



Estimation of Costs
Case 3 Animal Overpass

	text	quantities	unit	unite price lower limit	unite price upper limit	unite price avarage	factor of difficulty *)2	total	chapter sum	further explanations
	01. building animal overpass								4 324 172.50 €	
	land acquisition and reimbursements								38 640.00 €	
	reimbursements for temporary use									
	site areas, excavation pit, construction road	11 200.00	m2	3.00 €	3.90 €	3.45 €	1.00	38 640.00 €		
	excavation pit								1 606 377.50 €	
	pit excavation	1720	m3	20.00 €		23.00 €	1.00	39 560.00 €		transportation costs for excavation are not included
	backfill (filled in layers around 30cm and compressed)	33650	m3	35.00 €	26.00 €	40.25 €	1.00	1 354 412.50 €		optional under foundation possible
	soil improvement	0	m3	27.00 €	35.10 €	31.05 €	1.00	0.00 €		
	soil improvement with concrete	1720	m3	100.00 €	130.00 €	115.00 €	1.00	197 800.00 €		
	compressing subsoil	2540	m2	5.00 €	6.50 €	5.75 €	1.00	14 605.00 €		
	dismantling existing structure								0.00 €	
	If there is an existing structure or building which has to be dismantled, the costs have to be taken into account.	0.00	m3	300.00 €	390.00 €	345.00 €	1.00	0.00 €		optional
	new construction of animal overpass								2 634 305.00 €	
	clear construction field	11 200.00	m2	5.00 €	6.50 €	5.75 €	1.00	64 400.00 €		*)1
	recultivation of construction field	11 200.00	m2	5.00 €	6.50 €	5.75 €	1.00	64 400.00 €		
	topsoil excavation	11 200.00	m2	2.50 €	3.25 €	2.88 €	1.00	32 200.00 €		
	application of top soil	11 200.00	m2	5.00 €	6.50 €	5.75 €	1.00	64 400.00 €		
	granular subbase in final position	500	m2	25.00 €	32.50 €	28.75 €	1.00	14 375.00 €		*)1
	foundation abutment reinforced concrete	380	m3	250.00 €	325.00 €	287.50 €	1.00	109 250.00 €		
					0.00 €	0.00 €				
					0.00 €	0.00 €				
	superstructure prefabricated elements reinforced concrete	1340	m3	700.00 €	910.00 €	805.00 €	1.00	1 078 700.00 €		optional item, if "small opening" animal overpass is chosen and prefabricated elements are produces in precast factory includes all basics, like a transporter is needed, prefabricated elements have to be uploaded, fixed for transportation and have to be unloaded etc. optional item, if "small opening" animal overpass is chosen and prefabricated elements are produces in precast factory includes costs for driver, fuel, temporarry barriers, escort vehicle, temporary dismantle of obstacles etc. adjust with the factor of difficulty depending on difficulty of transportation way situation
	basic transportation costs prefabricated elements	0	St	1 000.00 €	1 300.00 €	1 150.00 €	1.00	0.00 €		
	transportation way costs prefabricated elements	0	1/km	10.00 €	13.00 €	11.50 €	1.00	0.00 €		
	producing prefabricated elements in a vulnerable prefabrication production tent on site	85	St	2 000.00 €	2 600.00 €	2 300.00 €	1.00	195 500.00 €		
	mobile crane operation for assembly	3	day	10 000.00 €	13 000.00 €	11 500.00 €	1.00	34 500.00 €		optional item, for "big opening" animal overpass, use instead of transportation items if "big openings" are planned
	supersturcture cast in-situ deck reinforced concrete	60	m3	700.00 €	910.00 €	805.00 €	1.00	48 300.00 €		
	concrete boards reinforced concrete	45	m3	700.00 €	910.00 €	805.00 €	1.00	36 225.00 €		
	rebar for reinforced concrete	130	t	1 100.00 €	1 430.00 €	1 265.00 €	1.00	164 450.00 €		
	noise barrier (anti-glare)	125	m	300.00 €	390.00 €	345.00 €	1.00	43 125.00 €		200 to 250 kg/m3 (big amount of prefabricated elements)
	protective concrete	2970	m2	50.00 €	65.00 €	57.50 €	1.00	170 775.00 €		
	bituminous coating for areas which are in contact with soil	2970	m2	10.00 €	13.00 €	11.50 €	1.00	34 155.00 €		
	drainage system	1	psch*)3	15 000.00 €	19 500.00 €	17 250.00 €	1.00	17 250.00 €		
	grounding	1	psch	2 500.00 €	3 250.00 €	2 875.00 €	1.00	2 875.00 €		dummy joint = a slot cut into a concrete slab to prevent serious fractures
	bridge equipment, dummy joints	1	psch	2 500.00 €		2 875.00 €	1.00	2 875.00 €		
					3 250.00 €	2 875.00 €				
	concrete elastomer joint		m	90.00 €	117.00 €	103.50 €	1.00	0.00 €		
	internal grounding	1	psch	5 000.00 €	6 500.00 €	5 750.00 €	1.00	5 750.00 €		
	soil cover on top of Arch	11200	m³	35.00 €	45.50 €	40.25 €	1.00	450 800.00 €		
	temporary structures and building aids								44 850.00 €	
	waterpumping	1	psch	10 000.00 €	13 000.00 €	11 500.00 €	1.00	11 500.00 €		
										depends on landscape conditions, depending on amount of waterpumping factor of difficulty must be choosen between 0.5 - 5.0
	support structure and protective scaffolding	1	psch	15 000.00 €	19 500.00 €	17 250.00 €	1.00	17 250.00 €		assumed value, depends on local conditions assumed value, depends on local conditions optional optional
	construction of site road	280	m3	30.00 €	39.00 €	34.50 €	1.00	9 660.00 €		
	dismantling of site road	280	m3	20.00 €	26.00 €	23.00 €	1.00	6 440.00 €		
	built sheeting	0	m2	350.00 €	455.00 €	402.50 €	1.00	0.00 €		
	use of device for driving work	0	psch	20 000.00 €	26 000.00 €	23 000.00 €	1.00	0.00 €		



	02 disposal								0.00 €	
	If there is an existing structure or building which has to be dismantled, the costs for disposal have to be taken into account. excavation	0	t	24.55 €	31.92 € depends on reuse for other bridges, e.g. animal overpass and for other sites; contamination etc.	28.23 €		0.00 €		
	03 Other								735 109.33 €	
	construction site equipment	1	psch	432 417.25 €	432 417.25 €	432 417.25 €	1.00	432 417.25 €		10% of construction costs
	traffic safety	0	psch	5 000.00 €	6 500.00 €	5 750.00 €	1.00	0.00 €		optional
	traffic light control during construction time	0	psch	8 000.00 €	10 400.00 €	9 200.00 €	1.00	0.00 €		optional
	security requirements	1	psch	86 483.45 €	86 483.45 €	86 483.45 €	1.00	86 483.45 €		2% of total construction costs
	construction planning	1	psch	216 208.63 €	216 208.63 €	216 208.63 €	1.00	216 208.63 €		5% of construction costs

		total	per m2/bridge
only construction costs		4 324 172.50 €	1 809.28 €
subtotal construction costs		5 059 281.83 €	2 116.85 €
planning costs		1 011 856.37 €	20 - 25% of subtotal construction costs, calculated with 20%
total costs CAPEX (net)		6 071 138.19 €	2 540.23 €
total costs OPEX (net)		64 862.59 €	27.14 €
			1.5% of CAPEX

- *)1

Depends on dimensions of animal overpass. The amount is for the shown case. For other dimensions the amount changes and thus the total price.
- *)2

factor to describe the level of difficulty, for factors of costs which can differ very much depending on location (e.g. for waterpumping) this faktor can be set to a value higher than 1
- *)3

psch = lump sum
- bridge area

2390 m2

additional infromation

- prices are experience values from previous and current ongoing projects of MKP in Germany. Prices can allways differ depending on country, economic situation etc.
- tracks, ballast, rails etc. are not included in price