

Bedford Milton Keynes Waterway
 Bell Farm Waterway Section
 Estimated Construction Costs

Summary of the Estimated Construction Costs

Waterway Components	Unit	Quantity	Construction Cost (£)
Open aspect waterway	m	1,100	911,988
Vertical sided waterway	m	340	1,403,282
Earthworks	Total	-	903,450
Locks (3 no)	Total	-	2,307,853
Footbridges (3 no)	Total	-	1,500,000
Vehicle Bridges (1 no)	Total	-	1,000,000
Underpasses	Total	-	1,000,000
Services Diversion	Total	-	500,000
Balancing Pond/ Pumping for Water Resources	Total	-	2,000,000
Contingency/ Optimism bias (30%)			3,457,972
Grand Total			14,984,545

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Open Aspect Waterway (depth constant at 2m, excluding earthworks)

Item	Unit	Rate (£)	Quantity	Cost (£)	Comments
Soft edge protection	m ²	31.50	2	63	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Bed lining/ lining protection	m ²	25.20	21.65	546	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Towpath	m ²	31.50	3	95	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Landscaping	m ²	12.60	10	126	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Total	per m run			829	

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Vertical Sided Waterway (depth constant at 2m, excluding earthworks)

Item	Unit	Rate (£)	Quantity	Cost (£)	Comments
Steel sheet pile (6m depth approx)	m ²	275.00	12	3,300	From Spon's 2012 (adjusted for 2014 prices)
Capping beam (hard edge protection)	m	190.00	2	380	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Bed lining/ lining protection	m ²	25.20	9	227	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Towpath	m ²	31.50	3	95	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Landscaping	m ²	12.60	10	126	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Total	per m run			4,127	

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Earthworks (embankments and cuts)

Item	Unit	Rate (£)	Quantity	Cost (£)	Comments
Excavation	m ³	5.00	58,199	290,995	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Fill	m ³	10.00	49,289	492,890	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Net import material (subsoil)	m ³	10.00	0	0	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Net disposal material (subsoil)	m ³	9.00	8,910	80,190	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Net topsoil export	m ³	9.00	4,375	39,375	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Total	Overall			903,450	

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Locks			Lock 1		Lock 2		Lock 3		
		Height (m)	3.5		2.75		3.25		
		Length (m)	34		34		34		
Item	Unit	Rate (£)	Quantity	Cost (£)	Quantity	Cost (£)	Quantity	Cost (£)	
Concrete wall (main chamber)	m³	550.00	6.6	3,630	5.7	3,135	6.3	3,465	From Spon's 2012 (adjusted for 2014 prices)
Bed lining (concrete)	m³	633.33	3	1,900	3	1,900	3	1,900	From Spon's 2012 (adjusted for 2014 prices)
Brick Cladding	m²	100.00	9	900	7.5	750	8.5	850	From Spon's 2009 (adjusted for 2014 prices)
Brick Capping	m	12.00	4.55	55	4.55	55	4.55	55	From Spon's 2009 (adjusted for 2014 prices)
Towpath	m³	31.50	3	95	3	95	3	95	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Subtotal	per m run			6,579		5,934		6,364	
Wing walls sheet piled - Shallow end	m²	275.00	150	41,250	150	41,250	150	41,250	From Spon's 2012 (adjusted for 2014 prices)
Wing walls sheet piled - deeper end	m²	275.00	412.5	113,438	356.25	97,969	393.75	108,281	From Spon's 2012 (adjusted for 2014 prices)
Cladding for wing walls (concrete) shallow	m³	550.00	7.5	4,125	7.5	4,125	7.5	4,125	From Spon's 2012 (adjusted for 2014 prices)
Cladding for wing walls (concrete) deep	m³	550.00	20.625	11,344	17.8125	9,797	19.6875	10,828	From Spon's 2012 (adjusted for 2014 prices)
Cladding for wing walls (brickwork) shallow	m²	100.00	50	5,000	50	5,000	50	5,000	From Spon's 2009 (adjusted for 2014 prices)
Cladding for wing walls (brickwork) deep	m²	100.00	137.5	13,750	118.75	11,875	131.25	13,125	From Spon's 2009 (adjusted for 2014 prices)
Capping beam for wing walls	m	190.00	50	9,500	50	9,500	50	9,500	Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices
Footbridge (over lock)	per bridge	9,000.00	1	9,000	1	9,000	2	18,000	From Spon's 2012 (adjusted for 2014 prices)
Lock gates	per gate	100,000.00	2	200,000	3	300,000	2	200,000	From lock inspections: Dedham/Offord (£100k per gate pair)
Safety (Rails/signs)	per lock	6,000.00	1	6,000	1	6,000	1	6,000	Lock Inspections: Offord lock (Mitre gate walkway handrails- £5k), signage (£1k)
Details (misc costs)	per lock	100,000.00	1	100,000	1	100,000	1	100,000	Estimate (for bollards, ladders, pipe work etc.)
Subtotal	per lock			513,406		594,516		516,109	
Total	per lock			737,093		796,273		732,487	
Stop Logs (200mmx10mm)	Overall (all locks)	500.00					84	42,000	Estimated price of £500 for 150x150x5000 stop log

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Miscellaneous

Item	Unit	Cost (£)	Comments
Footbridges	Total	1,500,000	Estimated allowance only (from high level cost estimate 26/09/13)
Vehicle Bridges	Total	1,000,000	Estimated allowance only (from high level cost estimate 26/09/13)
Underpasses	Total	1,000,000	Estimated allowance only (from high level cost estimate 26/09/13)
Services Diversion	Total	500,000	From diversion estimates from service providers (high end estimate)
Balancing pond/ pumping	Total	2,000,000	Estimated allowance only (from high level cost estimate 26/09/13)
Total		6,000,000	

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Topsoil Volume Estimate

Chainage	Ex grd LB	Ex grd RB	Berm	Total slope landtake	Topsoil needed
3400	32.292	32.152	36.25	24.168	3.63
3500	32.26	32.339	36.25	23.703	3.56
3600	32.944	33.169	36.25	19.161	2.87
3700	34.245	34.254	36.25	12.003	1.80
3800	36.167	35.738	36.25	1.785	0.27
3900	38.316	37.346	36.25	9.486	1.42
4000	40.344	40.338	39.75	3.546	0.53
4100	40.882	40.913	39.75	6.885	1.03
4200	40.811	40.947	39.75	6.774	1.02
4300	40.076	40.439	39.75	3.045	0.46
4400	39.303	38.803	39.75	4.182	0.63
4500	37.15	36.788	37	0.186	0.03
4600	33.693	33.925	37	19.146	2.87
4700	37.01	37.087	33.75	19.791	2.97
4800	38.118	37.966	33.75	25.752	3.86
Average (m ³)					1.80
Total topsoil needed for slopes (m ³)					2,592
Total topsoil for berms (m ³)					1,732
Net export (m ³)					4,375

Available - 8698 (total removed from existing land)