

BorWin5-HVDC

BorWin5 HVDC to BorWin epsilon

SUBMARINE CABLE ROUTE ROUTE ENGINEERING DOCUMENT ROUTE POSITION LIST

ISSUE:	PSR21A
DATE:	10.03.2023 13:47:00
BY:	AB



Geodetic Note: Coordinate System	
Projection:	WGS_1984_UTM_Zone_32N
Central Meridian:	9° E
Latitude of Origin:	0° N
False Easting:	500000 metres
False Northing:	0 metres
Central Scale Factor:	0,9996
Datum:	WGS_1984
Spheroid:	WGS_1984
Semi-major axis:	6378137
Inverse Flattening:	298,257223563

Lat/Lon Coordinates in the RPList are all WGS84 based

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Date	User	Comments
16.03.2017 14:02:00	KS	created new route DTS01_BorWin5-HVDC-HDD1
16.03.2017 14:02:00	KS	route is based on document DOL_310117HVDC_DolWin5_HDD1_Gate1.shp
30.05.2017 14:30:00	AB	saved as DTS05_BorWin5-HVDC-HDD1.gdb
30.05.2017 14:30:00	AB	rectifying version number to 5
30.05.2017 14:31:00	AB	adjusting changes in HDD Norderney
30.05.2017 14:32:00	AB	HDD positions acc. to MOLL 0248_4-1-02_GP_1-0.dwg
30.05.2017 15:02:00	AB	AC2 renamed DS HDD1 HRS entry
30.05.2017 15:02:00	AB	AC3 renamed DE HDD1 HRS exit
30.05.2017 15:03:00	AB	AC6 renamed DE HDD1 GP exit
30.05.2017 15:05:00	AB	AC7 renamed DS HDD1 GP entry
30.05.2017 15:05:00	AB	AC10 renamed DS HDD1 NOR entry
30.05.2017 15:06:00	AB	DS HDD1 NOR exit added
30.05.2017 15:06:00	AB	AC 11+12 moved to new route
30.05.2017 15:36:00	AB	saved as DTS05A_BorWin5-HVDC-HDD1.gdb
30.05.2017 15:38:00	AB	add A to DTS05 for main route - B=HDD2, C=phase2 PF, D=FOC PF
22.02.2018 14:00:00	AB	saved as PSR06A_BorWin5-HVDC-HDD1.gdb
22.02.2018 16:25:00	AB	AC 29 moved 470m NNW
22.02.2018 16:26:00	AB	AC 30 moved 25m WSW
22.02.2018 16:27:00	AB	AC 31 deleted
22.02.2018 16:39:00	AB	AC 34 moved 200m NW
22.02.2018 16:39:00	AB	AC 35 moved 61m E
22.02.2018 16:40:00	AB	AC 36 moved 88m E
22.02.2018 16:40:00	AB	AC 38 moved 153m SW
22.02.2018 16:44:00	AB	AC 39 moved 126m SE
22.02.2018 16:44:00	AB	AC 40 corrected Position 5m N
22.02.2018 16:46:00	AB	CX UK-GER3 OOS adjusted to survey data
22.02.2018 16:47:00	AB	CX BW1/BW2/NorNed adjusted to new route
23.11.2018 11:54:00	AB	saved as PSR07A_BorWin5-HVDC-HDD1.gdb
23.11.2018 14:12:00	AB	AC 24 moved 321m NW for BFO adjustment
23.11.2018 14:15:00	AB	DTS03_BorWin5-extension-HeDreht-20181101 integrated
23.11.2018 14:17:00	AB	DTS03_BW5 extension converted into AC 43 to AC 46
23.11.2018 14:18:00	AB	CX COBRAcable as planned added
23.11.2018 14:18:00	AB	CX BorWin3 HVDC IS added
23.11.2018 14:20:00	AB	PF location moved according to DTS03_BW5-extension
26.11.2018 13:01:00	AB	500m Zone moved acc. to DTS03_BW5-extension
21.01.2020 14:35:00	AB	saved as PSR08A_BorWin5-HVDC-HDD1.gdb
21.01.2020 14:43:00	AB	route adjusted; AC41, 42 and 43 removed
22.01.2020 10:15:00	AB	saved as PSR09A_BorWin5-HVDC-HDD1.gdb
22.01.2020 10:18:00	AB	status change: SeaMeWe3 set to out-of-service
20.10.2020 12:22:00	BB	saved as PSR10A_BorWin5-HVDC-HDD1.gdb
20.10.2020 12:31:00	BB	Route section within HeDreht windfarm adapted to EnBW proposal
20.10.2020 12:43:00	BB	Shifted positions 66 - 70
22.10.2020 15:47:00	BB	saved as PSR11A_BorWin5-HVDC-HDD1.gdb
22.10.2020 15:55:00	BB	shifted position 66 to CX Atlantic Crossing 1B2
22.10.2020 15:56:00	BB	added new AC44a (position 66)
28.10.2020 12:22:00	BB	saved as PSR12A_BorWin5-HVDC-HDD1.gdb
28.10.2020 12:24:00	BB	Shifted position 72 to the new platform position BW epsilon
03.05.2021 10:23:00	b14579	saved as PSR13A_BorWin5-HVDC-HDD1.gdb
03.05.2021 10:27:00	b14579	adjusted route to NKT cable laying radii

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03.05.2021 11:54:00	b14579	renamed AC 17 - AC 46 into AC 17 - AC 82
09.06.2021 12:30:00	AB	saved as PSR13A_BorWin5-HVDC-HDD1-wetstow.gdb
09.06.2021 15:26:00	AB	implementation of wetstow acc. to Wet-storage_route_20210504.shp
09.06.2021 15:27:00	AB	route between start and end of wetstow describes 425m + 20m steelwire
24.06.2021 10:13:00	AB	NDY beach HDD4 adjusted - exit flange as built
24.06.2021 10:13:00	AB	NDY beach HDD4 adjusted - AC12 deleted
13.09.2021 11:51:00	AB	saved as PSR14A_BorWin5-HVDC-HDD1-wetstow.gdb
13.09.2021 12:53:00	AB	HDD1 as built Hilgenriedersiel implemented
13.09.2021 12:53:00	AB	HDD1 as built Grohdepolder implemented
13.09.2021 12:54:00	AB	AC05 moved 5m south of GP HDD1 exit along RPL
13.09.2021 12:54:00	AB	deviation from UXO RWG implemented
13.09.2021 12:55:00	AB	AC34-42 RPL shifted 6m south
13.09.2021 12:56:00	AB	AC43-44 RPL shifted 6m west
13.09.2021 12:56:00	AB	CX adjusted
13.09.2021 12:57:00	AB	AC46 moved 180m south along RPL
13.09.2021 12:58:00	AB	AC47-48 moved 5m east
13.09.2021 12:58:00	AB	CX adjusted
13.09.2021 12:59:00	AB	CX COBRACable adjusted as built
13.09.2021 15:49:00	AB	saved as PSR14A_BorWin5-HVDC-HDD1.gdb
13.09.2021 16:45:00	AB	PF approach to pos. Pole Jtube added
13.09.2021 16:46:00	AB	bundle separation points SE of PF added
03.10.2021 10:08:00	AB	SeaMeWe3 OOS position adjusted
21.11.2021 21:21:00	AB	AC 44 route deviation 50m east AC44a-e to avoid large MAG anomaly
13.01.2022 09:04:00	AB	saved as PSR16A_BorWin5-HVDC-HDD1.gdb
19.01.2022 23:53:00	AB	KP 55-58 adjustment of distance to Norpipe to 500m
19.01.2022 23:53:00	AB	KP 55-58 CX adjusted
01.02.2022 11:17:00	SH	rerouting 15-20 m southwest into BFO-corridor; AC 48-54; deleted AC 50
18.05.2022 16:29:00	AB	saved as PSR17A_BorWin5-HVDC-HDD1.gdb
19.05.2022 17:19:00	AB	rerouting targets 151 & 375
30.05.2022 11:28:00	AB	saved as PSR18A_BorWin5-HVDC-HDD1.gdb
30.05.2022 11:29:00	AB	target 151 avoidance radius adjusted to 17.35m
01.07.2022 11:59:00	AB	saved as PSR19A_BorWin5-HVDC-HDD1.gdb
01.07.2022 13:09:00	AB	target 151&375 avoidance radius adjusted to 15m
16.12.2022 13:32:00	AB	saved as PSR20A_BorWin5-HVDC.gdb
		entry too long - see item 85 HDD updates
16.12.2022 13:43:00	AB	HDD entries/Exits updates acc. to Z_220114_BW5_CHD_Asbuilt...dwg
16.12.2022 14:06:00	AB	CX ODIN Seg1 OOS position corrected w/ MAG position G_L2_BW5_MA_29
10.03.2023 13:17:00	AB	saved as PSR21A_BorWin5-HVDC.gdb
10.03.2023 13:43:00	AB	changes acc. to 210818-Lot2-BW5-RWG Route Modification PSR13A.dwg
10.03.2023 13:44:00	AB	change implementation between AC16 KP 15.984 and AC23 KP 25.300
10.03.2023 13:45:00	AB	AC16 moved 41m NW
10.03.2023 13:46:00	AB	AC17 to AC22 moved 6m onto DWG (item 88)
10.03.2023 13:46:00	AB	AC23 moved 61m SSE
10.03.2023 13:47:00	AB	CXs Borkum-Fayal OOS adjusted
10.03.2023 13:47:00	AB	TSS Start adjusted

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ROUTE POSITION LIST (RPL) ABBREVIATIONS				
RPL NAMING CONVENTION				RPL Issue
DESK TOP STUDY RPLs				DTS(1,2...)
SURVEY ROUTE RPLs - (Agreed survey route with subsequent changes, during survey ops)				SR(1,2...)
POST SURVEY ROUTE RPLs - (incl. Slack, PLUP/DN, Bus, transitions and Repeaters etc)				PSR(1,2...)
AS-BUILT RPL - (Manufactured lengths)				AB(1,2...)
POST-LOAD RPLs - (Loaded cable lengths)				PL(1,2...)
AS-LAID RPLs - (subsequent issue numbers reflect repairs/changes)				AL(1,2...)
Abbreviation Abkürzung	Meaning	Erklärung	Typical Use	MakaiPlan Type
AB-xxx	As-Built	Bestandslage		
AC	Alter Course	Kurswechsel		
AF	As Found (Cable) by MAG / SSS	Detektierte Kreuzung	CX NorNed AF MAG	Ref
AL-xxx	As-Laid			
BAS	Burial Assessment Survey	Untersuchung zur Kabelverlegbarkeit		
BJ	Beach Joint	Strand-Muffe		Body
BMH	Beach ManHole	Muffengrube	BMH Hilgenriedersiel	
CC	Cable Corridor	Kabelkorridor	Enter CC	Ref
CL	Centre Line	Zentrallinie		
CX	Cable Crossing	Kabelkreuzung	CX Old Cable OOS DB	Ref
DB	Database position of cable	Kabelkreuzung laut Datenbank	CX Old Cable OOS DB	
DE	Duct End	Rohrende	DE	Ref
DS	Duct Start	Rohranfang	DS	Ref
DTS	Desk Top Study	Studie zur Voruntersuchung		
EEZ	Exclusive Economic Zone	Ausschließliche Wirtschaftszone (AWZ)	EEZ Country MB	Ref
EOB	End of burial	Endpunkt der Kabeleinspülung	PLUP EOB	Ref
EP	End Pipe	Lehrrohrende		
FS	Final Splice	End-Muffe	FS Segment Name	Body
FSPL	Fibre Splice	Glasfaser-Muffe		Body
IS	In-Service	in Betrieb	IS Segment Name	Body
JB-xxx	Joint Box	Muffe	JB-001 Any other comment	Body
JT	J-Tube	Kabeleinzugsröhre		
KP	Kilometre Point	Stationierung		
LC	Land Cable (instead of Land)	Landkabel		Cable
LP	Landing Point	Anlandepunkt	LP Norderney North Beach	Ref
MAG	Magnetometer Identified Cable	Magnetometer-Fund (Kabelkreuzung)	CX Unidentified MAG	
MB	Maritime Boundary	Seegrenze	TW Country MB	Ref
OOS	Out of Service	außer Betrieb	CX Old Cable OOS DB	
OWF/OWP	Offshore Wind Farm / Park	Offshore Windfarm / -park		
PF	Platform (converter)	(Konverter-) Plattform	PF BorWin x	
PLB	Post Lay Burial	nachträgliches Einspülen	PLB Start	Ref
PLDN	Plough Down	Pflug/ Schwert runter	PLDN	Ref
PLGR	PreLay Grapnel Run	Räumungs-Fahrt vor dem Verlegen		
PLI	Post-Lay Inspection	Nachkontrolle (Verlegung)		
PLIB	Post Lay Inspection and Burial	Nachkontrolle und Einspülen		
PLUP	Plough Up	Pflug/ Schwert hoch	PLUP	Ref
PN	Planned cable	Kreuzung mit geplantem Kabel	CX Planned cable name PN	Ref
PSR-xxx	Post Survey Route	RPL nach Survey		
PX	Pipeline Crossing	Pipeline-Kreuzung	PX Pipeline name	Ref
RD	Rock Dump	Steinschüttung		Cable
RPL	Route Position List	Trassierungs-Liste		
RPTR-xxx	Repeater	Verstärker	RPTR-001	Body
SC	Slack Change	Veränderung des Durchhangs	SC 3%	Ref
SE	Shore End	Flachwasser-Ende		Ref
SLD	Straight Line Diagram	Liniendiagramm		
SOB	Start of burial	Einspülbeginn	PLDN SOB	Ref
SP	Start pipe	Lehrrohranfang	SP	Ref
SR-xxx	Survey Route	Vermessungs-Trasse		
SSS	Side Scan Sonar Identified Cable	Seitensichtsonar Kabelfund	CX Cable name AF SSS	Ref
TPA	Traffic Precautionary Area	Verkehrsvorrang-Gebiet	Enter TPA	
TR	Transition	Übergang (Einspülung)	TR LWP-40/LW--40	Body
TSS	Traffic Separation Scheme	Verkehrstrennungs-System	Enter TSS	
TSZ	Traffic Separation Zone	Verkehrstrennungsgebiet (VTG)	Enter TSZ	
WD	Water Depth	Wassertiefe	WD 20 m	Ref
WK	Wreck	Wrack	WK Wreck name	Ref

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Position Number	Latitude [DM]	Longitude [DM]	Easting	Northing	Heading	Distance [km]		Slack [%]	Cable Distance [km]		Approx Depth [m]	Comments	Latitude [DD]	Longitude [DD]
						Between Positions	Cumulative Total		Between Positions	Cumulative Total				
1	53° 40,058' N	7° 16,541' E	386079,04	5947925,08			0,000			0,000	0	BMH Hilgenriedersiel	53,6676380	7,2756910
					337,5		0,002		0	0,002				
2	53° 40,06' N	7° 16,541' E	386078,15	5947927,38			0,002			0,002	0	AC 01	53,6676585	7,2756767
					5,7		0,028		0	0,028				
3	53° 40,075' N	7° 16,543' E	386081,67	5947955,49			0,031			0,031	0	DS HDD6 Entry HRS as built	53,6679118	7,2757196
					338,6		1,095		0	1,095				
4	53° 40,625' N	7° 16,181' E	385707,53	5948985,10			1,126			1,126	0	DE HDD6 Exit HRS as built	53,6770805	7,2696803
					270,2		0,018		0	0,018				
5	53° 40,625' N	7° 16,164' E	385689,54	5948985,59			1,144			1,144	0	AC 04	53,6770810	7,2694079
					322,5		3,512		0	3,512				
6	53° 42,128' N	7° 14,224' E	383622,43	5951824,26			4,656			4,656	0	AC 05	53,7021277	7,2370639
					335,4		0,005		0	0,005				
7	53° 42,13' N	7° 14,222' E	383620,48	5951828,82			4,661			4,661	0	DE HDD1 GP as built	53,7021683	7,2370327
					0,3		0,967		0	0,967				
8	53° 42,652' N	7° 14,226' E	383649,46	5952795,77			5,628			5,628	0	DS HDD1 GP as built	53,7108620	7,2371083
					303,7		0,019		0	0,019				
9	53° 42,657' N	7° 14,212' E	383634,06	5952806,62			5,647			5,647	0	AC 08	53,7109560	7,2368710
					342,9		0,013		0	0,013				
10	53° 42,664' N	7° 14,209' E	383630,48	5952819,40			5,660			5,660	0	AC 09	53,7110700	7,2368120
					16,7		0,021		0	0,021				
11	53° 42,675' N	7° 14,214' E	383637,13	5952839,72			5,682			5,682	0	DS HDD4 Entry NOR as built	53,7112540	7,2369051
					330,6		0,192		0	0,192				
12	53° 42,765' N	7° 14,129' E	383547,37	5953008,98			5,873			5,873	0	AC	53,7127547	7,2354821
					333,6		0,090		0	0,090				
13	53° 42,809' N	7° 14,093' E	383509,48	5953090,18			5,963			5,963	0	AC 11	53,7134757	7,2348777
					336,2		1,039		0	1,039				
14	53° 43,321' N	7° 13,711' E	383113,58	5954050,55			7,002			7,002	0	DE HDD4 Exit NOR as built	53,7220152	7,2285194
					280,0		0,135		0	0,135				
15	53° 43,334' N	7° 13,591' E	382981,50	5954077,26			7,136			7,136	0	AC 13	53,7222256	7,2265086
					312,3		0,722		0	0,722				
16	53° 43,596' N	7° 13,104' E	382459,15	5954576,39			7,859			7,859	0	Baseline	53,7265924	7,2184067

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					312,3	1,864		0	1,864					
17	53° 44,271' N	7° 11,85' E	381111,45	5955864,21			9,723			9,723	0	AC 14	53,7378566	7,1974953
					328,2	3,862		0	3,862					
18	53° 46,041' N	7° 9,998' E	379160,43	5959197,04			13,585			13,585	0	AC 15	53,7673493	7,1666282
					296,9	2,459		0	2,459					
19	53° 46,641' N	7° 8,002' E	376997,25	5960367,39			16,044			16,044	0	AC 16	53,7773569	7,1333609
					288,5	5,494		0	5,494					
20	53° 47,58' N	7° 3,257' E	371834,27	5962246,84			21,539			21,539	0	CX Borkum-Fayal OOS	53,7929951	7,0542772
					288,4	0,434		0	0,434					
21	53° 47,654' N	7° 2,882' E	371426,41	5962395,32			21,973			21,973	0	AC 17 R300	53,7942283	7,0480274
					293,7	0,055		0	0,055					
22	53° 47,666' N	7° 2,836' E	371377,04	5962418,66			22,027			22,027	0	AC18 R300	53,7944258	7,0472686
					304,0	0,051		0	0,051					
23	53° 47,681' N	7° 2,797' E	371335,37	5962448,50			22,079			22,079	0	AC 19 R300	53,7946835	7,0466238
					313,5	0,046		0	0,046					
24	53° 47,698' N	7° 2,767' E	371302,82	5962481,16			22,125			22,125	0	AC 20 R300	53,7949689	7,0461164
					322,5	0,046		0	0,046					
25	53° 47,718' N	7° 2,741' E	371275,78	5962518,54			22,171			22,171	0	AC 21 R300	53,7952979	7,0456905
					331,5	0,046		0	0,046					
26	53° 47,74' N	7° 2,721' E	371254,81	5962559,88			22,217			22,217	0	AC 22 R300	53,7956642	7,0453550
					336,0	0,341		0	0,341					
27	53° 47,908' N	7° 2,595' E	371125,03	5962874,81			22,558			22,558	0	CX Borkum-Fayal OOS	53,7984610	7,0432542
					336,0	1,973		0	1,973					
28	53° 48,88' N	7° 1,865' E	370373,32	5964698,96			24,531			24,531	0	TSS Start	53,8146605	7,0310803
					336,0	0,724		0	0,724					
29	53° 49,236' N	7° 1,597' E	370097,65	5965367,92			25,254			25,254	0	AC 23	53,8206008	7,0266134
					330,4	0,853		0	0,853					
30	53° 49,636' N	7° 1,213' E	369696,91	5966120,53			26,107			26,107	0	Boundary National Park	53,8272611	7,0202109
					330,4	1,927		0	1,927					
31	53° 50,539' N	7° 0,344' E	368791,38	5967821,17			28,034			28,034	0	AC 24	53,8423097	7,0057357
					336,2	5,487		0	5,487					
32	53° 53,246' N	6° 58,326' E	366722,31	5972902,60			33,520			33,520	0	12nm Zone	53,8874270	6,9721020
					336,2	1,397		0	1,397					

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33	53° 53,935' N	6° 57,812' E	366195,41	5974196,62			34,917			34,917	0	CX Mundesley-Norderney OOS	53,8989148	6,9635252
					336,2	5,094		0	5,094					
34	53° 56,448' N	6° 55,933' E	364274,31	5978914,64			40,012			40,012	0	TSS End	53,9407936	6,9322135
					336,2	0,256		0	0,256					
35	53° 56,574' N	6° 55,838' E	364177,76	5979151,77			40,268			40,268	0	AC 25 R300	53,9428982	6,9306382
					331,5	0,049		0	0,049					
36	53° 56,597' N	6° 55,817' E	364155,55	5979195,63			40,317			40,317	0	AC 26 R300	53,9432863	6,9302805
					322,0	0,019		0	0,019					
37	53° 56,605' N	6° 55,806' E	364144,56	5979210,60			40,335			40,335	0	CX SeaMeWe3 OOS	53,9434179	6,9301065
					322,1	0,031		0	0,031					
38	53° 56,618' N	6° 55,789' E	364126,47	5979235,27			40,366			40,366	0	AC 27 R300	53,9436347	6,9298201
					312,7	0,049		0	0,049					
39	53° 56,636' N	6° 55,756' E	364091,31	5979269,63			40,415			40,415	0	AC 28 R300	53,9439341	6,9292695
					303,3	0,049		0	0,049					
40	53° 56,651' N	6° 55,719' E	364051,02	5979297,79			40,464			40,464	0	AC 29 R300	53,9441765	6,9286436
					293,9	0,049		0	0,049					
41	53° 56,661' N	6° 55,678' E	364006,66	5979318,99			40,513			40,513	0	AC 30 R300	53,9443553	6,9279587
					284,2	0,052		0	0,052					
42	53° 56,668' N	6° 55,632' E	363957,02	5979333,14			40,565			40,565	0	AC 31 R300	53,9444693	6,9271966
					279,3	0,148		0	0,148					
43	53° 56,681' N	6° 55,498' E	363811,89	5979361,29			40,713			40,713	0	AC 32	53,9446840	6,9249744
					286,6	2,413		0	2,413					
44	53° 57,052' N	6° 53,384' E	361519,97	5980117,38			43,126			43,126	0	AC reroute target 375	53,9508671	6,8897366
					287,8	0,321		0	0,321					
45	53° 57,105' N	6° 53,105' E	361217,52	5980224,46			43,447			43,447	0	AC reroute target 375	53,9517479	6,8850825
					285,3	0,325		0	0,325					
46	53° 57,151' N	6° 52,818' E	360906,35	5980319,81			43,773			43,773	0	AC reroute target 375	53,9525207	6,8803006
					286,5	1,483		0	1,483					
47	53° 57,379' N	6° 51,519' E	359498,34	5980784,31			45,255			45,255	0	AC 33	53,9563123	6,8586460
					286,0	0,656		0	0,656					
48	53° 57,476' N	6° 50,942' E	358873,47	5980984,14			45,911			45,911	0	AC 34 R300	53,9579370	6,8490374
					280,8	0,059		0	0,059					
49	53° 57,482' N	6° 50,889' E	358815,67	5980996,96			45,970			45,970	0	AC 35 R300	53,9580364	6,8481513

BorWin5-HVDC
BorWin5 HVDC to BorWin epsilon

					269,1	0,061		0	0,061					
50	53° 57,482' N	6° 50,834' E	358755,17	5980997,89			46,031			46,031	0	AC 36 R300	53,9580282	6,8472294
					263,3	0,196		0	0,196					
51	53° 57,469' N	6° 50,655' E	358559,43	5980980,78			46,227			46,227	0	AC 37	53,9578212	6,8442564
					263,2	7,310		0	7,310					
52	53° 57,004' N	6° 44,021' E	351277,64	5980344,42			53,537			53,537	0	AC 38 R450	53,9500642	6,7336756
					281,9	0,091		0	0,091					
53	53° 57,014' N	6° 43,94' E	351189,72	5980365,89			53,628			53,628	0	AC 39 R450	53,9502317	6,7323266
					292,8	0,083		0	0,083					
54	53° 57,031' N	6° 43,869' E	351113,85	5980400,68			53,711			53,711	0	AC 40 R450	53,9505224	6,7311545
					303,1	0,080		0	0,080					
55	53° 57,055' N	6° 43,808' E	351048,64	5980446,16			53,790			53,790	0	AC 41 R450	53,9509121	6,7301394
					313,1	0,079		0	0,079					
56	53° 57,084' N	6° 43,755' E	350992,33	5980502,26			53,870			53,870	0	AC 42 R450	53,9513997	6,7292546
					323,1	0,080		0	0,080					
57	53° 57,118' N	6° 43,711' E	350946,36	5980567,64			53,950			53,950	0	AC 43 R450	53,9519736	6,7285229
					341,1	0,411		0	0,411					
58	53° 57,328' N	6° 43,59' E	350825,83	5980960,30			54,361			54,361	0	CX UK-GER 6 OOS	53,9554653	6,7264957
					341,1	0,500		0	0,500					
59	53° 57,583' N	6° 43,442' E	350679,12	5981438,29			54,861			54,861	0	AC - start Norpipe distance re-route	53,9597158	6,7240278
					342,2	0,500		0	0,500					
60	53° 57,84' N	6° 43,302' E	350541,99	5981919,12			55,361			55,361	0	AC - Norpipe distance 500m	53,9639945	6,7217039
					341,1	1,084		0	1,084					
61	53° 58,393' N	6° 42,981' E	350223,86	5982955,55			56,445			56,445	0	CX DK-NL-2 OOS	53,9732105	6,7163496
					341,1	1,357		0	1,357					
62	53° 59,085' N	6° 42,579' E	349825,56	5984253,18			57,802			57,802	0	CX DolWin1 IS	53,9847486	6,7096425
					341,1	0,125		0	0,125					
63	53° 59,149' N	6° 42,541' E	349788,80	5984372,95			57,927			57,927	0	CX alpha ventus IS	53,9858136	6,7090233
					341,1	0,584		0	0,584					
64	53° 59,446' N	6° 42,368' E	349617,54	5984930,88			58,511			58,511	0	AC 44a	53,9907744	6,7061382
					346,8	0,401		0	0,401					
65	53° 59,657' N	6° 42,285' E	349538,70	5985324,04			58,912			58,912	0	AC 44b	53,9942823	6,7047424
					341,1	0,500		0	0,500					

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BorWin5 HVDC to BorWin epsilon

66	53° 59,912' N	6° 42,136' E	349391,98	5985802,03			59,412			59,412	0	AC 44c	53,9985322	6,7022697
					323,9	0,500		0	0,500					
67	54° 0,13' N	6° 41,867' E	349110,86	5986215,51			59,912			59,912	0	AC 44d	54,0021635	6,6977796
					318,2	0,501		0	0,501					
68	54° 0,331' N	6° 41,561' E	348789,09	5986599,85			60,413			60,413	0	AC 44e	54,0055211	6,6926836
					323,9	16,769		0	16,769					
69	54° 7,632' N	6° 32,497' E	339360,73	6000467,33			77,182			77,182	0	TSS Start	54,1271989	6,5416100
					324,3	8,359		0	8,359					
70	54° 11,289' N	6° 28,011' E	334719,49	6007419,81			85,542			85,542	0	CX UK-GER3 OOS as found	54,1881537	6,4668452
					324,2	0,117		0	0,117					
71	54° 11,34' N	6° 27,948' E	334654,61	6007516,98			85,659			85,659	0	AC 45	54,1890053	6,4657986
					332,5	2,588		0	2,588					
72	54° 12,578' N	6° 26,851' E	333544,54	6009854,37			88,246			88,246	0	TSS End	54,2096331	6,4475096
					331,6	1,360		0	1,360					
73	54° 13,223' N	6° 26,255' E	332940,80	6011073,06			89,606			89,606	0	AC 46	54,2203789	6,4375841
					333,2	0,767		0	0,767					
74	54° 13,592' N	6° 25,937' E	332619,70	6011769,35			90,373			90,373	0	CX BorWin3 HVDC IS	54,2265257	6,4322763
					333,2	0,107		0	0,107					
75	54° 13,643' N	6° 25,892' E	332574,84	6011866,77			90,480			90,480	0	CX COBRACable as built	54,2273858	6,4315345
					333,2	1,551		0	1,551					
76	54° 14,389' N	6° 25,248' E	331925,34	6013275,46			92,031			92,031	0	AC 47	54,2398210	6,4207927
					335,1	0,261		0	0,261					
77	54° 14,517' N	6° 25,146' E	331824,17	6013516,02			92,292			92,292	0	AC reroute target 151	54,2419476	6,4191071
					329,8	0,255		0	0,255					
78	54° 14,636' N	6° 25,029' E	331704,20	6013741,09			92,547			92,547	0	AC reroute target 151	54,2439290	6,4171417
					332,5	5,861		0	5,861					
79	54° 17,438' N	6° 22,535' E	329189,74	6019035,63			98,409			98,409	0	AC 48 R450	54,2906313	6,3755765
					323,8	0,138		0	0,138					
80	54° 17,498' N	6° 22,459' E	329112,40	6019150,00			98,547			98,547	0	AC 49 R450	54,2916322	6,3743242
					318,4	2,236		0	2,236					
81	54° 18,399' N	6° 21,091' E	327690,76	6020876,33			100,783			100,783	0	AC 51 R250	54,3066537	6,3515114
					322,9	0,041		0	0,041					
82	54° 18,417' N	6° 21,068' E	327667,16	6020910,10			100,824			100,824	0	AC 52 R250	54,3069490	6,3511295

BorWin5-HVDC
BorWin5 HVDC to BorWin epsilon

					332,4	0,046		0	0,046					
83	54° 18,439' N	6° 21,048' E	327647,34	6020951,76			100,870			100,870	0	AC 53 R250	54,3073163	6,3508012
					342,4	0,048		0	0,048					
84	54° 18,464' N	6° 21,035' E	327634,45	6020998,42			100,919			100,919	0	AC 54 R250	54,3077309	6,3505763
					7,4	0,089		0	0,089					
85	54° 18,511' N	6° 21,045' E	327649,17	6021085,85			101,007			101,007	0	AC 55 R250	54,3085207	6,3507519
					7,4	0,042		0	0,042					
86	54° 18,534' N	6° 21,05' E	327656,20	6021127,59			101,050			101,050	0	CX BorWin1 IS	54,3088979	6,3508358
					7,4	0,098		0	0,098					
87	54° 18,586' N	6° 21,062' E	327672,41	6021223,87			101,147			101,147	0	CX BorWin2 IS	54,3097677	6,3510291
					6,8	0,065		0	0,065					
88	54° 18,621' N	6° 21,069' E	327682,53	6021288,47			101,213			101,213	0	AC 56 R250	54,3103511	6,3511472
					343,3	0,044		0	0,044					
89	54° 18,644' N	6° 21,057' E	327671,58	6021330,65			101,256			101,256	0	AC 57 R250	54,3107261	6,3509548
					333,3	0,044		0	0,044					
90	54° 18,665' N	6° 21,039' E	327653,47	6021370,29			101,300			101,300	0	AC 58 R250	54,3110759	6,3506538
					323,3	0,044		0	0,044					
91	54° 18,683' N	6° 21,015' E	327628,76	6021406,18			101,344			101,344	0	AC 59 R250	54,3113897	6,3502537
					313,3	0,044		0	0,044					
92	54° 18,699' N	6° 20,986' E	327598,19	6021437,24			101,387			101,387	0	AC 60 R250	54,3116583	6,3497664
					304,3	0,035		0	0,035					
93	54° 18,71' N	6° 20,959' E	327569,99	6021458,05			101,422			101,422	0	AC 61 R250	54,3118356	6,3493214
					295,3	0,044		0	0,044					
94	54° 18,72' N	6° 20,923' E	327531,31	6021478,11			101,466			101,466	0	AC 62 R250	54,3120026	6,3487159
					285,3	0,044		0	0,044					
95	54° 18,726' N	6° 20,884' E	327489,73	6021491,15			101,509			101,509	0	AC 63 R250	54,3121056	6,3480700
					275,3	0,044		0	0,044					
96	54° 18,728' N	6° 20,844' E	327446,51	6021496,77			101,553			101,553	0	AC 64 R250	54,3121415	6,3474031
					265,3	0,044		0	0,044					
97	54° 18,727' N	6° 20,804' E	327402,98	6021494,81			101,597			101,597	0	AC 65 R250	54,3121092	6,3467358
					255,3	0,044		0	0,044					
98	54° 18,721' N	6° 20,765' E	327360,45	6021485,31			101,640			101,640	0	AC 66 R250	54,3120095	6,3460883
					228,0	0,661		0	0,661					

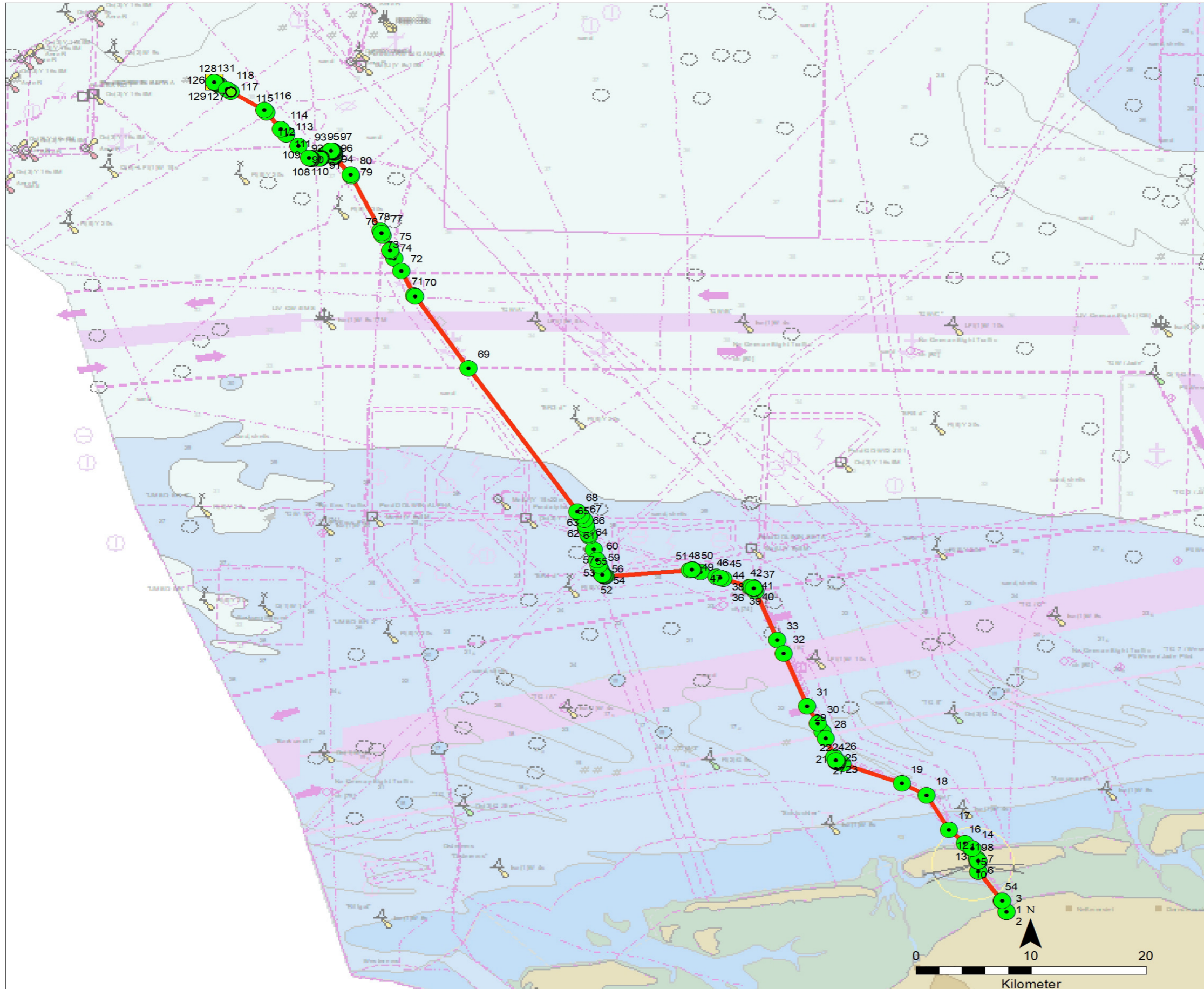
BorWin5-HVDC
BorWin5 HVDC to BorWin epsilon

99	54° 18,482' N	6° 20,313' E	326853,15	6021061,35			102,301			102,301	0	PX Norpipe	54,3080316	6,3385449
					228,0	0,415		0	0,415					
100	54° 18,332' N	6° 20,029' E	326534,75	6020795,91			102,716			102,716	0	AC 67 R250	54,3055405	6,3338107
					233,0	0,043		0	0,043					
101	54° 18,318' N	6° 19,997' E	326499,07	6020771,08			102,759			102,759	0	AC 68 R250	54,3053055	6,3332774
					242,5	0,039		0	0,039					
102	54° 18,309' N	6° 19,965' E	326463,62	6020754,29			102,798			102,798	0	AC 69 R250	54,3051427	6,3327429
					252,0	0,044		0	0,044					
103	54° 18,301' N	6° 19,926' E	326421,70	6020742,40			102,842			102,842	0	AC 70 R250	54,3050217	6,3321063
					261,5	0,039		0	0,039					
104	54° 18,298' N	6° 19,891' E	326382,71	6020738,06			102,881			102,881	0	AC 71 R250	54,3049695	6,3315102
					266,0	0,420		0	0,420					
105	54° 18,282' N	6° 19,504' E	325962,84	6020724,56			103,301			103,301	0	CX NorNed IS	54,3047054	6,3250724
					266,0	0,231		0	0,231					
106	54° 18,274' N	6° 19,292' E	325732,42	6020717,14			103,532			103,532	0	AC 72 R250	54,3045603	6,3215396
					271,1	0,045		0	0,045					
107	54° 18,274' N	6° 19,251' E	325687,60	6020719,74			103,577			103,577	0	AC 73 R250	54,3045684	6,3208500
					281,5	0,046		0	0,046					
108	54° 18,279' N	6° 19,21' E	325643,15	6020730,58			103,623			103,623	0	AC 74 R250	54,3046505	6,3201613
					292,0	0,046		0	0,046					
109	54° 18,288' N	6° 19,171' E	325601,42	6020749,34			103,668			103,668	0	AC 75 R250	54,3048047	6,3195098
					302,5	0,046		0	0,046					
110	54° 18,302' N	6° 19,135' E	325563,81	6020775,40			103,714			103,714	0	AC 76 R250	54,3050258	6,3189172
					313,0	0,046		0	0,046					
111	54° 18,318' N	6° 19,104' E	325531,58	6020807,87			103,760			103,760	0	AC 77 R250	54,3053063	6,3184035
					318,3	1,454		0	1,454					
112	54° 18,903' N	6° 18,212' E	324606,19	6021928,94			105,213			105,213	0	AC 78	54,3150539	6,3035392
					314,7	1,566		0	1,566					
113	54° 19,497' N	6° 17,186' E	323536,00	6023072,00			106,779			106,779	0	AC 79	54,3249469	6,2864310
					312,7	0,695		0	0,695					
114	54° 19,75' N	6° 16,715' E	323043,71	6023561,91			107,474			107,474	0	AC 80	54,3291745	6,2785798
					320,3	2,042		0	2,042					
115	54° 20,598' N	6° 15,512' E	321801,45	6025183,02			109,516			109,516	0	CX AC-1B2 IS - Atlantic Crossing	54,3432953	6,2585304

BorWin5-HVDC
BorWin5 HVDC to BorWin epsilon

					320,3	0,317		0	0,317					
116	54° 20,729' N	6° 15,325' E	321608,48	6025434,83			109,833			109,833	0	AC 81	54,3454883	6,2554148
					299,1	3,373		0	3,373					
117	54° 21,613' N	6° 12,604' E	318726,36	6027187,99			113,207			113,207	0	CX ODIN Seg1 OOS	54,3602101	6,2100638
					299,0	0,401		0	0,401					
118	54° 21,717' N	6° 12,28' E	318383,90	6027396,30			113,608			113,608	0	AC	54,3619582	6,2046730
					300,6	0,818		0	0,818					
119	54° 21,942' N	6° 11,63' E	317696,47	6027840,21			114,426			114,426	0	AC 82	54,3656976	6,1938347
					301,6	0,002		0	0,002					
120	54° 21,942' N	6° 11,629' E	317694,96	6027841,22			114,428			114,428	0	500m Safety Zone	54,3657062	6,1938108
					299,9	0,273		0	0,273					
121	54° 22,016' N	6° 11,41' E	317463,65	6027986,70			114,701			114,701	0	split point Fibre Optic (FOC) PSRxxD	54,3669293	6,1901659
					300,2	0,005		0	0,005					
122	54° 22,017' N	6° 11,406' E	317459,15	6027989,57			114,706			114,706	0	split point neg. Pole (-) PSRxxC	54,3669534	6,1900949
					299,0	0,002		0	0,002					
123	54° 22,018' N	6° 11,404' E	317457,24	6027990,73			114,709			114,709	0	AC 83	54,3669632	6,1900648
					295,8	0,133		0	0,133					
124	54° 22,049' N	6° 11,293' E	317339,80	6028053,33			114,842			114,842	0	AC 84	54,3674830	6,1882211
					294,3	0,031		0	0,031					
125	54° 22,056' N	6° 11,267' E	317311,67	6028067,43			114,873			114,873	0	AC 85	54,3675995	6,1877799
					296,4	0,002		0	0,002					
126	54° 22,056' N	6° 11,265' E	317310,26	6028068,20			114,875			114,875	0	AC	54,3676059	6,1877578
					299,9	0,002		0	0,002					
127	54° 22,057' N	6° 11,264' E	317308,91	6028069,05			114,876			114,876	0	AC	54,3676131	6,1877365
					303,6	0,002		0	0,002					
128	54° 22,057' N	6° 11,263' E	317307,61	6028069,99			114,878			114,878	0	AC	54,3676210	6,1877160
					307,2	0,002		0	0,002					
129	54° 22,058' N	6° 11,262' E	317306,37	6028071,01			114,880			114,880	0	AC	54,3676298	6,1876963
					310,7	0,002		0	0,002					
130	54° 22,058' N	6° 11,261' E	317305,20	6028072,10			114,881			114,881	0	AC	54,3676391	6,1876776
					312,7	0,021		0	0,021					
131	54° 22,066' N	6° 11,246' E	317290,35	6028086,96			114,902			114,902	0	Jtube - pos. Pole (+)	54,3677672	6,1874402

BorWin5-HVDC
 BorWin5 HVDC to BorWin epsilon



Legend

- Route Position
- Route

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2		
1		
Index	Datum/Name	Art der Änderung
TenneT Offshore GmbH Bernecker Straße 70 95448 Bayreuth www.tennet.eu		
Datenquellen	Grund- und Nutzungsdaten Nordsee (Windparks, Raumordnung, Grenzen) Bundesamt für Seeschifffahrt und Hydrographie [Hrsg.]	
Projekt	BorWin5 HVDC	
Titel	RPL: PSR21A_BorWin5-HVDC	
Dateiname	PSR21A_BorWin5-HVDC	
Koordinatensystem	WGS 1984 UTM Zone 32N	
Maßstab (DIN A3): 1:350.000	gezeichnet	AB 10.03.2023
	geprüft	DS,MH 10.03.2023