

Bedford Milton Keynes Waterway
Green Lane to Wootton Waterway Section
Estimated Construction Costs

Summary of the Estimated Construction Costs

| Waterway Elements | Unit | Quantity | Construction Cost (£) |
|----------------------------------|-------|----------|-----------------------|
| Open aspect waterway | m | 2,660 | 2,205,353 |
| Vertical sided waterway | m | 700 | 2,889,110 |
| Earthworks | Total | - | 2,312,569 |
| Locks | Total | - | 2,430,025 |
| Underpasses | Total | - | 1,276,046 |
| Miscellaneous | Total | - | 3,079,877 |
| Contingency/ Optimism bias (30%) | | | 4,257,894 |
| Grand Total | | | 18,450,873 |

Bedford Milton Keynes Waterway
Green Lane to Wootton Waterway Section
Estimated Construction Costs

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 | |

Bedford Milton Keynes Waterway
Green Lane to Wootton Waterway Section
Estimated Construction Costs

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 | |

Bedford Milton Keynes Waterway
Green Lane to Wootton Waterway Section
Estimated Construction Costs

Earthworks (embankments and cuts)

| Item | Unit | Rate (£) | Quantity | Cost (£) | Comments |
|---------------------------------|----------------|----------|----------|------------------|---|
| Excavation | m ³ | 5.00 | 148,330 | 741,650 | Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices |
| Fill | m ³ | 10.00 | 147,038 | 1,470,380 | 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 | 1,292 | 11,628 | Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices |
| Net topsoil export | m ³ | 9.00 | 9,879 | 88,911 | Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices |
| Total | Overall | | | 2,312,569 | |

Bedford Milton Keynes Waterway
Green Lane to Wootton Waterway Section
Estimated Construction Costs

| Locks | | | Lock 1 | | Lock 2 (double lock) | | Lock 3 | | |
|---|---------------------|------------|----------|----------|----------------------|----------|----------|----------|---|
| | | Height (m) | 3 | | 2.5 | | 3.25 | | |
| | | Length (m) | 34 | | 62.5 | | 34 | | |
| Item | Unit | Rate (£) | Quantity | Cost (£) | Quantity | Cost (£) | Quantity | Cost (£) | Comments |
| Concrete wall (main chamber) | m ³ | 550.00 | 6 | 3,300 | 5.4 | 2,970 | 6.3 | 3,465 | From Spon's 2012 (adjusted for 2014 prices) |
| Bed lining (concrete) | m ³ | 633.33 | 3 | 1,900 | 3 | 1,900 | 3 | 1,900 | From Spon's 2012 (adjusted for 2014 prices) |
| Brick Cladding | m ² | 100.00 | 8 | 800 | 7 | 700 | 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 | m ³ | 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 | | | 6,149 | | 5,719 | | 6,364 | |
| Wing walls sheet piled - Shallow end | m ² | 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 | m ² | 275.00 | 375 | 103,125 | 337.5 | 92,813 | 393.75 | 108,281 | From Spon's 2012 (adjusted for 2014 prices) |
| Cladding for wing walls (concrete) shallow | m ³ | 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 | m ³ | 550.00 | 18.75 | 10,313 | 16.875 | 9,281 | 19.6875 | 10,828 | From Spon's 2012 (adjusted for 2014 prices) |
| Cladding for wing walls (brickwork) shallow | m ² | 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 | m ² | 100.00 | 125 | 12,500 | 112.5 | 11,250 | 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 | | | 500,813 | | 588,219 | | 516,109 | |
| Total | per lock | | | 709,880 | | 945,658 | | 732,487 | |
| Stop Logs (200mmx10mm) | Overall (all locks) | 500.00 | | | | | 84 | 42,000 | Estimated price of £500 for 150x150x5000 stop log |

Bedford Milton Keynes Waterway
Green Lane to Wootton Waterway Section
Estimated Construction Costs

| Underpasses | | | Underpass 1 | | Underpass 2 | | |
|---------------------------------------|----------------|------------|-------------|----------|-------------|----------|---|
| | | Length (m) | 32.3 | | 42.6 | | |
| Item | Unit | Rate (£) | Quantity | Cost (£) | Quantity | Cost (£) | Comments |
| Concrete structure (in-situ) | m ³ | 633.33 | 14.5 | 9,183 | 14.5 | 9,183 | From Spon's 2012 (adjusted for 2014 prices) |
| Fill material (for towpath structure) | m ³ | 10.00 | 5.4 | 54 | 5.4 | 54 | Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices |
| Towpath | m ² | 31.50 | 3 | 95 | 3 | 95 | Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices |
| Subtotal | per m run | | | 9,332 | | 9,332 | |
| Wing walls (sheet piled) | m ² | 275.00 | 324 | 89,100 | 678 | 186,450 | From Spon's 2012 (adjusted for 2014 prices) |
| Capping beam for wing walls | m | 190.00 | 54 | 10,260 | 113 | 21,470 | Unit rate based on previous estimates for BMK work 2005, adjusted for 2014 prices |
| Cladding for wing walls (concrete) | m ² | 550.00 | 16.2 | 8,910 | 33.9 | 18,645 | From Spon's 2009 (adjusted for 2014 prices) |
| Cladding for wing walls (brickwork) | m ² | 100.00 | 108 | 10,800 | 226 | 22,600 | From Spon's 2009 (adjusted for 2014 prices) |
| Scour protection | m ² | 40.00 | 128.1 | 5,124 | 93.4 | 3,736 | From http://www.gabionbaskets.co.uk/gabion/gabion-design-and-prices , as a guide |
| Misc costs | per underpass | 100,000.00 | 1 | 100,000 | 1 | 100,000 | Safety fencing, lighting, bollards etc. |
| Subtotal | per underpass | | | 224,194 | | 352,901 | |
| Total | per underpass | | | 525,611 | | 750,435 | |

Bedford Milton Keynes Waterway
Green Lane to Wootton Waterway Section
Estimated Construction Costs

Miscellaneous

| Item | Unit | Cost (£) | Comments |
|-------------------------|-------|------------------|---|
| Services Diversion | Total | 1,079,877 | 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 | | 3,079,877 | |

| Service Providers | Estimates from Service Providers (£) | Comments |
|-------------------|--------------------------------------|---|
| BT | 10,000 | BT estimated as minimal costs. Allowance included |
| Anglian Water | 129,000 | For Permanent Diversion works |
| Virgin Media | 40,877 | |
| UKPN | 900,000 | Above-ground diversion works not included |
| GTC | Not Affected | |
| Total Cost | 1,079,877 | |

Bedford Milton Keynes Waterway
Green Lane to Wootton Waterway Section
Estimated Construction Costs

Topsoil Volume Estimate

| Chainage | Ex grd LB | Ex grd RB | Berm | Total slope landtake | Topsoil needed |
|---|-----------|-----------|--------|----------------------|----------------|
| 0 | 38.676 | 41.834 | 35 | 31.53 | 4.73 |
| 100 | 39.635 | 40.099 | 35 | 29.202 | 4.38 |
| 200 | 38.631 | 40.288 | 35 | 26.757 | 4.01 |
| 300 | 37.927 | 37.537 | 35 | 16.392 | 2.46 |
| 450 | 38.099 | 37.526 | 35 | 16.875 | 2.53 |
| 550 | 39.036 | 39.021 | 38 | 6.171 | 0.93 |
| 650 | 40.984 | 41.11 | 38 | 18.282 | 2.74 |
| 700 | 41.34 | 41.097 | 38 | 19.311 | 2.90 |
| 800 | 41.011 | 40.848 | 38 | 17.577 | 2.64 |
| 900 | 39.241 | 39.642 | 38 | 8.649 | 1.30 |
| 1000 | 38.208 | 38.307 | 38 | 1.545 | 0.23 |
| 1100 | 36.548 | 36.752 | 38 | 8.1 | 1.22 |
| 1200 | 35.698 | 35.386 | 38 | 14.748 | 2.21 |
| 1300 | 34.949 | 34.799 | 38 | 18.756 | 2.81 |
| 1400 | 34.577 | 34.333 | 38 | 21.27 | 3.19 |
| 1500 | 34.403 | 34.227 | 36.272 | 11.742 | 1.76 |
| 1600 | 33.931 | 33.767 | 33 | 5.094 | 0.76 |
| 1700 | 33.602 | 33.589 | 33 | 3.573 | 0.54 |
| 1800 | 33.365 | 33.263 | 33 | 1.884 | 0.28 |
| 1900 | 33.355 | 33.456 | 33 | 2.433 | 0.36 |
| 2000 | 33.064 | 33.625 | 33 | 2.067 | 0.31 |
| 2100 | 33.371 | 33.047 | 33 | 1.254 | 0.19 |
| 2250 | 32.87 | 32.798 | 33 | 0.996 | 0.15 |
| 2300 | 32.793 | 32.879 | 33 | 0.984 | 0.15 |
| 2400 | 32.747 | 32.77 | 33 | 1.449 | 0.22 |
| 2500 | 32.471 | 32.581 | 36.25 | 22.344 | 3.35 |
| 2600 | 32.373 | 32.27 | 36.25 | 23.571 | 3.54 |
| 2700 | 32.424 | 32.159 | 36.25 | 23.751 | 3.56 |
| 2800 | 32.478 | 32.698 | 36.25 | 21.972 | 3.30 |
| 2900 | 33.15 | 32.794 | 36.25 | 19.668 | 2.95 |
| 3000 | 33.439 | 32.75 | 36.25 | 18.933 | 2.84 |
| 3100 | 33.232 | 33.2 | 36.25 | 18.204 | 2.73 |
| 3200 | 32.509 | 32.282 | 36.25 | 23.127 | 3.47 |
| 3300 | 32.25 | 32.154 | 36.25 | 24.288 | 3.64 |
| Average (m ³) | | | | | 2.13 |
| Total topsoil needed for slopes (m ³) | | | | | 7,152 |
| Total topsoil for berms (m ³) | | | | | 4,032 |
| Net export (m ³) | | | | | 9,879 |

Available- 21063 (total removed from existing land)