

Anlage 4 zu Unterlage 18.2
Berechnung 1a HW100 - Bestand

STATIONAERE WASSERSPIEGELLAGEN

PROGRAMM WSPR2006 (c.) Knauf 2006

DATUM : 10.04.2016

PROJEKT K25 - Neubau Lahnbrücke in Balduinstein
ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
VARIANTE Berechnung 1a HW100 - Bestand (HHQ100 = 925,62 cbm/s)

DATEI Laer0004

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m ³ /s	K-WERT m ^{1/3} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE 0/00	ALPHA ALPHAS	KZW	KZD
0 + 925.62	1.40 105.47 9.32	104.58 663.46 157.58	35.0 35.0 35.0	23.13 31.10 44.89	26.06 31.33 46.66	83.04 270.84 134.06	1.26 2.45 1.18	0.000	105.71	0.313 0.28	1.310 1.106	1	0
0 + 925.62	15.00 105.48 9.33	96.04 656.12 173.45	35.0 35.0 35.0	21.20 31.80 45.97	23.95 34.03 47.90	74.55 271.76 140.26	1.29 2.41 1.24	0.000	105.71	0.309 0.30	1.269 1.092	0	0
0 + 925.62	30.00 105.48 9.34	119.02 712.13 94.47	35.0 35.0 35.0	18.38 35.23 35.43	20.46 35.47 38.11	83.56 304.60 93.29	1.42 2.34 1.01	0.000	105.71	0.294 0.25	1.237 1.085	0	0
0 + 925.62	50.00 105.53 9.34	0.00 711.80 213.82	35.0 35.0 35.0	0.00 52.99 18.30	0.00 46.03 21.93	0.00 309.39 111.78	0.00 2.30 1.91	0.058	105.78	0.293 0.34	0.549 0.739	12	0
0 + 925.62	60.50 105.56 9.39	121.30 601.81 202.51	35.0 35.0 35.0	17.30 26.44 26.20	19.53 26.48 28.88	79.57 234.98 126.56	1.52 2.56 1.60	0.041	105.82	0.288 0.29	1.165 1.056	0	0
0 + 925.62	70.20 105.57 9.31	86.13 656.97 182.52	35.0 35.0 35.0	15.99 30.41 25.38	18.10 30.44 27.66	64.87 270.24 120.61	1.33 2.43 1.51	0.000	105.82	0.278 0.26	1.166 1.057	0	0
0 + 925.62	86.10 105.58 9.24	87.58 783.08 54.96	35.0 35.0 35.0	16.28 38.50 17.87	18.61 38.65 20.29	68.45 341.35 53.58	1.28 2.29 1.03	0.000	105.82	0.273 0.24	1.170 1.063	0	0
0 + 925.62	99.00 105.58 9.15	110.59 753.69 61.34	35.0 35.0 35.0	22.88 36.23 17.21	25.05 36.46 20.06	86.63 318.40 55.65	1.28 2.37 1.10	0.000	105.82	0.286 0.25	1.198 1.072	0	0
0 + 925.62	110.00 105.58 9.08	111.08 639.53 175.01	35.0 35.0 35.0	21.47 29.09 25.57	23.67 29.11 28.22	83.46 259.14 117.61	1.33 2.47 1.49	0.000	105.83	0.286 0.27	1.196 1.067	0	0

Anlage 4 zu Unterlage 18.2
Berechnung 1b HW100 - Bauphase 1

STATIONAERE WASSERSPIEGELLAGEN

PROGRAMM WSPR2006(c.) Knauf 2006

DATUM : 13.07.2016

PROJEKT K25 - Neubau Lahnbrücke in Balduinstein
ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
VARIANTE Berechnung 1b HW100 - Bauphase 1 (HHQ100 = 925,62 cbm/s)

DATEI Laer0008

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m3/s	K-WERT m ^{0.33} /s	BREITE m	UMFANG m	FLAECHE m2	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE o/oo	ALPHA ALPHAS	KZW	KZD
0 +	1.40	104.58	35.0	23.13	26.06	83.04	1.26						
	925.62	663.46	35.0	31.10	31.33	270.84	2.45	0.000	105.71	0.313	1.310	1	0
		157.58	35.0	44.89	46.66	134.06	1.18			0.28	1.106		
0 +	15.00	96.04	35.0	21.20	23.95	74.55	1.29						
	925.62	656.12	35.0	31.80	34.03	271.76	2.41	0.000	105.71	0.309	1.269	0	0
		173.45	35.0	45.97	47.90	140.26	1.24			0.30	1.092		
0 +	30.00	119.02	35.0	18.38	20.46	83.56	1.42						
	925.62	712.13	35.0	35.23	35.47	304.60	2.34	0.000	105.71	0.294	1.237	0	0
		94.47	35.0	35.43	38.11	93.29	1.01			0.25	1.085		
0 +	50.00	0.00	35.0	0.00	0.00	0.00	0.00						
	925.62	711.80	35.0	52.99	46.03	309.39	2.30	0.058	105.78	0.293	0.549	12	0
		213.82	35.0	18.30	21.93	111.78	1.91			0.34	0.739		
0 +	60.50	146.66	35.0	17.19	19.39	78.13	1.88						
	925.62	413.93	35.0	15.40	15.43	132.87	3.12	0.020	105.81	0.345	1.163	0	0
		365.03	35.0	37.09	39.63	179.70	2.03			0.45	1.052		
0 +	70.20	126.33	35.0	15.44	17.54	55.80	2.26						
	925.62	579.07	35.0	16.47	16.50	135.75	4.27	0.023	105.84	0.547	1.403	0	0
		220.21	35.0	36.69	44.14	112.65 *	1.95			0.89	1.131		
0 +	86.10	102.81	35.0	16.28	18.62	68.58	1.50						
	925.62	448.93	35.0	19.09	19.12	167.85	2.67	0.000	105.85	0.294	1.144	0	0
		373.88	35.0	37.28	39.67	201.40	1.86			0.32	1.047		
0 +	99.00	111.05	35.0	22.89	25.08	87.19	1.27						
	925.62	752.86	35.0	36.23	36.46	319.28	2.36	0.000	105.85	0.284	1.198	0	0
		61.71	35.0	17.21	20.08	56.07	1.10			0.25	1.071		
0 +	110.00	111.45	35.0	21.51	23.72	83.98	1.33						
	925.62	638.73	35.0	29.09	29.11	259.85	2.46	0.000	105.85	0.284	1.196	0	0
		175.43	35.0	25.57	28.24	118.24	1.48			0.27	1.067		

Anlage 4 zu Unterlage 18.2
 Berechnung 1c HW100 - Bauphase 2

STATIONAERE WASSERSPIEGELLAGEN

PROGRAMM WSPR2006(c.) Knauf 2006

DATUM : 13.07.2016

PROJEKT K25 - Neubau Lahnbrücke in Balduinstein
 ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
 VARIANTE Berechnung 1c HW100 - Bauphase 2 (HHQ100 = 925,62 cbm/s)

DATEI Laer0009

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m ³ /s	K-WERT m ^{1/3} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE o/oo	ALPHA ALPHAS	KZW	KZD
0 +	1.40	104.58	35.0	23.13	26.06	83.04	1.26						
	925.62	663.46	35.0	31.10	31.33	270.84	2.45	0.000	105.71	0.313	1.310	1	0
		157.58	35.0	44.89	46.66	134.06	1.18			0.28	1.106		
0 +	15.00	96.04	35.0	21.20	23.95	74.55	1.29						
	925.62	656.12	35.0	31.80	34.03	271.76	2.41	0.000	105.71	0.309	1.269	0	0
		173.45	35.0	45.97	47.90	140.26	1.24			0.30	1.092		
0 +	30.00	119.02	35.0	18.38	20.46	83.56	1.42						
	925.62	712.13	35.0	35.23	35.47	304.60	2.34	0.000	105.71	0.294	1.237	0	0
		94.47	35.0	35.43	38.11	93.29	1.01			0.25	1.085		
0 +	50.00	0.00	35.0	0.00	0.00	0.00	0.00						
	925.62	711.80	35.0	52.99	46.03	309.39	2.30	0.058	105.78	0.293	0.549	12	0
		213.82	35.0	18.30	21.93	111.78	1.91			0.34	0.739		
0 +	60.50	282.45	35.0	31.66	34.02	136.24	2.07						
	925.62	377.24	35.0	11.88	11.90	106.47	3.54	0.011	105.80	0.388	1.212	0	0
		265.94	35.0	25.92	28.56	122.53	2.17			0.55	1.065		
0 +	70.20	227.33	35.0	27.66	33.45	73.21 *	3.11						
	925.62	558.51	35.0	9.53	9.53	75.98	7.35	0.000	106.20	1.000	2.113	4	0
		139.78	23.3	25.25	42.44	76.72 *	1.82			2.77	1.336		
+++++++ Engstelle mit Fließwechsel, Energieminimum > EH(UW) ++++++++													
0 +	86.10	92.01	35.0	16.50	19.08	75.18	1.22						
	925.62	771.42	35.0	38.50	38.64	357.09	2.16	0.000	106.20	0.249	1.166	0	0
		62.18	35.0	17.87	20.29	60.91	1.02			0.20	1.061		
0 +	99.00	118.10	35.0	23.13	25.53	96.08	1.23						
	925.62	740.28	35.0	36.23	36.46	333.29	2.22	0.000	106.20	0.259	1.193	0	0
		67.24	35.0	17.23	20.47	62.73	1.07			0.21	1.069		
0 +	110.00	117.15	35.0	22.11	24.44	92.41	1.27						
	925.62	626.75	35.0	29.09	29.11	271.08	2.31	0.000	106.21	0.259	1.190	0	0
		181.72	35.0	25.58	28.63	128.11	1.42			0.22	1.065		

Anlage 4 zu Unterlage 18.2
Berechnung 1d HW100 - Endausbau

STATIONAERE WASSERSPIEGELLAGEN

PROGRAMM WSPR2006 (c.) Knaut 2006

DATUM : 16.07.2016

PROJEKT K25 - Ersatzneubau Lahnbrücke in Balduinstein
ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
VARIANTE Berechnung 1d HW100 - Endausbau (HHQ100 = 925,62 cbm/s)

DATEI Laer0001

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m3/s	K-WERT m ^{0.33} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE o/oo	ALPHA ALPHAS	KZW	KZD
0 + 1.40	105.47	104.58	35.0	23.13	26.06	83.04	1.26	0.000	105.71	0.313	1.310	1	0
	925.62	157.58	35.0	44.89	46.66	134.06	1.18						
0 + 15.00	105.48	96.04	35.0	21.20	23.95	74.55	1.29	0.000	105.71	0.309	1.269	0	0
	925.62	173.45	35.0	45.97	47.90	140.26	1.24						
0 + 30.00	105.48	119.02	35.0	18.38	20.46	83.56	1.42	0.000	105.71	0.294	1.237	0	0
	925.62	94.47	35.0	35.23	35.47	304.60	2.34						
0 + 50.00	105.46	35.46	35.0	9.11	12.18	31.18	1.14	0.002	105.73	0.298	1.168	0	0
	925.62	201.28	35.0	32.47	32.73	274.57	2.51						
0 + 60.50	105.45	120.22	35.0	17.35	19.95	78.45	1.53	0.000	105.73	0.288	1.140	0	0
	925.62	197.82	35.0	26.44	26.48	232.30	2.62						
0 + 70.20	105.33	102.27	35.0	19.94	38.22	81.44 *	1.26	0.001	105.74	0.361	1.464	11	0
	925.62	134.11	35.0	24.56	24.58	214.44 *	3.21						
0 + 86.10	105.49	86.01	35.0	16.52	18.94	67.20	1.28	0.000	105.73	0.273	1.150	80	0
	925.62	51.09	35.0	38.50	38.65	337.80	2.33						
0 + 99.00	105.48	109.35	35.0	22.82	24.94	84.45	1.29	0.000	105.74	0.296	1.201	0	0
	925.62	54.95	35.0	36.23	36.46	314.94	2.42						
0 + 110.00	105.53	0.00	35.0	0.00	0.00	0.00	0.00	0.000	105.74	0.264	1.000	0	0
	925.62	0.00	35.0	76.05	80.86	456.43	2.03						

Anlage 4 zu Unterlage 18.2
Berechnung 2a MW - Bestand

STATIONAERE WASSERSPIEGELLAGEN

PROGRAMM WSPR2006 (c.) Knaut 2006

DATUM : 17.10.2016

PROJEKT Neubau Lahnbrücke K 25 in Balduinstein
ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
VARIANTE Berechnung 2a MW - Bestand (MQ = 46,5 cbm/s)

DATEI Laer0004

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m ³ /s	K-WERT m ^{1/3} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE 0/00	ALPHA ALPHAS	KZW	KZD
0 +	1.40	102.13	4.17	35.0	11.10	12.15	30.89	0.13	0.000	102.13	0.032	1.096	1
	46.50	5.98	36.88	35.0	31.10	31.33	166.96	0.22					
0 +	15.00	102.13	3.79	35.0	10.00	11.11	27.22	0.14	0.000	102.13	0.032	1.075	0
	46.50	5.98	36.34	35.0	31.80	34.03	165.34	0.22					
0 +	30.00	102.13	4.40	35.0	11.66	12.69	32.64	0.13	0.000	102.13	0.032	1.093	0
	46.50	5.99	40.53	35.0	35.23	35.47	186.53	0.22					
0 +	50.00	102.13	0.00	35.0	0.00	0.00	0.00	0.00	0.000	102.13	0.032	1.028	12
	46.50	5.94	37.59	35.0	36.71	38.03	173.24	0.22					
0 +	60.50	102.13	4.65	35.0	10.64	11.88	31.99	0.15	0.000	102.13	0.033	1.097	0
	46.50	5.96	33.60	35.0	26.44	26.48	144.40	0.23					
0 +	70.20	102.13	2.79	35.0	9.02	10.18	22.95	0.12	0.000	102.13	0.031	1.089	0
	46.50	5.87	36.17	35.0	30.41	30.44	165.63	0.22					
0 +	86.10	102.13	2.89	35.0	9.42	10.64	24.90	0.12	0.000	102.13	0.029	1.084	0
	46.50	5.79	42.31	35.0	38.50	38.65	208.62	0.20					
0 +	99.00	102.13	4.37	35.0	11.71	12.78	33.22	0.13	0.000	102.13	0.031	1.094	0
	46.50	5.70	40.98	35.0	36.23	36.46	193.53	0.21					
0 +	110.00	102.13	4.10	35.0	10.80	11.96	30.54	0.13	0.000	102.13	0.032	1.099	0
	46.50	5.63	35.34	35.0	29.09	29.11	158.80	0.22					

PROGRAMM WSPR2006 (c.) Knauf 2006

DATUM : 17.10.2016

PROJEKT Neubau Lahnbrücke K 25 in Balduinstein
ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
VARIANTE Berechnung 2b MW - Bauphase 1 (MQ = 46,5 cbm/s)

DATEI Laer0008

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m ³ /s	K-WERT m ^{1/3} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE 0/00	ALPHA ALPHAS	KZW	KZD
0 +	1.40 46.50	102.13 5.98	4.17 36.88 5.46	35.0 35.0 35.0	11.10 31.10 11.84	12.15 31.33 13.15	30.89 166.96 37.48	0.13 0.22 0.15	0.000	102.13	0.032 0.00	1.096 1.034	1 0
0 +	15.00 46.50	102.13 5.98	3.79 36.34 6.37	35.0 35.0 35.0	10.00 31.80 12.66	11.11 34.03 14.00	27.22 165.34 40.76	0.14 0.22 0.16	0.000	102.13	0.032 0.00	1.075 1.026	0 0
0 +	30.00 46.50	102.13 5.99	4.40 40.53 1.57	35.0 35.0 35.0	11.66 35.23 6.59	12.69 35.47 7.92	32.64 186.53 14.54	0.13 0.22 0.11	0.000	102.13	0.032 0.00	1.093 1.034	0 0
0 +	50.00 46.50	102.13 5.94	0.00 37.59 8.91	35.0 35.0 35.0	0.00 36.71 15.59	0.00 38.03 16.76	0.00 173.24 52.63	0.00 0.22 0.17	0.000	102.13	0.032 0.01	1.028 1.010	12 0
0 +	60.50 46.50	102.13 5.53	6.56 26.15 13.79	35.0 35.0 35.0	10.64 15.40 25.99	11.88 15.43 27.09	31.99 81.41 69.47	0.21 0.32 0.20	0.000	102.13	0.047 0.01	1.170 1.056	0 0
0 +	70.20 46.50	102.13 5.57	4.89 35.92 5.69	35.0 35.0 35.0	8.07 16.47 8.33	9.36 16.50 10.02	20.61 85.56 23.21	0.24 0.42 0.25	0.001	102.14	0.062 0.02	1.157 1.055	0 0
0 +	86.10 46.50	102.13 5.50	3.57 25.25 17.69	35.0 35.0 35.0	9.42 19.09 24.71	10.64 19.12 26.45	24.92 101.95 93.75	0.14 0.25 0.19	0.000	102.14	0.035 0.01	1.090 1.030	0 0
0 +	99.00 46.50	102.13 5.70	4.37 40.98 1.15	35.0 35.0 35.0	11.71 36.23 6.79	12.78 36.46 8.01	33.25 193.63 12.36	0.13 0.21 0.09	0.000	102.14	0.031 0.00	1.094 1.035	0 0
0 +	110.00 46.50	102.13 5.63	4.10 35.34 7.06	35.0 35.0 35.0	10.80 29.09 13.92	11.97 29.11 15.14	30.57 158.88 46.55	0.13 0.22 0.15	0.000	102.14	0.032 0.00	1.099 1.035	0 0

Anlage 4 zu Unterlage 18.2
Berechnung 2c MW - Bauphase 2

PROGRAMM WSPR2006 (c.) Knauf 2006

DATUM : 17.10.2016

PROJEKT Neubau Lahnbrücke K 25 in Balduinstein
ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
VARIANTE Berechnung 2c MW - Bauphase 2 (MQ = 46,5 cbm/s)

DATEI Laer0009

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m ³ /s	K-WERT m ^{1/3} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE o/oo	ALPHA ALPHAS	KZW	KZD
0 + 1.40	102.13	4.17	35.0	11.10	12.15	30.89	0.13	0.000	102.13	0.032	1.096	1	0
	46.50	36.88	35.0	31.10	31.33	166.96	0.22						
	5.98	5.46	35.0	11.84	13.15	37.48	0.15						
0 + 15.00	102.13	3.79	35.0	10.00	11.11	27.22	0.14	0.000	102.13	0.032	1.075	0	0
	46.50	36.34	35.0	31.80	34.03	165.34	0.22						
	5.98	6.37	35.0	12.66	14.00	40.76	0.16						
0 + 30.00	102.13	4.40	35.0	11.66	12.69	32.64	0.13	0.000	102.13	0.032	1.093	0	0
	46.50	40.53	35.0	35.23	35.47	186.53	0.22						
	5.99	1.57	35.0	6.59	7.92	14.54	0.11						
0 + 50.00	102.13	0.00	35.0	0.00	0.00	0.00	0.00	0.000	102.13	0.032	1.028	12	0
	46.50	37.59	35.0	36.71	38.03	173.24	0.22						
	5.94	8.91	35.0	15.59	16.76	52.63	0.17						
0 + 60.50	102.13	7.33	35.0	25.20	26.62	43.71	0.17	0.000	102.14	0.059	1.288	0	0
	46.50	25.93	35.0	11.88	11.90	67.59	0.38						
	5.96	13.24	35.0	14.95	16.17	51.05	0.26						
0 + 70.20	102.13	7.82	35.0	8.34	10.03	23.20	0.34	0.001	102.14	0.088	1.638	0	0
	46.50	33.50	35.0	9.53	9.53	54.41	0.62						
	5.81	5.17	23.3	10.39	22.53	31.92	0.16						
0 + 86.10	102.14	2.90	35.0	9.43	10.65	24.95	0.12	0.000	102.14	0.029	1.084	0	0
	46.50	42.30	35.0	38.50	38.64	208.80	0.20						
	5.80	1.30	35.0	5.30	7.07	13.12	0.10						
0 + 99.00	102.14	4.37	35.0	11.71	12.79	33.29	0.13	0.000	102.14	0.031	1.094	0	0
	46.50	40.98	35.0	36.23	36.46	193.74	0.21						
	5.71	1.15	35.0	6.79	8.02	12.38	0.09						
0 + 110.00	102.14	4.10	35.0	10.81	11.97	30.60	0.13	0.000	102.14	0.031	1.099	0	0
	46.50	35.33	35.0	29.09	29.11	158.97	0.22						
	5.64	7.07	35.0	13.93	15.14	46.60	0.15						

Anlage 4 zu Unterlage 18.2
Berechnung 2d MW - Endausbau

STATIONAERE WASSERSPIEGELLAGEN

PROGRAMM WSPR2006(c.) Knauf 2006

DATUM : 17.10.2016

PROJEKT Ersatzneubau Lahnbrücke K 25 in Balduinstein
ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
VARIANTE Berechnung 2d MW - Endausbau (MQ = 46,5 cbm/s)
DATEI Laer0001

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m ³ /s	K-WERT m ^{1/3} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE o/oo	ALPHA ALPHAS	KZW	KZD
0 +	1.40	102.13	4.17	35.0	11.10	12.15	30.89	0.13	0.000	102.13	0.032	1.096	1
	46.50	5.98	36.88	35.0	31.10	31.33	166.96	0.22					
0 +	15.00	102.13	3.79	35.0	10.00	11.11	27.22	0.14	0.000	102.13	0.032	1.075	0
	46.50	5.98	36.34	35.0	31.80	34.03	165.34	0.22					
0 +	30.00	102.13	4.40	35.0	11.66	12.69	32.64	0.13	0.000	102.13	0.032	1.093	0
	46.50	5.99	40.53	35.0	35.23	35.47	186.53	0.22					
0 +	50.00	102.13	0.60	35.0	4.24	5.30	6.76	0.09	0.000	102.13	0.033	1.070	0
	46.50	5.94	37.34	35.0	32.47	32.73	166.48	0.22					
0 +	60.50	102.13	4.65	35.0	10.64	11.88	31.99	0.15	0.000	102.13	0.033	1.097	0
	46.50	5.96	33.60	35.0	26.44	26.48	144.40	0.23					
0 +	70.20	102.13	4.02	35.0	11.50	22.51	34.72 *	0.12	0.000	102.13	0.038	1.317	11
	46.50	5.85	36.84	35.0	24.56	24.58	135.94	0.27					
0 +	86.10	102.13	2.89	35.0	9.42	10.64	24.90	0.12	0.000	102.13	0.029	1.084	80
	46.50	5.79	42.31	35.0	38.50	38.65	208.62	0.20					
0 +	99.00	102.13	4.37	35.0	11.71	12.78	33.22	0.13	0.000	102.13	0.031	1.094	0
	46.50	5.70	40.98	35.0	36.23	36.46	193.53	0.21					
0 +	110.00	102.13	0.00	35.0	0.00	0.00	0.00	0.00	0.000	102.13	0.030	1.000	0
	46.50	5.63	46.50	35.0	53.81	56.20	235.86	0.20					

PROGRAMM WSPR2006 (c.) Knauf 2006

DATUM : 21.10.2016

PROJEKT Neubau Lahnbrücke K 25 in Balduinstein
 ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
 VARIANTE Berechnung 3a HSW - Bestand (HSQ = 108,0 cbm/s)
 DATEI Laer0004

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m3/s	K-WERT m^0.33/s	BREITE m	UMFANG m	FLAECHE m2	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE o/oo	ALPHA ALPHAS	KZW	KZD
0 + 1.40	102.17	9.74	35.0	11.14	12.21	31.33	0.31	0.000	102.18	0.073	1.097	1	0
	108.00	6.02	85.53	35.0	31.10	31.33	0.51						
0 + 15.00	102.17	8.85	35.0	10.06	11.19	27.62	0.32	0.000	102.18	0.073	1.075	0	0
	108.00	6.02	84.30	35.0	31.80	34.03	0.51						
0 + 30.00	102.17	10.29	35.0	11.72	12.76	33.12	0.31	0.000	102.18	0.073	1.093	0	0
	108.00	6.03	94.02	35.0	35.23	35.47	0.50						
0 + 50.00	102.17	0.00	35.0	0.00	0.00	0.00	0.00	0.000	102.18	0.073	1.027	12	0
	108.00	5.98	87.22	35.0	36.76	38.10	0.50						
0 + 60.50	102.17	10.86	35.0	10.70	11.95	32.43	0.33	0.000	102.18	0.075	1.098	0	0
	108.00	6.00	77.94	35.0	26.44	26.48	0.54						
0 + 70.20	102.17	6.52	35.0	9.09	10.26	23.32	0.28	0.000	102.18	0.071	1.090	0	0
	108.00	5.91	83.91	35.0	30.41	30.44	0.50						
0 + 86.10	102.17	6.77	35.0	9.48	10.72	25.29	0.27	0.000	102.18	0.067	1.084	0	0
	108.00	5.83	98.18	35.0	38.50	38.65	0.47						
0 + 99.00	102.17	10.22	35.0	11.76	12.85	33.71	0.30	0.000	102.18	0.071	1.094	0	0
	108.00	5.74	95.07	35.0	36.23	36.46	0.49						
0 + 110.00	102.17	9.58	35.0	10.86	12.03	30.99	0.31	0.000	102.18	0.072	1.100	0	0
	108.00	5.67	81.97	35.0	29.09	29.11	0.51						

Anlage 4 zu Unterlage 18.2
Berechnung 3b HSW - Bauphase 1

PROGRAMM WSPR2006 (c.) Knaufl 2006

DATUM : 18.10.2016

PROJEKT Neubau Lahnbrücke K 25 in Balduinstein
ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
VARIANTE Berechnung 3b HSW - Bauphase 1 (HSQ = 108,0 cbm/s)
DATEI Laer0008

SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m ³ /s	K-WERT m ^{1/3} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE 0/00	ALPHA ALPHAS	KZW	KZD
0 + 1.40	102.17	9.74	35.0	11.14	12.21	31.33	0.31	0.000	102.18	0.073	1.097	1	0
	108.00	6.02	85.53	35.0	31.10	31.33	0.51						
0 + 15.00	102.17	8.85	35.0	10.06	11.19	27.62	0.32	0.000	102.18	0.073	1.075	0	0
	108.00	6.02	84.30	35.0	31.80	34.03	0.51						
0 + 30.00	102.17	10.29	35.0	11.72	12.76	33.12	0.31	0.000	102.18	0.073	1.093	0	0
	108.00	6.03	94.02	35.0	35.23	35.47	0.50						
0 + 50.00	102.17	0.00	35.0	0.00	0.00	0.00	0.00	0.000	102.18	0.073	1.027	12	0
	108.00	5.98	87.22	35.0	36.76	38.10	0.50						
0 + 60.50	102.17	15.27	35.0	10.69	11.95	32.39	0.47	0.001	102.19	0.107	1.169	0	0
	108.00	5.57	60.52	35.0	15.40	15.43	0.74						
0 + 70.20	102.16	11.40	35.0	8.11	9.40	20.81	0.55	0.003	102.20	0.143	1.157	0	0
	108.00	5.60	83.34	35.0	16.47	16.50	0.97						
0 + 86.10	102.18	8.34	35.0	9.50	10.73	25.37	0.33	0.000	102.19	0.079	1.090	0	0
	108.00	5.55	58.50	35.0	19.09	19.12	0.57						
0 + 99.00	102.18	10.23	35.0	11.77	12.86	33.81	0.30	0.000	102.19	0.071	1.094	0	0
	108.00	5.75	95.05	35.0	36.23	36.46	0.49						
0 + 110.00	102.18	9.59	35.0	10.87	12.05	31.08	0.31	0.000	102.19	0.072	1.100	0	0
	108.00	5.68	81.94	35.0	29.09	29.11	0.51						

Anlage 4 zu Unterlage 18.2
 Berechnung 3c HSW - Bauphase 2

PROGRAMM WSPR2006 (c.) Knauf 2006 DATUM : 18.10.2016
 PROJEKT Neubau Lahnbrücke K 25 in Balduinstein
 ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m
 VARIANTE Berechnung 3c HSW - Bauphase 2 (HSQ = 108,0 cbm/s)

DATEI Laer0009

SEITE 1

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ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m ³ /s	K-WERT m ^{1/3} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE o/oo	ALPHA ALPHAS	KZW	KZD
0 + 1.40	102.17	4.19	35.0	11.14	12.21	31.33	0.13	0.000	102.17	0.031	1.097	1	0
	46.50	6.02	36.83	35.0	31.10	31.33	0.22						
0 + 15.00	102.17	3.81	35.0	10.06	11.19	27.62	0.14	0.000	102.17	0.031	1.075	0	0
	46.50	6.02	36.29	35.0	31.80	34.03	0.22						
0 + 30.00	102.17	4.43	35.0	11.72	12.76	33.11	0.13	0.000	102.17	0.031	1.093	0	0
	46.50	6.03	40.48	35.0	35.23	35.47	0.22						
0 + 50.00	102.17	0.00	35.0	0.00	0.00	0.00	0.00	0.000	102.17	0.032	1.027	12	0
	46.50	5.98	37.55	35.0	36.76	38.10	0.21						
0 + 60.50	102.17	7.48	35.0	25.25	26.69	44.72	0.17	0.000	102.18	0.058	1.286	0	0
	46.50	6.00	25.80	35.0	11.88	11.90	0.38						
0 + 70.20	102.17	7.86	35.0	8.40	10.10	23.53	0.33	0.001	102.18	0.087	1.641	0	0
	46.50	5.85	33.44	35.0	9.53	9.53	0.61						
0 + 86.10	102.18	2.92	35.0	9.49	10.72	25.33	0.12	0.000	102.18	0.029	1.084	0	0
	46.50	5.84	42.27	35.0	38.50	38.64	0.20						
0 + 99.00	102.18	4.40	35.0	11.77	12.85	33.76	0.13	0.000	102.18	0.031	1.094	0	0
	46.50	5.75	40.93	35.0	36.23	36.46	0.21						
0 + 110.00	102.18	4.13	35.0	10.86	12.04	31.03	0.13	0.000	102.18	0.031	1.100	0	0
	46.50	5.68	35.29	35.0	29.09	29.11	0.22						

Anlage 4 zu Unterlage 18.2
Berechnung 3d HSW - Endausbau

STATIONAERE WASSERSPIEGELLAGEN

PROGRAMM WSPR2006 (c.) Knauf 2006

DATUM : 18.10.2016

PROJEKT Ersatzneubau Lahnbrücke K 25 in Balduinstein

ZUSTAND Station 0 + 1.40 bis 0 + 110.00 m

VARIANTE Berechnung 3d HSW - Endausbau (HSQ = 108.0 cbm/s)

DATEI Laer0001 SEITE 1

ERGEBNISSE

STATION ABFLUSS	WSPLAGE/H NN+m/m	ABFLUSS m ³ /s	K-WERT m ^{1/3} /s	BREITE m	UMFANG m	FLAECHE m ²	GESCHW m/s	HZV m	E-HOEHE NN+m	FROUDE IE o/oo	ALPHA ALPHAS	KZW	KZD
0 + 1.40	102.17	9.74	35.0	11.14	12.21	31.33	0.31	0.000	102.18	0.073	1.097	1	0
	108.00	85.53	35.0	31.10	31.33	168.21	0.51						
0 + 15.00	102.17	8.85	35.0	10.06	11.19	27.62	0.32	0.000	102.18	0.073	1.075	0	0
	108.00	84.30	35.0	31.80	34.03	166.62	0.51						
0 + 30.00	102.17	10.29	35.0	11.72	12.76	33.12	0.31	0.000	102.18	0.073	1.093	0	0
	108.00	94.02	35.0	35.23	35.47	187.96	0.50						
0 + 50.00	102.17	1.43	35.0	4.29	5.37	6.93	0.21	0.000	102.18	0.075	1.071	0	0
	108.00	86.62	35.0	32.47	32.73	167.81	0.52						
0 + 60.50	102.17	10.86	35.0	10.70	11.95	32.43	0.33	0.000	102.18	0.075	1.098	0	0
	108.00	77.94	35.0	26.44	26.48	145.49	0.54						
0 + 70.20	102.17	9.37	35.0	11.57	22.67	35.20 *	0.27	0.000	102.19	0.086	1.318	11	0
	108.00	85.48	35.0	24.56	24.58	136.96	0.62						
0 + 86.10	102.17	6.77	35.0	9.48	10.72	25.30	0.27	0.000	102.18	0.067	1.084	80	0
	108.00	98.18	35.0	38.50	38.65	210.25	0.47						
0 + 99.00	102.17	10.22	35.0	11.76	12.85	33.72	0.30	0.000	102.18	0.071	1.094	0	0
	108.00	95.07	35.0	36.23	36.46	195.07	0.49						
0 + 110.00	102.17	0.00	35.0	0.00	0.00	0.00	0.00	0.000	102.18	0.069	1.000	0	0
	108.00	108.00	35.0	53.93	56.35	238.16	0.45						
		0.00	35.0	0.00	0.00	0.00	0.00			0.02	1.000		