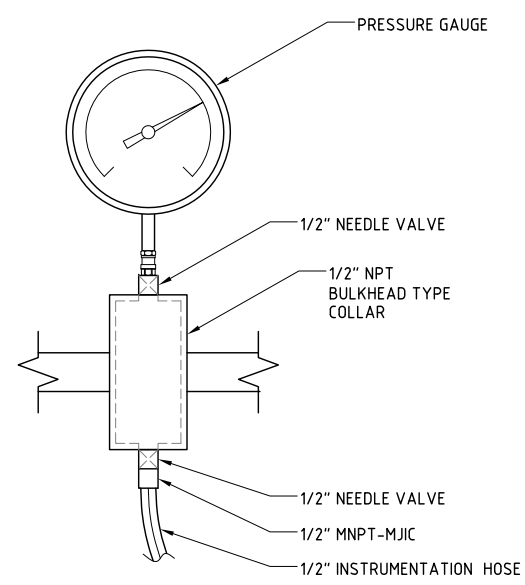
PIGGING/JETTING MANIFOLD (SHEET 5 OF 7)			
SCALE AS SHOWN	DWG NO DRW-OCS-20/CSJM-05	SIZE A3	REV 0



ELEVATION VIEW
SCALE 1: 30



SECTION E
SCALE 1: 30



DETAIL 2
SCALE 1: 5

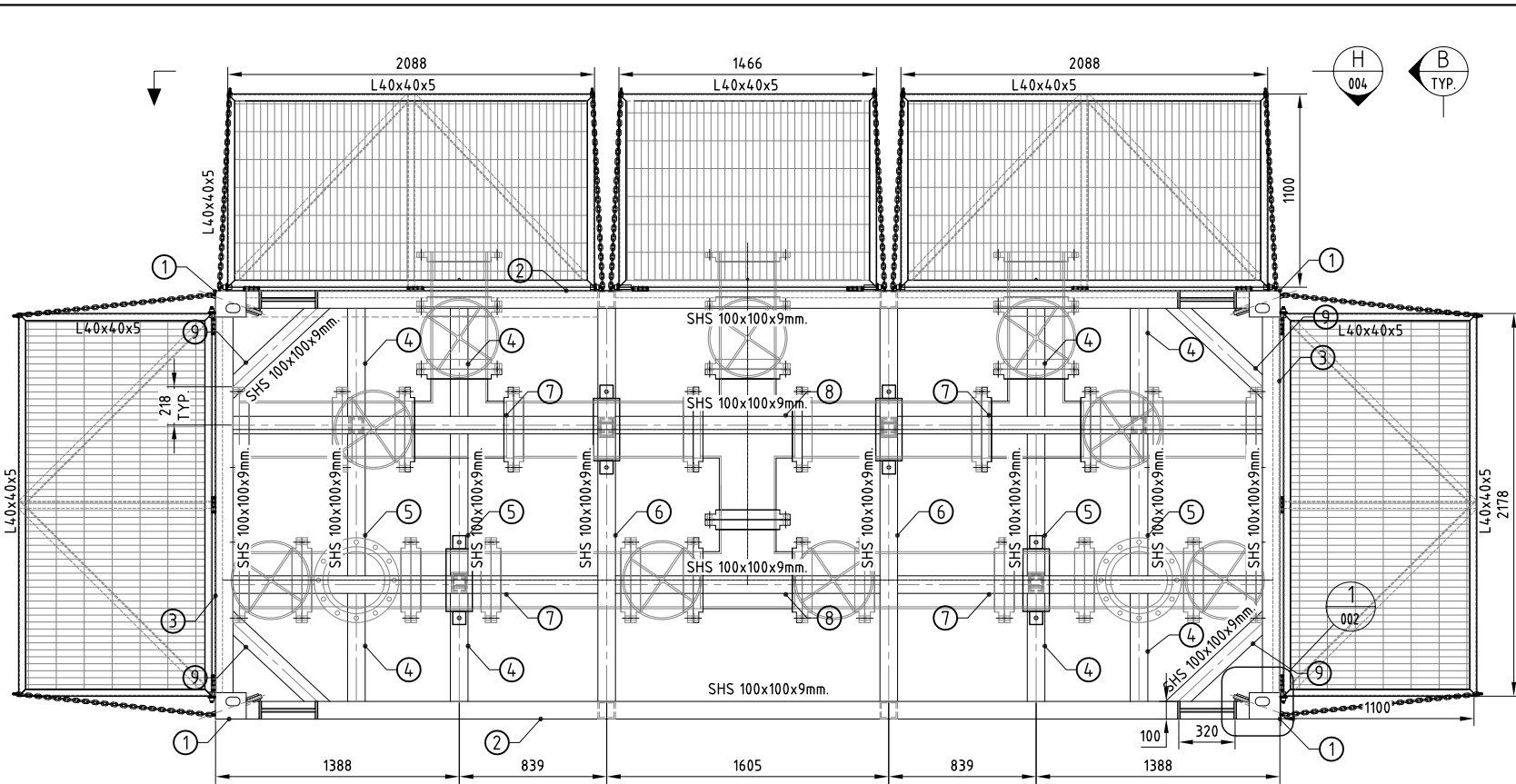
CODE	DESCRIPTION
FD1	FEED PUMP DISCHARGE 1
FD2	FEED PUMP DISCHARGE 2
FD3	FEED PUMP DISCHARGE 3
4D1	4-STAGE DISCHARGE 1
4D2	4-STAGE DISCHARGE 2
4D3	4-STAGE DISCHARGE 3
4S1	4-STAGE SUCTION 1
4S2	4-STAGE SUCTION 2
4S3	4-STAGE SUCTION 3
LP1	LINE PIPE 1
LP2	LINE PIPE 2
DS1	DISTANCE TO SPOOLER 1
DS2	DISTANCE TO SPOOLER 2

REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING
0	RZ	07.06.13	APPROVED FOR CONSTRUCTION	LB	KEJ			
E	RZ	02.06.13	ISSUED FOR REVIEW	LB	KEJ			
D	PSR	16.05.13	ISSUED FOR REVIEW	LB	KEJ			
C	PSR	09.05.13	ISSUED FOR REVIEW	LB	KEJ			
B	KZA	06.02.13	ISSUED FOR REVIEW	LB	KEJ			

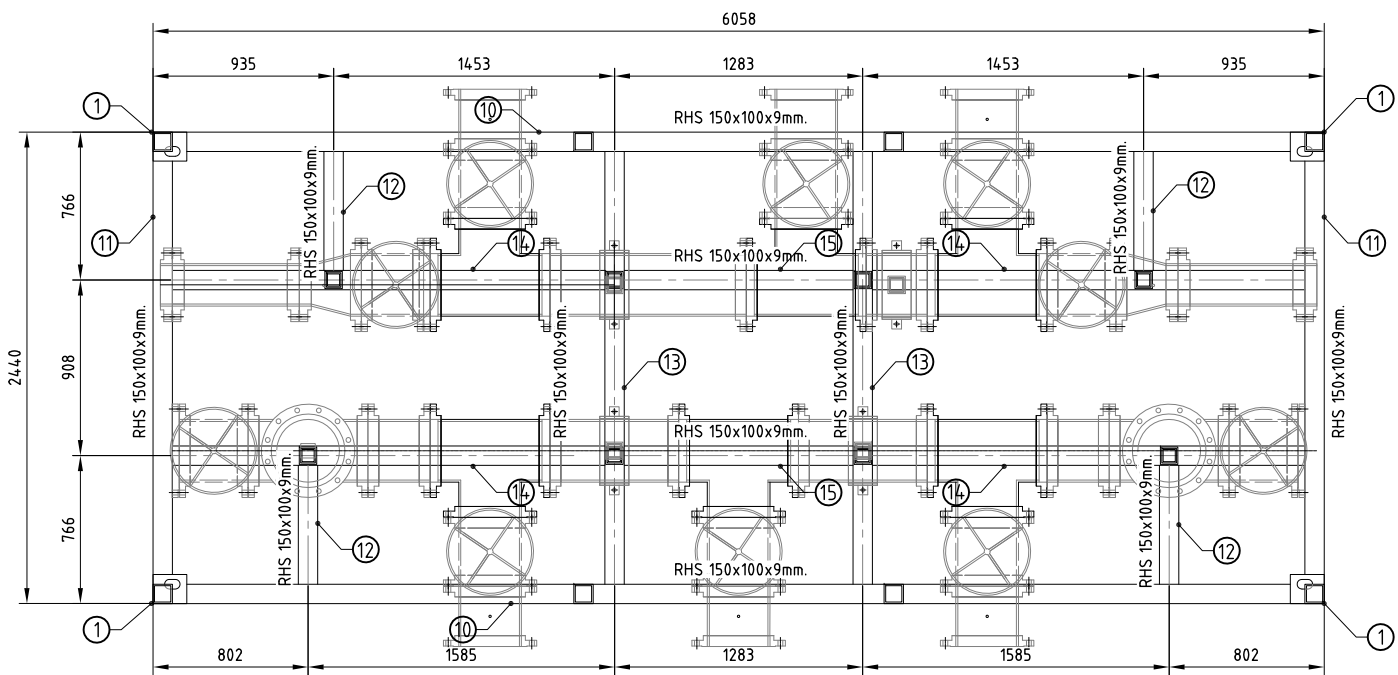


OCS	
DRAWN : LUIS	DATE: 16.11.12
CHECKED :	DATE:
ENGINEER :	DATE:
OCS APPD :	DATE:

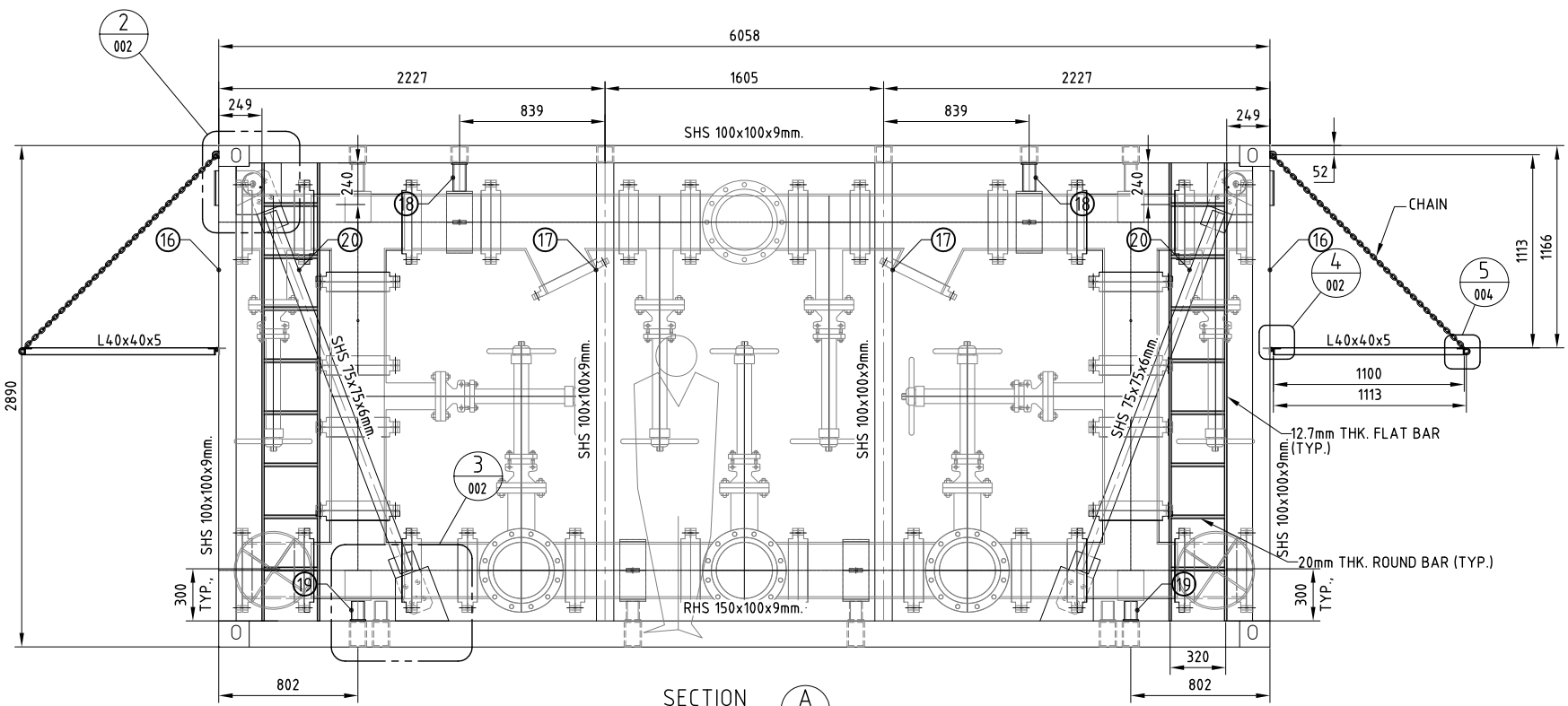
PIGGING/JETTING MANIFOLD (SHEET 7 OF 7)			
SCALE AS SHOWN	DWG NO DRW-OCS-20/CSJM-07	SIZE A3	REV 0



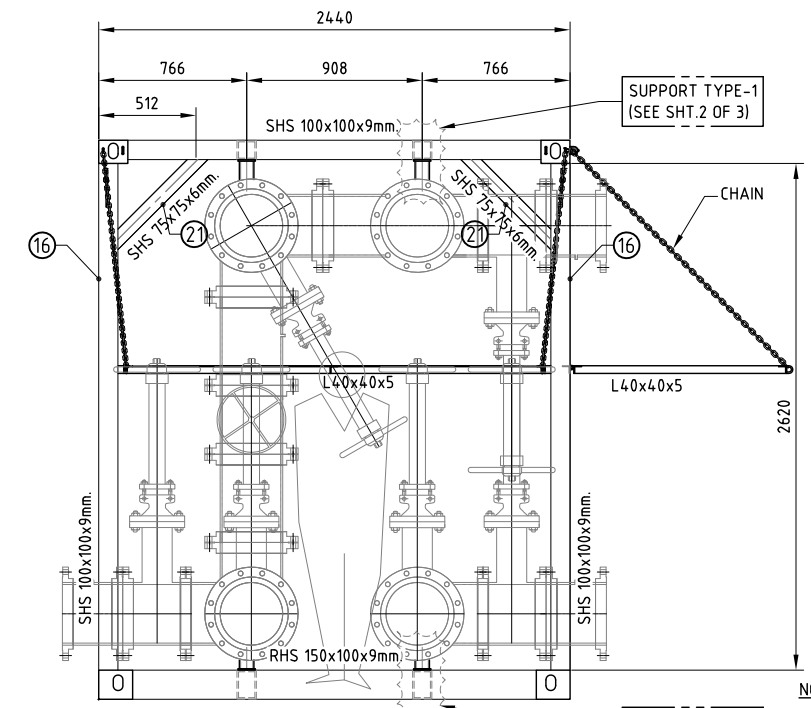
PLAN VIEW (TOP)
SCALE 1: 40



PLAN VIEW (BOTTOM)
SCALE 1: 40



SECTION A
SCALE 1: 40



SECTION B
SCALE 1: 40

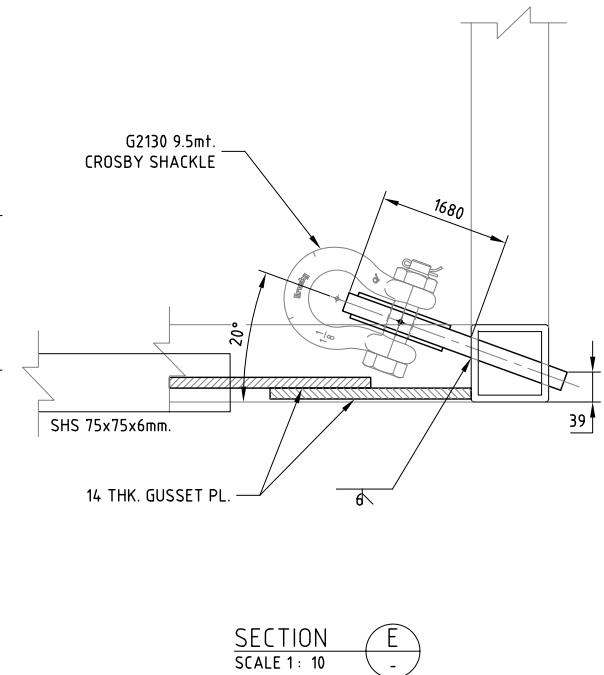
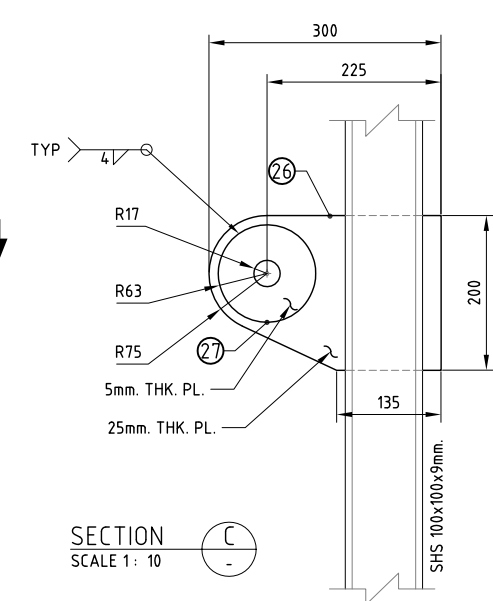
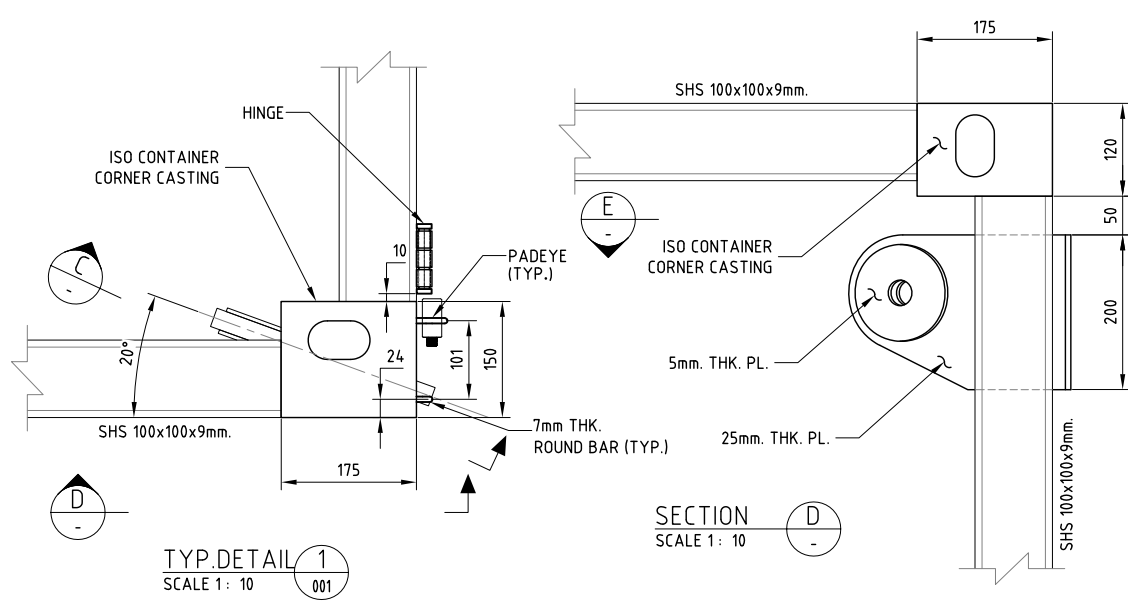
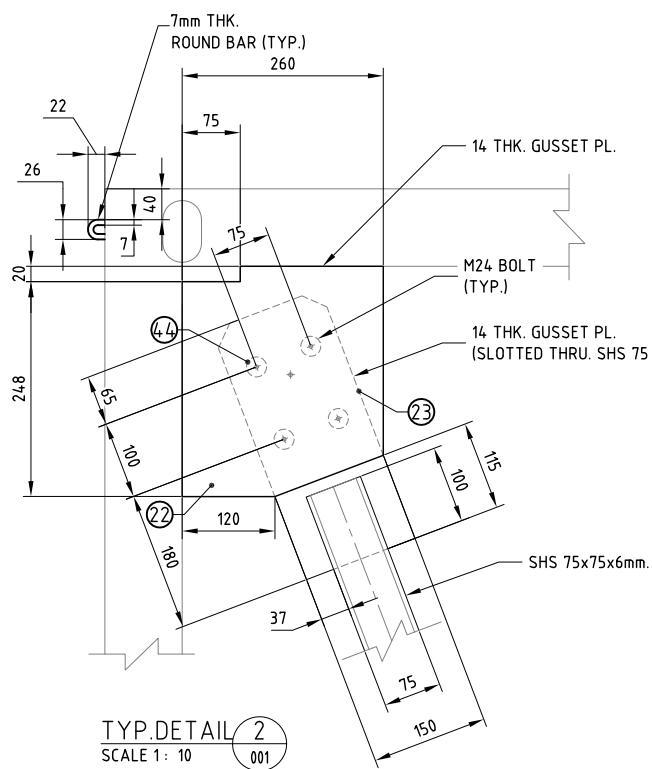
- NOTES:
1. ALL DIMENSION ARE IN mm. (UNO).
 2. ALL MATERIALS ARE ASTM A-36.
 3. ALL WELD TO FULL PEN. (UNO).

REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING
0	KZA	07.06.13	APPROVED FOR CONSTRUCTION	CSN	ZIA	RR/LB	07.06.13	
C	KZA	13.02.13	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	13.02.13	
B	KZA	06.02.13	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	06.02.13	
A	RZ	09.01.12	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	09.01.12	



OCS Offshore Construction Specialist Pte Ltd.	
DRAWN : RAMIL Z.	DATE: 09.01.12
CHECKED : CHANIN	DATE: 09.01.12
ENGINEER : ZIA	DATE: 09.01.12
OCS APPD : RAKUL	DATE: 09.01.12

PIGGING/JETTING MANIFOLD PLANS AND ELEVATIONS SHEET 1 OF 4			
SCALE AS SHOWN	DWG NO OCS-INS-12-FAB-001	SIZE A3	REV 0



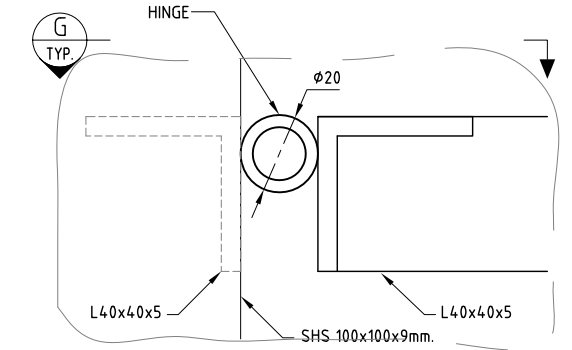
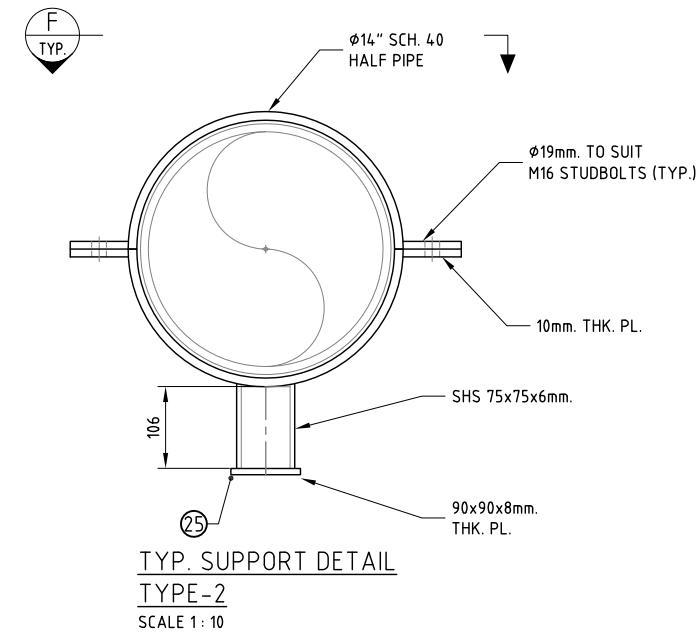
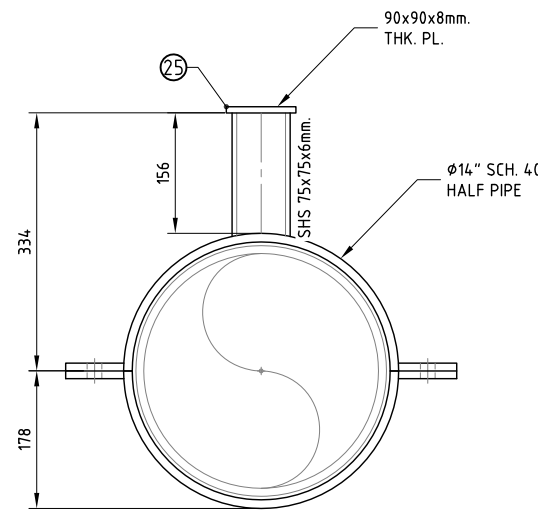
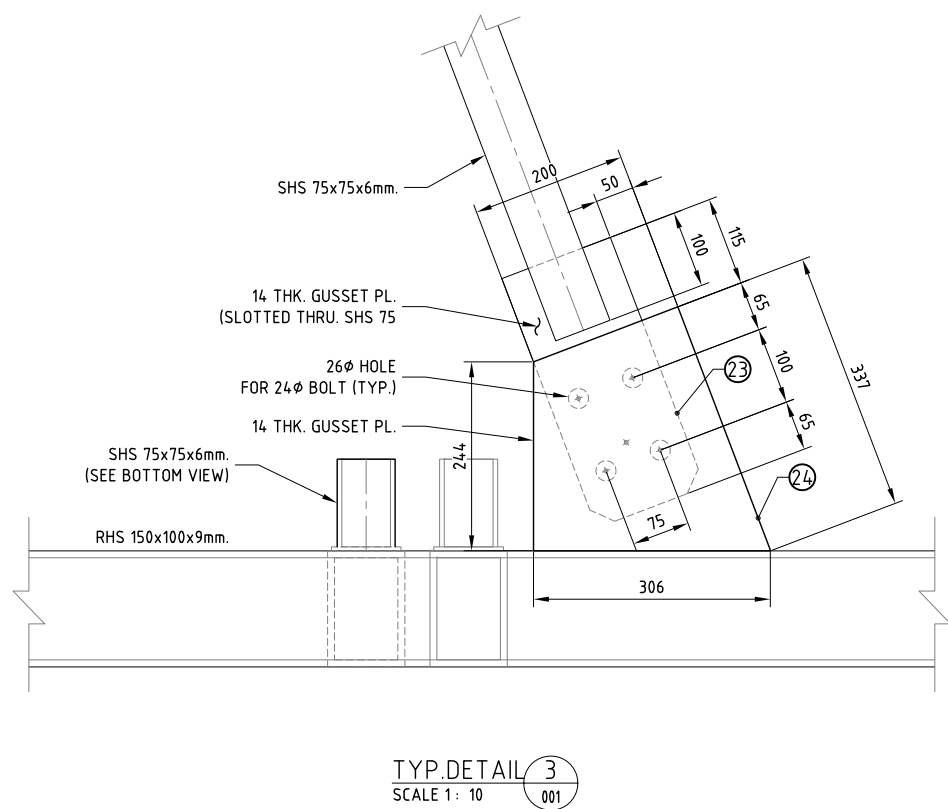
BRACING NOT SHOWN FOR CLARITY

TYP.DETAIL 2
SCALE 1: 10

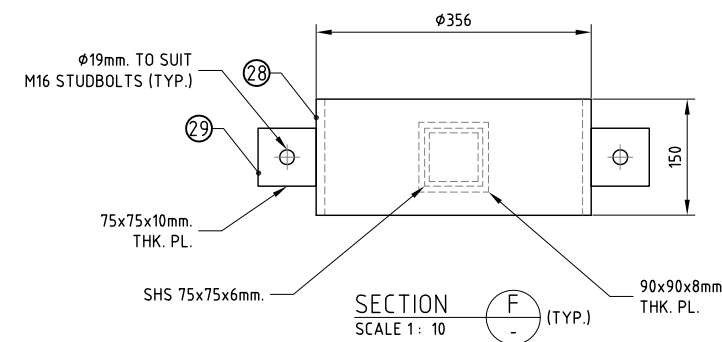
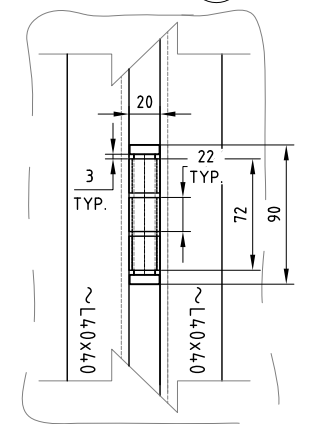
TYP.DETAIL 1
SCALE 1: 10

SECTION C
SCALE 1: 10

SECTION E
SCALE 1: 10



TYP.DETAIL 4
SCALE 1: 2



- NOTES:**
1. ALL DIMENSION ARE IN mm. (UNO).
 2. ALL MATERIALS ARE ASTM A-36.
 3. ALL WELD TO FULL PEN. (U.N.O).

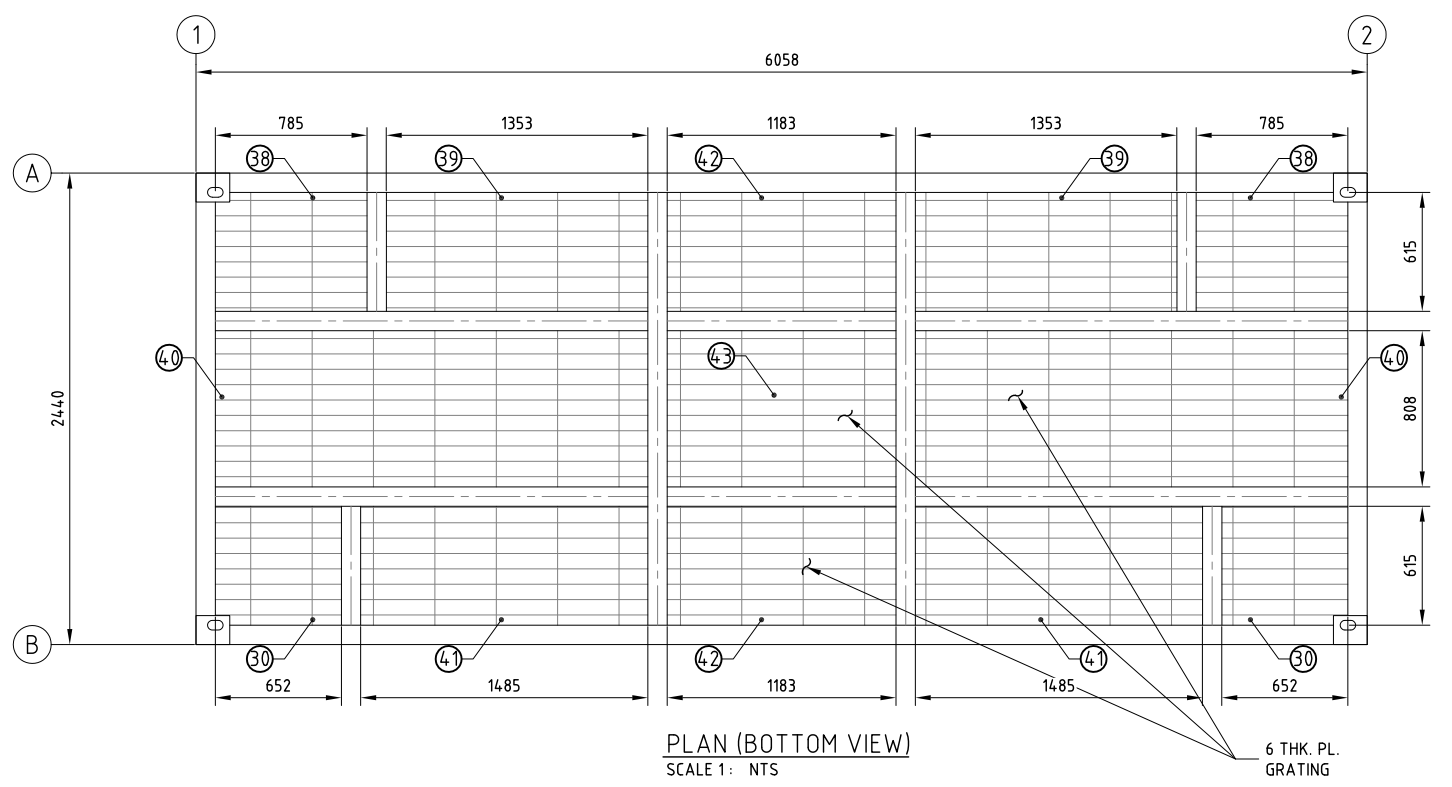
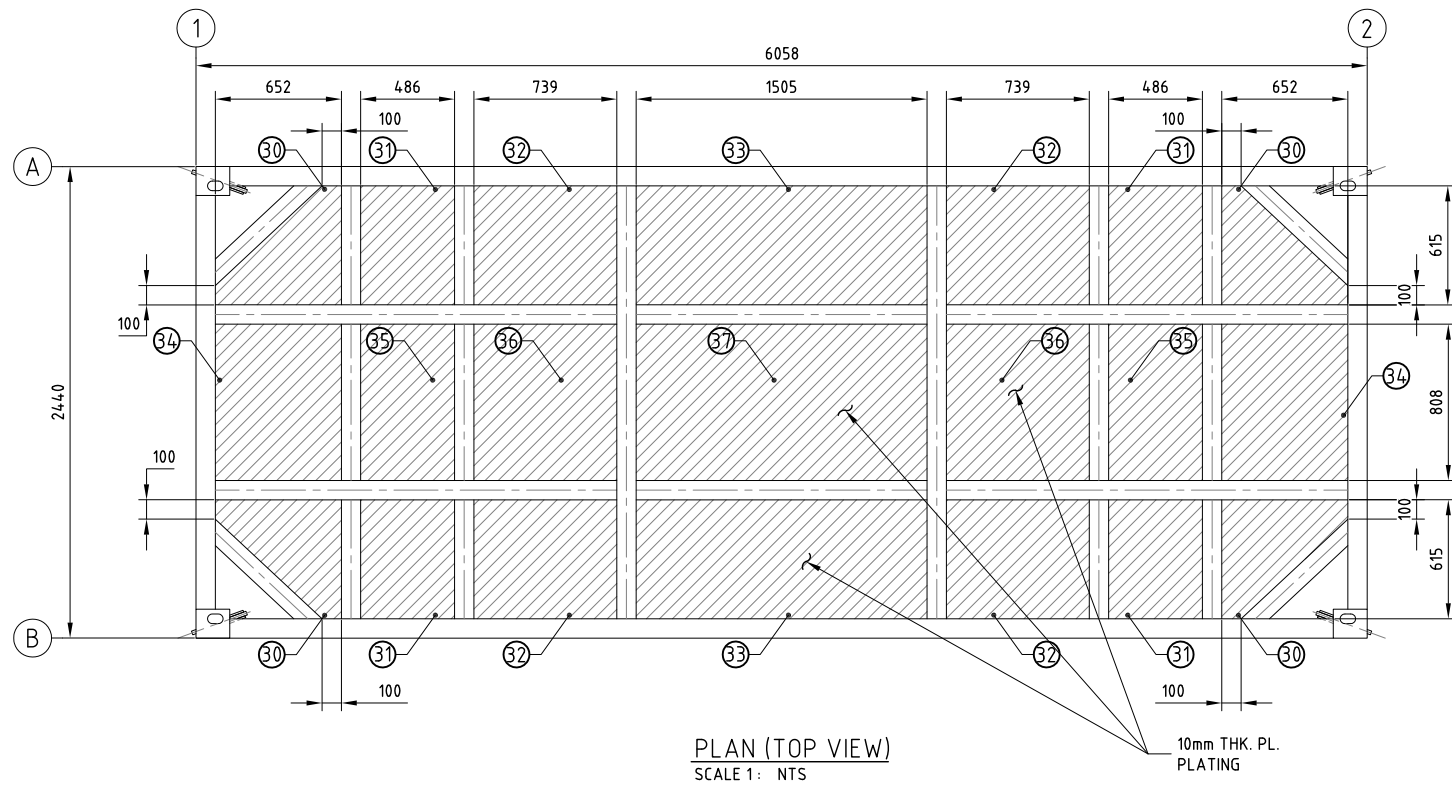
Drive : XXX\factory : XXX

REV	BY	DATE	REVISION DESCRIPTIONS	DRAFTG CHECK	ENG	APP	DATE	MASTER DRAWING
0	KZA	07.06.13	APPROVED FOR CONSTRUCTION	CSN	ZIA	RR/LB	07.06.13	
C	KZA	13.02.13	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	13.02.13	
B	KZA	06.02.13	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	06.02.13	
A	RZ	09.01.12	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	09.01.12	



OCS Offshore Construction Specialist Pte Ltd.	
DRAWN : RAMIL Z.	DATE: 09.01.12
CHECKED : CHANIN	DATE: 09.01.12
ENGINEER : ZIA	DATE: 09.01.12
OCS APPD : RAKUL	DATE: 09.01.12

PIGGING/JETTING MANIFOLD PLANS AND ELEVATIONS SHEET 2 OF 4			
SCALE AS SHOWN	DWG NO OCS-INS-12-FAB-002	SIZE A3	REV 0



- NOTES :**
1. ALL DIMENSION ARE IN mm. (UNO).
 2. ALL MATERIALS ARE ASTM A-36.
 3. ALL WELD TO FULL PEN. (U.N.O).

MATERIAL LIST:

NO.	ITEM	TOTAL LENGTH (mm)	QTY	TOTAL WEIGHT (kg)
1	ISO CONTAINER CONER CASTING	175X150X120	8	-
2	SHS 100x100x9	5708	2	268.28
3	SHS 100x100x9	2138	2	100.49
4	SHS 100x100x9	615	8	115.62
5	SHS 100x100x9	808	4	75.95
6	SHS 100x100x9	2238	2	105.19
7	SHS 100x100x9	2077	4	358.00
8	SHS 100x100x9	1505	2	70.74
9	SHS 100x100x9	755	4	70.97
10	RHS 150x100x9	5708	2	349.33
11	RHS 150x100x9	2138	2	130.85
12	RHS 150x100x9	615	4	75.28
13	RHS 150x100x9	2238	2	136.97
14	RHS 150x100x9	2237	4	273.81
15	RHS 150x100x9	1185	2	72.52
16	SHS 100x100x9	2620	4	246.28
17	SHS 100x100x9	2640	4	248.16
18	SHS 75x75x6	160	6	11.52
19	SHS 75x75x6	110	8	10.56
20	SHS 75x75x6	2215	4	106.32
21	SHS 75x75x6	657	4	31.54
22	14mm THK. PLATE	298x260	8	68.12
23	14mm THK. PLATE	345x150	8	45.50
24	14mm THK. PLATE	315x306	8	84.75
25	8mm THK. PLATE	90x90	14	7.12
26	25mm THK. PLATE	300x200	4	47.10
27	5mm THK. PLATE	126x126	8	4.99
28	DIA.14" SCH. 40 HALF PIPE	150	24	170.19
29	10mm THK. PLATE	75x75	48	21.20
30	10mm THK. PLATE	652x615	6	188.86
31	10mm THK. PLATE	486x615	4	93.85
32	10mm THK. PLATE	739x615	4	142.71
33	10mm THK. PLATE	1505x615	2	145.32
34	10mm THK. PLATE	652x808	2	82.71
35	10mm THK. PLATE	486x808	2	61.65
36	10mm THK. PLATE	739x808	2	93.75
37	10mm THK. PLATE	1505x808	1	95.46
38	6mm THK. PLATE GRATING	785x615	2	-
39	6mm THK. PLATE GRATING	1353x615	2	-
40	6mm THK. PLATE GRATING	2237x808	2	-
41	6mm THK. PLATE GRATING	1485x615	2	-
42	6mm THK. PLATE GRATING	1183x615	2	-
43	6mm THK. PLATE GRATING	1183x808	1	-
44	M24 BOLT (ASTM A325)		32	-
	TOTAL			4211.61

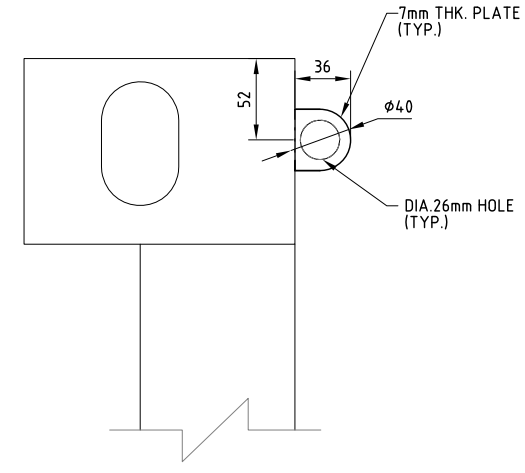
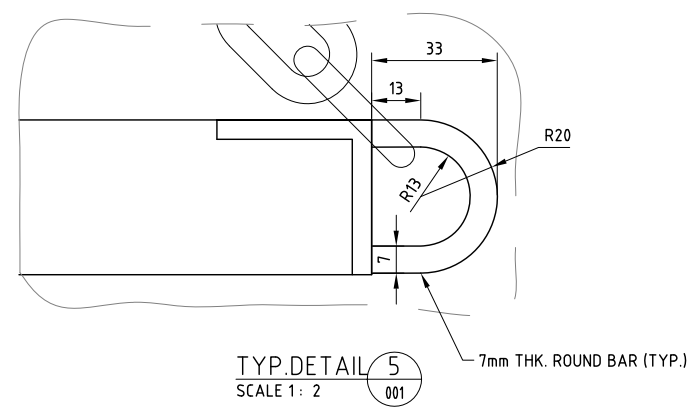
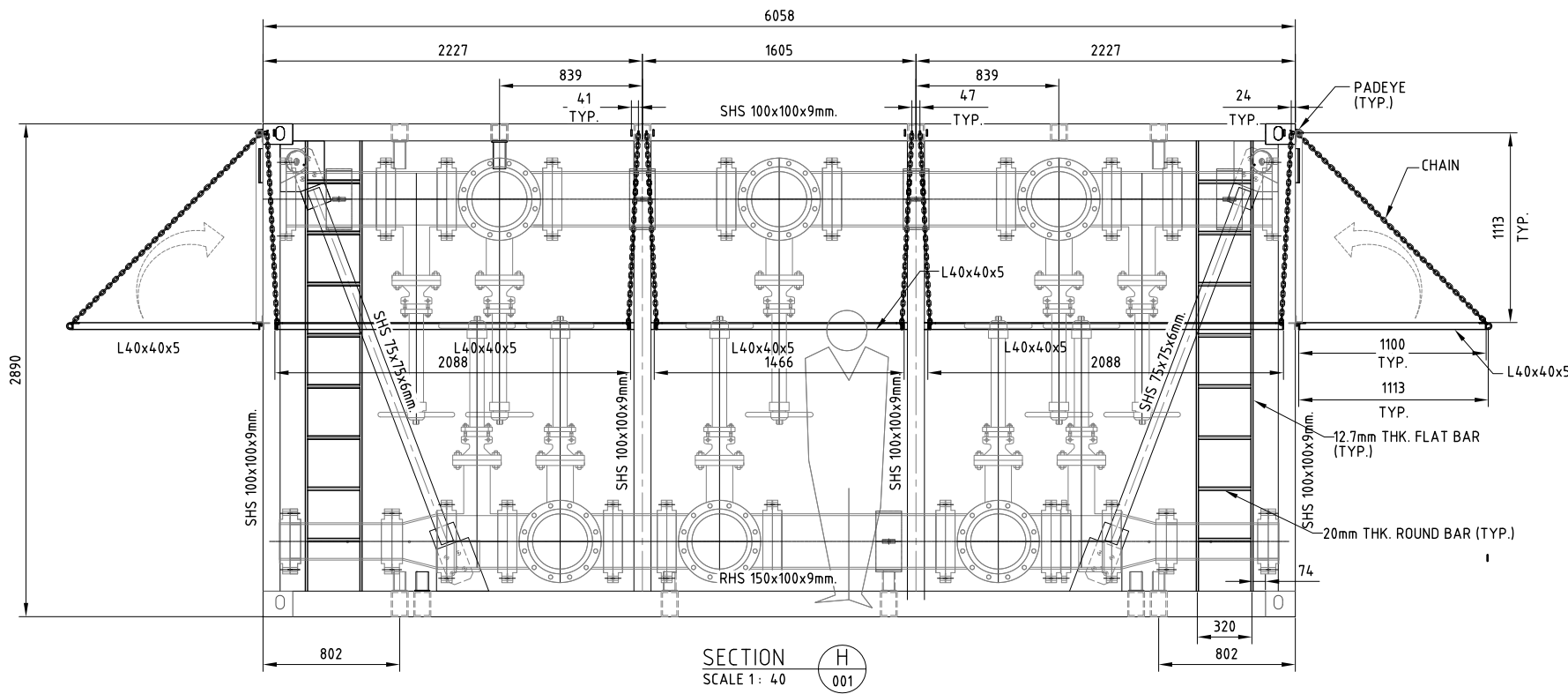
Drive : XXX\factory : XXX
Filename & Date : XXX

REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING
0	KZA	07.06.13	APPROVED FOR CONSTRUCTION	CSN	ZIA	RR/LB	07.06.13	
C	KZA	13.02.13	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	13.02.13	
B	KZA	06.02.13	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	06.02.13	
A	RZ	09.01.12	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	09.01.12	



OCS Offshore Construction Specialist Pte Ltd.	
DRAWN : RAMIL Z.	DATE: 09.01.12
CHECKED : CHANIN	DATE: 09.01.12
ENGINEER : ZIA	DATE: 09.01.12
OCS APPD : RAKUL	DATE: 09.01.12

PIGGING/JETTING MANIFOLD PLANS AND ELEVATIONS SHEET 3 OF 4			
SCALE AS SHOWN	DWG NO OCS-INS-12-FAB-003	SIZE A3	REV 0



TYP. PADEYE DETAIL
SCALE 1:5

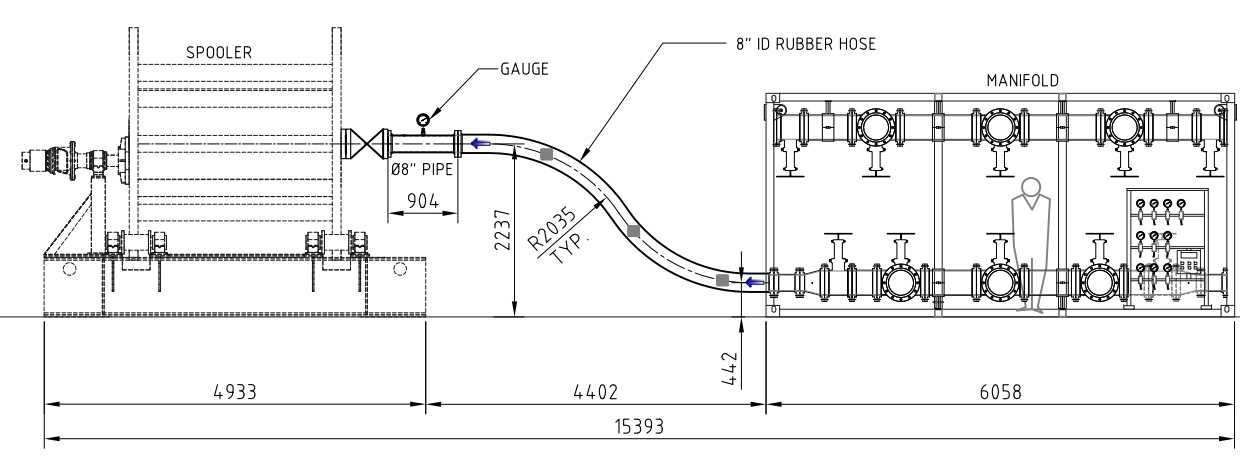
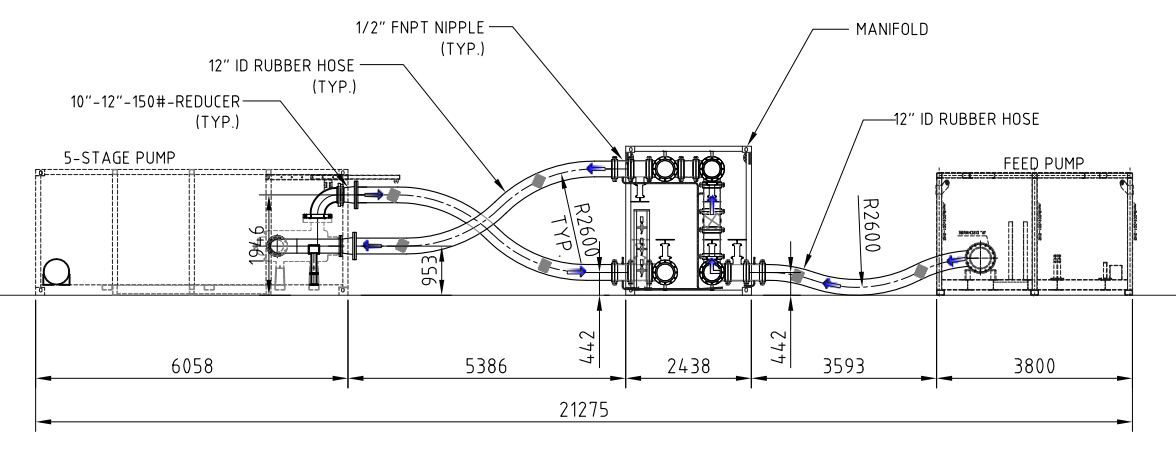
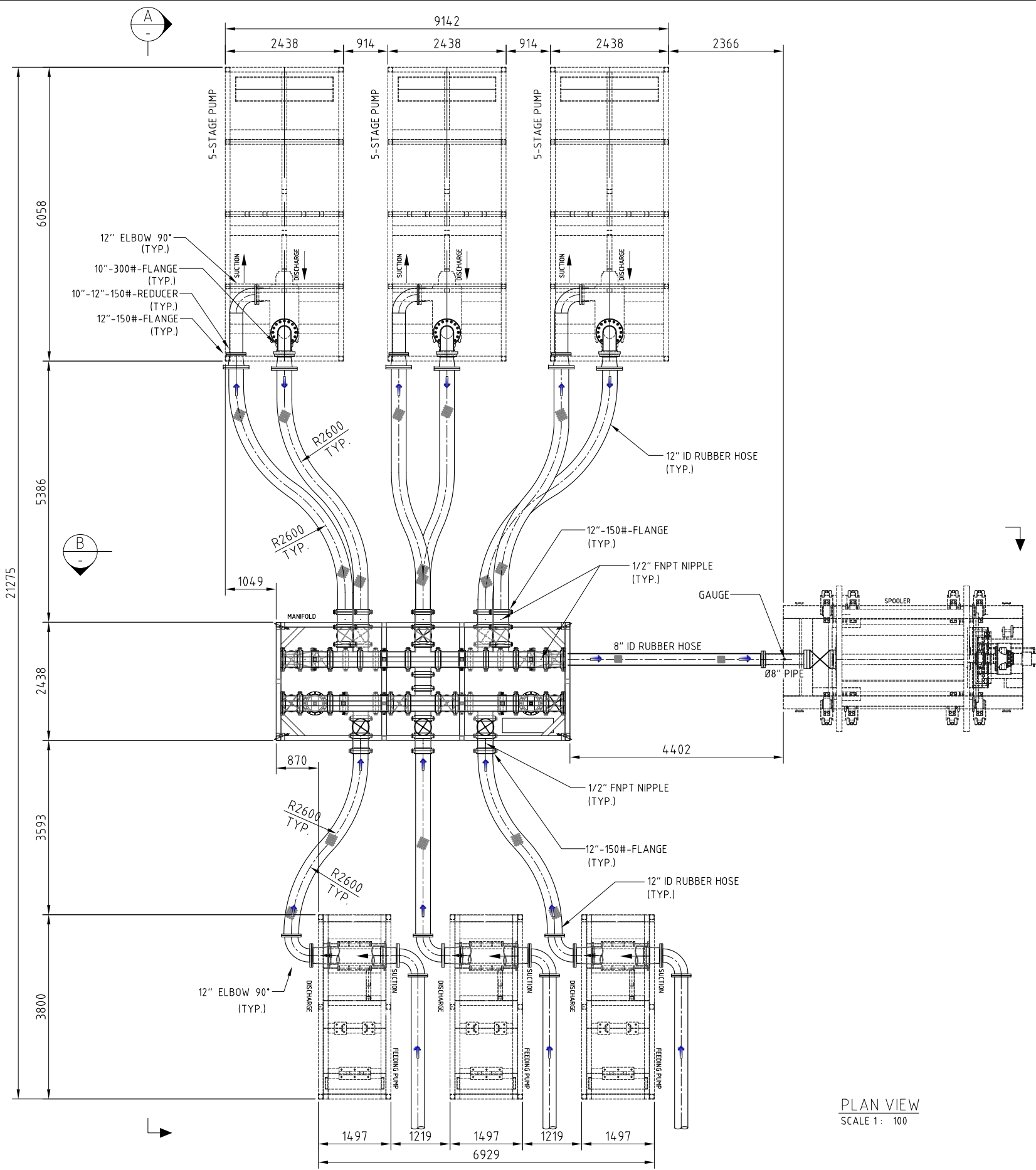
- NOTES:
1. ALL DIMENSION ARE IN mm. (UNO).
 2. ALL MATERIALS ARE ASTM A-36.
 3. ALL WELD TO FULL PEN. (U.N.O).

REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING
0	KZA	07.06.13	APPROVED FOR CONSTRUCTION	CSN	ZIA	RR/LB	07.06.13	
C	KZA	13.02.13	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	13.02.13	
B	KZA	06.02.13	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	06.02.13	
A	RZ	09.01.12	ISSUED FOR REVIEW	CSN	ZIA	RR/LB	09.01.12	



OCS Offshore Construction Specialist Pte Ltd.	
DRAWN : RAMIL Z.	DATE: 09.01.12
CHECKED : CHANIN	DATE: 09.01.12
ENGINEER : ZIA	DATE: 09.01.12
OCS APPD : RAKUL	DATE: 09.01.12

PIGGING/JETTING MANIFOLD PLANS AND ELEVATIONS SHEET 4 OF 4			
SCALE AS SHOWN	DWG NO OCS-INS-12-FAB-004	SIZE A3	REV 0



DRAFT ONLY

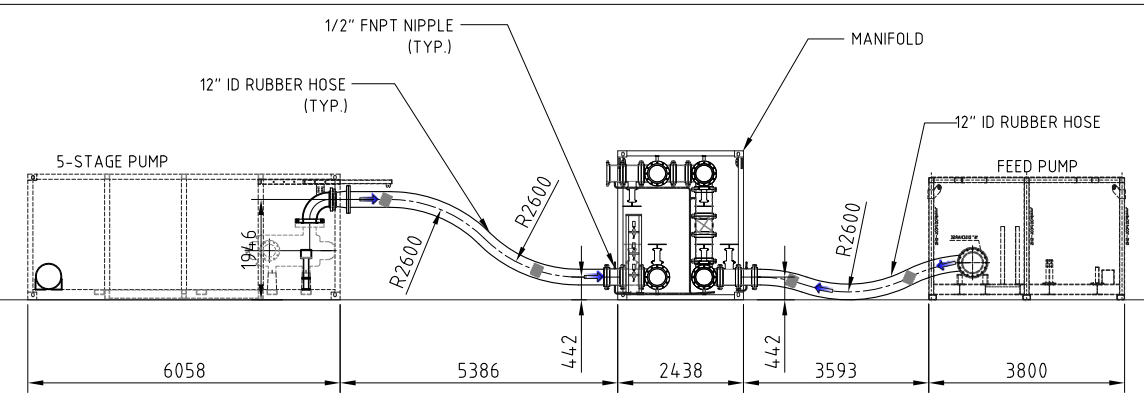
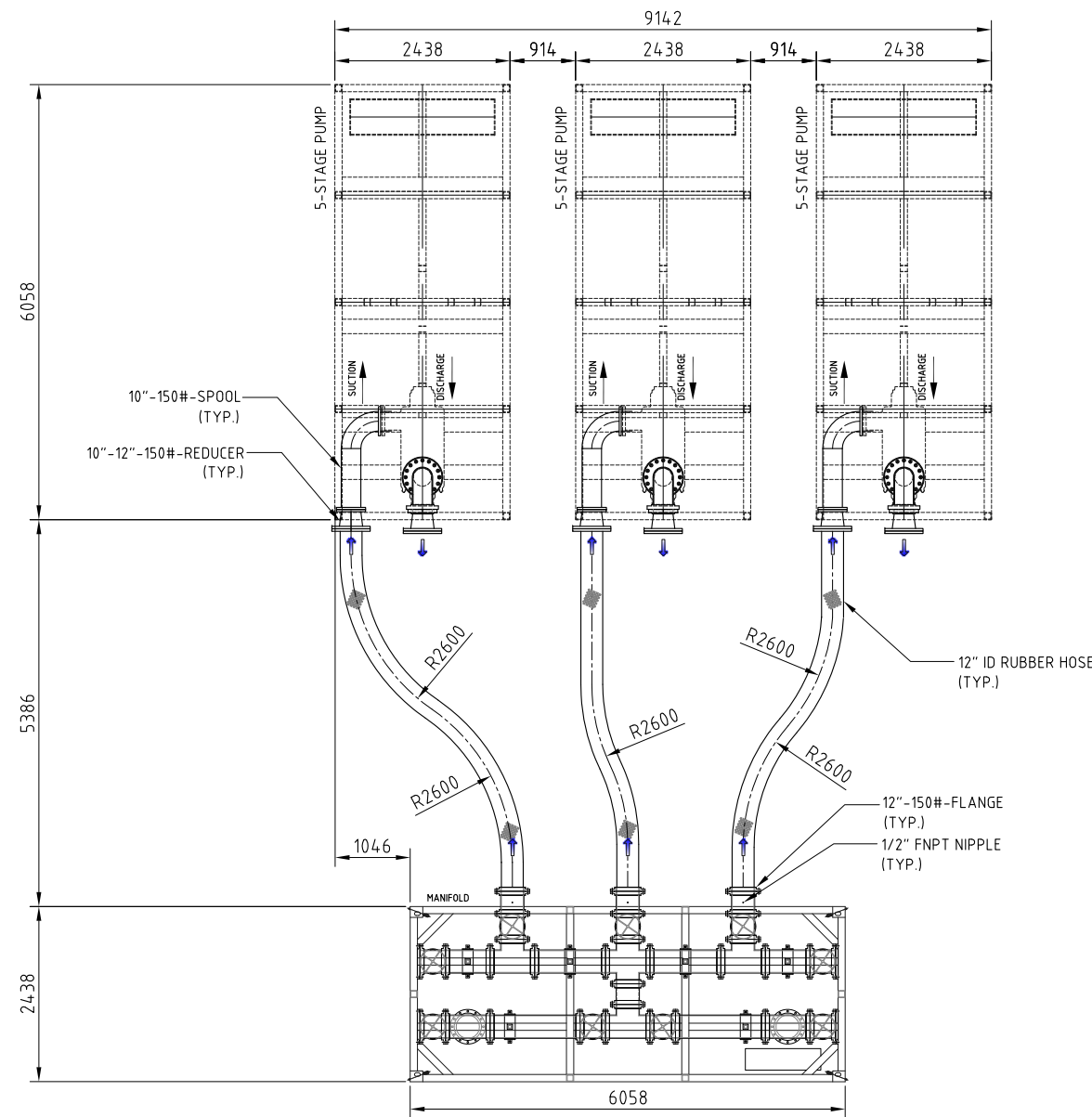
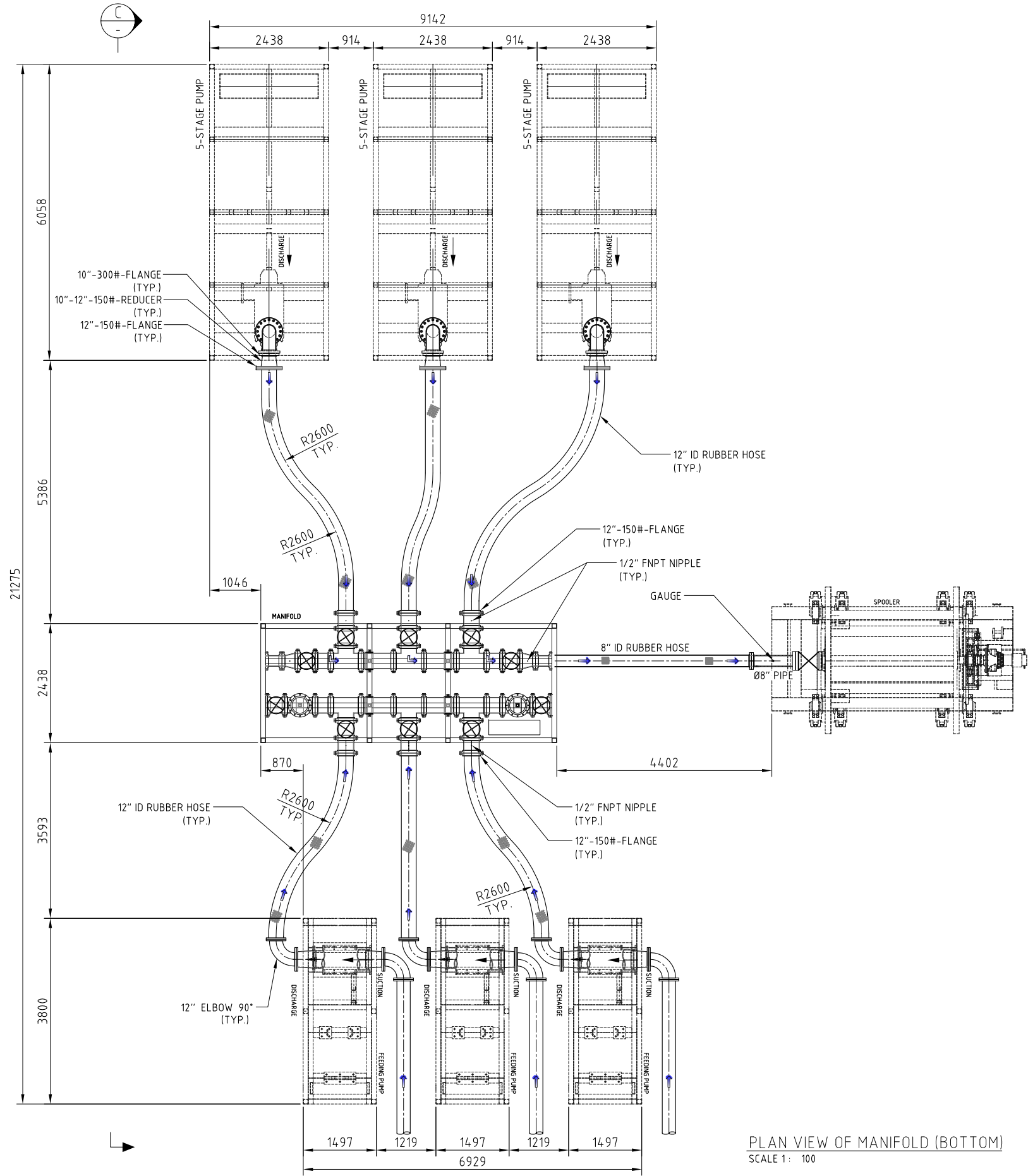
Drawn: KZA

REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING
A	KZA	30.01.13	ISSUED FOR REVIEW	LUIS	RR			



OCS	
DRAWN : KZA	DATE: 22.01.13
CHECKED : LUIS	DATE: 22.01.13
ENGINEER : RAKUL R.	DATE: 22.01.13
OCS APPD :	DATE:

PIGGING/JETTING MANIFOLD LAYOUT (SHEET 1 OF 2)			
SCALE AS SHOWN	DWG NO DRW-OCS-20-CSJM-02	SIZE A3	REV A



DRAFT ONLY

REV	BY	DATE	REVISION DESCRIPTIONS	DRFTG CHECK	ENG	APP	DATE	MASTER DRAWING
A	KZA	30.01.13	ISSUED FOR REVIEW	LUIS	RR			



OCS	
DRAWN	: KZA
CHECKED	: LUIS
ENGINEER	: RAKUL R.
OCS APPD	:

PIGGING/JETTING MANIFOLD LAYOUT (SHEET 2 OF 2)	
SCALE	AS SHOWN
DWG NO	DRW-OCS-20-CSJM-02
SIZE	A3
REV	A