

RFC North Sea – Baltic Re-Routing Scenarios



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1 General information

1.1. Introduction

In 2018 European Rail Infrastructure Managers (IMs) agreed on international processes described in the “Handbook for International Contingency Management”. An important element of that is an international re-routing overview for the Rail Freight Corridors (RFC) and operational scenarios (re-routing scenarios) for the critical routes.

These re-routing scenarios help traffic management and timetabling with the coordination of the deviation of freight trains in the plannable phase (as soon as possible after an incident) in case of disruptions (larger incidents with an international impact).

This document includes scenarios with the possible re-routing options for all sections with limited re-routing options on RFC North Sea – Baltic (RFC NS-B).

The re-routing scenarios should also serve as a basis for the RU contingency management with the objective to increase possible use of deviation routes.

1.2. Publication and updates

The RFC NS-B is owner of this document. The national IMs are responsible to distribute this document or the contained information with the re-routing scenarios within their own organisation and to the RUs which run on their network. RFC NS-B also publishes the document on its website and organises the consultation with RUs.

The re-routing scenarios for RFC NS-B are updated every year until the end of November by the corridor organisation together with the IMs of RFC NS-B. The initial version of the re-routing scenarios and the re-routing overview is first published on December 7th 2018.

1.3. Processes and communication for international disruptions

In case of international disruptions, international processes for incident management and incident communication which shall apply during the plannable phase are described in chapter 4 of the Handbook for International Contingency Management (<http://rfc8.eu/downloads/>). They do not replace national incident management procedures but complement them in order to allow for a better international cooperation.

1.4. General requirements

RUs crossing a border must take all national rules into account (see network statement). For example: language requirements for the train drivers, other signalling and power systems.

1.5. Definitions

1.5.1. Definitions of infrastructure parameters

These definitions apply to information given in both re-routing scenarios and re-routing overview (separate excel document).

Line section	Section of the normal RFC routing
Deviation route	Section which replaces the normal routing
Passengers	Section used for passenger traffic
Freight	Section used for freight traffic
Traction Power	Catenary voltage
Length	Maximum allowed length for a train (in meters, locomotive included)
Line category	e.g. C2, C3, D4, D5...
Number of tracks	The number of tracks on this section
Gradient	The gradient (in percentage) of the line section - mostly important in countries with hills and mountains
Interoperable Gauge	e.g. GHE16, GEB16, FR3.3, GB1, GB+, GA, GB..
Multinational Gauge	e.g. PTb+, GHE16, GEB16, GPL-1, G2, GB1, GB2.
Intermodal Freight code	This is mostly filled out with the PC code e.g. PC70/400 , P/C 80/400, etc.
Signalling	This column is filled out with the version of ETCS (when in use) or the STM e.g. ATB EG, TBL1, SCMT etc.
Max. Speed	This is filled out with either the max speed for a freight train or the maximum speed allowed on the line section (in km/h)
Length of re-routing option	In km
Max. train weight	Here the maximum weight (in tons) is filled out which can be handled by one locomotive (and/or which is used for capacity allocation)

1.5.2. Capacity which is taken into account

This rerouting overview can only consider free capacity, so remaining capacity after allocation from yearly timetable and ad hoc capacity (estimations on basis of historical information). This has led to situations that some lines are not shown because there is almost no capacity left and that the mentioned capacity in the table is lower than expected.

The re-routing scenarios and overview don't provide a capacity indication, only an indication of the usability of a line. There is no capacity indication provided, because the capacity depends heavily on: timetable changes, time, track-works, different extern conditions, etc.. It is therefore not possible to give a reasonable estimate. If re-routing is needed, the IM's will provide that information on an ad hoc basis.

In the event of a major incident there can be several possible re-routing options. For the scenarios the usability of these possible routes is indicated in three categories. This can facilitate the process of re-routing.

The categorization is defined in options A, B and C. There is no fixed definition for the degree of usability, but the assessment depends on several aspects regarding capacity, technical and/or organisational restrictions (possibilities and limitations). The classification is based on the expert estimates of experienced train traffic controllers (aimed at re-routing freight trains). The categories are:

- A: good availability (no major restrictions);
- B: usability is reasonable (with some restrictions);
- C: usability is worst (some major capacity, technical, environmental and/or organisational restrictions).

For heavily used networks discussions are ongoing between legislators and infrastructure managers to get the possibility to withdraw or reschedule already allocated capacity. This possibility which is not part of

the existing European legislation, could give IMs the competence to create space to reallocate the capacity in favour of the rerouting of (international) freight trains.

1.6. Structure of the document

The re-routing scenarios are presented as follows: Chapter 2 focusses on the international processes described in the “Handbook for International Contingency Management”, chapter 3 focusses on the re-routing scenarios for the western part of RFC NS-B, chapter 4 covers re-routing scenarios for the eastern part of RFC NS-B. Each part is first introduced with an overview map of the relevant sections with limited re-routing possibilities plus short descriptions of the re-routing options. The overview is followed by detailed descriptions of the main re-routing options for each of these sections, including detailed maps and a description of the re-routing options with characteristics and parameters.

The presented re-routing options focus on freight train re-routing.

1.7. Disclaimer / Limitation of Liability

These operational scenarios serve for information only. Although every care has been taken by RFC NS-B to ensure the accuracy of the information published, no warranty can be given in respect of the accuracy, reliability, up-to-dateness or completeness of this information. RFC NS-B and the involved IMs/AB (Allocation Body) accept no liability for direct or indirect damages of material or immaterial nature arising from use or non-use of the published information. Moreover, all responsibility for the content of any external sites referred to by this document (links) is declined.

RFC NS-B reserves the right to alter or remove the content, in full or in part, without prior notice.

2 Processes for international disruptions

2.1. Introduction

The processes of international disruptions are described in Chapter 4 of the “Handbook for International Contingency Management” (<http://rfc8.eu/downloads/>):

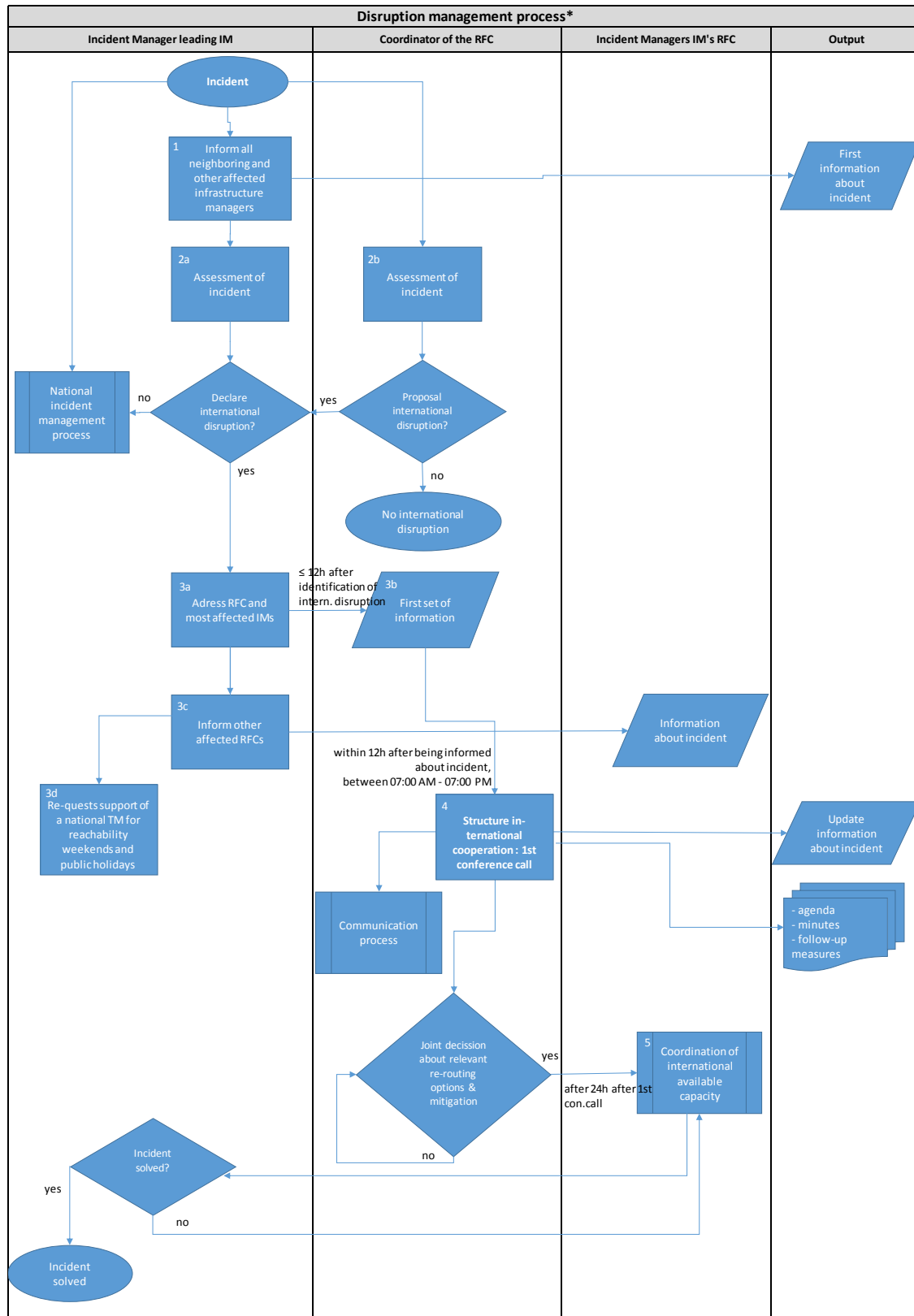
The international agreed processes are:

1. Disruption management process;
2. Communication process.

The key roles on a managerial level for these processes are defined in Chapter 5 of this Handbook.

This chapter shows a summary of this information.

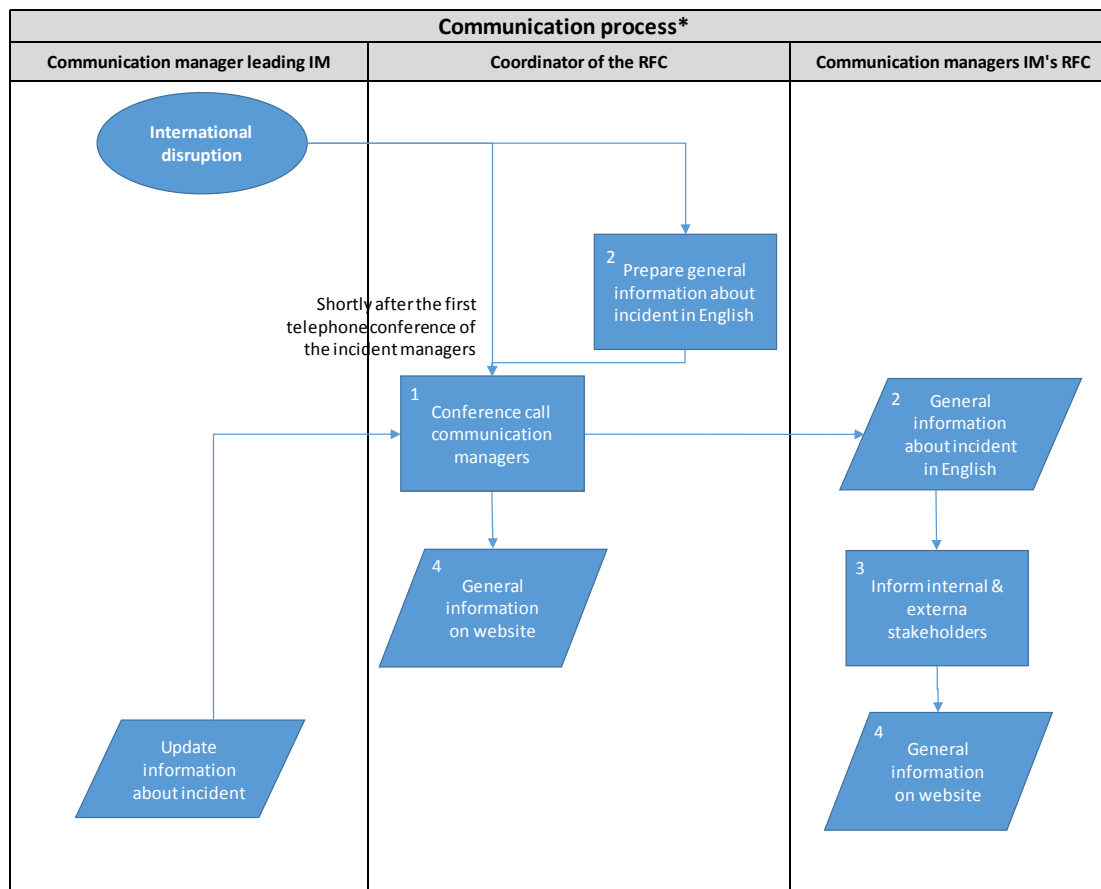
2.2. Disruption management process



* process description is on page 10 & 11 of the Handbook International Contingency Management.

The complete disruption management process is described on pages 10 and 11 of the “Handbook for International Contingency Management”.

2.3. Communication process



* process description is on page 11 of the Handbook International Contingency Management.

The complete communication process is described on page 11 of the “Handbook for International Contingency Management”.

3 Western part of RFC NS-B

3.1. Overview re-routing options western part

The following sections with limited re-routing possibilities are defined for the western part of the RFC NS-B.

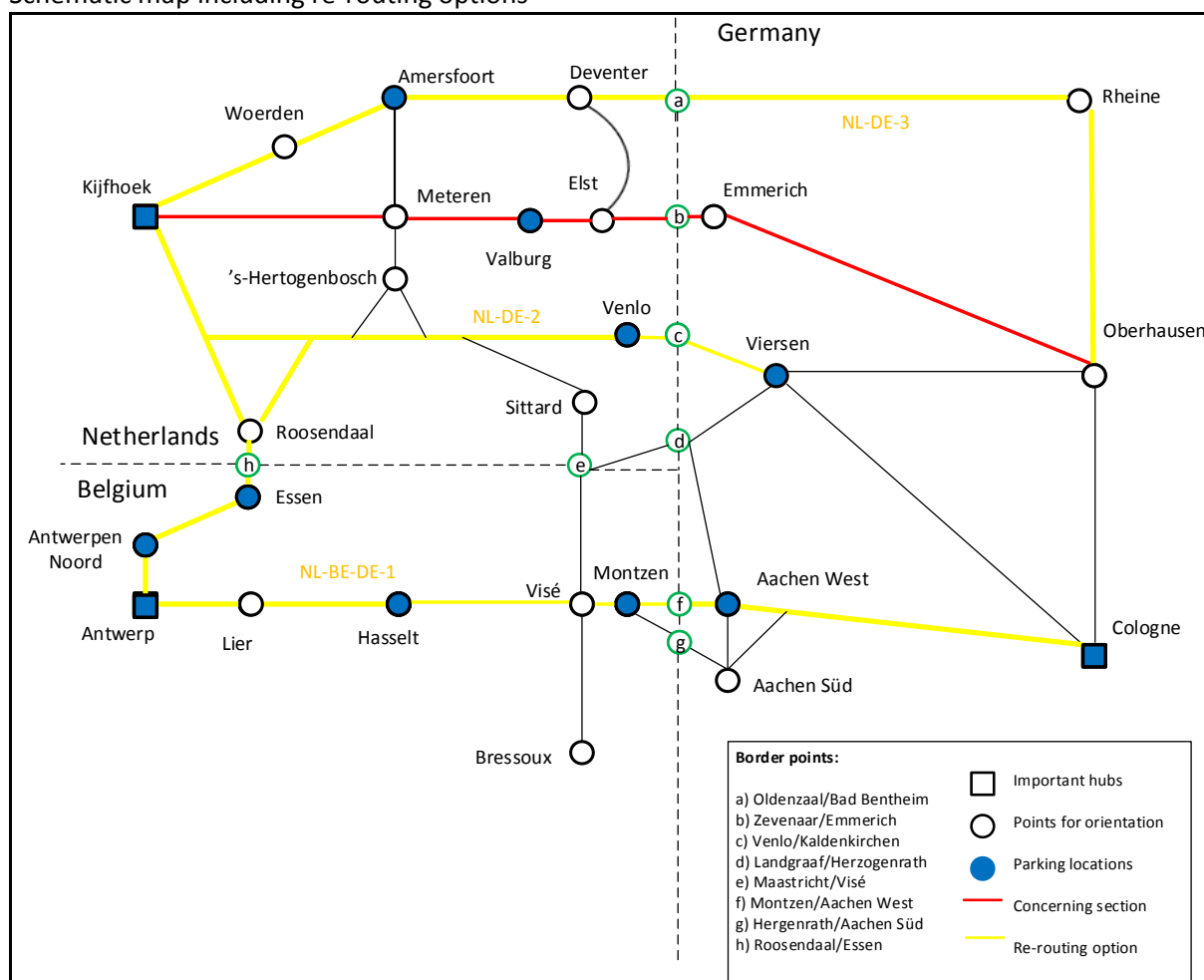
Some re-routing options can be used for various sections.

Critical route	Route
NL-DE-1	Kijfhoek – Zevenaar / Emmerich - Oberhausen
NL-DE-3	Kijfhoek – Oldenzaal / Bad Bentheim – Rheine
NL-BE-1	Roosendaal / Essen
BE-DE-1	Montzen - Aachen West

3.2. Re-routing scenario for section Kijfhoek – Zevenaar / Emmerich - Oberhausen

3.2.1. General description

Schematic map including re-routing options



When the route Kijfhoek – Zevenaar / Emmerich - Oberhausen is blocked re-routing options are:

Section ID	Usability	Route
NL-DE-2	B	Kijfhoek – Venlo / Kaldenkirchen – Viersen
NL-DE-3	B	Kijfhoek – Oldenzaal / Bad Bentheim – Rheine - Oberhausen
NL-BE-DE-1	B	Kijfhoek – Roosendaal / Essen - Montzen - Aachen West

3.2.2. Parameters

IM	Line section	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication	
		Pass	Fret															
Blocked section: Kijfhoek – Zevenaar / Emmerich - Oberhausen																		
ProRail	Kijfhoek - Meteren		x		25 kV AC	740	E5	2	N/A	GC	P/C 80/410	L2 - 2.3.0d	100	49,7	2100-2400		weights to be checked	A
ProRail	Meteren - Zevenaar border		x		25 kV AC	740 / 690	D4	2	N/A	GC	P/C 80/410	L2 - 2.3.0d	100	63	2100-2400		690 on German side	A
DB Netz	Oberhausen - Emmerich	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	160	71	1:2745t 2: 2350t (E-Tfz DB-185)			
Kijfhoek – Venlo / Kaldenkirchen – Viersen																		
ProRail	Kijfhoek - Lage Zwaluwe	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	19,9	2100-2400		B*: high usage in regural traffic	B*
ProRail	Lage Zwaluwe - Breda	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	14,2	2100-2400		B*: high usage in regural traffic	B*
ProRail	Breda - Eindhoven	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	58,9	2100-2400		B*: high usage in regural traffic	B*
ProRail	Eindhoven - Venlo border	x	x		1.5 kV DC	650	D4	2	N/A	G2	P/C 80/410	ATB EG	100	54,8	2100-2400		B*: high usage in regural traffic	B*
DB Netz	Kaldenkirchen border - Viersen	x	x	E	AC 15 kV 16,7Hz	650	D4	1	N/A	Upon request	P/C 80/410	PZB	Up to 100	20	2340-2855		one-Track between Kaldenkirchen-Dülken	
Kijfhoek – Oldenzaal / Bad Bentheim – Rheine (possibility 1)																		
ProRail	Kijfhoek - Amersfoort	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	123,8	2100-2400		via Bkl, Dvd, Hvs, Amf	B
ProRail	Amersfoort - Deventer	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	58,3	2100-2400			B
ProRail	Deventer - Oldenzaal border	x	x		1.5 kV DC	740 / 590	D4	2	N/A	G2	P/C 80/410	ATB EG	100	68,6	2100-2400		590 on German side	B
DB Netz	Rheine - Bad Bentheim	x	x	E	AC 15 kV 16,7Hz	600m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	160	30	1: 3460t 2: 2770t (E-Tfz DB-185)			
Kijfhoek – Oldenzaal / Bad Bentheim – Rheine (possibility 2)																		
ProRail	Kijfhoek - Meteren		x		25 kV AC	740	E5	2	N/A	GC	P/C 80/410	L2 - 2.3.0d	100	49,7	2100-2400		weights to be checked	A
ProRail	Deventer - Arnhem - Betuweroute -Meteren	x	x		1,5 kV DC / 25 kV AC	650	D4 / E5	2	N/A	G2 / GC	P/C 80/410	L2 - 2.3.0d / ATB EG	100	100,8	2100-2400		change direction at Deventer	B
DB Netz	Rheine - Bad Bentheim	x	x	E	AC 15 kV 16,7Hz	600m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	160	30	1: 3460t 2: 2770t (E-Tfz DB-185)			
Kijfhoek – Roosendaal / Essen - Montzen - Aachen West																		
ProRail	Kijfhoek - Lage Zwaluwe	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	19,9	2100-2400		B*: high usage in regural traffic	B*
ProRail	Lage Zwaluwe - Roosendaal	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	22,8	2100-2400			B
ProRail	Roosendaal - Roosendaal border	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG / MEMOR	100	8,4	2100-2400			B
Infrabel	Roosendaal/Essen - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470			B
Infrabel	Roosendaal/Essen - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200			B
Infrabel	Roosendaal/Essen - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470			B
Infrabel	Roosendaal/Essen - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200			B
Infrabel	Antwerpen - Montzen/AachenWest	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+/TBL1++ ETCS L1 between Antwerp North – Lier	90	152,2	2000		For DB Netz: Border – Aachen West : gradient does apply – you need a pusher loco	B
Infrabel	Antwerpen - Montzen/AachenWest		X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+/TBL1++ ETCS L1 between Antwerp North – Lier	90	145,2	1800		For DB Netz: Border – Aachen West : gradient does apply – you need a pusher loco	B
Infrabel	Antwerpen - Montzen/AachenWest		X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+/TBL1++ ETCS L1 between Antwerp North – Lier	90	145,5	2000		For DB Netz: Border – Aachen West : gradient does apply – you need a pusher loco	B
Infrabel	Antwerpen - Montzen/AachenWest	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+/TBL1++ ETCS L1 between Antwerp North – Lier	90	145,5	2150		For DB Netz: Border – Aachen West : gradient does apply – you need a pusher loco	B
DB Netz	Aachen West - Montzen	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	5-10	upon request	P/C 410 (P/C 80)	PZB	100	5	1: 1210t 2: 3770t (E-Tfz DB- 185)			

3.2.3. Parking locations & capacity

NL-DE-2: Kijfhoek – Venlo / Kaldenkirchen – Viersen

Country	Location	Number of tracks	Maximum train length	Restrictions
Netherlands	Kijfhoek	>10	max train length 740 meters	
Netherlands	Venlo	6	1 track max train length 690 meters	parking limitations for dangerous goods
			others < 690 meters	
Germany	Viersen	2	1x612m, 1x700m	sometimes head making for directions Oberhausen
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifeltor, Köln Ehrenfeld, Köln Kalk, etc.

NL-DE-3: Kijfhoek – Oldenzaal / Bad Bentheim – Rheine

Country	Location	Number of tracks	Maximum train length	Restrictions
Netherlands	Amersfoort	3	Appr. 700 meters	
Germany	Bad Bentheim	no parking places	track for short stop (max 20 minutes)	length limitations of 690 meter, because of stop at border

NL-BE-DE-1: Kijfhoek – Roosendaal / Essen – Montzen – Aachen West

Country	Location	Number of tracks	Maximum train length	Restrictions
Netherlands	Kijfhoek	>10	max train length 740 meters	
Belgium	Essen	1	max 650 meters	crowded
Belgium	Antwerp North	appr. 10	max 700 meters	
Belgium	Antwerp Schijnpoort	3	max 776 meters	
Belgium	Hasselt	3	max 750 meters	
Belgium	Montzen	7	max 796 meters	
Germany	Aachen West	5	~700m	
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifeltor, Köln Ehrenfeld, Köln Kalk, etc.

3.2.4. Restrictions

Each re-routing option has specific restrictions:

NL-DE-2: Kijfhoek – Venlo / Kaldenkirchen – Viersen

- The route between Kaldenkirchen and Viersen is a single track, capacity restrictions can occur.
- For destinations to the north trains must change direction in Viersen.

NL-DE-3: Kijfhoek – Oldenzaal / Bad Bentheim – Rheine

- Trains which run via Kijfhoek – Elst – Deventer – Oldenzaal must change direction in Deventer.
- Trains which run via Kijfhoek – Woerden – Amersfoort – Deventer – Oldenzaal do not have to change direction.
- Train length is normally 590 m, but longer trains could run with the consent of DB Netz. ProRail takes care of the coordination with DB Netz.

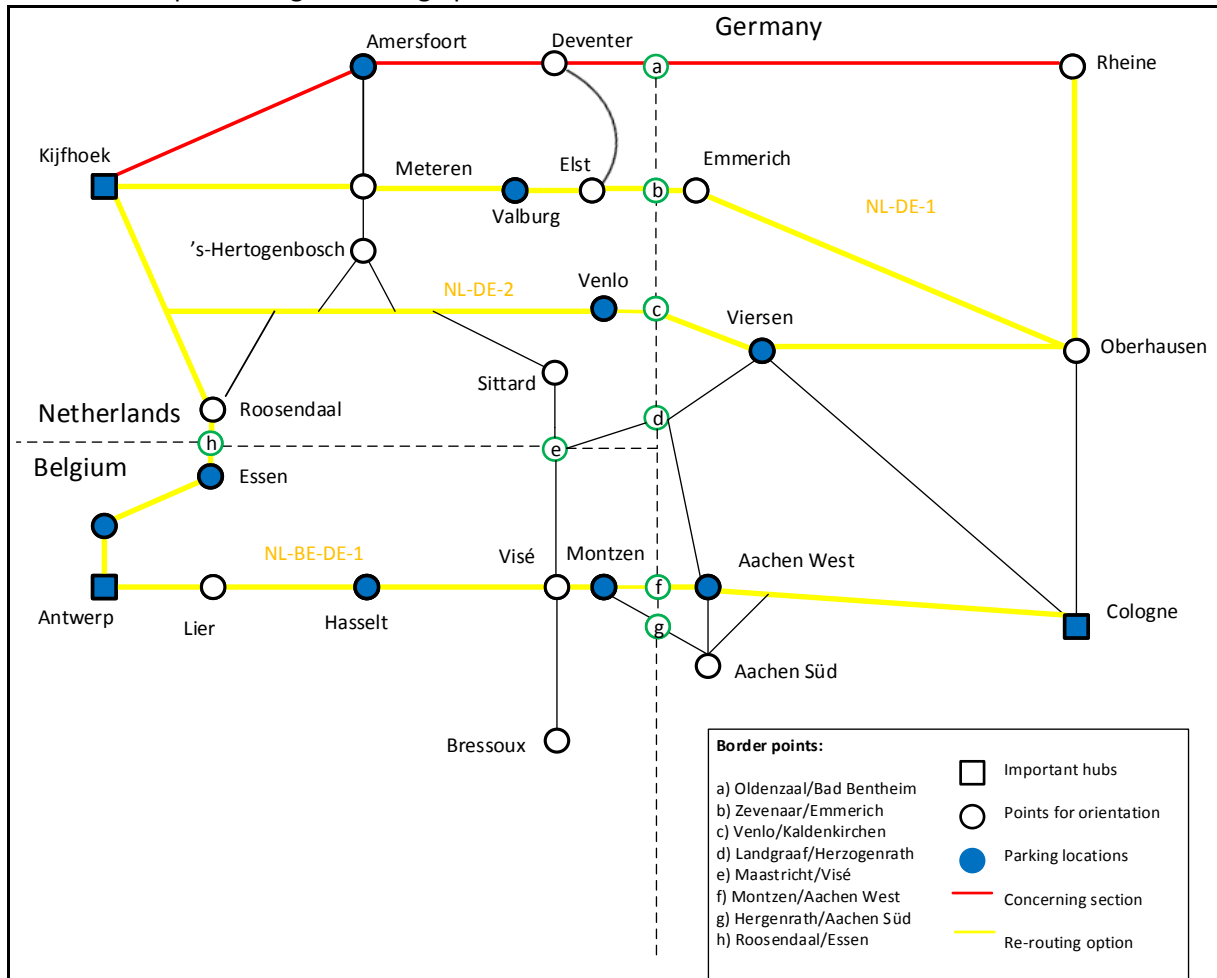
NL-BE-DE-1: Kijfhoek – Roosendaal / Essen– Montzen – Aachen-West

- On this route there are no major infrastructure restrictions.

3.3. Re-routing scenario for section Kijfhoek – Oldenzaal / Bad Bentheim – Rheine

3.3.1. General description

Schematic map including re-routing options



When this route is blocked the re-routing options are:

Section ID	Usability	Route
NL-DE-1	A	Kijfhoek – Zevenaar / Emmerich - Oberhausen
NL-DE-2	B	Kijfhoek – Venlo / Kaldenkirchen – Viersen
NL-BE-DE-1	B	Kijfhoek – Roosendaal / Essen - Montzen - Aachen West

3.3.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication	
		Pass	Frei															
Blocked section: Kijfhoek – Oldenzaal / Bad Bentheim – Rheine																		
ProRail	Kijfhoek - Amersfoort	x	x	/	1.5 kV DC	740	D4	2	N/A	G2	P/C80/410	ATB EG	100	123,8	2100-2400	/	via Bkl, Dvd, Hvs, Am f	B
ProRail	Amersfoort - Deventer	x	x	/	1.5 kV DC	740	D4	2	N/A	G2	P/C80/410	ATB EG	100	58,3	2100-2400	/	/	B
ProRail	Deventer - Oldenzaal border	x	x	/	1.5 kV DC	740 / 590	D4	2	N/A	G2	P/C80/410	ATB EG	100	68,6	2100-2400	/	590 on German side	B
DB Netz	Rheine - Bad Bentheim border	x	x	E	AC 15 kV 16,7Hz	600m	D4	min. 2	N/A	upon request	P/C410 (P/C 80)	PZB	160	30	1: 3460t 2: 2770t (6-7t DB-185)	/	/	/
Kijfhoek – Zevenaar / Emmerich - Oberhausen																		
ProRail	Kijfhoek - Metelen	/	x	/	25 kV AC	740	E5	2	N/A	GC	P/C80/410	L2 -2.3.0d	100	49,7	2100-2400	/	weights to be checked	A
ProRail	Metelen - Zevenaar border	/	x	/	25 kV AC	740 / 690	D4	2	N/A	GC	P/C80/410	L2 -2.3.0d	100	63	2100-2400	/	690 on German side	A
DB Netz	Oberhausen - Emmerich border	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	N/A	upon request	P/C410 (P/C 80)	PZB	160	71	1: 2745t 2: 2350t (6-7t DB-185)	/	/	/
Kijfhoek – Venlo / Kaldenkirchen – Viersen																		
ProRail	Kijfhoek - Lage Zwaluwe	x	x	/	1.5 kV DC	740	D4	2	N/A	G2	P/C80/410	ATB EG	100	19,9	2100-2400	/	B*: high usage in regular traffic	B*
ProRail	Lage Zwaluwe - Breda	x	x	/	1.5 kV DC	740	D4	2	N/A	G2	P/C80/410	ATB EG	100	14,2	2100-2400	/	B*: high usage in regular traffic	B*
ProRail	Breda - Eindhoven	x	x	/	1.5 kV DC	740	D4	2	N/A	G2	P/C80/410	ATB EG	100	58,9	2100-2400	/	B*: high usage in regular traffic	B*
ProRail	Eindhoven - Venlo border	x	x	/	1.5 kV DC	650	D4	2	N/A	G2	P/C80/410	ATB EG	100	54,8	2100-2400	/	B*: high usage in regular traffic	B*
DB Netz	Kaldenkirchen border - Viersen	x	x	E	AC 15 kV 16,7Hz	650	D4	1	N/A	Upon request	P/C80/410	PZB	Up to 100	20	2340-2855	/	one-track between Kaldenkirchen-Dülken	/
Kijfhoek – Roosendaal / Essen - Montzen- Aachen West																		
ProRail	Kijfhoek - Lage Zwaluwe	x	x	/	1.5 kV DC	740	D4	2	N/A	G2	P/C80/410	ATB EG	100	19,9	2100-2400	/	B*: high usage in regular traffic	B*
ProRail	Lage Zwaluwe - Roosendaal	x	x	/	1.5 kV DC	740	D4	2	N/A	G2	P/C80/410	ATB EG	100	22,8	2100-2400	/	/	B
ProRail	Roosendaal - Roosendaal border	x	x	/	1.5 kV DC	740	D4	2	N/A	G2	P/C80/410	ATB EG / MEMOR	100	8,4	2100-2400	/	/	B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-P400	TBL1+	100	31,8	2470	/	/	B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-P400	TBL1+	100	31,8	2200	/	/	B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-P400	TBL1+	100	31,8	2470	/	/	B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-P400	TBL1+	100	31,8	2200	/	/	B
Infrabel	Antwerpen - Montzen/Aachen West border	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-P400	TBL1+/TBL1++ ETCS L1 between Antwerp North – Lier	90	152,2	2000	/	For DB Netz: Border – Aachen West: gradient does apply – you need a pusher loco	B
Infrabel	Antwerpen - Montzen/Aachen West border	/	X	class 66	3kv	740	D4	2	N/A	GB	PC70-P400	TBL1+/TBL1++ ETCS L1 between Antwerp North – Lier	90	145,2	1800	/	For DB Netz: Border – Aachen West: gradient does apply – you need a pusher loco	B
Infrabel	Antwerpen - Montzen/Aachen West border	/	X	traxx	3kv	740	D4	2	N/A	GB	PC70-P400	TBL1+/TBL1++ ETCS L1 between Antwerp North – Lier	90	145,5	2000	/	For DB Netz: Border – Aachen West: gradient does apply – you need a pusher loco	B
Infrabel	Antwerpen - Montzen/Aachen West border	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-P400	TBL1+/TBL1++ ETCS L1 between Antwerp North – Lier	90	145,5	2150	/	For DB Netz: Border – Aachen West: gradient does apply – you need a pusher loco	B
DB Netz	Aachen West border - Montzen	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	5-10	upon request	P/C410 (P/C 80)	PZB	100	5	1: 1210t 2: 3770t (6-7t DB- 185)	/	/	/

3.3.3. Parking locations & capacity

NL-DE-1: Kijfhoek – Zevenaar / Emmerich - Oberhausen

Country	Location	Number of tracks	Maximum train length	Restrictions
Netherlands	Kijfhoek	>10	max train length 740 meters	
Netherlands	Valburg	9	5 tracks max train length 740 meters	
			4 tracks < 740 m train length	
			others < 690 meters	
Germany	Oberhausen	10	~700m	
Germany	Emmerich	5	< 750 meters	only in direction of Netherlands, otherwise capacity limitations
Germany	Wesel	4	2x410m, 1x507m, 1x630m	
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifelt, Köln Ehrenfeld, Köln Kalk, etc.

NL-DE-2: Kijfhoek – Venlo / Kaldenkirchen – Viersen

Country	Location	Number of tracks	Maximum train length	Restrictions
Netherlands	Kijfhoek	>10	max train length 740 meters	
Netherlands	Venlo	6	1 track max train length 690 meters	parking limitations for dangerous goods
			others < 690 meters	
Germany	Viersen	2	1x612m, 1x700m	sometimes head making for directions Oberhausen
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifeltor, Köln Ehrenfeld, Köln Kalk, etc.

NL-BE-DE-1: Kijfhoek – Roosendaal / Essen - Montzen - Aachen West

Country	Location	Number of tracks	Maximum train length	Restrictions
Netherlands	Kijfhoek	>10	max train length 740 meters	
Belgium	Essen	1	max 650 meters	crowded
Belgium	Antwerp North	appr. 10	max 700 meters	
Belgium	Antwerp Schijnpoort	3	max 776 meters	
Belgium	Hasselt	3	max 750 meters	
Belgium	Montzen	7	max 796 meters	
Germany	Aachen West	5	~700m	
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifeltor, Köln Ehrenfeld, Köln Kalk, etc.

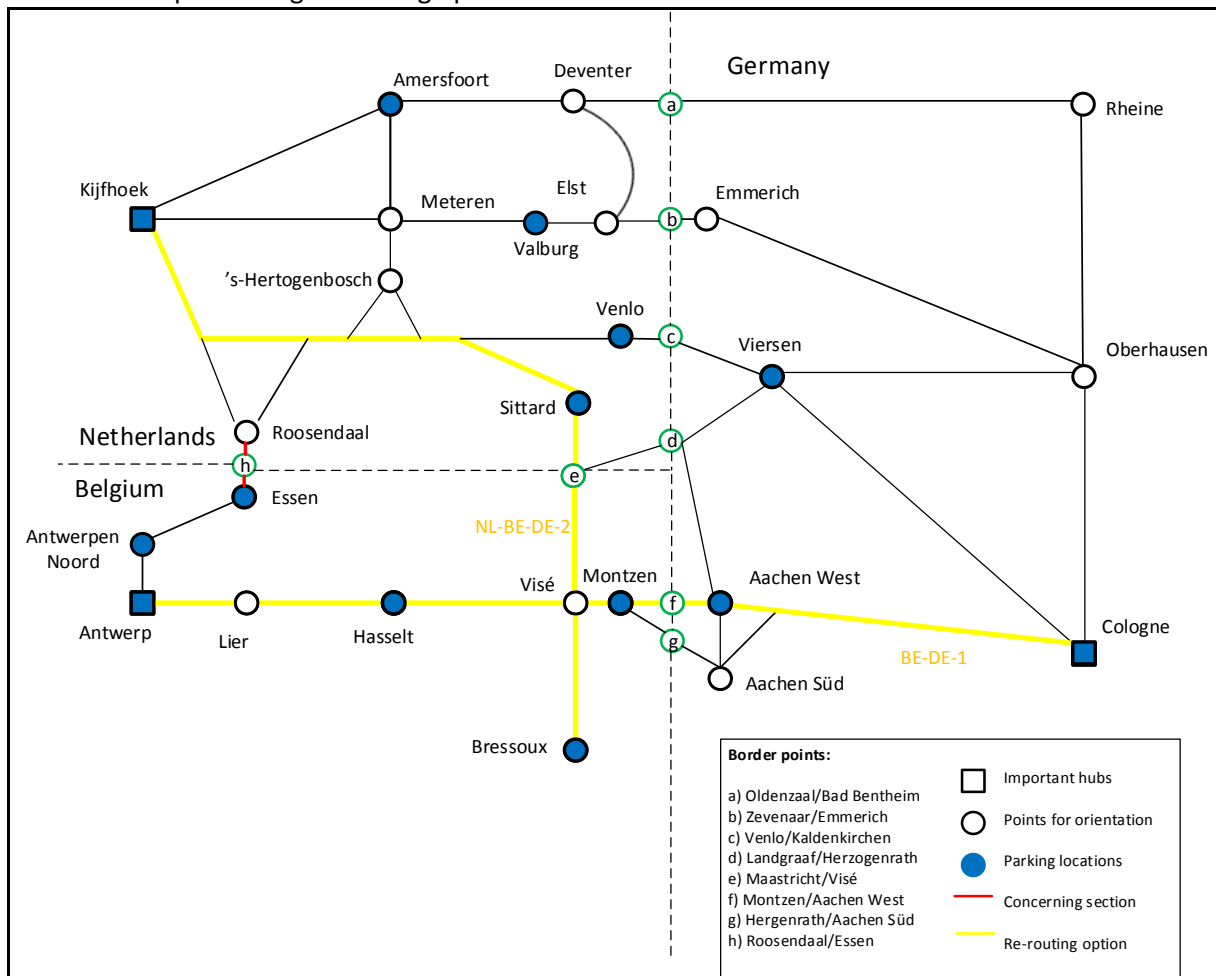
3.3.4. **Restrictions**

No specific restrictions on these lines.

3.4. Re-routing scenario for section Roosendaal – Essen

3.4.1. General description

Schematic map including re-routing options.



When this route is blocked the re-routing options are:

Section ID	Usability	Route
NL-BE-DE-2	C	Kijfhoek – Roermond – Maastricht / Visé – Bressoux – Aachen West
BE-DE-1	B	Antwerp – Montzen – Aachen West

3.4.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication	
		Pass	Frei															
Blocked section: Roosendaal - Essen																		
ProRail	Kijfhoek-Lage Zwaluwe	x	x	✓	1.5kVDC	740	D4	2	N/A	G2	P/C 80/410	ATBEG	100	19,9	2100-2400	✓	B*: high usage in regional traffic	B*
ProRail	Lage Zwaluwe - Roosendaal	x	x	✓	1.5kVDC	740	D4	2	N/A	G2	P/C 80/410	ATBEG	100	22,8	2100-2400	✓	✓	B
ProRail	Roosendaal - Roosendaal border	x	x	✓	1.5kVDC	740	D4	2	N/A	G2	P/C 80/410	ATBEG / MEMOR	100	8,4	2100-2400	✓	✓	B
Infrabel	Roosendaal/Essex border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470	✓	✓	B
Infrabel	Roosendaal/Essex border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200	✓	✓	B
Infrabel	Roosendaal/Essex border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470	✓	✓	B
Infrabel	Roosendaal/Essex border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200	✓	✓	B
Kijfhoek – Roermond – Maastricht / Visé – Bressoux – Aachen West																		
ProRail	Kijfhoek-Lage Zwaluwe	x	x	✓	1.5kVDC	740	D4	2	N/A	G2	P/C 80/410	ATBEG	100	19,9	2100-2400	✓	B*: high usage in regional traffic	B*
ProRail	Lage Zwaluwe - Breda	x	x	✓	1.5kVDC	740	D4	2	N/A	G2	P/C 80/410	ATBEG	100	14,2	2100-2400	✓	B*: high usage in regional traffic	B*
ProRail	Breda - Eindhoven	x	x	✓	1.5kVDC	740	D4	2	N/A	G2	P/C 80/410	ATBEG	100	58,9	2100-2400	✓	B*: high usage in regional traffic	B*
ProRail	Eindhoven - Eijsden border	x	x	✓	1.5kVDC	630	D4	2	N/A	G2	P/C 80/410	ATBEG	100	110	2100-2400	✓	✓	B
Infrabel	Visé - Bressoux - Montzen/ Aachen West border: S/N	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	56	2020	Visé - Montzen / Aachen West	✓	C
Infrabel	Visé - Bressoux - Montzen/ Aachen West border: S/N	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	56	2300	Visé - Montzen / Aachen West	✓	C
Infrabel	Visé - Bressoux - Montzen/ Aachen West border: N/S	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	56	2000	Visé - Montzen / Aachen West	✓	C
Infrabel	Visé - Bressoux - Montzen/ Aachen West border: N/S	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	56	1800	Visé - Montzen / Aachen West	✓	C
DB Netz	Aachen West border - Montzen	x	x	E	AC 15 kV 16,7 Hz	740m	D4	min. 2	5-10	upon request	P/C 410 (P/C 80)	PZB	100	5	1: 1210t 2: 3770t (E-Tfr DB-185)	✓	✓	✓
Antwerp – Montzen - Aachen West																		
Infrabel	Antwerpen - Montzen/Aachen West border	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+/TBL1++ETCS L1 between Antwerp North-Lier	90	152,2	2000	✓	For DB Netz: Border – Aachen West: gradient does apply – you need a pusher loco	B
Infrabel	Antwerpen - Montzen/Aachen West border	✓	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+/TBL1++ETCS L1 between Antwerp North-Lier	90	145,2	1800	✓	For DB Netz: Border – Aachen West: gradient does apply – you need a pusher loco	B
Infrabel	Antwerpen - Montzen/Aachen West border	✓	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+/TBL1++ETCS L1 between Antwerp North-Lier	90	145,5	2000	✓	For DB Netz: Border – Aachen West: gradient does apply – you need a pusher loco	B
Infrabel	Antwerpen - Montzen/Aachen West border	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+/TBL1++ETCS L1 between Antwerp North-Lier	90	145,5	2150	✓	For DB Netz: Border – Aachen West: gradient does apply – you need a pusher loco	B
DB Netz	Aachen West border - Montzen	x	x	E	AC 15 kV 16,7 Hz	740m	D4	min. 2	5-10	upon request	P/C 410 (P/C 80)	PZB	100	5	1: 1210t 2: 3770t (E-Tfr DB-185)	✓	✓	✓

3.4.3. Parking locations & capacity

NL-BE-DE-2: Kijfhoek – Roermond – Maastricht / Visé – Bressoux – Aachen West

Country	Location	Number of tracks	Maximum train length	Restrictions
Netherlands	Kijfhoek	>10	max train length 740 meters	
Netherlands	Sittard	4	max train length 590 - 690 m	
Belgium	Bressoux	7	min 650 - max 850 m	2 tracks necessary for head making
Belgium	Montzen	7	max 796 meters	
Germany	Aachen West	5	>700m	
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifeltor, Köln Ehrenfeld, Köln Kalk, etc.

BE-DE-1: Antwerp – Montzen - Aachen West

Country	Location	Number of tracks	Maximum train length	Restrictions
Belgium	Antwerp North	appr. 10	max 700 meters	
Belgium	Antwerp Schijnpoort	3	max 776 meters	
Belgium	Hasselt	3	max 750 meters	
Belgium	Montzen	7	max 796 meters	
Germany	Aachen West	5	>700m	
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifeltor, Köln Ehrenfeld, Köln Kalk, etc.

3.4.4. Restrictions

Each re-routing option has specific restrictions:

NL-BE-DE-2: Kijfhoek – Roermond – Maastricht / Visé – Bressoux – Aachen West

- Profile limitations: PC30-PC352 between Bressoux and Visé.
- The trains must change directions in Bressoux.
- Language: on parts of the route (to Montzen) the train driver must be able to speak French.

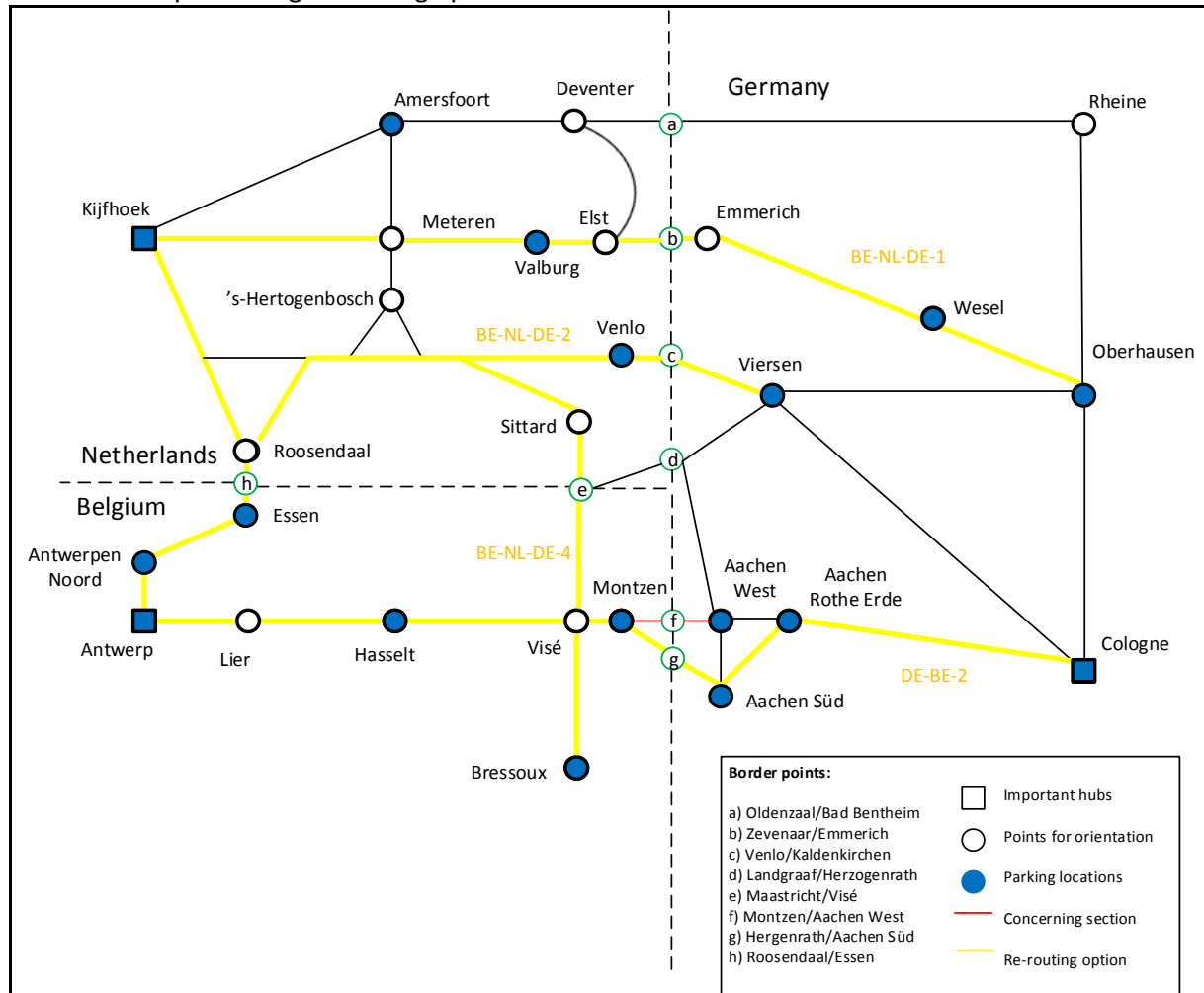
BE-DE-1: Antwerp – Montzen - Aachen West

- There are no major restrictions on this route.

3.5. Re-routing scenario for section Aachen West - Montzen

3.5.1. General description

Schematic map including re-routing options



When this route is blocked the re-routing options are:

Section ID	Usability	Route
BE-NL-DE-2	B	Antwerp – Essen / Roosendaal– Venlo / Kaldenkirchen– Viersen
BE-NL-DE-1	A	Antwerp – Kijfhoek – Zevenaar / Emmerich – Oberhausen
DE-BE-2	C	Aachen Rothe Erde - Aachen Süd – Hergenrath - Montzen -Antwerp (If incident between Montzen and Aachen West)
BE-NL-DE-4	C	Antwerp – Essen / Roosendaal– Maastricht / Visé – Bressoux – Aachen West (If incident between Antwerp and Hasselt)

3.5.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication
		Pass	Frei														
Blocked section: Aachen West - Montzen																	
Infrabel	Aachen West border - Montzen: S/N: via Welkenraedt - Visé - Glons - Hasselt	X	X	traxx	3kv	740	D4	2	N/A	GA	PC30-PC352	TBL1+ (+ ETCS L1 between Chaudfontaine and Y. Aguesse)	90	110,5	1900	via hergenrath-Fr	B
Infrabel	Aachen West border - Montzen: S/N: via Welkenraedt - Visé - Glons - Hasselt	X	X	class 66	3kv	740	D4	2	N/A	GA	PC30-PC352	TBL1+ (+ ETCS L1 between Chaudfontaine and Y. Aguesse	90	110,5	2000	via hergenrath-Fr	B
Infrabel	Aachen West border- Montzen: N/S: via Hasselt - Y Glons - Visé - Welkenraedt	X	X	traxx	3kv	740	D4	2	N/A	GA	PC30-PC352	TBL1+ (+ ETCS L1 between Chaudfontaine and Y. Aguesse	90	110,5	1800	via hergenrath-Fr	B
Infrabel	Aachen West border- Montzen: N/S: via Hasselt - Y Glons - Visé - Welkenraedt	X	X	class 66	3kv	740	D4	2	N/A	GA	PC70-PC400	TBL1+ (+ ETCS L1 between Chaudfontaine and Y. Aguesse	90	110,5	1800	via hergenrath-Fr	B
Infrabel	Aachen West border - Montzen: S/N: via Welkenraedt - L39 - Montzen - Hasselt	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	82	1800	via hergenrath-Fr	C
Infrabel	Aachen West border- Montzen: S/N: via Welkenraedt - L39 - Montzen - Hasselt	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	82	1200	via hergenrath-Fr	C
Infrabel	Aachen West border - Montzen: N/S: via Hasselt - Montzen - L39 - Welkenraedt	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	82	1580	via hergenrath-Fr	C
Infrabel	Aachen West border - Montzen: N/S: via Hasselt - Montzen - L39 - Welkenraedt	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	82	1800	via hergenrath-Fr	C
DB Netz	Aachen West border - Montzen	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	5-10	upon request	P/C 410 (P/C 80)	P2B	100	5	1: 1210t 2: 3770t (E-Tfr DB-185)		
Antwerp – Essen/Roosendaal – Venlo / Kaldenkirchen– Viersen																	
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470		B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200		B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470		B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200		B
ProRail	Roosendaal - Roosendaal border	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG / MEMOR	100	8,4	2100-2400		B
ProRail	Breda - Roosendaal	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	22,4	2100-2400		B
ProRail	Breda - Eindhoven	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	58,9	2100-2400	B*: high usage in regural traffic	B*
ProRail	Eindhoven - Venlo border	x	x		1.5 kV DC	650	D4	2	N/A	G2	P/C 80/410	ATB EG	100	54,8	2100-2400	B*: high usage in regural traffic	B*
DB Netz	Kaldenkirchen border - Viersen	x	x	E	AC 15 kV 16,7Hz	650	D4	1	N/A	Upon request	P/C 80/410	P2B	Up to 100	20	2340-2855	one-Track between Kaldenkirchen-Dülken	
Antwerp – Kijfhoek – Zevenaar / Emmerich – Oberhausen																	
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470		B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200		B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470		B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200		B
ProRail	Roosendaal - Roosendaal border	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG / MEMOR	100	8,4	2100-2400		B
ProRail	Lage Zwaluwe - Roosendaal	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	22,8	2100-2400		B
ProRail	Kijfhoek - Lage Zwaluwe	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	19,9	2100-2400	B*: high usage in regural traffic	B*
ProRail	Kijfhoek - Meteren		x		25 kV AC	740	E5	2	N/A	GC	P/C 80/410	L2 - 2.3.0d	100	49,7	2100-2400	weights to be checked	A
ProRail	Meteren - Zevenaar border		x		25 kV AC	740 / 690	D4	2	N/A	GC	P/C 80/410	L2 - 2.3.0d	100	63	2100-2400	690 on German side	A
DB Netz	Oberhausen - Emmerich border	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	P2B	160	71	1: 2745t 2: 2350t (E-Tfr DB-185)		

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication
		Pass	Frei														
Aachen Rothe Erde - Aachen Süd – Hergenrath - Montzen -Antwerp (If incident between Montzen and Aachen West)																	
DB Netz	Aachen West border - Montzen	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	5-10	upon request	P/C 410 (P/C 80)	P2B	100	5	1: 1210t 2: 3770t (E-Tfz DB-185)		
DB Netz	Aachen West - Aachen Süd- Border	x	x	E	AC 15 kV 16,7Hz	400m (E- Traction) / 650m (Diesel)	D4	min. 2	N/A	upon request	P/C 400 (P/C 70)	P2B	100	10	1: 835t 2: 1580t (E- Tfz DB-185)		
Infrabel	Hergenrath/AachenSüd - Roosendaal/Essen border: S/N	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	188	1800	Roosendaal/Essen - Hergenrath	C
Infrabel	Hergenrath/AachenSüd - Roosendaal/Essen border: S/N	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	188	1200	Roosendaal/Essen - Hergenrath	C
Infrabel	Hergenrath/AachenSüd - Roosendaal/Essen border: N/S	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	188	1580	Roosendaal/Essen - Hergenrath	C
Infrabel	Hergenrath/AachenSüd - Roosendaal/Essen border: N/S	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	188	1800	Roosendaal/Essen - Hergenrath	C
Antwerp – Essen / Roosendaal – Maastricht / Visé – Bressoux – Aachen West (If incident between Antwerp and Hasselt)																	
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470		B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200		B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2470		B
Infrabel	Roosendaal/Essen border - Antwerpen	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	100	31,8	2200		B
ProRail	Roosendaal - Roosendaal border	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG / MEMOR	100	8,4	2100-2400		B
ProRail	Breda - Roosendaal	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	22,4	2100-2400		B
ProRail	Breda - Eindhoven	x	x		1.5 kV DC	740	D4	2	N/A	G2	P/C 80/410	ATB EG	100	58,9	2100-2400	B*: high usage in regural traffic	B*
ProRail	Eindhoven - Eijsden border	x	x		1.5 kV DC	630	D4	2	N/A	G2	P/C 80/410	ATB EG	100	110	2100-2400		B
Infrabel	Visé - Bressoux - Montzen / Aachen West border: S/N	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	56	2020	Visé - Montzen / Aachen West	C
Infrabel	Visé - Bressoux - Montzen / Aachen West border: S/N	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	56	2300	Visé - Montzen / Aachen West	C
Infrabel	Visé - Bressoux - Montzen / Aachen West border: N/S	X	X	traxx	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	56	2000	Visé - Montzen / Aachen West	C
Infrabel	Visé - Bressoux - Montzen / Aachen West border: N/S	X	X	class 66	3kv	740	D4	2	N/A	GB	PC70-PC400	TBL1+	90	56	1800	Visé - Montzen / Aachen West	C

3.5.3. Parking locations & capacity

BE-NL-DE-2: Antwerp – Essen/Roosendaal - Venlo / Kaldenkirchen – Viersen

Country	Location	Number of tracks	Maximum train length	Restrictions
Belgium	Antwerp North	appr. 10	max 700 meters	
Belgium	Antwerp Schijnpoort	3	max 776 meters	
Belgium	Essen	1	max 650 meters	crowded
Netherlands	Roosendaal	1	max train length 740 meters	
Netherlands	Roosendaal	3	max train length < 600 meters	
Netherlands	Venlo	6	1 track max train length 690 meters	parking limitations for dangerous goods
			others < 690 meters	
Germany	Viersen	2	1x612m, 1x700m	sometimes head making for directions Oberhausen
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifeltor, Köln Ehrenfeld, Köln Kalk, etc.)

BE-NL-DE 4: Antwerp –Essen / Roosendaal – Maastricht / Visé – Bressoux – Aachen West

Country	Location	Number of tracks	Maximum train length	Restrictions
Belgium	Antwerp North	appr. 10	max 700 meters	
Belgium	Antwerp Schijnpoort	3	max 776 meters	
Belgium	Essen	1	max 650 meters	crowded
Netherlands	Roosendaal	1	max train length 740 meters	
Netherlands	Roosendaal	3	max train length < 600 meters	
Netherlands	Sittard	4	max train length 590 - 690 meters	
Belgium	Bressoux	7	min 650 - max 850 m	2 tracks necessary for head making
Belgium	Montzen	7	max 796 meters	
Germany	Aachen West	5	>700m	
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifeltor, Köln Ehrenfeld, Köln Kalk, etc.)

DE-BE 2: Aachen Rothe Erde - Aachen Süd – Hergenrath - Montzen – Antwerp

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifeltor, Köln Ehrenfeld, Köln Kalk, etc.
Belgium	Hasselt	3	max 750 meters	
Belgium	Montzen	7	max 796 meters	
Belgium	Antwerp North	appr. 10	max 700 meters	
Belgium	Antwerp Schijnpoort	3	max 776 meters	

BE-NL-DE 1: Antwerp - Kijfhoek – Zevenaar / Emmerich – Oberhausen

Country	Location	Number of tracks	Maximum train length	Restrictions
Belgium	Antwerp North	appr. 10	max 700 meters	
Belgium	Antwerp Schijnpoort	3	max 776 meters	
Belgium	Essen	1	max 650 meters	crowded
Netherlands	Roosendaal	1	max train length 740 meters	
Netherlands	Roosendaal	3	max train length < 600 meters	
Netherlands	Kijfhoek	>10	max train length 740 meters	
Netherlands	Valburg	9	5 tracks max train length 740 meters	
			4 tracks < 740 m train length	
			others < 690 meters	
Germany	Oberhausen	10	~700m	
Germany	Emmerich	5	< 750 meters	only in direction of Netherlands, otherwise capacity limitations
Germany	Wesel	4	2x410m, 1x507m, 1x630m	
Germany	Cologne	many tracks		various locations, depending on directions (Köln Gremberg, Köln Eifelt, Köln Ehrenfeld, Köln Kalk, etc.

3.5.4. Restrictions

Each re-routing option can have specific restrictions:

BE-NL-DE-2: Antwerp – Essen/Roosendaal – Venlo / Kaldenkirchen – Viersen

- The route between Kaldenkirchen and Viersen is a single track, capacity restrictions can occur.
- For destinations to the north trains must change direction in Viersen.

BE-NL-DE 4: Antwerp – Essen / Roosendaal– Maastricht / Visé – Bressoux – Aachen West

- Profile limitations: PC30-PC352 between Bressoux and Visé.
- The trains must change directions in Bressoux.

- Language: on parts of the route (to Montzen) the train driver must be able to speak French.

DE-BE 2: Aachen Rothe Erde - Aachen Süd – Hergenrath - Montzen – Antwerp (If incident between Montzen and Aachen West)

- Capacity limitations Aachen Süd, just 1 train per hour during night (between 22.00 – 5.00 hours).
- Max length for E-traction in Aachen Hbf 650m (system changing)
- Profile limitations (Belgium, Hergenrath): PC30 – PC 352.

BE-NL-DE 1: Antwerp - Kijfhoek – Zevenaar / Emmerich – Oberhausen

- No specific restrictions on this line.

4 Eastern part of RFC NS-B

4.1. Overview re-routing options eastern part

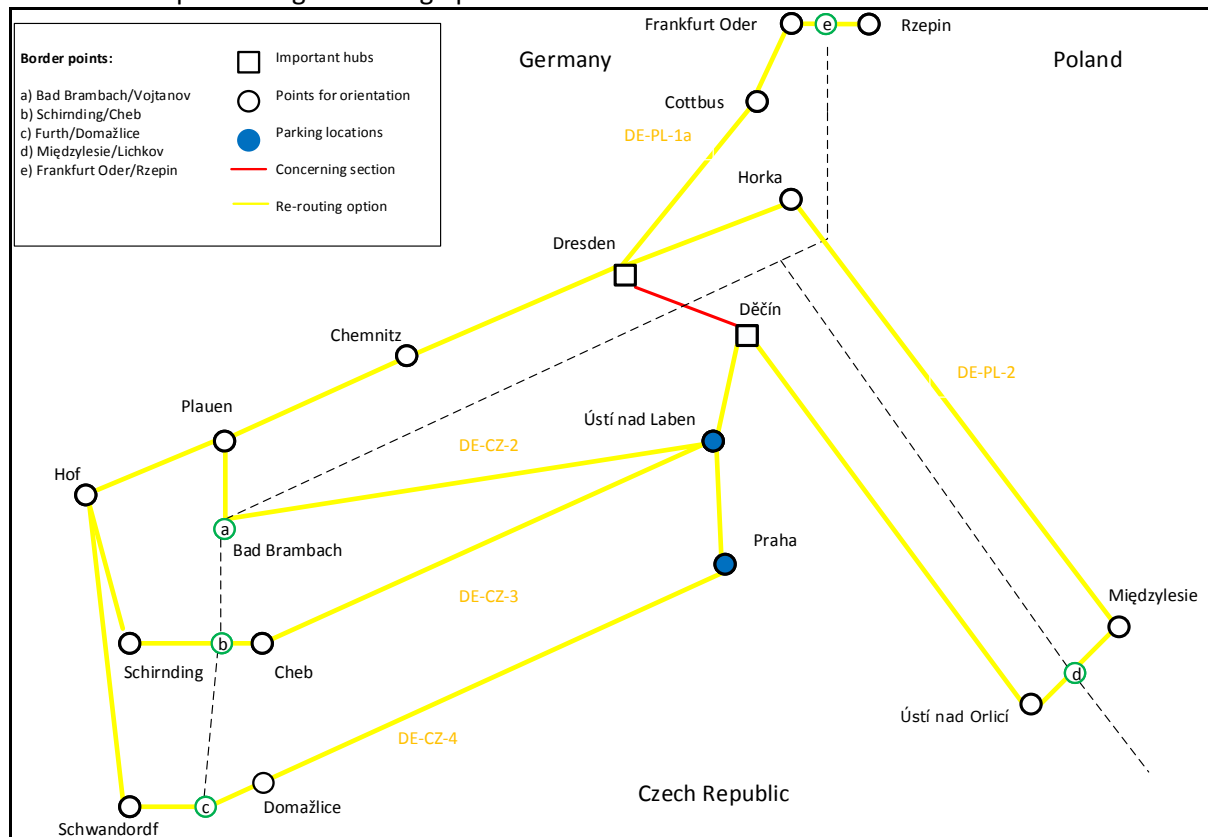
The following sections with limited re-routing options are defined for the eastern part of RFC NS-B. Some re-routing options can be used for various sections.

Critical route	Route
DE-CZ-1	Dresden - Děčín
DE-PL-2	Horka - Węgliniec
DE-PL-1	Frankfurt (Oder) – Rzepin
PL-LT-1	Trakiszki – Mockava
PL-BY-1	Terespol – Brest
PL-1	Poznań- Zduńska Wola - Warszawa
DE-1	Bremen - Bremerhafen
DE-2	Braunschweig - Magdeburg
DE-12	Hannover - Minden
DE-11	Berlin – Frankfurt (Oder) Pbf
SE-DK-DE-1	Maschen – Hamburg

4.2. Re-routing scenario for section Dresden - Děčín

4.2.1. General description

Schematic map including re-routing options



When the route Dresden - Děčín is blocked re-routing options are:

Section ID	Usability	Route
DE-CZ-2		Dresden - Chemnitz - Plauen - Bad Brambach – Ústí nad Labem
DE-CZ-3		Dresden - Chemnitz - Plauen - Hof – Schirnding – Cheb - Ústí nad Labem
DE-CZ-4		Dresden - Chemnitz - Plauen - Hof - Schwandorf- Furth i.W. - Domažlice - Praha
DE-PL-2		Dresden – Horka – Międzyzlesie – Ústí nad Orlicí
DE-PL-1a		Dresden - Cottbus - Frankfurt (Oder) - Rzepin

4.2.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication	
		Pass	Frei															
Blocked section: Dresden - Děčín																		
SZCZ	Bad Schandau Border/Dolní Žleb - Děčín	x	x	E	DC 3 kV	650	D4	2	2	GC	P/C 80 / 410	LS	120	11	CZ 383/386: 3000t	GE	0	0
DB Netz	Dresden - Bad Schandau border	x	x	E	AC 15 kV 16,7Hz	640m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	100	51	1: 3245t 2: 3720t (E-Tr – DB 185)			
Dresden - Chemnitz - Plauen - Bad Brambach – Ústí nad Labem																		
DB Netz	Dresden - Chemnitz - Plauen - Bad Brambach border	x	x	V	-	610m	CM4	1	N/A	upon request	P/C 400 (P/C 70)	PZB	100	224	1: 595t 2: 915t (V-Tr – DB232/233)	Bad Brambach - Vojtanov		
SZCZ	Bad Brambach / Vojtanov border - SZDC Vojtanov - Ústí nad Labem - Děčín	x	x		Bad Brambach - Vojtanov D; Vojtanov - Kadaň-Prunéřov (excluding)25 kV 50 Hz, Kadaň-Prunéřov (including)- Ústí nad Labem 3 kV	600	D3	Bad Brambach - Tršnice 1; Tršnice - Ústí nad Labem 2	13	GC	78/402	LS	120	240´	DB 232/233: T 1020 t, S 900 t	Bad Brambach		good
Dresden - Chemnitz - Plauen - Hof – Schirnding – Cheb - Ústí nad Labem																		
DB Netz	Dresden - Chemnitz - Plauen - Hof - Schirnding border	x	x	V	-	640m	D4	1	N/A	upon request	P/C 390 (P/C 60)	PZB	100	279	1: 595t 2: 915t (V-Tr – DB232/233)	Schirnding - Cheb		
SZCZ	Schirnding /SZDC Cheb border - Ústí nad Labem - Děčín	x	x		Cheb - Kadaň-Prunéřov (excluding)25 kV 50 Hz, Kadaň-Prunéřov (including)- Ústí nad Labem 3 kV	615	D4	2	13	GC	78/402	LS	120	180´	DB193/CZ 383: T4 1600 t, S 1300 t, U 1100 t	Cheb		good
Dresden - Chemnitz - Plauen - Hof - Schandorf- Furth i.W. - Domazlice Praha																		
DB Netz	Dresden - Chemnitz - Plauen - Hof - Schwandorf - Furth i.W. border	x	x	V	-	580m	D4	1	N/A	upon request	P/C 410 (P/C 80)	PZB	100	432	1: 595t 2: 915t (V-Tr – DB232/233)	Furth i.W. - Česká Kubice		
SZCZ	Schwandorf - Furth im Wald / SZDC Domažlice border - Praha	x	x		Furth im Wald - Plzeň D; Plzeň - Beroun (excluding)25 kV 50 Hz, Beroun (including)- Praha 3 kV	536	C3	Furth im Wald - Plzeň 1; Plzeň - Praha 2	11	GCZ3	78/402	LS	140	360´	CZ 753.7: T 800 t, S 750 t, U 650 t	Furth im Wald		depends on time
Dresden – Horka – Międzyzlesie – Ústí nad Orlicí																		
DB Netz	Dresden – Horka border	x	x	E	AC 15 kV 16,7Hz	740m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	120	232	1: 1960t 2: 2370t (E-Tr – DB 185)	Horka - Węgliniec		
SZCZ	Horka - Wrocław - Międzyzlesie -SZDC Lichkov - Ústí nad Orlicí	x	x		3 kV	563	D4	1	12	GC	78/402	-	100	90´	DB193/CZ 383: T4 1300 t, S 1050 t, U 900 t	Międzyzlesie		depends on time
Dresden - Cottbus - Frankfurt (Oder) - Rzepin																		
DB Netz	Dresden - Cottbus - Frankfurt (Oder)	x	x	E	AC 15 kV 16,7Hz	623m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	100	197	1: 1800t 2: 1795t (E-Tr – DB 185)	Frankfurt (Oder) - Rzepin		
PKP PLK	Frankfurt Oder - Rzepin	x	x	E	DC 3 kV	680	D3	2	upon request	upon request	N/A	SHP	40-100	17				

4.2.3. Parking locations & capacity

DE-CZ-2: Dresden - Chemnitz - Plauen - Bad Brambach – Ústí nad Labem

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	10 trains		
	Dresden-Friedrichstadt	2	max. 550m	
	Dresden- Niedersedlitz	1	max. 550m	
	Pirna	3	max. 630m	
	Kurort Rathen	1	680m	
	Bad Schandau	2	max. 680m	
	Bad Schandau Ost	1	580m	
Czech Rep.	Ústí nad Labem	5	641 m	
	Nymburk	3	522 m	

DE-CZ-3: Dresden - Chemnitz - Plauen - Hof – Schirnding – Cheb - Ústí nad Labem

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	10 trains		
	Dresden-Friedrichstadt	2	max. 550m	
	Dresden-Niedersedlitz	1	max. 550m	
	Pirna	3	max. 630m	
	Kurort Rathen	1	680m	
Czech Rep.	Sokolov	2	513 m	
	Nové Sedlo u Lokte	2	513 m	
	Chomutov	2	513 m	
	Most	2	641 m	
	Ústí nad Labem	5	641 m	
	Nymburk	3	522 m	

DE-CZ-4: Dresden - Chemnitz - Plauen - Hof - Schwandorf- Furth i.W. - Domažlice - Praha

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	10 trains		
	Dresden-Friedrichstadt	2	max. 550m	
	Dresden-Niedersedlitz	1		
	Pirna	3	max. 630m	
	Kurort Rathen	1	680m	
Czech Rep.	Plzeň	3	536 m	
	Praha	5	645 m	

DE-PL-2: Dresden – Horka – Międzylesie – Ústí nad Orlicí

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	10 trains		
	Dresden-Friedrichstadt	2	max. 550m	
	Dresden-Niedersedlitz	1	max. 550m	
	Pirna	3	max. 630m	
	Kurort Rathen	1	680m	

DE-PL-1a: Dresden - Cottbus - Frankfurt (Oder)- Rzepin

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	10 trains		
	Dresden-Friedrichstadt	2	max. 550m	
	Dresden-Niedersedlitz	1		
	Pirna	3	max. 630m	
	Kurort Rathen	1	680m	
Poland	No specific parking locations are indicated on Polish network; parking locations will be decided on ad hoc basis in case of incident.			

4.2.4. Restrictions

Each re-routing option can have specific restrictions:

DE-CZ-3: Dresden - Chemnitz - Plauen - Hof – Schirnding – Cheb - Ústí nad Labem /

DE-CZ-2: Dresden - Chemnitz - Plauen - Bad Brambach – Ústí nad Labem

- On the route between Cheb – Františkovy Lázně – Vojtanov, Tršnice – Františkovy Lázně – Aš and Tršnice – Luby u Chebu restriction in Dangerous Objects' Transport. According to the Government Decree no. 152/1992 Coll., On Protective Zones of Natural Curative Springs of Spa Location Františkovy Lázně, carriage of substances that could have a negative impact on natural curative springs by vehicles is prohibited in line sections Cheb – Františkovy Lázně – Vojtanov, Tršnice – Františkovy Lázně – Aš and Tršnice – Luby u Chebu.
- Further no specific restrictions.

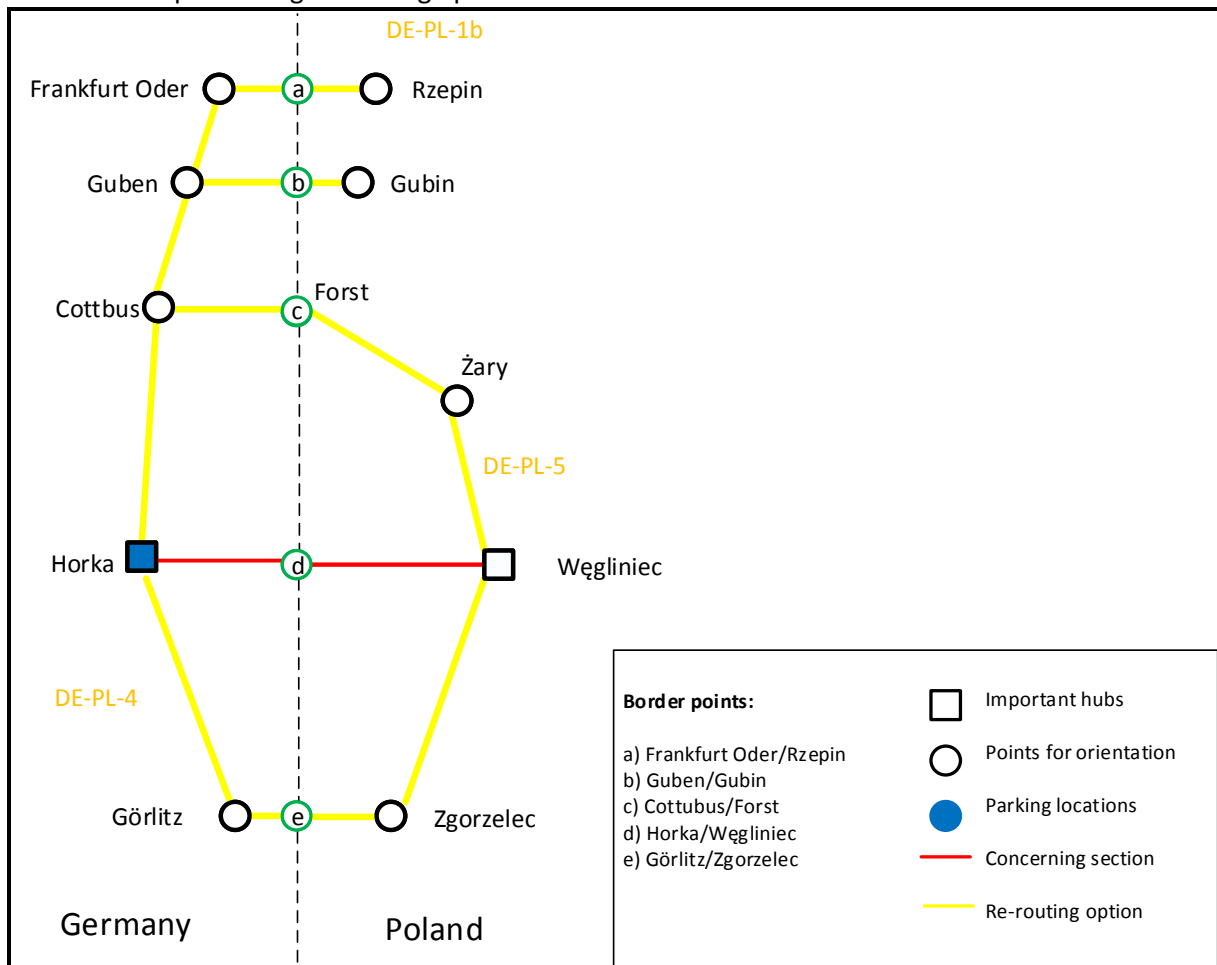
DE-PL-1a: Dresden - Cottbus - Frankfurt (Oder)- Rzepin

No specific (other) restrictions given. See for the infrastructure characteristics the table above.

4.3. Re-routing scenario for section Horka - Węgliniec

4.3.1. General description

Schematic map including re-routing options



When the route Horka - Węgliniec is blocked re-routing options are:

Section ID	Usability	Route
DE-PL-3		Horka - Cottbus – Guben - Gubin
DE-PL-4		Horka - Görlitz – Zgorzelec – Węgliniec
DE-PL-1b		Horka - Frankfurt (Oder) – Rzepin
DE-PL-5		Horka – Cottbus – Forst – Żary – Węgliniec

4.3.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication
		Pass	Frei														
Blocked section: Horka - Wegliniec																	
DB Netz	Horka - Wegliniec GE border	x	x	E	AC 15 kV 16,7Hz	740m	D4	2	N/A	upon request	P/C 410 (P/C 80)	P2B	120	8	1:2410t 2: 3200t (E-Tfz DB - 185)		
PKP PLK	Horka - Wegliniec PL border	x	x	E	DC 3 kV	740	C3, D3	1, 2	upon request	upon request	N/A	SHP	70-120	15			
Horka - Cottbus - Guben - Gubin - Czerwieńsk - Wrocław																	
DB Netz	Horka - Cottbus - Guben border	x	x	V	-	620m	D4	2	N/A	upon request	P/C 410 (P/C 80)	P2B	120	155	1:1970t 2: 2250t (V-Tfz – DB 232/233)	Guben - Gubin	
PKP PLK	Gubin - Czerwieńsk	x	x	v	non electrified	620	C3	1	upon request	upon request	N/A	SHP	40-70	52		yes	
PKP PLK	Czerwieńsk - Wrocław	x	x	E	DC 3 kV	610	C3, D3	2	upon request	upon request	N/A	SHP	40-120	165			
Horka - Görlitz – Zgorzelec – Wegliniec																	
DB Netz	Horka - Görlitz/Zgorzelec border	x	x	V	-	600m	D4	1	N/A	upon request	P/C 410 (P/C 80)	P2B	100	25	1:1890t 2: 1970t (V-Tfz – DB 232/233)	Görlitz - Zgorzelec	
PKP PLK	Zgorzelec Border Point - Zgorzelec	x	x	E	DC 3 kV	600	D3	1, 2	upon request	upon request	N/A	SHP	40	1		yes	
PKP PLK	Zgorzelec - Wegliniec PL border	x	x	v	non electrified	750	D3	1, 2	upon request	upon request	N/A	SHP	60-80	29		yes	
Horka - Frankfurt (Oder) – Rzepin																	
DB Netz	Horka - Frankfurt (Oder)	x	x	E	AC 15 kV 16,7Hz	623m	D4	2	N/A	upon request	P/C 410 (P/C 80)	P2B	100	204	1:2480t 2: 2380t (E-Tfz – DB 185)	change direction	
DB Netz	Frankfurt (Oder) - Frankfurt (Oder) Border	x	x	E	AC 15 kV 16,7Hz	625m	D4	2	N/A	upon request	P/C 410 (P/C 80)	P2B	100	4	1:1795t 2: 1800t (E-Tfz DB-185)		
PKP PLK	Frankfurt Oder - Rzepin	x	x	E	DC 3 kV	680	D3	2	upon request	upon request	N/A	SHP	40-100	17			
Horka - Cottbus - Forst - Żagań - Wegliniec																	
DB Netz	Horka - Cottbus	x	x	E	AC 15 kV 16,7Hz	686m	D4	2	N/A	upon request	P/C 410 (P/C 80)	P2B	120	113	1:2320t 2: 2380t (E-Tfz DB-185)		
DB Netz	Cottbus - Forst	x	x	V	-	640m	D4	1	N/A	upon request	P/C 410 (P/C 80)	P2B	120	22	1:3060t 2: 3360t (V-Tfz DB - 232/233)	Forst (Lausitz) - Tuplice	
PKP PLK	Forst - Żagań - Wegliniec	x	x	V	non electrified	630	C3	1	upon request	upon request	N/A	SHP	30-80	76			

4.3.3. Parking locations & capacity

DE-PL-3: Horka - Cottbus – Guben - Gubin

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	5		
	Horka Gbf	2	740 m	
	Knappenrode	1	740m	
	Hoyerswerda	2	670m	
Poland	No specific parking locations are indicated on Polish network; parking locations will be decided on ad hoc basis in case of incident.			

DE-PL-4: Horka - Görlitz – Zgorzelec – Węgliniec

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	5		
	Horka Gbf	2	740 m	
	Knappenrode	1	740m	
	Hoyerswerda	2	670m	
Poland	No specific parking locations are indicated on Polish network; parking locations will be decided on ad hoc basis in case of incident.			

DE-PL-1b: Horka - Frankfurt (Oder) – Rzepin

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	5		
	Horka Gbf	2	740 m	
	Knappenrode	1	740m	
	Hoyerswerda	2	670m	
Poland	No specific parking locations are indicated on Polish network; parking locations will be decided on ad hoc basis in case of incident.			

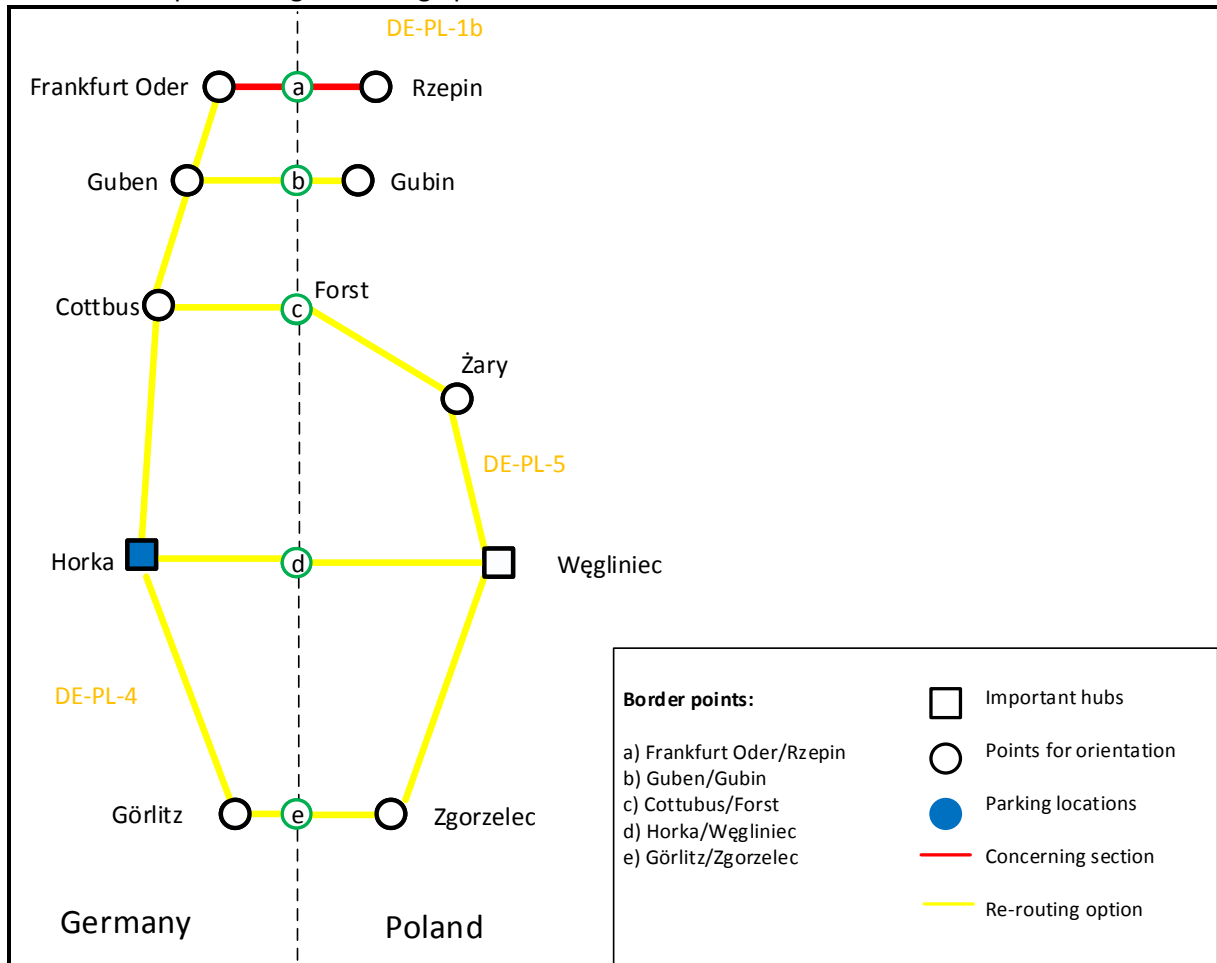
4.3.4. Restrictions

No specific (other) restrictions given. See for the infrastructure characteristics the table above.

4.4. Re-routing scenario for section Frankfurt (Oder) – Rzepin

4.4.1. General description

Schematic map including re-routing options



When the route Frankfurt (Oder) – Rzepin is blocked re-routing options are:

Section ID	Usability	Route
DE-PL-2		Horka – Węgliniec
DE-PL-3		Horka - Cottbus – Guben - Gubin
DE-PL-4		Horka - Görlitz – Zgorzelec – Węgliniec
DE-PL-5		Horka – Cottbus – Forst – Żary – Węgliniec

4.4.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication
		Pass	Frei														
Blocked section: Frankfurt (Oder) – Rzepin																	
DB Netz	Frankfurt (Oder) - Frankfurt (Oder) Border	x	x	E	AC 15 kV 16,7Hz	625m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	100	4	1: 4195t 2: 1795t (E-Tfz DB-185)		
PKP PLK	Frankfurt Oder - Rzepin	x	x	E	DC 3 kV	620	D3	2	upon request	upon request	N/A	SHP	40-100	17			
Horka – Węglińiec																	
DB Netz	Horka - Węglińiec GE border	x	x	E	AC 15 kV 16,7Hz	740	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	120	8	1: 3290t 2: 2690t (V-Tfz DB - 232/233)		
PKP PLK	Horka - Węglińiec PL border	x	x	E	DC 3 kV	750	C3, D3	1, 2	upon request	upon request	N/A	SHP	70-120	15			
Horka - Cottbus – Guben - Gubin																	
DB Netz	Horka - Cottbus - Guben	x	x	E	AC 15 kV 16,7Hz	686m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	120	155	1: 2535t 2: 2250t (V-Tfz DB - 232/233)		
PKP PLK	Gubin - Czerwieńsk	x	x	v	non electrified	620	C3	1	upon request	upon request	N/A	SHP	40-70	52		yes	
PKP PLK	Czerwieńsk - Wrocław	x	x	E	DC 3 kV	610	C3, D3	2	upon request	upon request	N/A	SHP	40-120	165			
Horka - Görlitz – Zgorzelec – Węglińiec																	
DB Netz	Horka - Görlitz/Zgorzelec border	x	x	V	-	700	D4	1	N/A	upon request	P/C 410 (P/C 80)	PZB	100	25	1: 2140t 2: 2480t (V-Tfz DB - 232/233)		
PKP PLK	Zgorzelec Border Point - Zgorzelec	x	x	E	DC 3 kV	600	D3	1, 2	upon request	upon request	N/A	SHP	40	1		yes	
PKP PLK	Zgorzelec - Węglińiec PL border	x	x	v	non electrified	750	D3	1, 2	upon request	upon request	N/A	SHP	60-80	29		yes	
Cottbus - Forst - Żagań																	
DB Netz	Cottbus - Forst	x	x	V	-	640	D4	1	N/A	upon request	P/C 410 (P/C 80)	PZB	120	22	1: 3060t 2: 3360t (V-Tfz DB - 232/233)		
PKP PLK	Forst - Żagań - Węglińiec	x	x	V	non electrified	630	C3	1	upon request	upon request	N/A	SHP	30-80	76			

4.4.3. Parking locations & capacity

DE-PL-2: Horka – Węglińiec

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	5		
	Horka Gbf	2	740 m	
	Knappenrode	1	740m	
	Hoyerswerda	2	670m	
Poland	No specific parking locations are indicated on Polish network; parking locations will be decided on ad hoc basis in case of incident.			

DE-PL-3: Horka - Cottbus – Guben - Gubin

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	5		
	Horka Gbf	2	740 m	
	Knappenrode	1	740m	
	Hoyerswerda	2	670m	
Poland	No specific parking locations are indicated on Polish network; parking locations will be decided on ad hoc basis in case of incident.			

DE-PL-4: Horka - Görlitz – Zgorzelec – Węglińiec

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Südost	5		
	Horka Gbf	2	740 m	
	Knappenrode	1	740m	
	Hoyerswerda	2	670m	
Poland	No specific parking locations are indicated on Polish network; parking locations will be decided on ad hoc basis in case of incident.			

4.4.4. Restrictions

No specific (other) restrictions given. See for the infrastructure characteristics the table above.

4.5. Re-routing scenario for section Trakiszki – Mockava

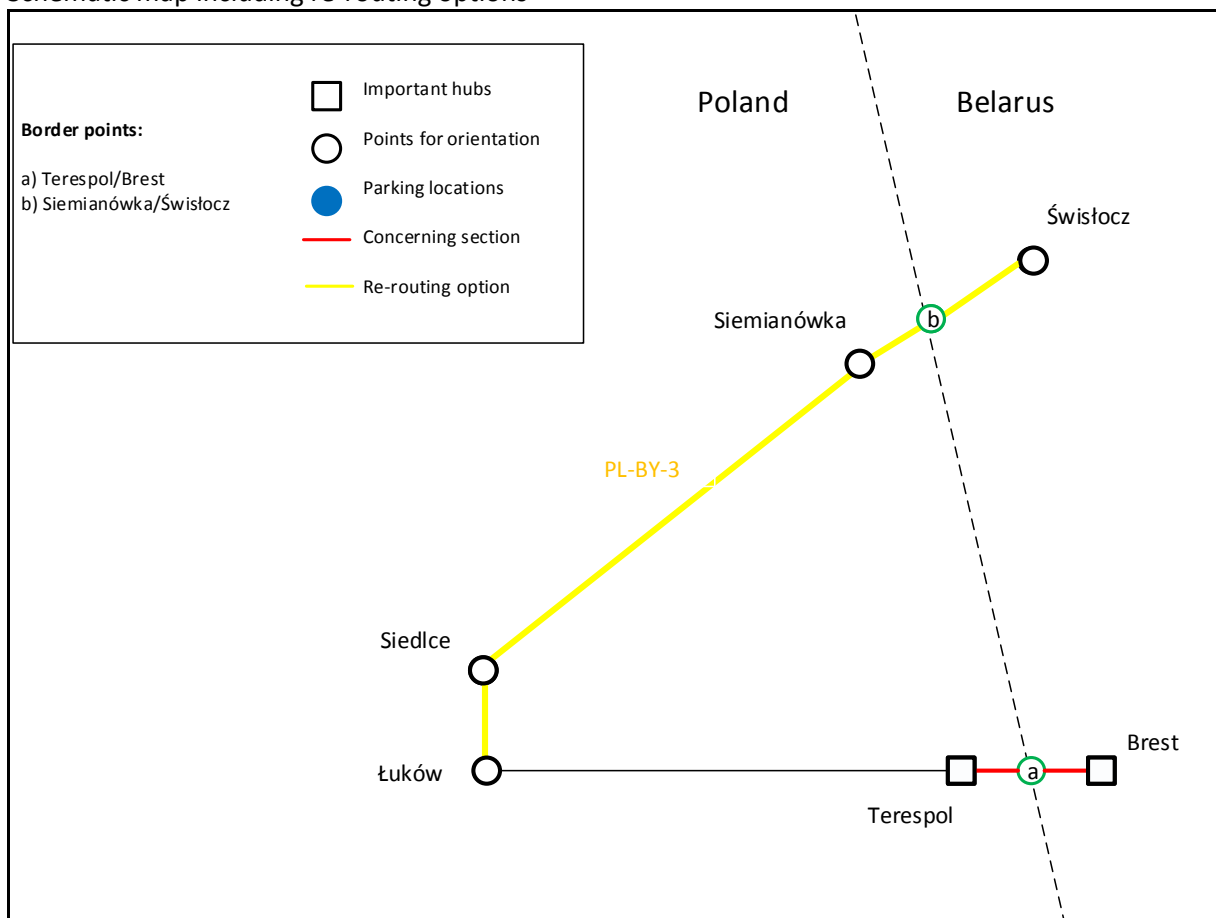
4.5.1. General description

The re-routing options run via Belarus or Russia. Because these countries are not part of the European Union and also not part of the RFC NS-B, no special agreements have been made to re-route trains in case of a disruption. Re-routing possibilities have to be agreed on, on ad-hoc basis.

4.6. Re-routing scenario for section Terespol – Brest

4.6.1. General description

Schematic map including re-routing options



When the route Terespol – Brest is blocked on of re-routing options is:

Section ID	Usability	Route
PL-BY-3	C	Łuków – Siedlce – Siemianówka – Świsłocz (Belarus)

This re-route options runs via Belarus. Because Belarus is not part of the European Union and also not part of the RFC NS-B, no special agreements has been made to re-route trains in case of a disruption. Re-route possibilities have to be agreed on, on ad-hoc bases.

4.6.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication	
		Pass	Frei															
Blocked section: Terespol – Brest																		
PKP	Łuków - Małaszewicze	x	x	E	DC 3 kV		D3	2	upon request	upon request		N/A	SHP	80-120	80			
Łuków – Siedlce – Siemiarówka – Świsłocz (Belarus)																		
PKP	Stoczek Łukowski - Dzielule - Siemianówka	x	x	E	DC 3 kV	650	D3	1,2	upon request	upon request		N/A	SHP	40-80	194			

4.6.3. Parking locations & capacity

PL-BY-3: Łuków – Siedlce – Siemianówka – Świsłocz (Belarus)

No specific parking locations are indicated on Polish network; parking locations will be decided on ad hoc basis in case of incident.

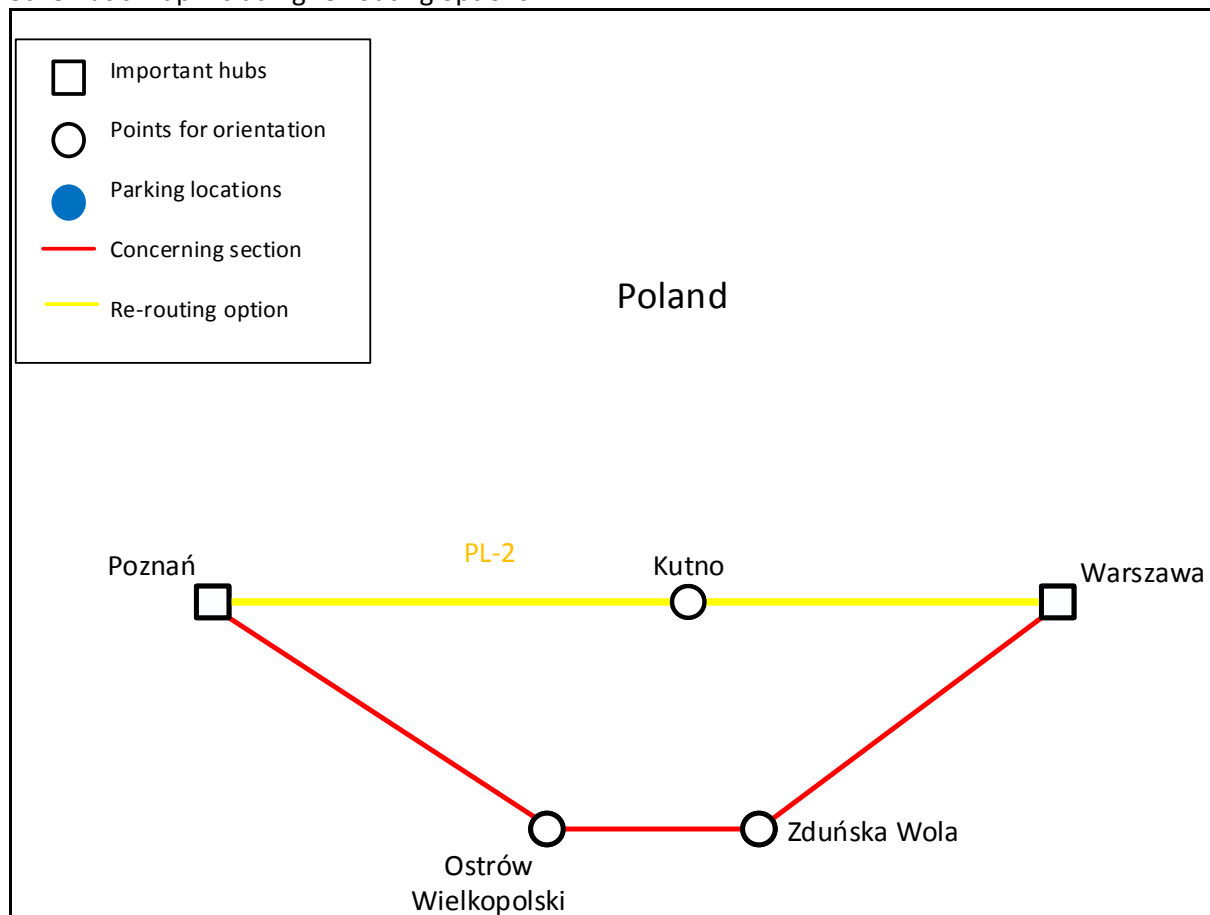
4.6.4. Restrictions

No specific (other) restrictions given. See for the infrastructure characteristics the table above.

4.7. Re-routing scenario for section Poznań- Zduńska Wola - Warszawa

4.7.1. General description

Schematic map including re-routing options



When the route Poznan – Zduńska Wola - Warszawa is blocked, a re-routing option is:

Section ID	Usability	Route
PL-2		Poznań – Kutno - Warszawa

4.7.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication
		Pass	Frei														
Blocked section: Poznan – Warszawa																	
PKP	Poznań- Zduńska Wola - Warszawa	x	x	E	DC 3 kV		C3, D3	2	upon request	upon request	N/A	SHP	40-120	376			
Poznan – Ostow – Zduńska Wola - Warszawa																	
PKP	Poznań- Kutno	x	x	E	DC 3 kV	600	D3	2	upon request	upon request	N/A	SHP	70-100	175			
PKP	Kutno - Warszawa	x	x	E	DC 3 kV	800	D3	2	upon request	upon request	N/A	SHP	40-100	125			

4.7.3. Parking locations & capacity

PL-2: Poznań – Kutno - Warszawa

No specific parking locations are indicated on Polish network; parking locations will be decided on ad hoc basis in case of incident.

4.7.4. Restrictions

Each re-routing option has specific restrictions:

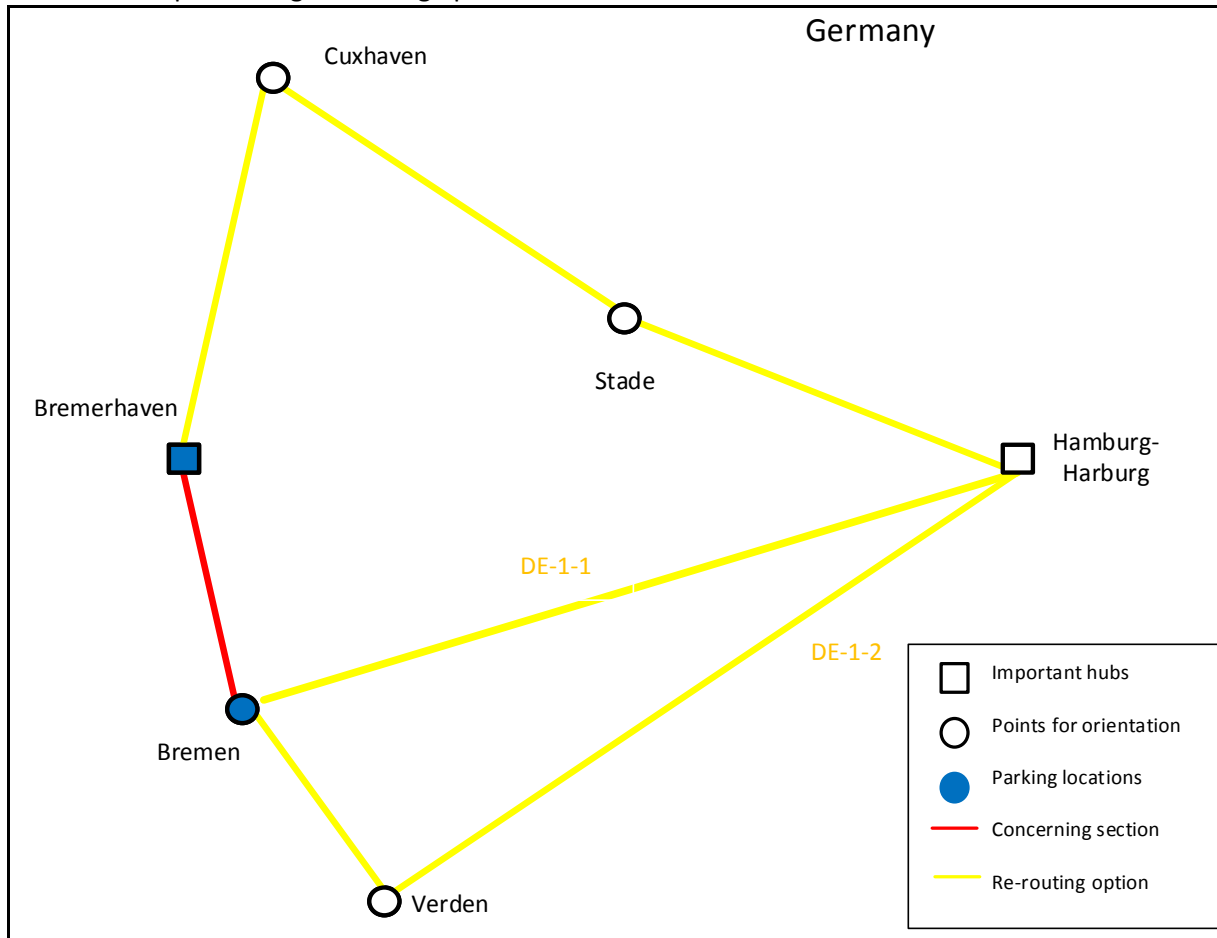
PL-2: Poznań – Kutno - Warszawa

- Limited capacity due to ongoing modernization.

4.8. Re-routing scenario for section Bremen - Bremerhaven

4.8.1. General description

Schematic map including re-routing options



When the route Bremen - Bremerhaven is blocked re-routing options are:

Section ID	Usability	Route
DE-1-1		Bremen - Hamburg-Harburg - Stade - Cuxhaven – Bremerhaven
DE-1-2		Verden - Hamburg-Harburg - Stade - Cuxhaven - Bremerhaven

4.8.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication
		Pass	Frei														
		Blocked section: Bremen - Bremerhafen															
DB Netz	Bremen-Bremerhaven	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	P2B	160	73	1: 3140t 2: 3210t (E-Tfz – DB 185)		
Bremen - Hamburg-Harburg - Cuxhaven – Bremerhaven																	
DB Netz	Bremen - Hamburg-Harburg - Cuxhaven - Bremerhaven	x	x	V	-	640m	CE	1	N/A	upon request	P/C 410 (P/C 80)	P2B	100	247	1: 2560t 2: 2100t (V-Tfz DB - 232/ 233)		
Verden - Hamburg-Harburg - Stade - Cuxhaven - Bremerhaven																	
DB Netz	Verden - Hamburg-Harburg - Stade - Cuxhaven - Bremerhaven	x	x	V	-	640m	CE	1	N/A	upon request	P/C 410 (P/C 80)	P2B	100	230	1: 2410t 2: 2100t (V-Tfz DB - 232/ 233)		

4.8.3. Parking locations & capacity

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	To north: -Osnabrück – Bremen:	-740m (Track 102 in Richtung Osnabrück und Track 101 in Richtung Bremen in Ostercappeln) -687m (Track 6 in Lembruch) -596m (Track 103 in Diepholz) -740m (Track 208 in Diepholz) -732m (Track 104 in Barnstorf) -740m in Richtung Osnabrück/ 516m in Richtung Bremen (Track 201 in Barnstorf (Han)) -701m (Track 103 in Drentwede) -672m (Track 210 in Bassum) -740m (Track 123 in Kirchweyhe)		
		-740m (Track 3 in Hagen (Han)) -730m (Track 1 in Nienburg (Weser)) -740m (Track 7 in Nienburg (Weser)) -707m (Track 5 in Rohrsen (Nienburg)) -740m (Track 3 in Dörverden) -740m (Track 13 in Verden) -740m (In Richtung Bremen Track 35 in Verden) -652m (Track 21 in Langwedel) -723m (Track 123 in Baden(Kr Verden)) -740m (Track 3 in Achim)		
	Bremen Rbf	2 trains	650m	
	Bremen-Burg	Track 6	740m	
	Stubben	Track 436	737m	
	Bremerhaven Wulsdorf	Track 3 Track 8	711m 509m	

4.8.4. Restrictions

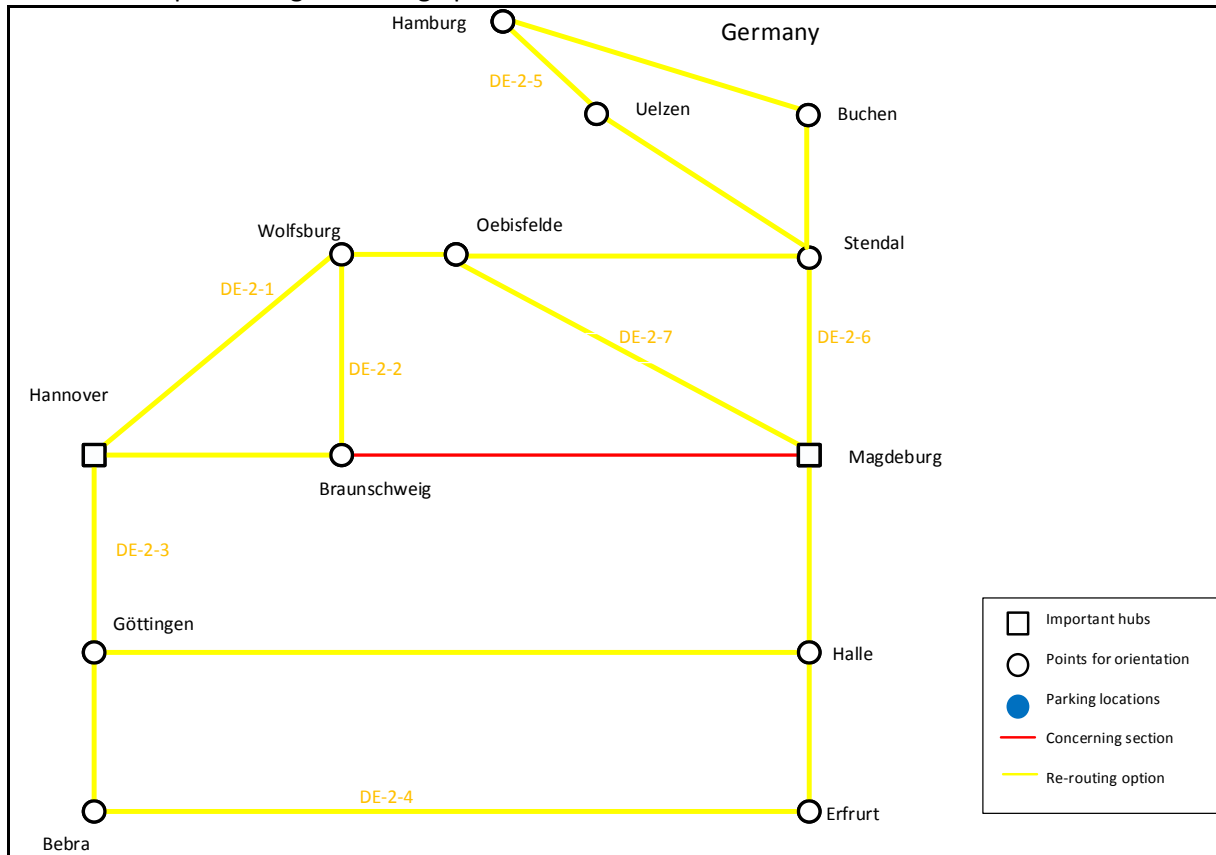
Restriction both re-routing options:

- Line Bremerhaven – Cuxhaven – Hamburg-Harburg only V-traction
- Change direction in Cuxhaven

4.9. Re-routing scenario for section Braunschweig - Magdeburg

4.9.1. General description

Schematic map including re-routing options



When the route Braunschweig - Magdeburg is blocked re-routing options are:

Section ID	Usability	Route
DE-2-1		Hannover – Wolfsburg – Stendal – Magdeburg
DE-2-2		Hannover – Braunschweig – Wolfsburg – Stendal – Magdeburg
DE-2-3		Hannover – Göttingen – Nordhausen – Halle – Köthen – Magdeburg
DE-2-4		Hannover – Göttingen – Bebra – Erfurt – Halle – Bitterfeld – Magdeburg
DE-2-5		(Hamburg –) Uelzen – Stendal – Magdeburg
DE-2-6		(Hamburg –) Wittenberge – Stendal – Magdeburg
DE-2-7		Braunschweig – Wolfsburg – Oebisfelde – Magdeburg

4.9.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication	
		Pass	Frei															
Blocked section: Braunschweig - Magdeburg																		
DB Netz	Braunschweig - Magdeburg	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	120	83	1:2505t 2: 2725t (E-Tfz – DB 185)			
Hannover – Wolfsburg – Stendal – Magdeburg																		
DB Netz	Hannover – Wolfsburg – Stendal – Magdeburg	x	x	E	AC 15 kV 16,7Hz	740m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB / LZB	160	208	1:2955t 2: 2025t (E-Tfz – DB 185)			
Hannover – Braunschweig – Wolfsburg – Stendal – Magdeburg																		
DB Netz	Hannover – Braunschweig – Wolfsburg – Stendal – Magdeburg	x	x	E	AC 15 kV 16,7Hz	740m	D4	2 partially 1	N/A	upon request	P/C 410 (P/C 80)	PZB / LZB	120	227	1:3080t 2: 2635t (E-Tfz – DB 185)			
Hannover – Göttingen – Nordhausen – Halle – Köthen – Magdeburg																		
DB Netz	Hannover – Göttingen – Nordhausen – Halle – Köthen – Magdeburg	x	x	E	AC 15 kV 16,7Hz	625m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	100	381	1:1570t 2: 1530t (E-Tfz – DB 185)			
Hannover – Göttingen – Bebra – Erfurt – Halle – Bitterfeld – Magdeburg																		
DB Netz	Hannover – Göttingen – Bebra – Erfurt – Halle – Bitterfeld – Magdeburg	x	x	E	AC 15 kV 16,7Hz	650m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	120	483	1:1570t 2: 1530t (E-Tfz – DB 185)			
(Hamburg –) Uelzen – Stendal – Magdeburg																		
DB Netz	(Hamburg –) Uelzen – Stendal – Magdeburg	x	x	E	AC 15 kV 16,7Hz	740m	D4	2 partially 1	N/A	upon request	P/C 410 (P/C 80)	PZB	120	238	1:2450t 2: 2765t (E-Tfz – DB 185)			
(Hamburg –) Wittenberge – Stendal - Magdeburg																		
DB Netz	(Hamburg –) Wittenberge – Stendal – Magdeburg	x	x	E	AC 15 kV 16,7Hz	740m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	120	280	1:3090t 2: 3290t (E-Tfz – DB 185)			
Braunschweig – Wolfsburg – Oebisfelde – Magdeburg																		
DB Netz	Braunschweig – Wolfsburg – Oebisfelde – Magdeburg	x	x	V	-	650m	D4	1	N/A	upon request	P/C 410 (P/C 80)	PZB	100	100	1:2500t 2: 2090t (V-Tfz DB 232/233)			

4.9.3. Parking locations & capacity

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	Nörten-Hardenberg	Track 55	740m	
	Kreiensen	Track 104 Track 105 Track 106	-740m -690m -688m	
	Alfeld (Leine))	Track 103 Track 111	-740m -583m	
	Banteln	Track 111	-676m	
	Hildesheim	Track 34 Track 35	-740m -503m	
	Groß Gleidingen	Track 4	-712m	
	Lehrte West	Track 303 Track 305	-680m -740m	
	Lehrte Nord	Track 218 Track 219	-585m -657m	
	Hämelerwald	Track 803	-740m	
	Richtung Braunschweig		-727m	
	Richtung Lehrte in Peine	Track 103	532m	
	Vechelde	Track 233	-740m	
	Helmstedt	Track 6	-723m	
	Schandelah	Track 4	-688m	
	Eilsleben Gbf	4 trains	670 – 740 m	

4.9.4. Restrictions

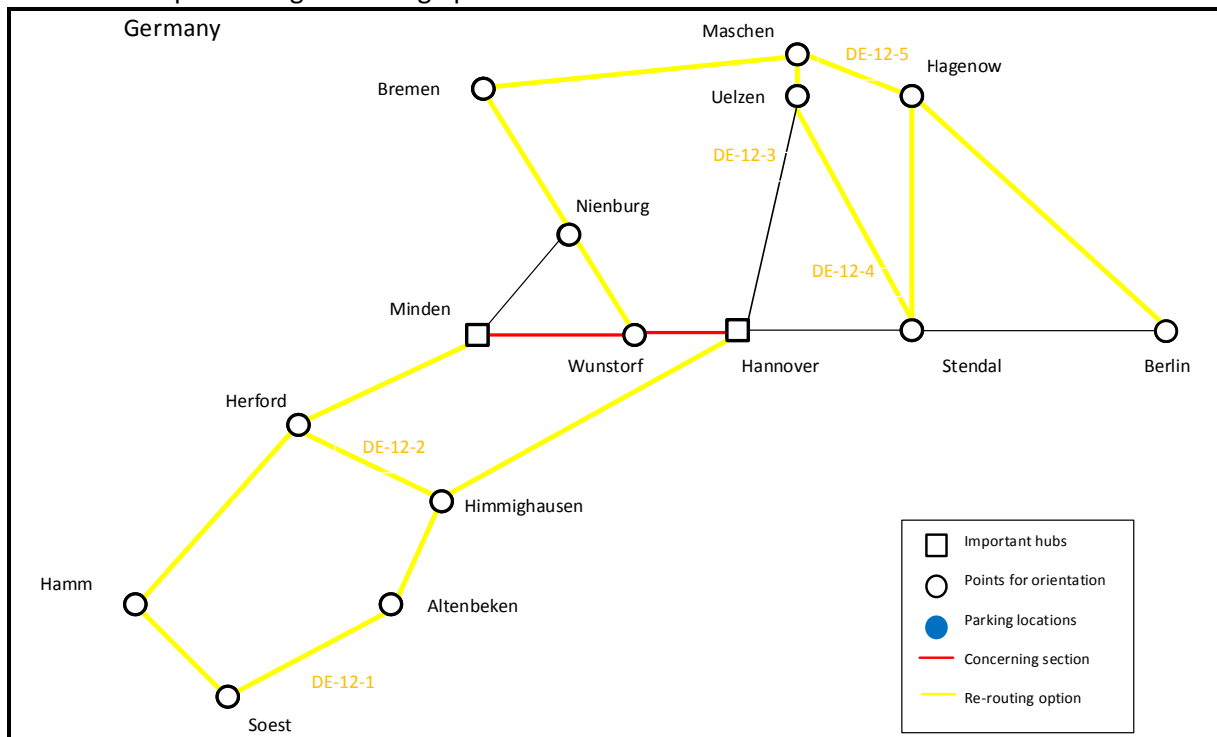
Restrictions DE-2-1 and DE-2-2:

- Low capacity freight trains during daytime
- Signalling system LZB is not requirement, but needed for smooth operation

4.10. Re-routing scenario for section Hannover - Minden

4.10.1. General description

Schematic map including re-routing options



When the route Hannover - Minden is blocked re-routing options are:

Section ID	Usability	Route
DE-12-1		Hannover – Himmighausen – Altenbeken – Soest – Hamm
DE-12-2		Hannover – Himmighausen – Herford – Minden - Nienburg
DE-12-3		Hannover – Uelzen – Maschen – Rotenburg – Bremen
DE-12-4		(Magdeburg –) Stendal –Uelzen –Maschen – Bremen
DE-12-5		Berlin / Stendal –Wittenberge – Hamburg – Maschen – Rotenburg – Bremen

4.10.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication
		Pass	Frei														
Blocked section: Hannover - Minden																	
DB Netz	Hannover - Minden	x	x	E	AC 15 kV 16,7Hz	740m	D4	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	120	64	1:3250t 2: 3140t (E- Tfr DB – 185)		
Hannover – Himmighausen – Altenbeken – Soest – Hamm																	
DB Netz	Hannover – Himmighausen – Altenbeken – Soest – Hamm	x	x	E	AC 15 kV 16,7Hz	740m	D4	2	N/A	upon request	P/C 400 (P/C 70)	PZB	100	208	1:1830t 2: 1820t (E- Tfr DB – 185)		
Hannover – Himmighausen – Herford – Minden – Nienburg																	
DB Netz	Hannover – Himmighausen – Herford – Minden - Nienburg	x	x	E	AC 15 kV 16,7Hz	520m	D4	2 partially 1	N/A	upon request	P/C 400 (P/C 70)	PZB	100	226	1:1830t 2: 1850t (E- Tfr DB – 185)		
Hannover – Uelzen – Maschen – Rotenburg – Bremen																	
DB Netz	Hannover – Uelzen – Maschen – Rotenburg – Bremen	x	x	E	AC 15 kV 16,7Hz	740m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	160	248	1:2750t 2: 2810t (E- Tfr DB – 185)		
(Magdeburg –) Stendal – Uelzen – Maschen – Bremen																	
DB Netz	(Magdeburg –) Stendal – Uelzen – Maschen – Bremen	x	x	E	AC 15 kV 16,7Hz	717m	D4	2 partially 1	N/A	upon request	P/C 410 (P/C 80)	PZB	120	335	1:2745t 2: 2450t (E- Tfr DB – 185)		
Berlin / Stendal – Wittenberge – Hamburg – Maschen – Rotenburg – Bremen																	
DB Netz	Berlin / Stendal – Wittenberge – Hamburg – Maschen – Rotenburg – Bremen	x	x	E	AC 15 kV 16,7Hz	740m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	120	334	1:2640t 2: 2815t (E- Tfr DB – 185)		

4.10.3. Parking locations & capacity

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	Haste	Track 4	740m	
	Rehren	Track 104 Track 101	736m 724m	
	Stadthagen	Track 4 Track 5	740m	
	Kirchhorsten	Track 4 Track 3	658m 682m	
	Bückebug	Track 4	678m	

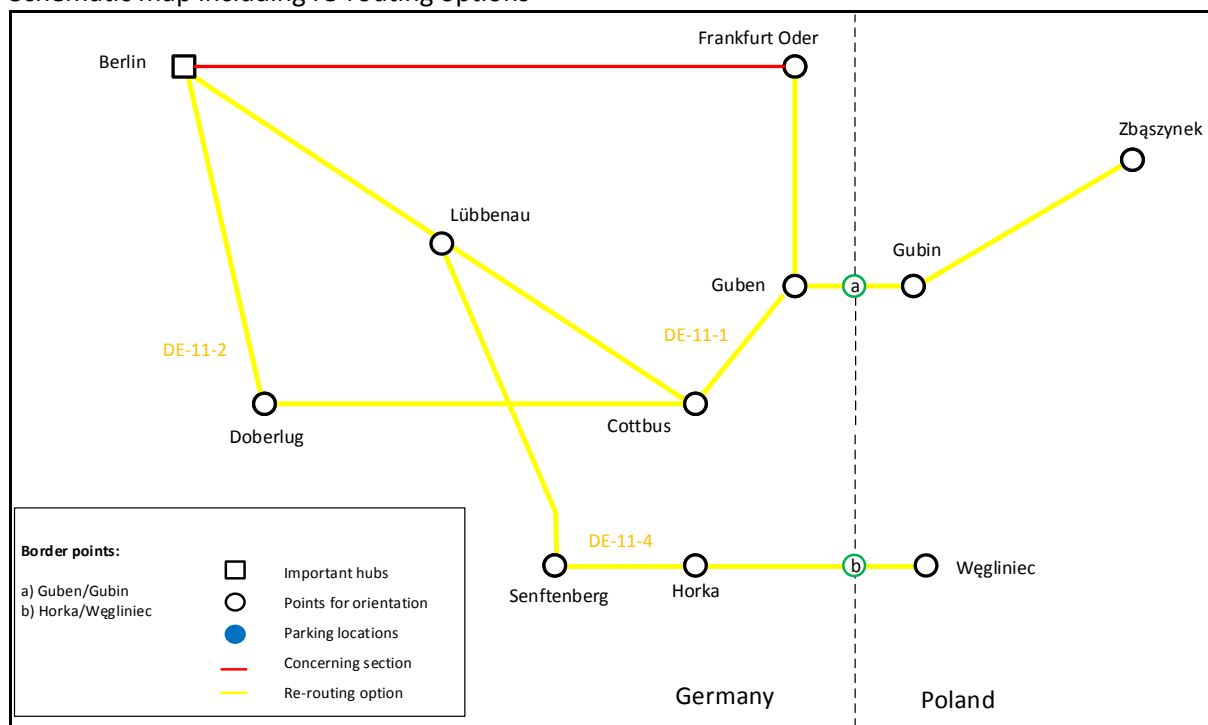
4.10.4. Restrictions

No specific (other) restrictions given. See for the infrastructure characteristics the table above.

4.11. Re-routing scenario for section Berlin – Frankfurt (Oder) Pbf

4.11.1. General description

Schematic map including re-routing options



When the route Berlin – Frankfurt (Oder) Pbf is blocked re-routing options are:

Section ID	Usability	Route
DE-11-1		Berlin – Lübbenau – Cottbus – Guben- Frankfurt (Oder)
DE-11-2		Berlin – Doberlug-Kirchhain – Cottbus – Guben – Gubin – Zbąszynek
DE-11-4		Berlin – Lübbenau – Calau – Senftenberg – Horka – Węglińiec

4.11.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length in m	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed in km/h	Length of re-routing option in km	Max. train weight	Other border	Miscellaneous	Capacity Indication	
		Pass	Frei															
Blocked section: Berlin – Frankfurt (Oder) Pbf																		
DB Netz	Berlin - Frankfurt (Oder)	x	x	E	AC 15 kV 16,7Hz	623m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	100	80	1: 2710t 2: 2435t (E- Tfr DB – 185)			
Berlin – Lübbenau – Cottbus – Guben – Frankfurt (Oder)																		
DB Netz	Berlin – Lübbenau – Cottbus – Guben- Frankfurt (Oder)	x	x	E	AC 15 kV 16,7Hz	592m	D4	2 partially 1	N/A	upon request	P/C 410 (P/C 80)	PZB	100	203	1: 2195t 2: 2815t (E- Tfr DB – 185)			
Berlin – Doberlug-Kirchhain – Cottbus – Guben – Gubin – Zbąszynek																		
DB Netz	Berlin – Doberlug-Kirchhain – Cottbus – Guben border	x	x	V	-	620m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	100	190	1: 1740t 2: 2250t (V-Tfr – DB 232/233)	Guben - Gubin		
PKP PLK	Gubin - Czerwieńsk - Zbąszynek	x	x	E/V	partly electrified	620	C3	1	upon request	upon request	N/A	SHP	60-70	93		yes		
Berlin – Lübbenau – Calau – Senftenberg – Horka – Węgliniec																		
DB Netz	Berlin – Lübbenau – Calau – Senftenberg – Horka border	x	x	E	AC 15 kV 16,7Hz	595m	D4	2	N/A	upon request	P/C 410 (P/C 80)	PZB	100	204	1: 2350t 2: 2480t (E-Tfr – DB 185)	Horka - Węgliniec		
PKP PLK	Horka - Węgliniec PL border	x	x	E	DC 3 kV	750	C3, D3	1, 2	upon request	upon request	N/A	SHP	70-120	15				

4.11.3. Parking locations & capacity

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	RB Ost	9		
	Berlin – Frankfurt/O => PKP	6		
	Pillgram	1	Track 23: 661 m	
	Briesen	1	Track 23: 732 m	
	Berkenbrück	2	Track 23+24: 671m	
	Fangschleuse	1	Track 24: 666m	Is a track for logistic activities for building activities in PKP
	Erkner	1	Track 53: 708m	Is a track for logistic activities for building activities
	Bln-Köpenick Cottbus – Frankfurt/O. -> PKP	4		
	Ziltendorf	1	Track 4: 611 m	
	Eisenhüttenstadt	2	Track 16: 647 m Track 17: 667 m	
	Guben Süd	1	Track 4: 638m	

4.11.4. Restrictions

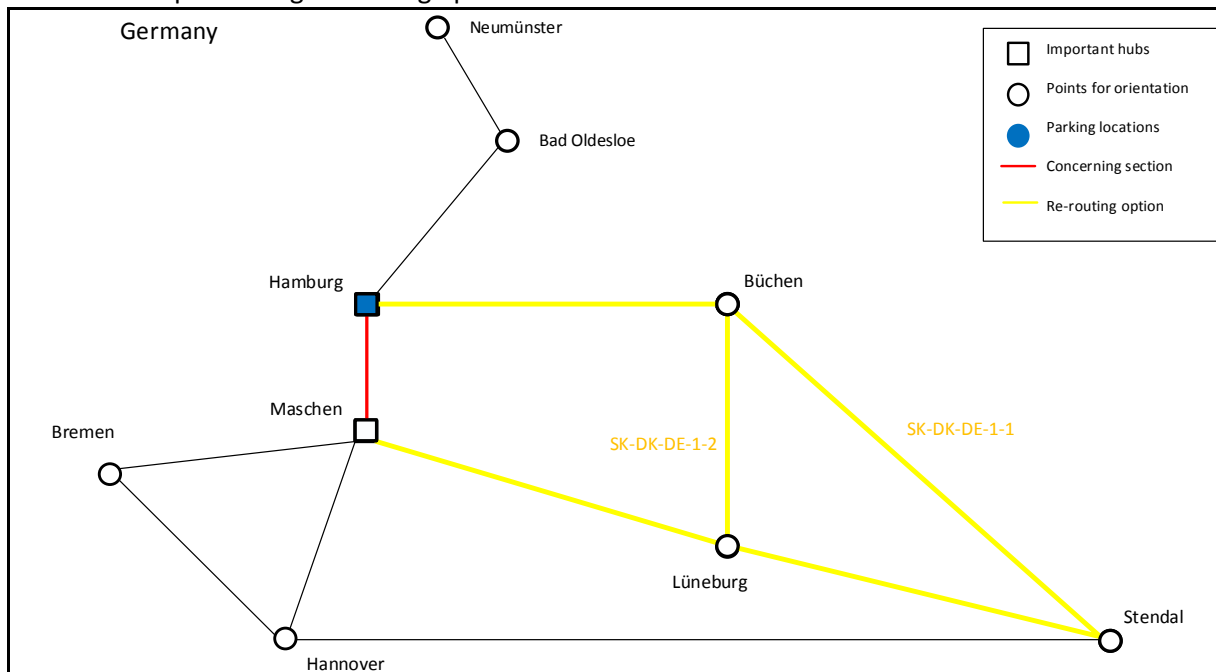
Restrictions for DE-11-1:

- For relation Berlin – Rzepin change direction in Frankfurt (Oder) Pbf, max length 592m

4.12. Re-routing scenario for section Maschen – Hamburg

4.12.1. General description

Schematic map including re-routing options



When the route Maschen – Hamburg is blocked re-routing options are:

Section ID	Usability	Route
SE-DK-DE-1-1		Maschen - Lüneburg - Stendal – Büchen – Hamburg
SE-DK-DE-1-2		Maschen - Lüneburg – Büchen – Hamburg

4.12.2. Parameters of re-routing options including capacity indication

IM	Deviation route	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of re-routing option	Max. train weight	Other border	Miscellaneous	Capacity
		Pass	Frei														Indication
Blocked section: Maschen – Hamburg																	
DB Netz	Maschen - Hamburg	x	x	E	AC 15 kV 16,7Hz	835m	D2	min. 2	N/A	upon request	P/C 410 (P/C 80)	PZB	160	17	1: 2815t 2: 3045t (E-Tfz – DB 185)		
Maschen - Lüneburg - Stendal – Büchen – Hamburg																	
DB Netz	Maschen - Stendal - Hamburg	x	x	E	AC 15 kV 16,7Hz	717m	D4	1	N/A	upon request	P/C 410 (P/C 80)	PZB	120	386	1: 2450t 2: 2765t (V-Tfz – DB 232/ 233)		
Maschen - Lüneburg – Büchen – Hamburg																	
DB Netz	Maschen - Lüneburg - Büchen - Hamburg	x	x	V	-	740m	D4	1	N/A	upon request	P/C 410 (P/C 80)	PZB	130	108	1: 2110t 2: 2545t (V-Tfz DB – 232/ 233)		

4.12.3. Parking locations & capacity

Country	Location	Number of tracks	Maximum train length	Restrictions
Germany	Hamburg- Harburg	Track 125 Track 128 Track 129	664m 740m 740m	
	Hamburg-Wilhelmsburg	Track 124	739m	
	Hamburg- Rothenburgsort	Track 110 Track 111 Track 112	740m 729m 654m	
	Hamburg- Eidelstedt	Track 61 Track 62	627m 616m	
	Pinneberg	Track 6	740m	
	Tornesch	Track 3	644m	

4.12.4. Restrictions

Restrictions for SK-DK-DE-1-2:

- Change direction in Stendal Gbf