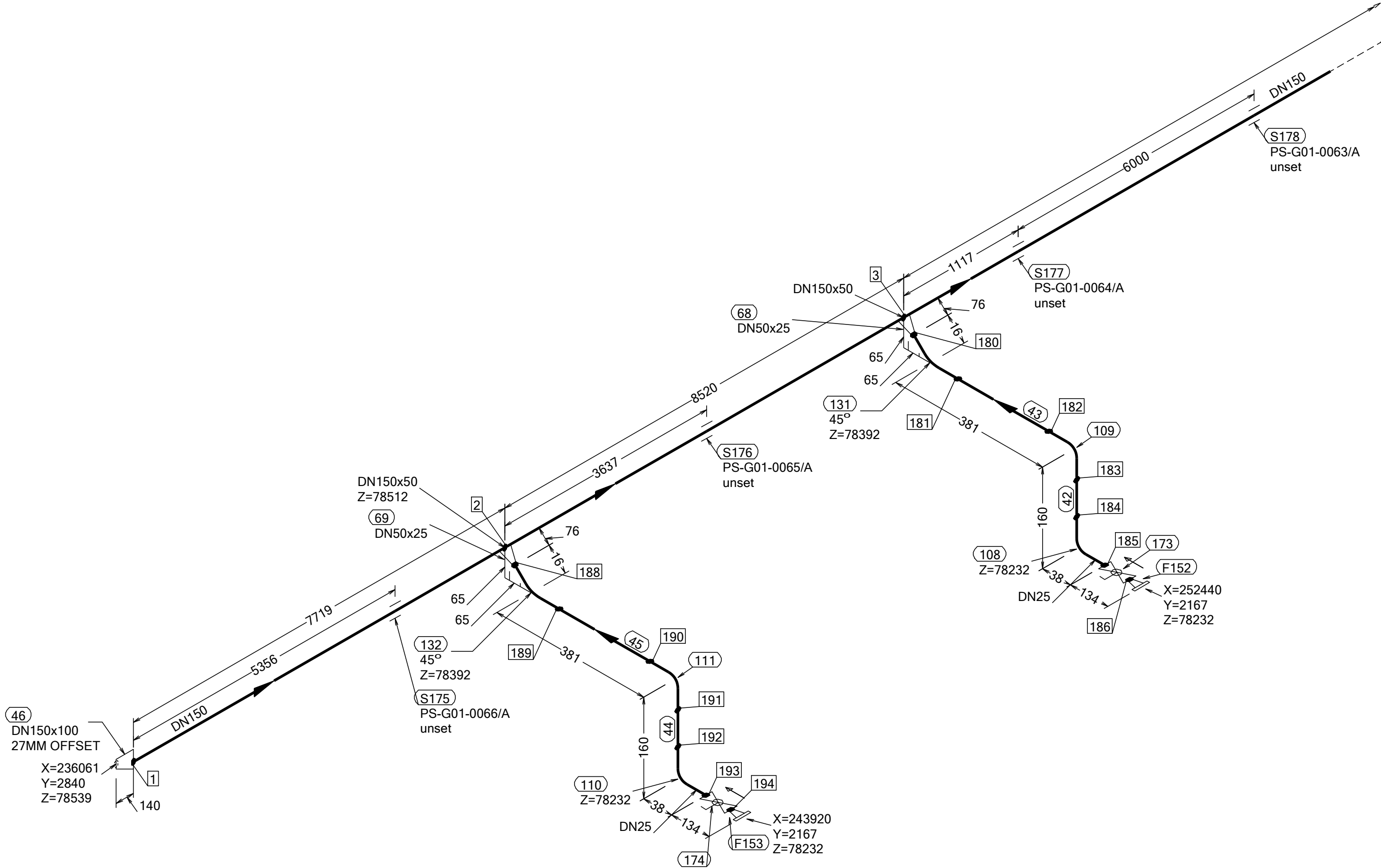


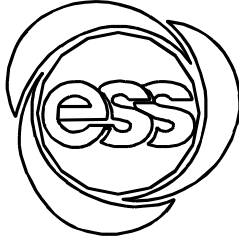
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WELD	WPS
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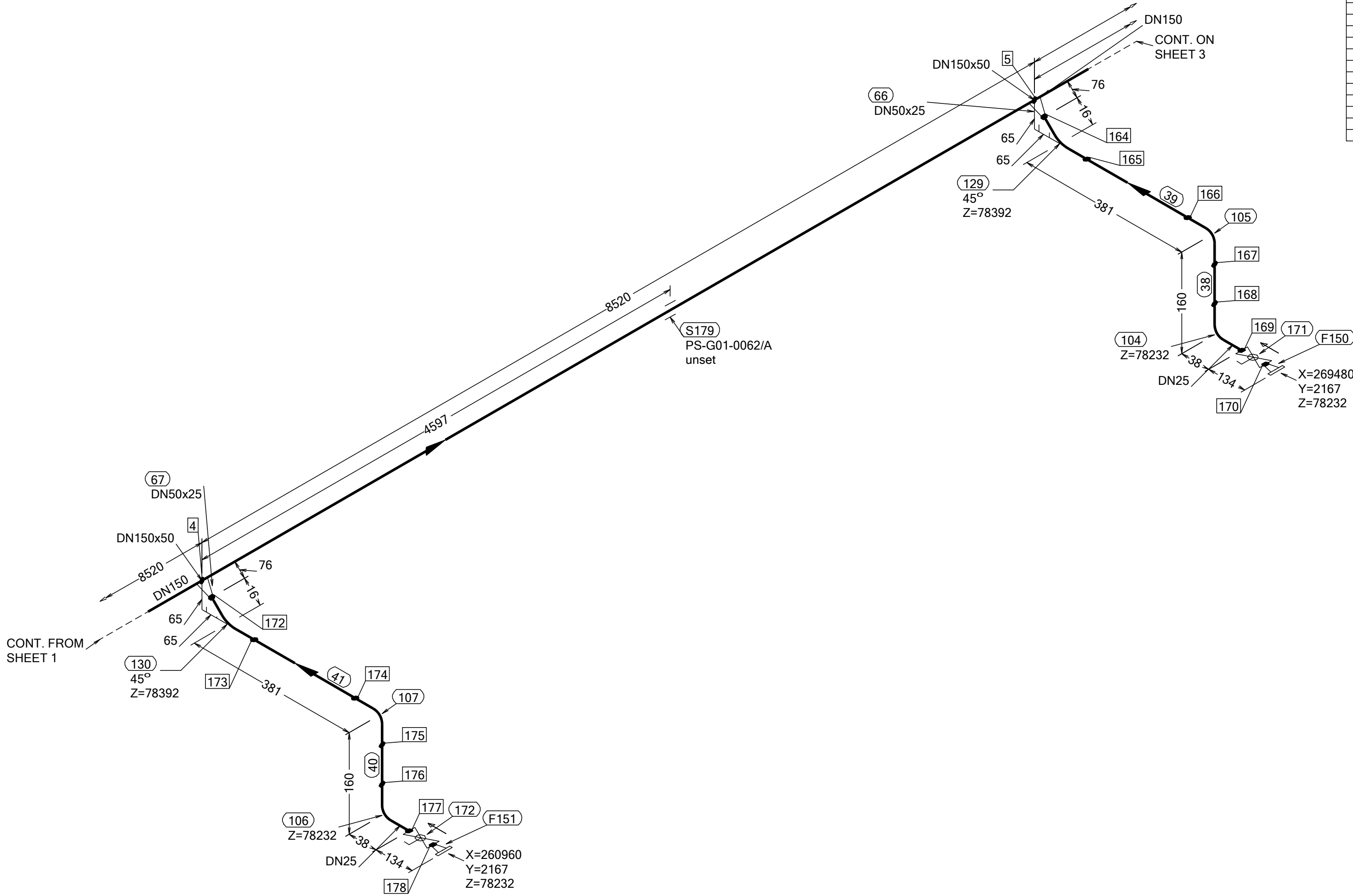
FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	<u>PIPE</u>				
1	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	24758	SETON TEE
42	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
43	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
44	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
45	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
	<u>FITTINGS</u>				
46	REDUCER ECC, SS-EN 10253-4, TABLE A.5, 168.3x2.0 / 114.3x2.0	150 x 100	EN 1.4404	1	
68	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
69	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
108	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
109	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
110	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
111	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
131	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
132	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	<u>FLANGES</u>				
152	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
153	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	<u>VALVES / IN-LINE ITEMS</u>				
173	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
174	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	

ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
175	ESS Atta	150		1	
176	ESS Atta	150		1	
177	ESS Atta	150		1	
178	ESS Atta	150		1	

WPS See Weldlist	Design Temperature	Tightening Torque For Flange Joints	P&ID Drawing Number	General Layout Drawing Number	Calculation Report	Inspection Plan	Area Code
TBN	50degC	TBN	ESS-0059673	TBN	ESS-0058702	TBN	G01-HBL
Quality Level For Weldign Acc To	Design Pressure	Bend Radius	Bending Procedure	Coupling Installation Procedure	Pressure Test Program	Alternate System Tag	Date (First Issue)
TBN	10bar (g)	N/A	N/A	TBN	TBN		170522
Weld Joint Efficiency Factor (Longitudinal)	Test Pressure	Insulation Specification			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003		Scale
1,0	14.3bar (g)	N/A					-
Elevation (z) Acc To	Quality Class	Insulation Thickness					Format
BCS	MQC4-C	N/A					A2
	Media	Allowance For Corrosion			Document Number ESS-XXXXX58		Sheet
	CWM	0					1 of 11
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

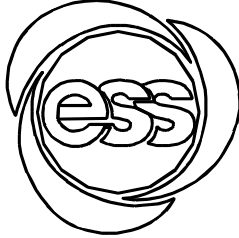
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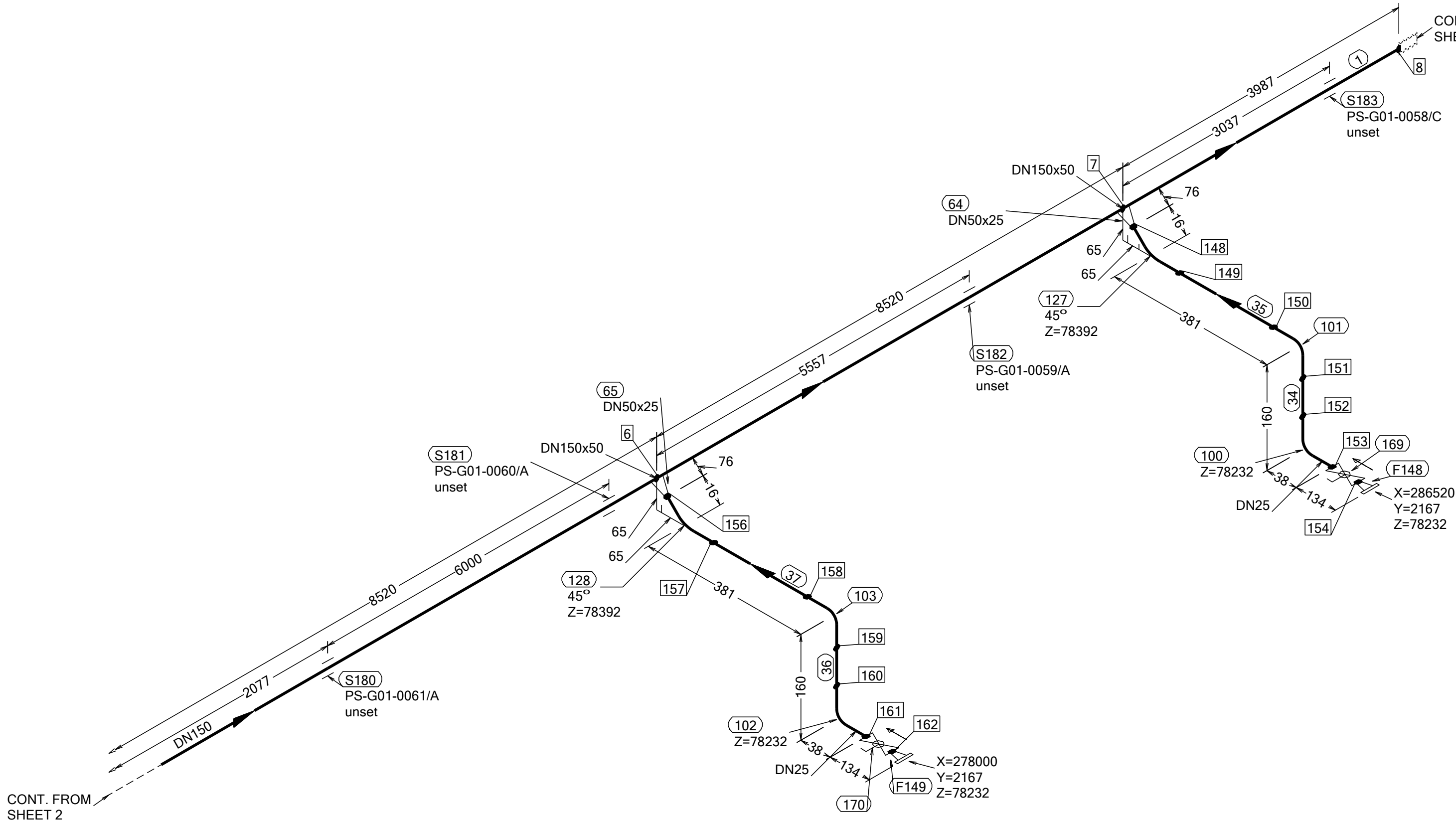
WELD	WPS
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163	
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174	
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177	
178	

FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	PIPE				
1	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	8522	SETON TEE
38	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
39	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
40	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
41	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
	FITTINGS				
66	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
67	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
104	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
105	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
106	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
107	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
129	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
130	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	FLANGES				
150	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
151	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	VALVES / IN-LINE ITEMS				
171	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
172	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	

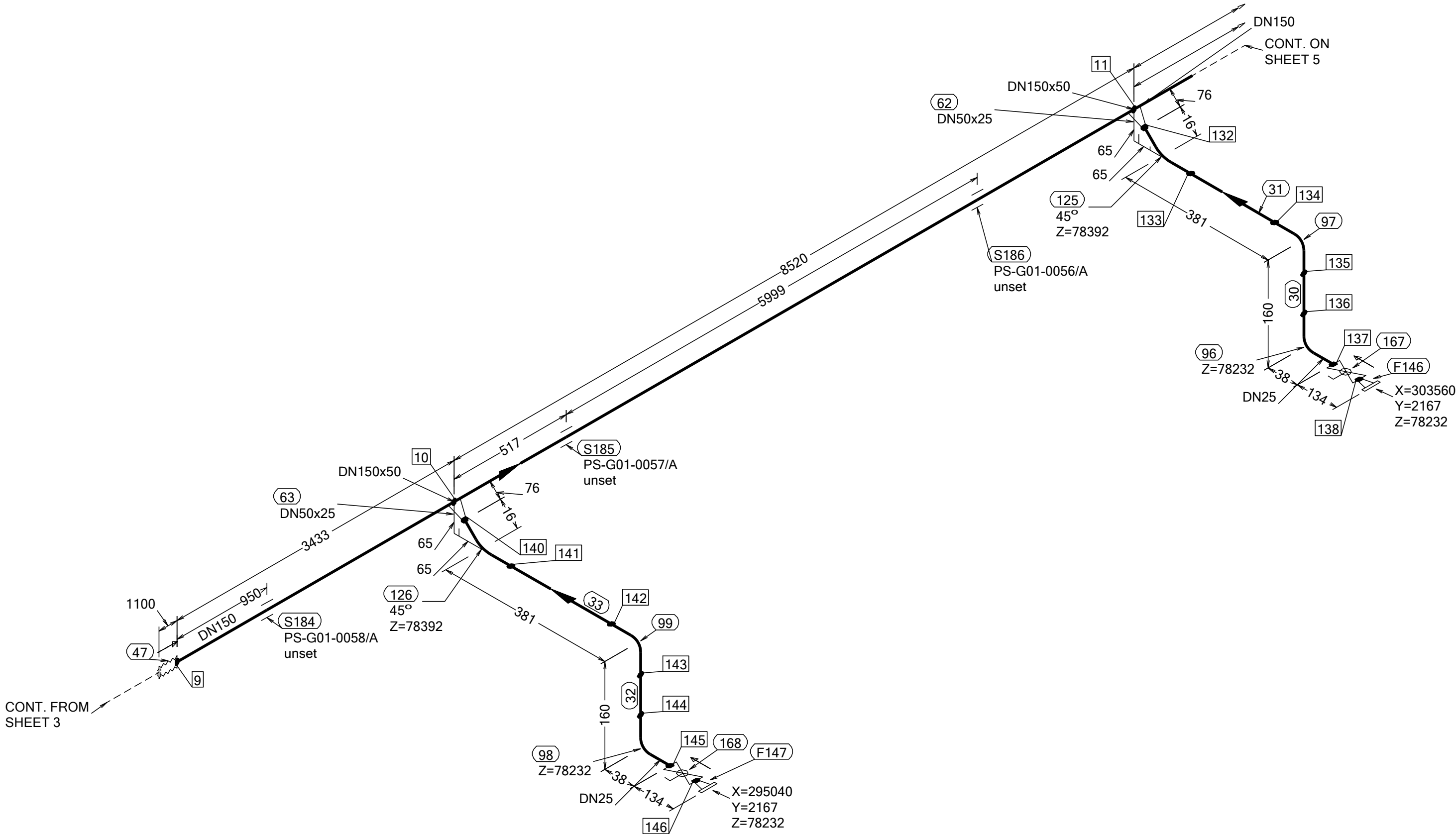
ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
179	ESS Atta	150		1	

WPS See Weldlist TBN	Design Temperature 50degC	Tightening Torque For Flange Joints TBN	P&ID Drawing Number ESS-0059673	General Layout Drawing Number TBN	Calculation Report ESS-0058702	Inspection Plan TBN	Area Code G01-HBL
Quality Level For Weldign Acc To TBN	Design Pressure 10bar (g)	Bend Radius N/A	Bending Procedure N/A	Coupling Installation Procedure TBN	Pressure Test Program TBN	Alternate System Tag	Date (First Issue) 170522
Weld Joint Efficiency Factor (Longitudinal) 1,0	Test Pressure 14.3bar (g)	Insulation Specification N/A			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003		Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A					Format A2
	Media CWM	Allowance For Corrosion 0					Sheet 2 of 11
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A					Revision A1
Rev A1	Description ISSUED FOR CDR	Date 170522	Drawn FRPE	Designed FRPE	Reviewed AKCO	Verified ANLU	Quality Approved

N (Y)




N (Y)



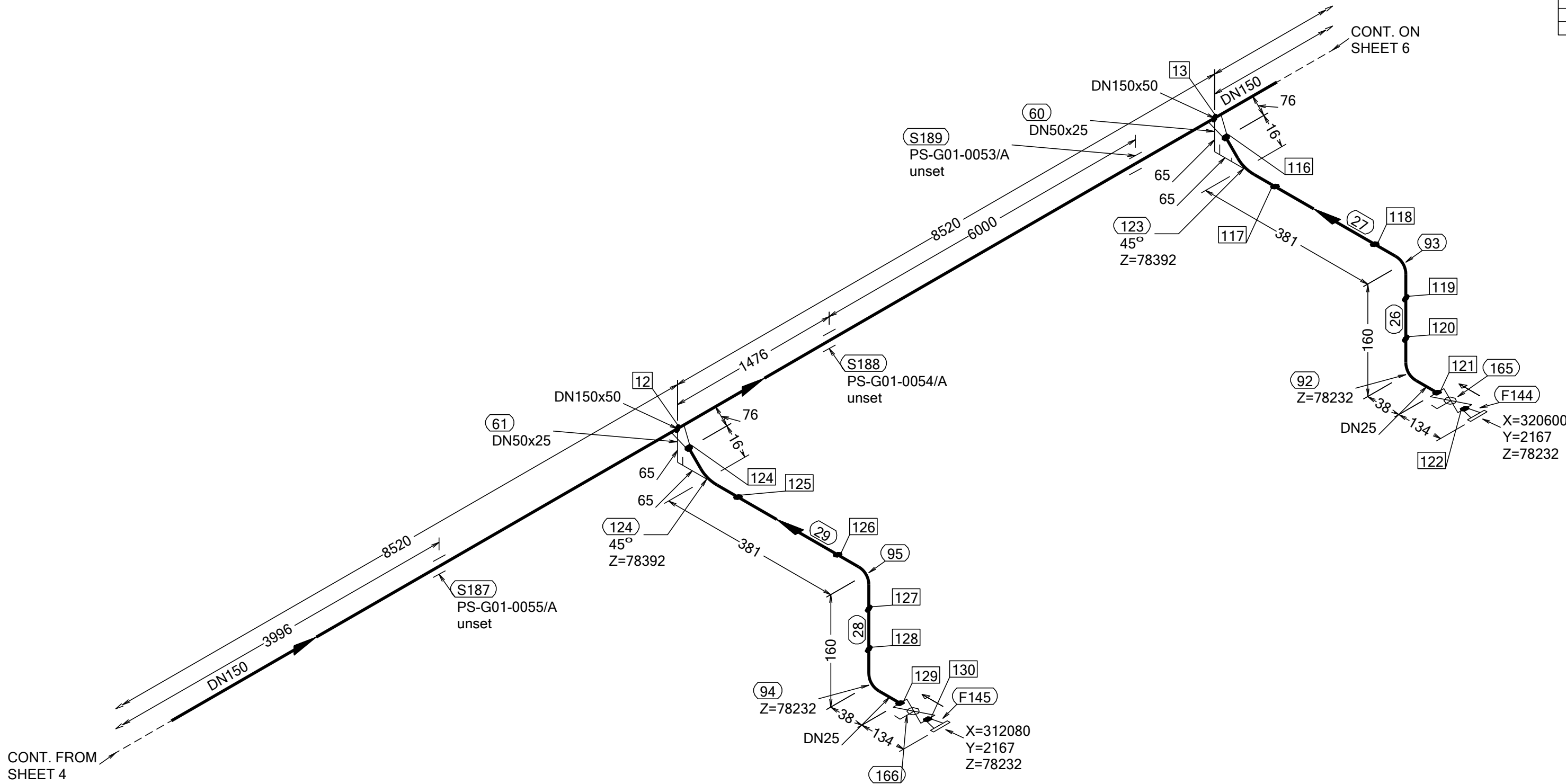
WELD	WPS	FABRICATION MATERIALS									
9		PT	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS				
10		NO	PIPE								
11											
131											
132											
133											
134											
135											
136											
137											
138											
139											
140											
141											
142											
143											
144											
145											
146											
2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0							150	EN 1.4404	11954	SETON TEE
30	PIPE, SS-EN 10217-7, TC1, 33.7x2.0							25	EN 1.4404	84	
31	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327							
32	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84							
33	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327							
FITTINGS											
47	ESS BELLOW	150		1							
62	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1							
63	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1							
96	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1							
97	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1							
98	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1							
99	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1							
125	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1							
126	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1							
FLANGES											
146	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1							
147	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1							
VALVES / IN-LINE ITEMS											
167	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1							
168	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1							

PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
184	ESS Atta	150		1	
185	ESS Atta	150		1	
186	ESS Atta	150		1	

WPS See Weldlist TBN	Design Temperature 50degC	Tightening Torque For Flange Joints TBN	P&ID Drawing Number ESS-0059673	General Layout Drawing Number TBN	Calculation Report ESS-0058702	Inspection Plan TBN	Area Code G01-HE
Quality Level For Weldign Acc To TBN	Design Pressure 10bar (g)	Bend Radius N/A	Bending Procedure N/A	Coupling Installation Procedure TBN	Pressure Test Program TBN	Alternate System Tag	Date (First Issue) 170522
Weld Joint Efficiency Factor (Longitudinal) 1,0	Test Pressure 14.3bar (g)	Insulation Specification N/A				Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003	Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A				Format A2	
	Media CWM	Allowance For Corrosion 0				Sheet 4 of 11	
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A				Revision A1	
					Document Number ESS-XXXXX58		

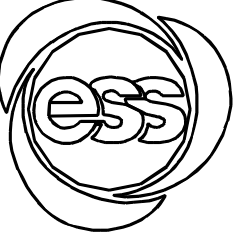
Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

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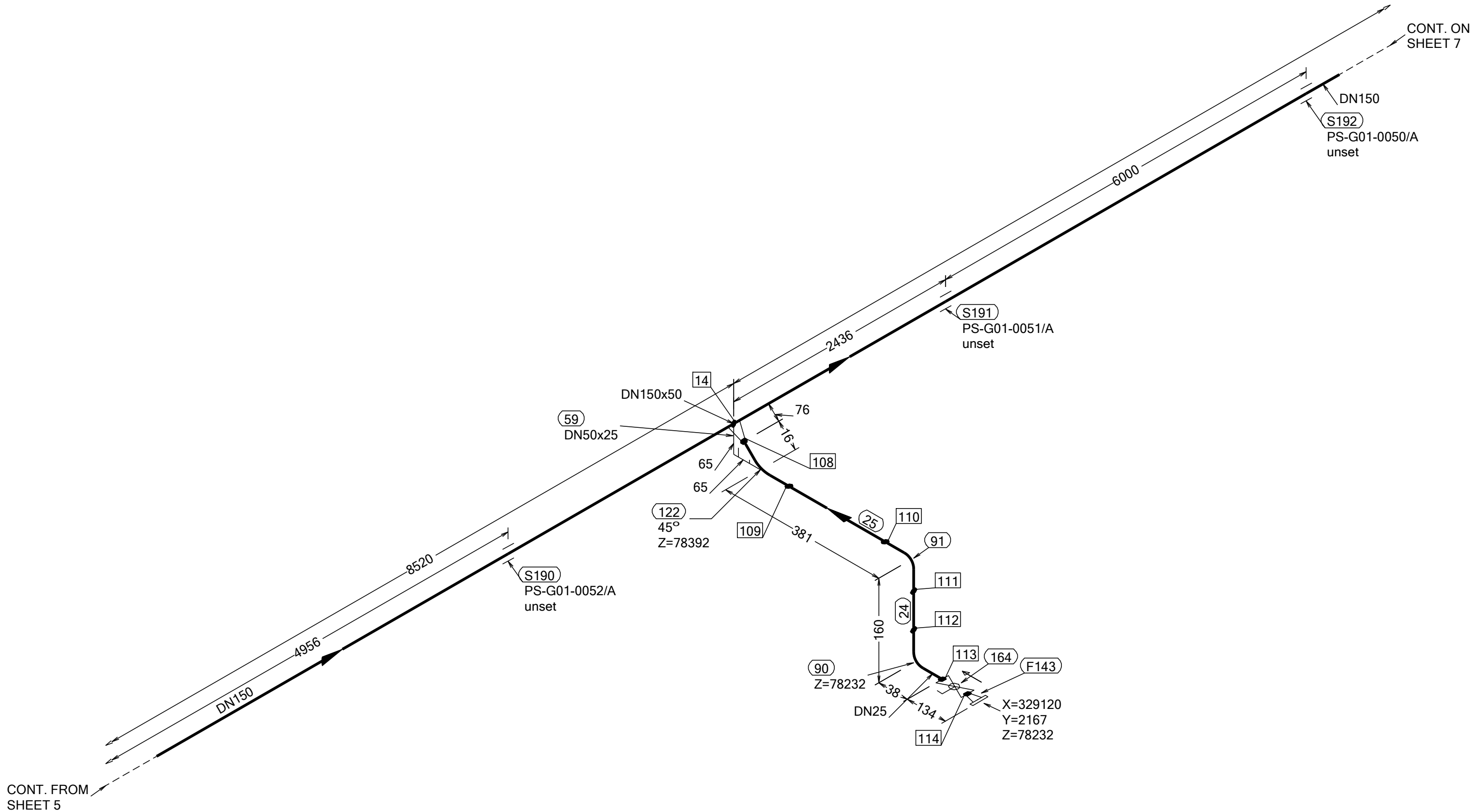
WELD	WPS	FABRICATION MATERIALS					
12		PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
13			PIPE				
115		2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17040	SETON TEE
116		26	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
117		27	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
118		28	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
119		29	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
120			FITTINGS				
121		60	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
122		61	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
123		92	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
124		93	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
125		94	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
126		95	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
127		123	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
128		124	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
129			FLANGES				
130		144	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
		145	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
			VALVES / IN-LINE ITEMS				
		165	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
		166	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	

PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
187	ESS Atta	150		1	
188	ESS Atta	150		1	
189	ESS Atta	150		1	

WPS See Weldlist	Design Temperature	Tightening Torque For Flange Joints	P&ID Drawing Number	General Layout Drawing Number	Calculation Report	Inspection Plan	Area Code
TBN	50degC	TBN	ESS-0059673	TBN	ESS-0058702	TBN	G01-HBL
Quality Level For Weldign Acc To	Design Pressure	Bend Radius	Bending Procedure	Coupling Installation Procedure	Pressure Test Program	Alternate System Tag	Date (First Issue)
TBN	10bar (g)	N/A	N/A	TBN	TBN		170522
Weld Joint Efficiency Factor (Longitudinal)	Test Pressure	Insulation Specification			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003		Scale
1,0	14.3bar (g)	N/A					-
Elevation (z) Acc To	Quality Class	Insulation Thickness					Format
BCS	MQC4-C	N/A					A2
	Media	Allowance For Corrosion			Document Number ESS-XXXXX58		Sheet
	CWM	0					5 of 11
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

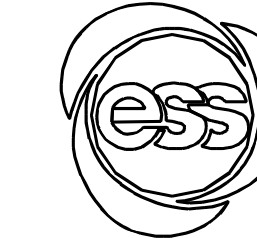
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WELD	WPS	FABRICATION MATERIALS					
14		PT	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
107		NO					
108							
109							
110			PIPE				
111							
112		2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17038	SETON TEE
113		24	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
114		25	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
<u>FITTINGS</u>							
		59	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
		90	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		91	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
		122	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
<u>FLANGES</u>							
		143	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
<u>VALVES / IN-LINE ITEMS</u>							
		164	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	

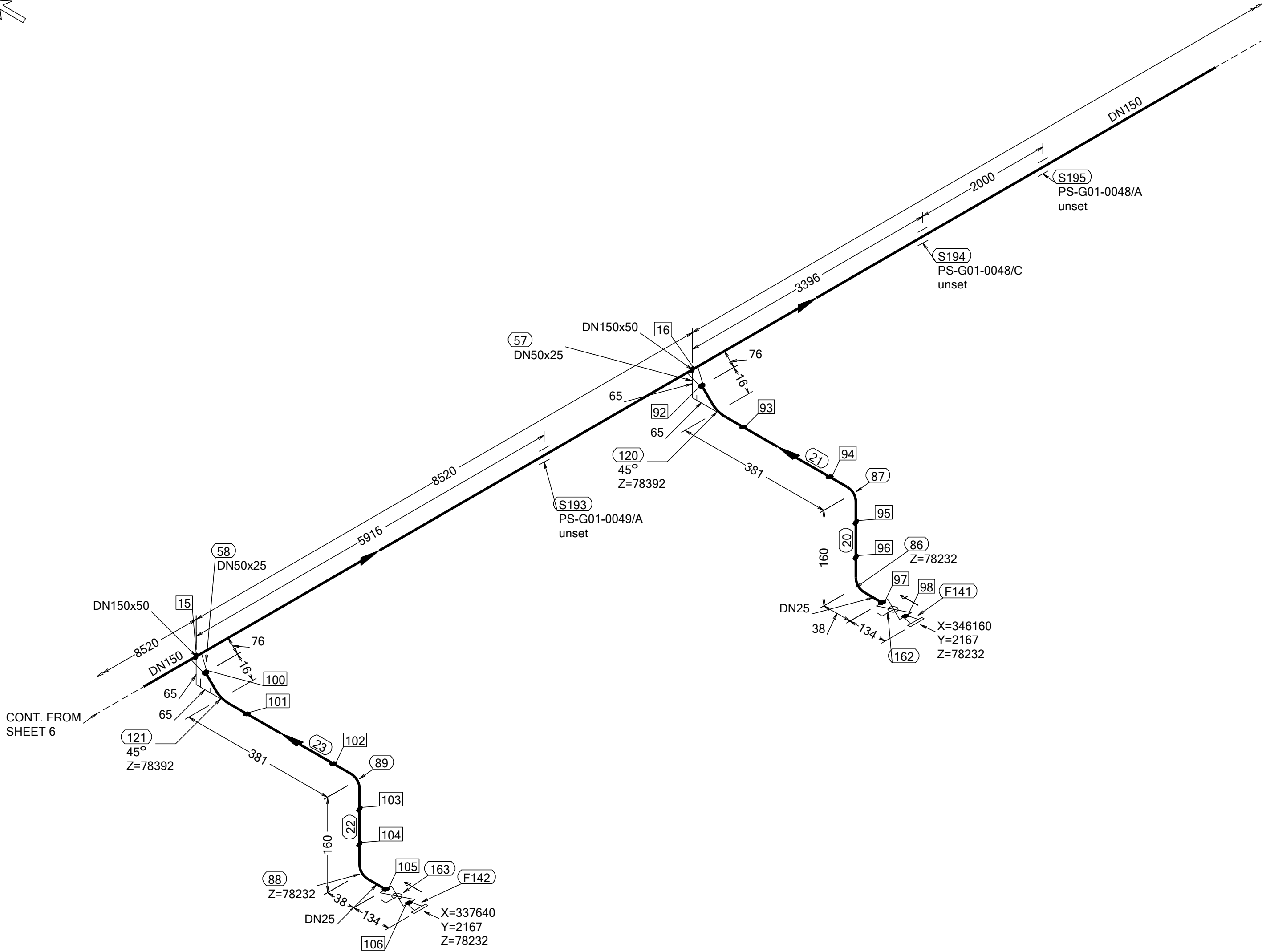
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ERECTION MATERIALS					
PT	COMPONENT DESCRIPTION	DN	MATERIAL	QTY	REMARKS
NO				(mm)	
SUPPORTS					
190	ESS Atta	150		1	
191	ESS Atta	150		1	
192	ESS Atta	150		1	

WPS See Weldlist TBN	Design Temperature 50degC	Tightening Torque For Flange Joints TBN	P&ID Drawing Number ESS-0059673	General Layout Drawing Number TBN	Calculation Report ESS-0058702	Inspection Plan TBN	Area Code G01-HB
Quality Level For Weldign Acc To TBN	Design Pressure 10bar (g)	Bend Radius N/A	Bending Procedure N/A	Coupling Installation Procedure TBN	Pressure Test Program TBN	Alternate System Tag	Date (First Issue) 170522
Weld Joint Efficiency Factor (Longitudinal) 1,0	Test Pressure 14.3bar (g)	Insulation Specification N/A				Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003	Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A					Format A2
	Media CWM	Allowance For Corrosion 0					Sheet 6 of 11
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A					Revision A1

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

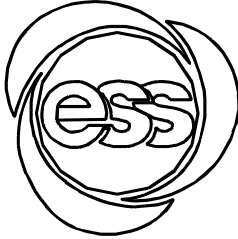
N (Y)



WELD	WPS
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FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	PIPE				
2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17040	SETON TEE
20	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
21	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
22	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
23	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
	FITTINGS				
57	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
58	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
86	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
87	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
88	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
89	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
120	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
121	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	FLANGES				
141	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
142	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	VALVES / IN-LINE ITEMS				
162	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
163	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	

ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
193	ESS Atta	150		1	
194	ESS Atta	150		1	
195	ESS Atta	150		1	

WPS See Weldlist	Design Temperature	Tightening Torque For Flange Joints	P&ID Drawing Number	General Layout Drawing Number	Calculation Report	Inspection Plan	Area Code
TBN	50degC	TBN	ESS-0059673	TBN	ESS-0058702	TBN	G01-HBL
Quality Level For Weldign Acc To	Design Pressure	Bend Radius	Bending Procedure	Coupling Installation Procedure	Pressure Test Program	Alternate System Tag	Date (First Issue)
TBN	10bar (g)	N/A	N/A	TBN	TBN		170522
Weld Joint Efficiency Factor (Longitudinal)	Test Pressure	Insulation Specification			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003		Scale
1,0	14.3bar (g)	N/A					-
Elevation (z) Acc To	Quality Class	Insulation Thickness					Format
BCS	MQC4-C	N/A					A2
	Media	Allowance For Corrosion			Document Number ESS-XXXXX58		Sheet
	CWM	0					7 of 11
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

N (Y)



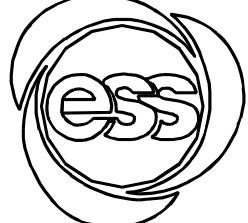
WELD	WPS
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PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
PIPE					
2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17040	SETON TEE
16	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
17	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
18	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
19	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
FITTINGS					
55	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
56	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
82	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
83	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
84	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
85	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
118	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
119	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
FLANGES					
139	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
140	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
VALVES / IN-LINE ITEMS					
160	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
161	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	

PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
196	ESS Atta	150		1	
197	ESS Atta	150		1	
198	ESS Atta	150		1	

PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
ERECTOR MATERIALS					
SUPPORTS					
196	ESS Atta	150		1	
197	ESS Atta	150		1	
198	ESS Atta	150		1	

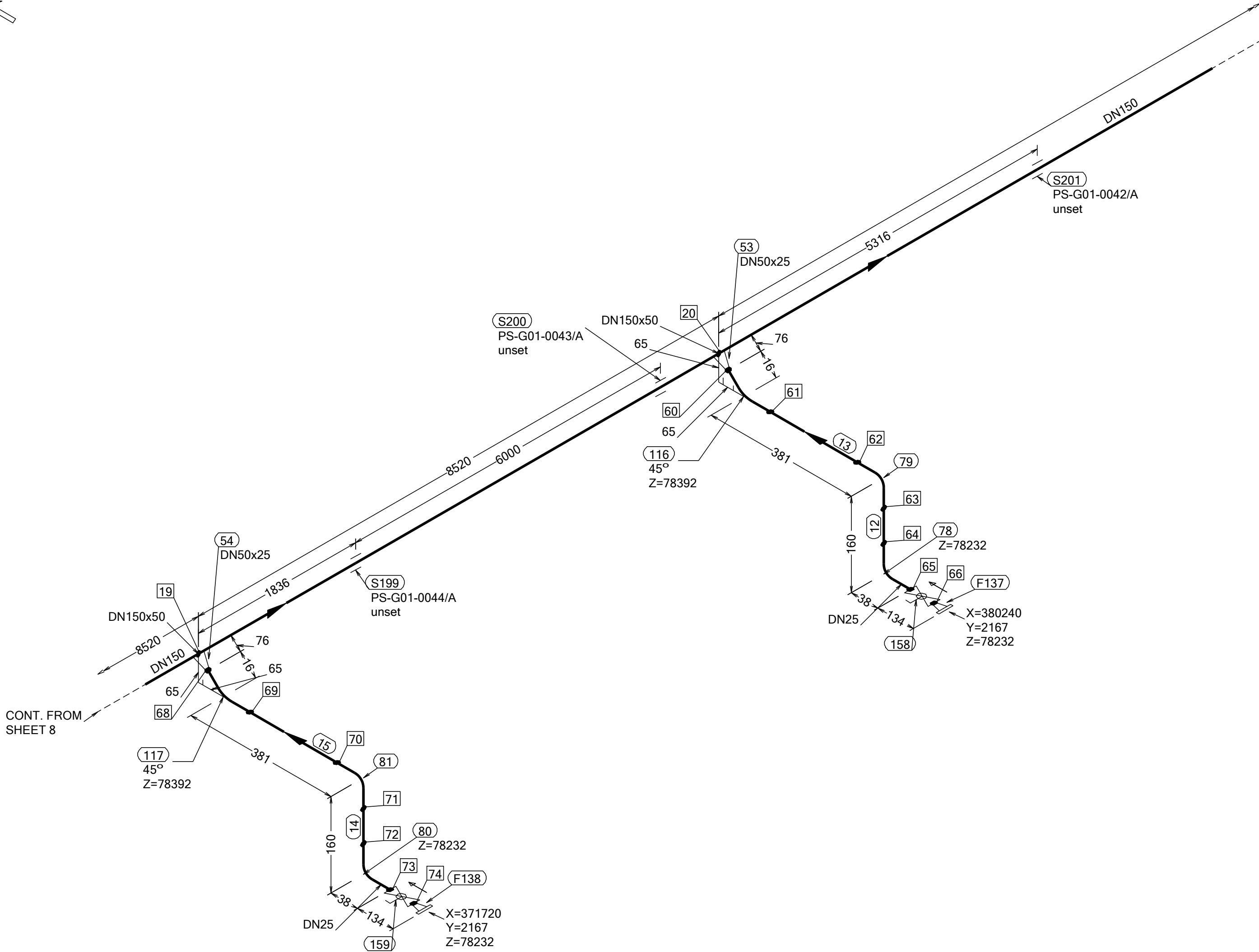
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
ERECTOR MATERIALS					
SUPPORTS					
196	ESS Atta	150		1	
197	ESS Atta	150		1	
198	ESS Atta	150		1	

WPS See Weldlist	Design Temperature	Tightening Torque For Flange Joints	P&ID Drawing Number	General Layout Drawing Number	Calculation Report	Inspection Plan	Area Code
TBN	50degC	TBN	ESS-0059673	TBN	ESS-0058702	TBN	G01-HBL
Quality Level For Weldign Acc To	Design Pressure	Bend Radius	Bending Procedure	Coupling Installation Procedure	Pressure Test Program	Alternate System Tag	Date (First Issue)
TBN	10bar (g)	N/A	N/A	TBN	TBN		170522
Weld Joint Efficiency Factor (Longitudinal)	Test Pressure	Insulation Specification			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003		Scale
1,0	14.3bar (g)	N/A					-
Elevation (z) Acc To	Quality Class	Insulation Thickness					Format
BCS	MQC4-C	N/A					A2
	Media	Allowance For Corrosion			Document Number ESS-XXXXX58		Sheet
	CWM	0					8 of 11
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		



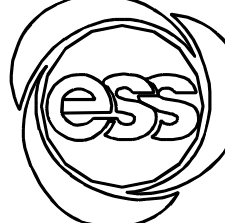
N (Y)



WELD	WPS
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FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	PIPE				
2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17040	SETON TEE
12	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
13	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
14	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
15	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
	FITTINGS				
53	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
54	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
78	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
79	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
80	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
81	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
116	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
117	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	FLANGES				
137	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
138	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	VALVES / IN-LINE ITEMS				
158	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
159	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	

ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
199	ESS Atta	150		1	
200	ESS Atta	150		1	
201	ESS Atta	150		1	

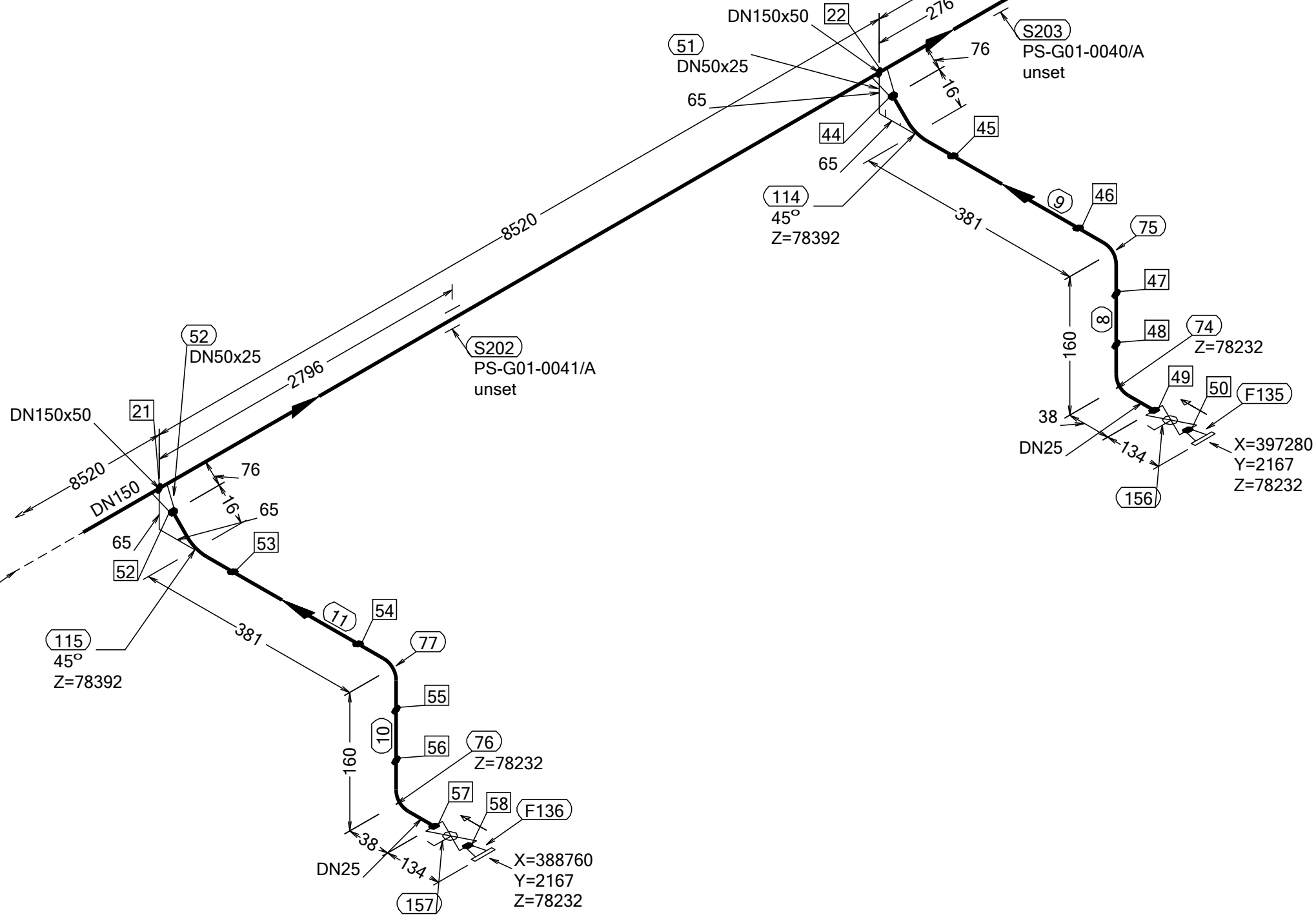
WPS See Weldlist	Design Temperature	Tightening Torque For Flange Joints	P&ID Drawing Number	General Layout Drawing Number	Calculation Report	Inspection Plan	Area Code
TBN	50degC	TBN	ESS-0059673	TBN	ESS-0058702	TBN	G01-HBL
Quality Level For Weldign Acc To	Design Pressure	Bend Radius	Bending Procedure	Coupling Installation Procedure	Pressure Test Program	Alternate System Tag	Date (First Issue)
TBN	10bar (g)	N/A	N/A	TBN	TBN		170522
Weld Joint Efficiency Factor (Longitudinal)	Test Pressure	Insulation Specification			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003		Scale
1,0	14.3bar (g)	N/A					-
Elevation (z) Acc To	Quality Class	Insulation Thickness					Format
BCS	MQC4-C	N/A					A2
	Media	Allowance For Corrosion			Document Number ESS-XXXXX58		Sheet
	CWM	0					9 of 11
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

N (Y)



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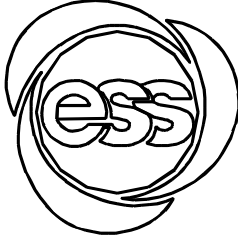


WELD	WPS
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CONT. FROM SHEET 11

FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	PIPE				
2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	17040	SETON TEE
8	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
9	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
10	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
11	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
	FITTINGS				
51	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
52	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
74	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
75	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
76	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
77	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
114	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
115	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	FLANGES				
135	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
136	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	VALVES / IN-LINE ITEMS				
156	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	
157	WORCESTER BALL VALVE BW, A59-666TT-BWJ DN25	25	EN 1.4404	1	

ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
202	ESS Atta	150		1	
203	ESS Atta	150		1	
204	ESS Atta	150		1	

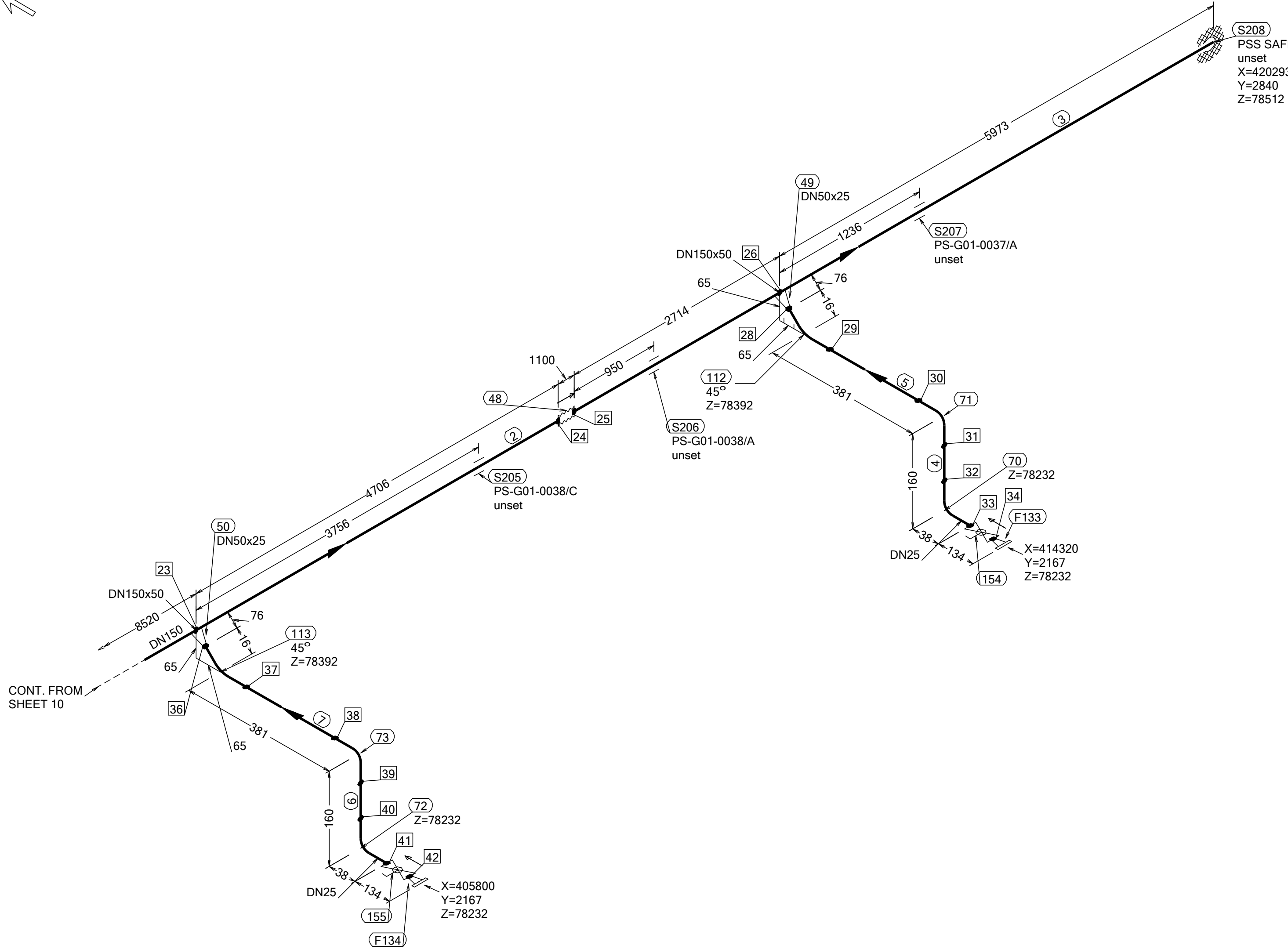
WPS See Weldlist	Design Temperature	Tightening Torque For Flange Joints	P&ID Drawing Number	General Layout Drawing Number	Calculation Report	Inspection Plan	Area Code
TBN	50degC	TBN	ESS-0059673	TBN	ESS-0058702	TBN	G01-HBL
Quality Level For Weldign Acc To	Design Pressure	Bend Radius	Bending Procedure	Coupling Installation Procedure	Pressure Test Program	Alternate System Tag	Date (First Issue)
TBN	10bar (g)	N/A	N/A	TBN	TBN		170522
Weld Joint Efficiency Factor (Longitudinal)	Test Pressure	Insulation Specification			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003		Scale
1,0	14.3bar (g)	N/A					-
Elevation (z) Acc To	Quality Class	Insulation Thickness					Format
BCS	MQC4-C	N/A					A2
	Media	Allowance For Corrosion			Document Number ESS-XXXXX58		Sheet
	CWM	0					10 of 11
	Pipe Specification	Surface Treatment					Revision
	MQC4-W-PN16	N/A					A1

Rev	Description	Date	Drawn	Designed	Reviewed	Verified	Quality	Approved
A1	ISSUED FOR CDR	170522	FRPE	FRPE	AKCO	ANLU		

N (Y)



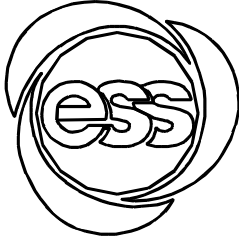
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SHEET 10



WELD	WPS
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FABRICATION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
	<u>PIPE</u>				
2	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	4707	SETON TEE SETON TEE
3	PIPE, SS-EN 10217-7, TC1, 168.3x2.0	150	EN 1.4404	8687	
4	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
5	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
6	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	84	
7	PIPE, SS-EN 10217-7, TC1, 33.7x2.0	25	EN 1.4404	327	
	<u>FITTINGS</u>				
48	ESS BELLOW	150		1	
49	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
50	REDUCER CONC, SS-EN 10253-4, TABLE A.5, 60.3x2.0 / 33.7x2.0	50 x 25	EN 1.4404	1	
70	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
71	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
72	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
73	ELBOW 90, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
112	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
113	ELBOW 45, TYPE 3D, SS-EN 10253-4, TYPE A, 33.7x2.0	25	EN 1.4404	1	
	<u>FLANGES</u>				
133	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
134	FLANGE WN, SS-EN 1092-1, TYPE 11, PN40	25		1	
	<u>VALVES / IN-LINE ITEMS</u>				
154	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	
155	WORCESTER BALL VALVE BW, A59-6666TT-BWJ DN25	25	EN 1.4404	1	

ERECTION MATERIALS					
PT NO	COMPONENT DESCRIPTION	DN	MATERIAL	QTY (mm)	REMARKS
SUPPORTS					
205	ESS Atta	150		1	
206	ESS Atta	150		1	
207	ESS Atta	150		1	
208	PENETRATION ATTA	150		1	

WPS See Weldlist TBN	Design Temperature 50degC	Tightening Torque For Flange Joints TBN	P&ID Drawing Number ESS-0059673	General Layout Drawing Number TBN	Calculation Report ESS-0058702	Inspection Plan TBN	Area Code G01-HBL
Quality Level For Weldign Acc To TBN	Design Pressure 10bar (g)	Bend Radius N/A	Bending Procedure N/A	Coupling Installation Procedure TBN	Pressure Test Program TBN	Alternate System Tag	Date (First Issue) 170522
Weld Joint Efficiency Factor (Longitudinal) 1,0	Test Pressure 14.3bar (g)	Insulation Specification N/A			Title/Name EUROPEAN SPALLATION SOURCE ERIC WATER COOLING SYSTEM CWM-CWS02 OVERVIEW ESS.ACC.E02.E02.WP0003		Scale -
Elevation (z) Acc To BCS	Quality Class MQC4-C	Insulation Thickness N/A					Format A2
	Media CWM	Allowance For Corrosion 0					Sheet 1 of 11
	Pipe Specification MQC4-W-PN16	Surface Treatment N/A					Revision A1
Rev A1	Description ISSUED FOR CDR	Date 170522	Drawn FRPE	Designed FRPE	Reviewed AKCO	Verified ANLU	Quality Approved