MOTT MACDONALD

Project Costs Breakdown

Outline Business Case - Appendix O

17 January 2020

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Document reference: | | 392438-MMD-BCA-XX-RP-BC-0045

Information class: Standard

Contents

1 Assumptions and Exclusions

Cambridge to Cambourne

General Assumptions

1 Estimate is based at 4Q18
2 Risk and contingency is applied based on a Phase 3 estimate, Option Selection, as per agreed procedure
3 Works expected to be carried out in normal working hours 08:00 to 18:00, Monday to Friday
4 Uplifts have been applied to the estimate to cover any night time or out of hours working that may be required on
5 Works can be carried out under half road closure wherever possible
6 Allowances have been included where we have not received sufficient information to allow us to price the works confidently. These have been clearly identified in the estimate and will require validation when further information becomes available
7 Existing ground level approximately same as finished construction levels
8 All signage to be unlit
9 All excavated material is assumed as inert
10 Land deemed relatively flat
11 No hard digging required for any element of the scheme
12 Topsoil can be reused - no imported topsoil needed
13 Where possible budget quotations have been used from specialist subcontractors
14 2.5% of the total Direct Construction Costs have been used for environmental mitigation measures
15 1000m length of new road is allowed for in Option 1-3 to connect the road from Bourn Airfield to Wellington Way Roundabout
16 Rate book dated 8th April 2019 applied
17 See estimates and rates sheet for further assumptions and details of scope
18 All lighting columns assmmed to be 8m high in absence of specific design information

Specific Option Assumptions

Phase 1

19 Length of Guided Busway; 4760m
20 Length of Maintenance track/ Footway/ Cycleway; 4749m
21 Allowed for unbound subbase only below the guided busway - specific construction details not known
22 Allowance made for 4 nr of bus stops
23 Concrete batching plant site compound allowed for within the prelims allowance
24 Out of hours allowance included
25 Drainage surveys included in the design percentage
26 Bridges are assumed to not be painted eg Corten weathering steel or concrete finish
27 Resurfacing is needed on M11 road ridge.
28 Allowance made for demolishing existing bridge at Bin Brook Crossing and building a new one.

Phase 2 Option 1

29 Length of Guided Busway; 5694m
30 Allowance made for 4 nr of bus stops
31 Concrete batching plant site compound allowed for within the prelims allowance
32 Out of hours allowance included

Phase 2 Option 2

33 Length of Guided Busway; 2078m
34 Allowance made for 4 nr of bus stops
35 Concrete batching plant site compound allowed for within the prelims allowance
36 Out of hours allowance included

Phase 2 Option 3

37 Length of Guided Busway; 2078m
38 Length of Bus Lane; 6159m
39 Allowance made for 4 nr of bus stops
40 Concrete batching plant site compound allowed for within the prelims allowance
41 Out of hours allowance included

Water Works Park and Ride

42 Bare rooted native species whips as environmental barrier

43 Allowance made for 1nr attenuation pond

Scotland Farm Park and Ride

44 Bare rooted native species whips as environmental barrier

45 Allowance made for 1nr attenuation pond and 1nr naturalised pond

General Exclusions

46 Bus Depot

47 Fuel resistant asphalt

48 Telecommunication works for NRTS including any ducting for the dual carriageways

49 Optimism Bias

50 VAT

51 3rd party compensation costs

52 Planning and approval charges

53 Land purchase or rental

54 Costs associated with Statutory Fees (e.g. HMRI, Local Authority, etc.)

55 Costs associated with taxes, levies and licences

56 Costs associated with changes in legislation and any form of applicable standards

57 Allowances for unforeseen ground conditions / provisions for ground stabilisation unless specifically identified

58 Christmas, Easter and Bank Holiday working

59 Archaeological digs

60 Works that have not been specifically included for in the estimate

61 Re-location of affected businesses

62 Given the level of detail provided, it is not possible to quantify the extent of utilities to be relocated, protected or diverted. Costs for diversions can be extremely volatile and as such are very difficult to derive, and as such have been excluded from these estimates

Specific Option Exclusions

Phase 1 & Phase 2

63 Telecomms work

64 Procurement of new buses excluded

65 New depot excluded

Water Works Park and Ride

66 Out of hours working is excluded

Scotland Farm Park and Ride

67 Out of hours working is excluded

Clarification of cost structure for each Option

Option 1a - Includes

68 Phase 1 Madingley Mulch Roundabout to Grange Road

69 Phase 2 Cambourne to Bourn Roundabout

70 Phase 2 Bourn Roundabout to Madingley Mulch Roundabout (Full Off Road)

71 Waterworks Park and Ride

Cambridge to Cambourne

Option 1b - Includes

72 Phase 1 Madingley Mulch Roundabout to Grange Road
73 Phase 2 Cambourne to Bourn Roundabout
74 Phase 2 Bourn Roundabout to Madingley Mulch Roundabout (Full Off Road)
75 Scotland Farm Park and Ride

Option 2a - Includes

76 Phase 1 Madingley Mulch Roundabout to Grange Road
77 Phase 2 Cambourne to Bourn Roundabout
78 Phase 2 Bourn Roundabout to Madingley Mulch Roundabout (Do Minimum On Road)
79 Waterworks Park and Ride

Option 2b - Includes

80 Phase 1 Madingley Mulch Roundabout to Grange Road
81 Phase 2 Cambourne to Bourn Roundabout
82 Phase 2 Bourn Roundabout to Madingley Mulch Roundabout (Do Minimum On Road)
83 Scotland Farm Park and Ride

Option 3a - Includes

84 Phase 1 Madingley Mulch Roundabout to Grange Road
85 Phase 2 Cambourne to Bourn Roundabout
86 Phase 2 Bourn Roundabout to Madingley Mulch Roundabout (Do Minimum with Bus Lanes)
87 Waterworks Park and Ride

Option 3b - Includes

88 Phase 1 Madingley Mulch Roundabout to Grange Road
89 Phase 2 Cambourne to Bourn Roundabout
90 Phase 2 Bourn Roundabout to Madingley Mulch Roundabout (Do Minimum with Bus Lanes)
91 Scotland Farm Park and Ride

Whole Life Cost Estimate

92 Capital costs for removing infrastructure have been ommitted on the assumption that the infrastructure will remain ad infitum
93 Costs evaluated over a 60 year period
94 The Discounted rate used of 3.5% is based on information obtained from HM Treasury's Green Book where the life
95 P80 costs referrenced for WLC estimates
96 WLC estimate does not include for bus way renewals

2 Drawing

DRAWINGS REGISTER

Ref:	*Title*	*Revision*
5164295-ATK-ZZ-ZZ-DR-L-91	SCOTLAND FARM PARK AND RIDE LANDSCAPE PLAN	N/A
5020059_HW_FS_301	Waterworks Alternative Park and Ride Layout	A
5020059_HW_FS_130	Do something 1B Off Road Phase 1 + Scotland Farm Sheet 1 of 5	C
5020059_HW_FS_131	Do something 1B Off Road Phase 1 + Scotland Farm Sheet 2 of 5	C
5020059_HW_FS_132	Do something 1B Off Road Phase 1 + Scotland Farm Sheet 3 of 5	C
5020059_HW_FS_133	Do something 1B Off Road Phase 1 + Scotland Farm Sheet 4 of 5	C
5020059_HW_FS_134	Do something 1B Off Road Phase 1 + Scotland Farm Sheet 5 of 5	C
5020059_HW_FS_140	Do something 1A Off Road Phase 1 + WaterWorks Sheet 1 of 5	C
5020059_HW_FS_141	Do something 1A Off Road Phase 1 + WaterWorks Sheet 2 of 5	C
5020059_HW_FS_142	Do something 1A Off Road Phase 1 + WaterWorks Sheet 3 of 5	C
5020059_HW_FS_143	Do something 1A Off Road Phase 1 + WaterWorks Sheet 4 of 5	C
5020059_HW_FS_144	Do something 1A Off Road Phase 1 + WaterWorks Sheet 5 of 5	C
5020059_HW_FS_150	Do something 2B Off Road Phase 1 + Scotland Farm Sheet 1 of 7	C
5020059_HW_FS_151	Do something 2B Off Road Phase 1 + Scotland Farm Sheet 2 of 7	C
5020059_HW_FS_152	Do something 2B Off Road Phase 1 + Scotland Farm Sheet 3 of 7	C
5020059_HW_FS_153	Do something 2B Off Road Phase 1 + Scotland Farm Sheet 4 of 7	C
5020059_HW_FS_154	Do something 2B Off Road Phase 1 + Scotland Farm Sheet 5 of 7	C
5020059_HW_FS_155	Do something 2B Off Road Phase 1 + Scotland Farm Sheet 6 of 7	C
5020059_HW_FS_156	Do something 2B Off Road Phase 1 + Scotland Farm Sheet 7 of 7	C
5020059_HW_FS_160	Do something 2A Off Road Phase 1 + WaterWorks Sheet 1 of 7	C
5020059_HW_FS_161	Do something 2A Off Road Phase 1 + WaterWorks Sheet 2 of 7	C
5020059_HW_FS_162	Do something 2A Off Road Phase 1 + WaterWorks Sheet 3 of 7	C
5020059_HW_FS_163	Do something 2A Off Road Phase 1 + WaterWorks Sheet 4 of 7	C
5020059_HW_FS_164	Do something 2A Off Road Phase 1 + WaterWorks Sheet 5 of 7	C
5020059_HW_FS_165	Do something 2A Off Road Phase 1 + WaterWorks Sheet 6 of 7	C
5020059_HW_FS_169	Do something 2A Off Road Phase 1 + WaterWorks Sheet 7 of 7	C
5020059_HW_FS_220	Phase 2 Option 1 Do Something Full Off Road Option Sheet 1 of 3	A
5020059_HW_FS_221	Phase 2 Option 1 Do Something Full Off Road Option Sheet 2 of 3	A
5020059_HW_FS_222	Phase 2 Option 1 Do Something Full Off Road Option Sheet 3 of 3	A
5020059_HW_FS_223	Phase 2 Option 2 Do Something Full Off Road Option Sheet 1 of 3	A
5020059_HW_FS_224	Phase 2 Option 2 Do Something Full Off Road Option Sheet 2 of 3	A
5020059_HW_FS_225	Phase 2 Option 2 Do Something Full Off Road Option Sheet 3 of 3	A
5020059_HW_FS_226	Phase 2 Option 3 Do Something Full Off Road Option Sheet 1 of 3	A
5020059_HW_FS_227	Phase 2 Option 3 Do Something Full Off Road Option Sheet 2 of 3	A
5020059_HW_FS_228	Phase 2 Option 3 Do Something Full Off Road Option Sheet 3 of 3	A
5020059_HW_FS_231	Phase 2 Option 4 Do Something Full Off Road Option Sheet 1 of 3	A
5020059_HW_FS_232	Phase 2 Option 4 Do Something Full Off Road Option Sheet 2 of 3	A
5020059_HW_FS_233	Phase 2 Option 4 Do Something Full Off Road Option Sheet 3 of 3	A
5020059_HW_FS_290	Phase 2 Option 5 Do Something Full Off Road Option Sheet 1 of 3	A
5020059_HW_FS_291	Phase 2 Option 5 Do Something Full Off Road Option Sheet 2 of 3	A
5020059_HW_FS_292	Phase 2 Option 5 Do Something Full Off Road Option Sheet 3 of 3	A

3 Construction Summary

WBS	Cambridge to Cambourne	Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b
1	**DIRECT CONSTRUCTION COSTS**	**£ 52,736,385**	**£ 54,946,290**	**£ 44,505,783**	**£ 46,715,688**	**£ 50,939,181**	**£ 53,149,087**
1.02	SERIES 200: SITE CLEARANCE	£ 692,634	£ 739,641	£ 619,257	£ 666,264	£ 815,094	£ 862,101
1.03	SERIES 300: FENCING	£ 110,053	£ 112,942	£ 110,053	£ 112,942	£ 110,053	£ 112,942
1.04	SERIES 400: ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIAN)	£ -	£ -	£ -	£ -	£ -	£ -
1.05	SERIES 500: DRAINAGE AND SERVICE DUCTS	£ 6,840,091	£ 6,934,656	£ 5,494,488	£ 5,589,053	£ 6,586,794	£ 6,681,359
1.06	SERIES 600: EARTHWORKS	£ 6,135,782	£ 6,575,500	£ 5,196,599	£ 5,636,316	£ 6,155,102	£ 6,594,820
1.07	SERIES 700: PAVEMENTS	£ 6,880,918	£ 7,310,638	£ 6,663,761	£ 7,093,481	£ 8,726,943	£ 9,156,663
1.11	SERIES 1100: KERBS, FOOTWAYS AND PAVED AREAS	£ 14,968,683	£ 14,867,506	£ 10,456,923	£ 10,355,747	£ 10,584,247	£ 10,483,071
1.12	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS	£ 282,020	£ 282,020	£ 220,764	£ 220,764	£ 250,428	£ 250,428
1.13	SERIES 1300: ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS	£ 1,680,124	£ 1,682,017	£ 1,367,625	£ 1,369,518	£ 1,889,014	£ 1,890,907
1.14	SERIES 1400: ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS	£ 3,100,910	£ 3,059,562	£ 2,541,957	£ 2,500,609	£ 3,408,014	£ 3,366,666
1.15	SERIES 1500: MOTORWAY COMMUNICATION	£ -	£ -	£ -	£ -	£ -	£ -
1.16	SERIES 1600: PILING AND EMBEDDED RETAINING WALLS	£ -	£ -	£ -	£ -	£ -	£ -
1.17	SERIES 1700: STRUCTURAL CONCRETE	£ -	£ -	£ -	£ -	£ -	£ -
1.18	SERIES 1800: STEELWORK FOR STRUCTURES	£ -	£ -	£ -	£ -	£ -	£ -
1.19	SERIES 1900: PROTECTION OF STEELWORK AGAINST CORROSION	£ -	£ -	£ -	£ -	£ -	£ -
1.20	SERIES 2000: WATERPROOFING FOR STRUCTURES	£ -	£ -	£ -	£ -	£ -	£ -
1.21	SERIES 2100: BRIDGE BEARINGS	£ -	£ -	£ -	£ -	£ -	£ -
1.23	SERIES 2300: BRIDGE EXPANSION JOINTS AND SEALING OF GAPS	£ -	£ -	£ -	£ -	£ -	£ -
1.24	SERIES 2400: BRICKWORK, BLOCKWORK AND STONEWORK	£ -	£ -	£ -	£ -	£ -	£ -
1.25	SERIES 2500: SPECIAL STRUCTURES	£ 8,892,016	£ 9,109,026	£ 8,892,016	£ 9,109,026	£ 8,892,016	£ 9,109,026
1.27	SERIES 2700: ACCOMMODATION WORKS	£ -	£ -	£ -	£ -	£ -	£ -
1.30	SERIES 3000: LANDSCAPING AND ECOLOGY	£ 3,153,154	£ 4,272,781	£ 2,942,340	£ 4,061,968	£ 3,521,477	£ 4,641,104
1.50	SERIES 5000: MAINTENANCE PAINTING OF STEELWORK	£ -	£ -	£ -	£ -	£ -	£ -
2	**INDIRECT CONSTRUCTION COSTS**	**£ 25,459,105**	**£ 26,315,444**	**£ 21,356,150**	**£ 22,212,488**	**£ 24,563,199**	**£ 25,419,538**
2.01	CONTRACTORS PRELIMINARIES	£ 10,547,277	£ 10,989,258	£ 8,901,157	£ 9,343,138	£ 10,187,836	£ 10,629,817
2.01a	CONTRACTORS PRELIMINARIES: TRAFFIC MANAGEMENT	£ 2,636,819	£ 2,747,315	£ 2,225,289	£ 2,335,784	£ 2,546,959	£ 2,657,454
2.01b	CONTRACTORS PRELIMINARIES: UPLIFT FOR OUT OF HOURS WORKING	£ 4,525,906	£ 4,525,906	£ 3,702,846	£ 3,702,846	£ 4,346,186	£ 4,346,186
2.02	CONTRACTORS OVERHEAD AND PROFIT	£ 7,749,103	£ 8,052,965	£ 6,526,858	£ 6,830,720	£ 7,482,218	£ 7,786,080
	BASE COST ESTIMATE (DIRECT COSTS + INDIRECT COSTS)	**£ 78,195,490**	**£ 81,261,734**	**£ 65,861,933**	**£ 68,928,177**	**£ 75,502,380**	**£ 78,568,624**
3	**DESIGN COSTS**	**£ 12,511,278**	**£ 13,001,877**	**£ 10,537,909**	**£ 11,028,508**	**£ 12,080,381**	**£ 12,570,980**
3.01	Stated Project Phase Design Fees, inc Testing and Commissioning	£ 12,511,278	£ 13,001,877	£ 10,537,909	£ 11,028,508	£ 12,080,381	£ 12,570,980
3.02							
4	**PROJECT MANAGEMENT COSTS**	**£ 9,202,518**	**£ 9,563,727**	**£ 7,751,249**	**£ 8,112,458**	**£ 8,885,624**	**£ 9,246,833**
4.01	Client Project Organisation	£ 9,202,518	£ 9,563,727	£ 7,751,249	£ 8,112,458	£ 8,885,624	£ 9,246,833
5	**OTHER PROJECT COSTS**	**£ 1,318,410**	**£ 1,373,657**	**£ 1,112,645**	**£ 1,167,892**	**£ 1,273,480**	**£ 1,328,727**
5.01	Environmental Mitigations (2.5% of Base Cost Estimate)	£ 1,318,410	£ 1,373,657	£ 1,112,645	£ 1,167,892	£ 1,273,480	£ 1,328,727
6	**INFLATION**	**£ 1,518,415**	**£ 1,578,015**	**£ 1,278,956**	**£ 1,338,556**	**£ 1,466,128**	**£ 1,525,727**
6.01	Base date 4Q18 ; 3% annual inflation applied to 2Q2019	£ 1,518,415	£ 1,578,015	£ 1,278,956	£ 1,338,556	£ 1,466,128	£ 1,525,727
7	**TAXATION**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**
7.01	Stated Taxes	£ -	£ -	£ -	£ -	£ -	£ -
	PROJECT COST ESTIMATE	**£ 102,746,111**	**£ 106,779,010**	**£ 86,542,691**	**£ 90,575,590**	**£ 99,207,993**	**£ 103,240,892**
8	**RISK & CONTINGENCY COSTS**						
8.01	P50 Contingency	£ 19,521,761	£ 20,288,012	£ 16,443,111	£ 17,209,362	£ 18,849,519	£ 19,615,769
8.02	P80 Contingency	£ 25,686,528	£ 26,694,753	£ 21,635,673	£ 22,643,898	£ 24,801,998	£ 25,810,223
8.03	P90 Contingency	£ 29,796,372	£ 30,965,913	£ 25,097,380	£ 26,266,921	£ 28,770,318	£ 29,939,859
8.04	Optimism Bias	£ -	£ -	£ -	£ -	£ -	£ -
	ANTICIPATED FINAL COST (P50)	**£ 122,267,872**	**£ 127,067,022**	**£ 102,985,802**	**£ 107,784,952**	**£ 118,057,511**	**£ 122,856,662**
	ANTICIPATED FINAL COST (P80)	**£ 128,432,639**	**£ 133,473,763**	**£ 108,178,364**	**£ 113,219,488**	**£ 124,009,991**	**£ 129,051,115**
	ANTICIPATED FINAL COST (P90)	**£ 132,542,483**	**£ 137,744,923**	**£ 111,640,071**	**£ 116,842,511**	**£ 127,978,311**	**£ 133,180,751**

4 Whole Life Costs Summary

WBS	Cambridge to Cambourne	Option 1a	Option 1b	Option 2a	Option 2b	Option 3a	Option 3b
9	WHOLE LIFE COSTS	£ 142,043,373	£ 147,811,091	£ 121,863,840	£ 127,631,559	£ 139,840,708	£ 145,608,426
	2Q19 NPV	£ 142,043,373	£ 147,811,091	£ 121,863,840	£ 127,631,559	£ 139,840,708	£ 145,608,426

5 Phase 1

Mott MacDonald

Cambridge to Cambourne

Phase 1

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
INITIAL CONSTRUCTION					
SERIES 200: SITE CLEARANCE					**350,642**
General Site Clearance	76,177	m²	2.16	164,542	
Take up PCC Kerb and dispose of off site	581	m	9.42	5,470	
Take up and remove from site; 8m mounting height tubular galvanised steel column complete with a post top mounted luminaire	30	nr	270.99	8,130	
Bridge over Bin Brook Crossing					
Demolition of existing bridge over Bin Brook Crossing	345	m²	500.00	172,500	
SERIES 300: FENCING					**81,668**
Anti Dazzle Fencing (Charles Babbage Road) assumed chain link fence	501	m	20.31	10,181	
Supply and install Timber Post & Four Rail Fencing as per Highways Construction Detail Drawing H3. Timber treated to H4 BS8417. Posts incised for ground contact. Desired 30 year life.	2,340	m	30.55	71,487	
SERIES 500: DRAINAGE AND SERVICE DUCTS					**2,761,361**
Busway					
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	476	nr	491.64	234,021	
150mm diameter carrier drain with type S bed and surround; depth to invert not exceeding 2m	1,571	m	47.72	74,964	
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	10,473	m	84.11	880,863	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	10	nr	277.32	2,773	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	112	nr	3,084.61	345,501	
Drainage interceptor - Allowance of 1 per 1000m of drainage	10	nr	10,000.00	100,000	
Outfalls - Allowance of 1 per 1000m of drainage	10	nr	10,000.00	100,000	
Maintenance track /Cycleway					
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	4,749	m	84.11	399,470	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	10	nr	277.32	2,773	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	56	nr	3,084.61	172,738	
Dual Carriageway					
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	966	m	84.11	81,238	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	1	nr	277.32	277	
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	49	nr	491.64	24,090	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	12	nr	3,084.61	37,015	
Drainage interceptor - Allowance of 1 per 1000m of drainage	1	nr	10,000.00	10,000	
Outfalls - Allowance of 1 per 1000m of drainage	1	nr	10,000.00	10,000	
Culverts - Allowance	1	nr	25,000.00	25,000	
Ditch (assumed 1.3m3 per m with erosion control matting anchored in U-shaped trench, 100mm thick topsoil and seeding)	3,239	m	80.47	260,637	
SERIES 600: EARTHWORKS					**2,033,434**
Excavation of Topsoil					

	Excavation of acceptable material Class 5A Topsoil 150mm	11,427	m³	5.61	64,103	
	General Excavation					
	Excavation to bus stop subformation; Excavation of acceptable material; excluding Class 5A; normal material, excluding hard or artificially hard material, <2500m3	342	m³	2.54	869	
	Excavation to busway subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	27,798	m³	1.49	41,420	
	Excavation to maintenance track subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	11,969	m³	1.49	17,833	
	Excavation to carriageway subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	4,417	m³	1.49	6,581	
	Excavation to footpath subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; < 2500m3	1,069	m³	2.54	2,715	
	Excavation to attenuation pond; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	5,554	m³	1.49	8,276	
	Imported Fill					
	Imported acceptable material; Capping material; Class 6F2; for carriageway, 240mm thk	1,738	m³	40.64	70,626	
	Compaction of Material					
	Compaction of fill material to large areas	1,738	m³	3.50	6,082	
	Disposal of Material					
	Disposal of acceptable Class 5A topsoil	7,073	m³	28.23	199,670	
	Disposal of acceptable material excluding Class 5A	51,149	m³	28.23	1,443,945	
	Topsoiling and Storage of Topsoil					
	Topsoiling; Class 5A material excavated from site; 150mm thick; Sloping at 10 eg or less to the horizontal, >5000m2 (>750m3)	29,024	m²	1.10	31,926	
	Completion of Formation and Sub-formation					
	Completion of sub-formation on acceptable material; bus stops	360	m²	1.10	396	
	Completion of sub-formation on acceptable material; bus way	38,080	m²	1.10	41,888	
	Completion of sub-formation on acceptable material; maintenance track/cycleway	18,998	m²	1.10	20,898	
	Completion of sub-formation on acceptable material; carriageway	7,241	m²	1.10	7,965	
	Completion of sub-formation on acceptable material; footpath	4,751	m²	1.10	5,226	
	Lining of Watercourses					
	Lining of new watercourse; attenuation pond	6,747	m²	9.34	63,016	
	SERIES 700: PAVEMENTS					**2,142,769**
	Sub-Base					
	Imported granular sub-base; Type 1 aggregate; 200mm depth; bus way	38,080	m²	9.86	375,469	
	Imported granular sub-base; Type 1 aggregate; 200mm depth; bus stop	360	m²	9.86	3,550	
	Imported granular sub-base; Type 1 aggregate; 200mm depth; maintenance track/cycleway	18,998	m²	9.86	187,320	
	Imported granular sub-base; Type 1 aggregate; 200mm depth; carriageway	7,241	m²	9.86	71,396	
	Maintenance Track / Cycleway Pavement					
	AC32 HDM base 40/60 Rec 150mm thick in carriageway	18,998	m²	25.44	483,297	
	AC20 Dense binder course 40/60 Rec 60mm thick in carriageway	18,998	m²	10.72	203,721	
	40mm Thin Surface course system	18,998	m²	11.12	211,165	
	Carriageway Pavement					
	AC32 HDM base 40/60 Rec 150mm thick in carriageway	7,241	m²	25.44	184,201	

	AC20 Dense binder course 40/60 Rec 60mm thick in carriageway	7,241	m²	10.72	77,645	
	40mm Thin Surface course system	6,893	m²	11.12	76,614	
	Master tint- Red surface course (40mm)	348	m²	44.75	15,574	
	Resurfacing: 40mm Thin Surface course system	7,228	m²	11.12	80,378	
	Works to Existing bridge over M11					
	Resurfacing: 40mm Thin Surface course system	12,041	m²	11.12	133,900	
	Cold Milling					
	Cold milling/planning; 40mm thick; existing carriageway; including disposal	7,228	m²	2.00	14,456	
	Cold milling/planning; 40mm thick; existing bridge over M11; including disposal	12,041	m²	2.00	24,082	
	SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**6,457,380**
	Slipform Guided Bus Route					
	Steel Reinforcement supply and fit for bus route	571	t	1,127.46	644,051	
	Slip forming the mainline route. Excluding post grinding	9,521	m	409.99	3,903,340	
	Precision post grinding to achieve suitable gauge tolerance	9,521	m	128.12	1,219,794	
	Precision post grinding to achieve suitable gauge tolerance	90	m	128.12	11,531	
	In situ works for car traps/entry and exit splays	432	m	1,024.96	442,784	
	Kerbs, Channels, Edgings, Combined Drainage and Kerb Blocks					
	Precast concrete kerb; half battered (HB2 125 x 255 x 915mm) laid straight or curved	2,857	m	20.19	57,686	
	Precast concrete edgings; Laid straight or curved to radius exceeding 12m; 50mm x 150mm	754	m	13.72	10,340	
	Footways and Paved Areas					
	Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	4,751	m²	35.33	167,853	
	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**130,844**
	Traffic Signs					
	Signs - allowance	1	nr	2,000.00	2,000	
	Road Markings					
	Road Marking (Lining Crew) - allowance: to include ped crossings/adjoining roads/maintenance bays, traffic calming measures etc	11	shifts	1,000.00	11,000	
	Traffic Signal Installations					
	Traffic signal installation; including; traffic signal head, 4m swan neck pole, NAL socket, pedestrian push button, pedestrian signal indicator, infrared detector, traffic detection loop	17	nr	5,332.00	90,644	
	Traffic signal installation; controller cabinet	8	nr	3,400.00	27,200	
	SERIES 1300: ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS					**844,699**
	Busway and Road					
	8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt - Allowance @ 20m centres	268	nr	1,671.12	447,860	

	Maintenance track/ Cycle way/ Footway					
	8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt - Allowance @ 20m centres	237	nr	1,671.12	396,839	
	SERIES 1400: ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS					**1,542,592**
	Busway and Road					
	Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	5,341	m	27.52	146,985	
	Cabling 3 core XLPE/SWA/PVC- Allowance	9,629	m	33.14	319,105	
	Terminations at each column- Allowance	268	Item	86.83	23,270	
	Tofco feeder pillar (medium), including DNO connection within 2m of LV main	14	nr	3,382.51	47,355	
	Telensa CMS node - Allowance	268	nr	153.22	41,063	
	New DNO Connections - Allowance	14	nr	15,000.00	210,000	
	DNO connection within 2m of lv main (into feeder pillar) - Allowance	3	nr	356.45	1,069	
	Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	53	nr	575.75	30,515	
	Maintenance track/ Cycle way/ Footway					
	Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	4,749	m	27.52	130,703	
	Cabling 3 core XLPE/SWA/PVC- Allowance	8,549	m	33.14	283,310	
	Terminations at each column - Allowance	237	Item	86.83	20,619	
	Tofco feeder pillar (medium), including DNO connection within 2m of LV main	12	nr	3,382.51	40,590	
	Telensa CMS node - Allowance	237	nr	153.22	36,385	
	DNO new connections - Allowance	12	nr	15,000.00	180,000	
	DNO connection within 2m of lv main (into feeder pillar) - Allowance	12	nr	356.45	4,277	
	Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	47	nr	575.75	27,345	
	SERIES 1700: STRUCTURAL CONCRETE					**-**
	Batching plant	1	item		-	
	SERIES 2500: SPECIAL STRUCTURES					**7,905,295**
	Bus stops (25m in length), including fittings	4	nr	41,850.00	167,400	
	Ticket machine @ Park and Ride	2	nr	35,000.00	70,000	
	Green bridge over M11					
	Construct new overpass; including foundations, abutments, wingwalls, deck, parapets, approaches and drainage. Deck Area measured; Difficult Complexity	1,112	m²	5,500.00	6,115,395	
	Bridge over Bin Brook Crossing					
	Construct new bridge; including foundations, abutments, wingwalls, deck, parapets, approaches and drainage. Deck Area measured; Normal Complexity	345	m²	4,500.00	1,552,500	
	SERIES 3000: LANDSCAPING AND ECOLOGY					**1,657,605**
	Landscaping	79,937	m²	20.00	1,598,744	
	1.2m high clipped hedgerow (along the busway)	1,678	m	15.55	26,092	
	Meadow planting- 100% meadow (near Cambridge Road)	19,593	m²	0.77	15,182	
	Extension to plantation woodland (across Top Pitch)	9,431	m²	1.33	12,570	
	Green bridge over M11					
	Allowance for planting on the bridge (assumed bare rooted native species whips as screen)	273	m²	18.38	5,017	
				Total	**25,908,289**	**25,908,289**

30% SURFACING RENEWALS					
SERIES 200: SITE CLEARANCE					**20,082**
General Site Clearance	9,297	m²	2.16	20,082	
SERIES 600: EARTHWORKS					**127,528**
Excavation					
Excavation of artificial hard material; Maintenance Track/ Cycle Way	1,539	m³	11.52	17,727	
Excavation of artificial hard material; Carriageway	587	m³	11.52	6,757	
Excavation of artificial hard material; Footpaths	299	m³	11.52	3,448	
Extra over for breaking out surfacing	2,425	m³	9.74	23,616	
Disposal of Material					
Disposal of acceptable material excluding Class 5A	2,425	m³	28.23	68,448	
Completion of Formation and Sub-formation					
Completion of sub-formation on acceptable material	9,297	m²	0.81	7,531	
SERIES 700: PAVEMENTS					**372,337**
Pavement; Car Park					
Sub-base					
Imported granular sub-base; Type 1 aggregate; 20mm depth (top up)	186	m²	0.99	183	
Pavement					
AC32 HDM base 40/60 Rec 150mm thick	7,871	m²	25.44	200,249	
AC20 Dense binder course 40/60 Rec 60mm thick	7,871	m²	10.72	84,410	
40mm Thin Surface course system	7,871	m²	11.12	87,494	
SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**50,356**
Footways and Paved Areas					
Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	1,425	m²	35.33	50,356	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**4,000**
Road Markings					
Road Marking (Lining Crew)	4	shifts	1000.00	4,000	
			Total	**574,302**	

100% ROAD RESURFACE, INCLUDING BRIDGE DECKS					
SERIES 200: SITE CLEARANCE					**95,341**
General Site Clearance	44,139	m²	2.16	95,341	
SERIES 700: PAVEMENTS					**600,975**
Cold Milling					
Cold milling/planning; 40mm thick	44,139	m²	2.00	88,279	
Pavement; Car Park					
Pavement					
Tack coat	44,139	m²	0.50	22,070	
40mm Thin Surface course system	44,139	m²	11.12	490,627	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**11,000**
Road Markings					
Road Marking (Lining Crew)	11	shifts	1000.00	11,000	
			Total	**707,316**	
BRIDGE DECKS FULL DEPTH RESURFACING					
SERIES 200: SITE CLEARANCE					**3,147**
General Site Clearance	1,457	m²	2.16	3,147	
SERIES 700: PAVEMENTS					**87,820**
Cold Milling					
Cold milling/planning; 100mm thick	1,457	m²	5.00	7,284	
Cold milling/planning; 150mm thick	1,457	m²	7.50	10,927	
Pavement; Car Park					
Pavement					
Tack coat	1,457	m²	0.50	728	
AC32 HDM base 40/60 Rec 150mm thick	1,457	m²	25.44	37,063	
AC20 Dense binder course 40/60 Rec 60mm thick	1,457	m²	10.72	15,623	
40mm Thin Surface course system	1,457	m²	11.12	16,194	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**2,000**
Road Markings					
Road Marking (Lining Crew)	2	shifts	1000.00	2,000	
SERIES 2000: WATERPROOFING FOR STRUCTURES					**36,422**
Spray applied waterproofing system	1,457	m²	25.00	36,422	
			Total	**129,389**	

6 Option 1

Mott MacDonald

Cambridge to Cambourne

Phase 2 Option 1

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
INITIAL CONSTRUCTION					
SERIES 200: SITE CLEARANCE					**204,307**
General Site Clearance	94,587	m²	2.16	204,307	
SERIES 500: DRAINAGE AND SERVICE DUCTS					**2,978,630**
Busway					
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	569	nr	491.64	279,918	
150mm diameter carrier drain with type S bed and surround; depth to invert not exceeding 2m	1,879	m	47.72	89,660	
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	12,526	m	84.11	1,053,546	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	11	nr	277.32	3,051	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	134	nr	3,084.61	413,233	
Drainage interceptor - Allowance of 1 per 1000m of drainage	11	nr	10,000.00	110,000	
Outfalls - Allowance of 1 per 1000m of drainage	11	nr	10,000.00	110,000	
Dual Carriageway					
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	5,320	m	84.11	447,454	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	6	nr	277.32	1,664	
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	266	nr	491.64	130,776	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	63	nr	3,084.61	194,330	
Drainage interceptor - Allowance of 1 per 1000m of drainage	6	nr	10,000.00	60,000	
Outfalls - Allowance of 1 per 1000m of drainage	6	nr	10,000.00	60,000	
Culverts - Allowance	1	nr	25,000.00	25,000	
SERIES 600: EARTHWORKS					**2,333,248**
Excavation of Topsoil					
Excavation of acceptable material Class 5A Topsoil 150mm	14,188	m³	5.61	79,595	
General Excavation					
Excavation to busway subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	33,250	m³	1.49	49,543	
Excavation to bus stop subformation; Excavation of acceptable material; excluding Class 5A; normal material, excluding hard or artificially hard material, <2500m3	342	m³	2.54	869	
Excavation to carriageway subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	11,845	m³	1.49	17,649	
Excavation to attenuation pond; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	6,908	m³	1.49	10,293	
Imported Fill					
Imported acceptable material; Capping material; Class 6F2; for carriageway, 240mm thk	4,660	m³	40.64	189,390	

	Compaction of Material					
	Compaction of fill material to large areas	4,660	m^3	3.50	16,311	
	Disposal of Material					
	Disposal of acceptable Class 5A topsoil	10,333	m^3	28.23	291,709	
	Disposal of acceptable material excluding Class 5A	52,345	m^3	28.23	1,477,697	
	Topsoiling and Storage of Topsoil					
	Topsoiling; Class 5A material excavated from site; 150mm thick; Sloping at 10 eg or less to the horizontal, >5000m2 (>750m3)	25,698	m^2	1.10	28,268	
	Completion of Formation and Sub-formation					
	Completion of sub-formation on acceptable material; bus stops	360	m^2	1.10	396	
	Completion of sub-formation on acceptable material; bus way	45,552	m^2	1.10	50,107	
	Completion of sub-formation on acceptable material; carriageway	19,417	m^2	1.10	21,359	
	Completion of sub-formation on acceptable material; footpath	21,020	m^2	1.10	23,122	
	Lining of Watercourses					
	Lining of new watercourse; attenuation pond	8,238	m^2	9.34	76,941	
	SERIES 700: PAVEMENTS					**1,865,715**
	Sub-Base					
	Imported granular sub-base; Type 1 aggregate; 200mm depth; bus way	45,552	m^2	9.86	449,143	
	Imported granular sub-base; Type 1 aggregate; 200mm depth; bus stop	360	m^2	9.86	3,550	
	Imported granular sub-base; Type 1 aggregate; 200mm depth; carriageway	19,417	m^2	9.86	191,452	
	Dual carriageway					
	AC32 HDM base 40/60 Rec 150mm thick in carriageway	19,417	m^2	25.44	493,981	
	AC20 Dense binder course 40/60 Rec 60mm thick in carriageway	19,417	m^2	10.72	208,225	
	40mm Thin Surface course system	19,417	m^2	11.12	215,833	
	Resurfacing: 40mm Thin Surface course system	23,135	m^2	11.12	257,261	
	Cold Milling					
	Cold milling/planning; 40mm thick; existing carriageway; including disposal	23,135	m^2	2.00	46,270	
	SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**8,076,886**
	Slipform Guided Bus Route					
	Steel Reinforcement supply and fit for bus route	683	t	1,127.46	770,310	
	Slip forming the mainline route. Excluding post grinding	11,387	m	409.99	4,668,546	
	Precision post grinding to achieve suitable gauge tolerance	11,387	m	128.12	1,458,921	
	Precision post grinding to achieve suitable gauge tolerance	90	m	128.12	11,531	
	In situ works for car traps/entry and exit splays	216	m	1,024.96	221,392	
	Kerbs, Channels, Edgings, Combined Drainage and Kerb Blocks					
	Precast concrete kerb; half battered (HB2 125 x 255 x 915mm) laid straight or curved	5,320	m	20.19	107,408	
	Precast concrete edgings; Laid straight or curved to radius exceeding 12m; 50mm x 150mm	7,007	m	13.72	96,133	

	Footways and Paved Areas					
	Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	21,020	m²	35.33	742,645	
	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**145,176**
	Traffic Signs					
	Signs - allowance	1	nr	5,000.00	5,000	
	Road Markings					
	Road marking - allowance: to include ped crossings/adjoining roads/maintenance	17	shifts	1,000.00	17,000	
	Traffic Lights					
	Traffic signal installation; including; traffic signal head, 4m swan neck pole, NAL socket, pedestrian push button, pedestrian signal indicator, infrared detector, traffic detection loop	18	nr	5,332.00	95,976	
	Traffic signal installation; controller cabinet	8	nr	3,400.00	27,200	
	SERIES 1300: ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS					**698,528**
	Busway 8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt - Allowance @ 20m centres	285	nr	1,671.12	476,269	
	Dual carriageway 8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt - Allowance @ 20m centres	133	nr	1,671.12	222,259	
	SERIES 1400: ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS					**1,283,264**
	Busway					
	Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	5,694	m	27.52	156,686	
	Cabling 3 core XLPE/SWA/PVC- Allowance	10,254	m	33.14	339,803	
	Terminations at each column- Allowance	285	Item	86.83	24,747	
	Tofco feeder pillar (medium), including DNO connection within 2m of LV main	15	nr	3,382.51	50,738	
	Telensa CMS node - Allowance	285	nr	153.22	43,668	
	New DNO Connections - Allowance	15	nr	15,000.00	225,000	
	DNO connection within 2m of lv main (into feeder pillar) - Allowance	3	nr	356.45	1,069	
	Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	57	nr	575.75	32,818	
	Dual carriageway					
	Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	2,660	m	27.52	73,201	
	Cabling 3 core XLPE/SWA/PVC- Allowance	4,788	m	33.14	158,672	
	Terminations at each column- Allowance	133	Item	86.83	11,548	
	Tofco feeder pillar (medium), including DNO connection within 2m of LV main	7	nr	3,382.51	23,678	
	Telensa CMS node - Allowance	133	nr	153.22	20,378	
	New DNO Connections - Allowance	7	nr	15,000.00	105,000	
	DNO connection within 2m of lv main (into feeder pillar) - Allowance	2	nr	356.45	713	
	Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	27	nr	575.75	15,545	
	SERIES 1700: STRUCTURAL CONCRETE					**-**
	Batching plant	1	item		-	

	SERIES 2500: SPECIAL STRUCTURES					**307,400**
	Bus stops (25m in length), including fittings	4	nr	41,850.00	167,400	
	Ticket Machines - Allowance	4	nr	35,000.00	140,000	
	SERIES 3000: LANDSCAPING AND ECOLOGY					**1,457,620**
	Landscaping	71,119	m²	20.00	1,422,386	
	Planting normal sized shrubs (3L pots) and trees	469	m²	20.00	9,370	
	Meadow planting (90% wildflower, 10% area to include tress)	18,525	m²	0.81	14,929	
	Extension to plantation woodland	7,173	m²	1.33	9,560	
	Climbers and trailers	275	m	5.00	1,375	
				Total	**19,350,775**	

30% SURFACING RENEWALS					
SERIES 200: SITE CLEARANCE					**26,203**
General Site Clearance	12,131	m²	2.16	26,203	
SERIES 600: EARTHWORKS					**153,201**
Excavation					
Excavation of artificial hard material; Carriageway	1,573	m³	11.52	18,118	
Excavation of artificial hard material; Footpaths	1,324	m³	11.52	15,255	
Extra over for breaking out surfacing	2,897	m³	9.74	28,217	
Disposal of Material					
Disposal of acceptable material excluding Class 5A	2,897	m³	28.23	81,783	
Completion of Formation and Sub-formation					
Completion of sub-formation on acceptable material	12,131	m²	0.81	9,826	
SERIES 700: PAVEMENTS					**275,651**
Pavement; Car Park					
Sub-base					
Imported granular sub-base; Type 1 aggregate; 20mm depth car park (top up)	243	m²	0.99	239	
Pavement					
AC32 HDM base 40/60 Rec 150mm thick	5,825	m²	25.44	148,194	
AC20 Dense binder course 40/60 Rec 60mm thick in carriageway and car park	5,825	m²	10.72	62,468	
40mm Thin Surface course system	5,825	m²	11.12	64,750	
SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**222,794**
Footways and Paved Areas					
Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	6,306	m²	35.33	222,794	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**6,000**
Road Markings					
Road Marking	6	shifts	1000.00	6,000	
			Total	**683,849**	

100% ROAD RESURFACE					
SERIES 200: SITE CLEARANCE					**137,317**
General Site Clearance	63,573	m²	2.16	137,317	
SERIES 700: PAVEMENTS					**865,569**
Cold Milling					
Cold milling/planning; 40mm thick	63,573	m²	2.00	127,145	
Pavement; Car Park					
Pavement					
Tack coat	63,573	m²	0.50	31,786	
40mm Thin Surface course system	63,573	m²	11.12	706,637	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**17,000**
Road Markings					
Road Marking	17	shifts	1000.00	17,000	
			Total	**1,019,886**	

7 Option 2

Mott MacDonald

Cambridge to Cambourne

Phase 2 Option 2

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
INITIAL CONSTRUCTION					
SERIES 200: SITE CLEARANCE					**130,931**
General Site Clearance	60,616	m²	2.16	130,931	
SERIES 500: DRAINAGE AND SERVICE DUCTS					**1,633,027**
Busway					
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	208	nr	491.64	102,181	
150mm diameter carrier drain with type S bed and surround; depth to invert not exceeding 2m	686	m	47.72	32,729	
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	4,572	m	84.11	384,586	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	4	nr	277.32	1,109	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	49	nr	3,084.61	150,846	
Drainage interceptor - Allowance of 1 per 1000m of drainage	4	nr	10,000.00	40,000	
Outfalls - Allowance of 1 per 1000m of drainage	4	nr	10,000.00	40,000	
Dual Carriageway					
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	5,058	m	84.11	425,450	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	6	nr	277.32	1,664	
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	253	nr	491.64	124,385	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	60	nr	3,084.61	185,077	
Drainage interceptor - Allowance of 1 per 1000m of drainage	6	nr	10,000.00	60,000	
Outfalls - Allowance of 1 per 1000m of drainage	6	nr	10,000.00	60,000	
Culverts - Allowance	1	nr	25,000.00	25,000	
SERIES 600: EARTHWORKS					**1,394,064**
Excavation of Topsoil					
Excavation of acceptable material Class 5A Topsoil 150mm	9,092	m³	5.61	51,008	
General Excavation					
Excavation to busway subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	12,138	m³	1.49	18,085	
Excavation to bus stop subformation; Excavation of acceptable material; excluding Class 5A; normal material, excluding hard or artificially hard material, <2500m3	342	m³	2.54	869	
Excavation to carriageway subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	11,262	m³	1.49	16,781	
Excavation to attenuation pond; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	4,411	m³	1.49	6,573	
Imported Fill					
Imported acceptable material; Capping material; Class 6F2; for carriageway, 240mm thk	4,431	m³	40.64	180,077	
Compaction of Material					
Compaction of fill material to large areas	4,431	m³	3.50	15,509	
Disposal of Material					
Disposal of acceptable Class 5A topsoil	6,314	m³	28.23	178,235	
Disposal of acceptable material excluding Class 5A	28,153	m³	28.23	794,766	

	Topsoiling and Storage of Topsoil					
	Topsoiling; Class 5A material excavated from site; 150mm thick; Sloping at 10 eg or less to the horizontal, >5000m2 (>750m3)	18,525	m²	1.10	20,378	
	Completion of Formation and Sub-formation					
	Completion of sub-formation on acceptable material; bus stops	360	m²	1.10	396	
	Completion of sub-formation on acceptable material; bus way	16,624	m²	1.10	18,286	
	Completion of sub-formation on acceptable material; carriageway	18,463	m²	1.10	20,309	
	Completion of sub-formation on acceptable material; footpath	19,695	m²	1.10	21,665	
	Lining of Watercourses					
	Lining of new watercourse; attenuation pond	5,474	m²	9.34	51,128	
	SERIES 700: PAVEMENTS					**1,648,558**
	Sub-Base					
	Imported granular sub-base; Type 1 aggregate; 200mm depth; bus way	3,325	m³	46.50	154,603	
	Imported granular sub-base; Type 1 aggregate; 200mm depth; bus stop	72	m³	46.50	3,348	
	Imported granular sub-base; Type 1 aggregate; 200mm depth; carriageway	3,693	m³	46.50	171,706	
	Dual carriageway					
	AC32 HDM base 40/60 Rec 150mm thick in carriageway	18,463	m²	25.44	469,690	
	AC20 Dense binder course 40/60 Rec 60mm thick in carriageway	18,463	m²	10.72	197,986	
	40mm Thin Surface course system	18,463	m²	11.12	205,220	
	Resurfacing: 40mm Thin Surface course system	33,994	m²	11.12	378,016	
	Cold Milling					
	Cold milling/planning; 40mm thick; existing carriageway	33,994	m²	2.00	67,989	
	SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**3,565,126**
	Slipform Guided Bus Route					
	Steel Reinforcement supply and fit for bus route	249	t	1,127.46	281,194	
	Slip forming the mainline route. Excluding post grinding	4,157	m	409.99	1,704,203	
	Precision post grinding to achieve suitable gauge tolerance	4,157	m	128.12	532,564	
	Precision post grinding to achieve suitable gauge tolerance	90	m	128.12	11,531	
	In situ works for car traps/entry and exit splays	144	m	1,024.96	147,595	
	Kerbs, Channels, Edgings, Combined Drainage and Kerb Blocks					
	Precast concrete kerb; half battered (HB2 125 x 255 x 915mm) laid straight or curved	5,058	m	20.19	102,126	
	Precast concrete edgings; Laid straight or curved to radius exceeding 12m; 50mm x 150mm	6,565	m	13.72	90,074	
	Footways and Paved Areas					
	Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	19,695	m²	35.33	695,840	
	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**83,920**

	Traffic Signs					
	Signs - allowance	1	item	5,000.00	5,000	
	Road Markings					
	Road marking - allowance: to include ped crossings/adjoining roads/maintenance bays, traffic calming measures etc	12	shifts	1,000.00	12,000	
	Traffic Lights					
	Traffic signal installation; including; traffic signal head, 4m swan neck pole, NAL socket, pedestrian push button, pedestrian signal indicator, infrared detector, traffic detection loop	10	nr	5,332.00	53,320	
	Traffic signal installation; controller cabinet	4	nr	3,400.00	13,600	
	SERIES 1300: ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS					**386,029**
	Busway					
	8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt - Allowance @ 20m centres	104	nr	1,671.12	173,796	
	Dual carriageway					
	8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt - Allowance @ 20m centres	127	nr	1,671.12	212,232	
	SERIES 1400: ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS					**724,311**
	Busway					
	Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	2,078	m	27.52	57,197	
	Cabling 3 core XLPE/SWA/PVC- Allowance	3,742	m	33.14	124,022	
	Terminations at each column- Allowance	104	Item	86.83	9,030	
	Tofco feeder pillar (medium), including DNO connection within 2m of LV main	6	nr	3,382.51	20,295	
	Telensa CMS node - Allowance	104	nr	153.22	15,935	
	New DNO Connections - Allowance	6	nr	15,000.00	90,000	
	DNO connection within 2m of lv main (into feeder pillar) - Allowance	2	nr	356.45	713	
	Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	21	nr	575.75	12,091	
	Dual carriageway					
	Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	2,529	m	27.52	69,602	
	Cabling 3 core XLPE/SWA/PVC- Allowance	4,561	m	33.14	151,156	
	Terminations at each column- Allowance	127	Item	86.83	11,027	
	Tofco feeder pillar (medium), including DNO connection within 2m of LV main	7	nr	3,382.51	23,678	
	Telensa CMS node - Allowance	127	nr	153.22	19,459	
	New DNO Connections - Allowance	7	nr	15,000.00	105,000	
	DNO connection within 2m of lv main (into feeder pillar) - Allowance	2	nr	356.45	713	
	Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	25	nr	575.75	14,394	
	SERIES 1700: STRUCTURAL CONCRETE					**-**
	Batching plant	1	item		-	
	SERIES 2500: SPECIAL STRUCTURES					**307,400**
	Bus stops (25m in length), including fittings	4	nr	41,850.00	167,400	
	Ticket Machines - Allowance	4	nr	35,000.00	140,000	
	SERIES 3000: LANDSCAPING AND ECOLOGY					**1,246,807**
	Landscaping	61,570	m²	20.00	1,231,393	
	Planting normal sized shrubs (3L pots) and trees	24	m²	20.00	485	
	Meadow planting (90% wildflower, 10% area to include tress)	18,525	m²	0.81	14,929	
				Total	**11,120,172**	**11,120,172**

30% SURFACING RENEWALS					
SERIES 200: SITE CLEARANCE					**24,726**
General Site Clearance	11,447	m²	2.16	24,726	
SERIES 600: EARTHWORKS					**144,691**
Excavation					
Excavation of artificial hard material; Carriageway	1,496	m³	11.52	17,228	
Excavation of artificial hard material; Footpaths	1,241	m³	11.52	14,294	
Extra over for breaking out surfacing	2,736	m³	9.74	26,651	
Disposal of Material					
Disposal of acceptable material excluding Class 5A	2,736	m³	28.23	77,245	
Completion of Formation and Sub-formation					
Completion of sub-formation on acceptable material	11,447	m²	0.81	9,272	
SERIES 700: PAVEMENTS					**262,095**
Pavement; Car Park					
Sub-base					
Imported granular sub-base; Type 1 aggregate; 20mm depth car park (top up)	229	m²	0.99	226	
Pavement					
AC32 HDM base 40/60 Rec 150mm thick	5,539	m²	25.44	140,907	
AC20 Dense binder course 40/60 Rec 60mm thick in carriageway and car park	5,539	m²	10.72	59,396	
40mm Thin Surface course system	5,539	m²	11.12	61,566	
SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**208,752**
Footways and Paved Areas					
Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	5,909	m²	35.33	208,752	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**4,000**
Road Markings					
Road Marking	4	shifts	1000.00	4,000	
			Total	**644,264**	

	100% ROAD RESURFACE					
	SERIES 200: SITE CLEARANCE					**155,849**
	General Site Clearance	72,152	m²	2.16	155,849	
	SERIES 700: PAVEMENTS					**982,384**
	Cold Milling					
	Cold milling/planning; 40mm thick	72,152	m²	2.00	144,305	
	Pavement; Car Park					
	Pavement					
	Tack coat	72,152	m²	0.50	36,076	
	40mm Thin Surface course system	72,152	m²	11.12	802,003	
	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**12,000**
	Road Markings					
	Road Marking	12	shifts	1000.00	12,000	
				Total	**1,150,234**	

8 Option 3

Mott MacDonald

Cambridge to Cambourne

Phase 2 Option 3

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
INITIAL CONSTRUCTION					
SERIES 200: SITE CLEARANCE					**326,768**
General Site Clearance	85,779	m²	2.16	185,283	
Take up PCC Kerb and dispose of off site	6,159	m	9.42	58,020	
Take up and remove from site; 8m mounting height tubular galvanised steel column complete with a post top mounted luminaire	308	nr	270.99	83,465	
SERIES 500: DRAINAGE AND SERVICE DUCTS					**2,725,333**
Busway					
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	208	nr	491.64	102,181	
150mm diameter carrier drain with type S bed and surround; depth to invert not exceeding 2m	686	m	47.72	32,729	
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	4,572	m	84.11	384,586	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	4	nr	277.32	1,109	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	49	nr	3,084.61	150,846	
Drainage interceptor - Allowance of 1 per 1000m of drainage	4	nr	10,000.00	40,000	
Outfalls - Allowance of 1 per 1000m of drainage	4	nr	10,000.00	40,000	
Dual Carriageway					
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	11,394	m	84.11	958,342	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	14	nr	277.32	3,882	
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	570	nr	491.64	280,235	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	135	nr	3084.61	416,422	
Drainage interceptor - Allowance of 1 per 1000m of drainage	12	nr	10,000.00	120,000	
Outfalls - Allowance of 1 per 1000m of drainage	12	nr	10,000.00	120,000	
Culverts - Allowance	3	nr	25,000.00	75,000	
SERIES 600: EARTHWORKS					**2,352,567**
Excavation of Topsoil					
Excavation of acceptable material Class 5A Topsoil 150mm	12,867	m³	5.61	72,183	
General Excavation					
Excavation to busway subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	12,138	m³	1.49	18,085	
Excavation to bus stop subformation; Excavation of acceptable material; excluding Class 5A; normal material, excluding hard or artificially hard material, <2500m3	342	m³	2.54	869	
Excavation to carriageway subformation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	25,369	m³	1.49	37,799	
Excavation to attenuation pond; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	6,260	m³	1.49	9,328	
Extra over for breaking out surfacing	8,499	m³	9.74	82,776	
Imported Fill					
Imported acceptable material; Capping material; Class 6F2; for carriageway, 240mm thk	9,981	m³	40.64	405,630	
Compaction of Material					
Compaction of fill material to large areas	9,981	m³	3.50	34,934	

	Disposal of Material					
	Disposal of acceptable Class 5A topsoil	9,334	m³	28.23	263,501	
	Disposal of acceptable material excluding Class 5A	44,108	m³	28.23	1,245,182	
	Topsoiling and Storage of Topsoil					
	Topsoiling; Class 5A material excavated from site; 150mm thick; Sloping at 10 eg or less to the horizontal, >5000m2 (>750m3)	23,552	m²	1.10	25,907	
	Completion of Formation and Sub-formation					
	Completion of sub-formation on acceptable material; bus stops	360	m²	1.10	396	
	Completion of sub-formation on acceptable material; bus way	16,624	m²	1.10	18,286	
	Completion of sub-formation on acceptable material; carriageway	41,588	m²	1.10	45,747	
	Completion of sub-formation on acceptable material; footpath	19,681	m²	1.10	21,649	
	Lining of Watercourses					
	Lining of new watercourse; attenuation pond	7,526	m²	9.34	70,295	
	SERIES 700: PAVEMENTS					**3,711,739**
	Sub-Base					
	Imported granular sub-base; Type 1 aggregate; 200mm depth; bus way	16,624	m²	9.46	157,263	
	Imported granular sub-base; Type 1 aggregate; 200mm depth; bus stop	360	m²	9.46	3,406	
	Imported granular sub-base; Type 1 aggregate; 200mm depth; carriageway	41,588	m²	9.46	393,422	
	Dual carriageway					
	AC32 HDM base 40/60 Rec 150mm thick in carriageway	41,588	m²	25.44	1,057,993	
	AC20 Dense binder course 40/60 Rec 60mm thick in carriageway	41,588	m²	10.72	445,970	
	40mm Thin Surface course system	19,107	m²	11.12	212,382	
	Master tint- Red surface course (40mm)- bus lane	22,481	m²	44.75	1,005,992	
	Resurfacing: 40mm Thin Surface course system	33,179	m²	11.12	368,952	
	Cold Milling					
	Cold milling/planning; 40mm thick; existing carriageway; including disposal	33,179	m²	2.00	66,358	
	SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**3,692,451**
	Slipform Guided Bus Route					
	Steel Reinforcement supply and fit for bus route	249	t	1,127.46	281,194	
	Slip forming the mainline route. Excluding post grinding	4,157	m	409.99	1,704,203	
	Precision post grinding to achieve suitable gauge tolerance	4,157	m	128.12	532,564	
	Precision post grinding to achieve suitable gauge tolerance	90	m	128.12	11,531	
	In situ works for car traps/entry and exit splays	144	m	1,024.96	147,595	
	Kerbs, Channels, Edgings, Combined Drainage and Kerb Blocks					
	Precast concrete kerb; half battered (HB2 125 x 255 x 915mm) laid straight or curved	11,394	m	20.19	230,043	
	Precast concrete edgings; Laid straight or curved to radius exceeding 12m; 50mm x 150mm	6,560	m	13.72	90,006	
	Footways and Paved Areas					
	Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	19,681	m²	35.33	695,316	
	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**113,584**
	Traffic Signs					
	Signs - allowance	1	nr	5,000.00	5,000	
	Road Markings					
	Road marking - allowance: to include ped crossings/adjoining roads/maintenance bays, traffic calming measures etc	31	shifts	1,000.00	31,000	

	Traffic Lights					
	Traffic signal installation; including; traffic signal head, 4m swan neck pole, NAL socket, pedestrian push button, pedestrian signal indicator, infrared detector, traffic detection loop	12	nr	5,332.00	63,984	
	Traffic signal installation; controller cabinet	4	nr	3,400.00	13,600	
	SERIES 1300: ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS					**907,418**
	Busway 8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt - Allowance @ 20m centres	104	nr	1,671.12	173,796	
	Dual carriageway 8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt - Allowance @ 20m centres	439	nr	1,671.12	733,622	
	SERIES 1400: ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS					**1,590,368**
	Busway					
	Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	2,080	m	27.52	57,242	
	Cabling 3 core XLPE/SWA/PVC- Allowance	3,744	m	33.14	124,076	
	Terminations at each column- Allowance	104	nr	86.83	9,030	
	Tofco feeder pillar (medium), including DNO connection within 2m of LV main	6	nr	3,382.51	20,295	
	Telensa CMS node - Allowance	104	nr	153.22	15,935	
	New DNO Connections - Allowance	6	nr	15,000.00	90,000	
	DNO connection within 2m of lv main (into feeder pillar) - Allowance	2	nr	356.45	713	
	Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	21	nr	575.75	12,091	
	Dual carriageway					
	Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	7,777	m	27.52	214,010	
	Cabling 3 core XLPE/SWA/PVC- Allowance	14,801	m	33.14	490,489	
	Terminations at each column- Allowance	439	Item	86.83	38,118	
	Tofco feeder pillar (medium), including DNO connection within 2m of LV main	22	nr	3,382.51	74,415	
	Telensa CMS node - Allowance	439	nr	153.22	67,264	
	New DNO Connections - Allowance	22	nr	15,000.00	330,000	
	DNO connection within 2m of lv main (into feeder pillar) - Allowance	5	nr	356.45	1,782	
	Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	78	nr	575.75	44,909	
	SERIES 1700: STRUCTURAL CONCRETE					**-**
	Batching plant	1	item		-	

	SERIES 2500: SPECIAL STRUCTURES					**307,400**
	Bus stops (25m in length), including fittings	4	nr	41850.00	167,400	
	Ticket Machines - Allowance	4	nr	35000.00	140,000	
	SERIES 3000: LANDSCAPING AND ECOLOGY					**1,825,944**
	Landscaping	88,862	m²	20.00	1,777,234	
	1.2m high clipped hedgerow (along the busway)	1,084	m	15.55	16,856	
	Planting normal sized shrubs (3L pots) and trees	492	m²	20.00	9,840	
	Meadow planting (90% wildflower, 10% area to include tress)	17,794	m²	0.81	14,340	
	Extension to plantation woodland	5,758	m²	1.33	7,674	
				Total	**17,553,571**	**17,553,571**
	30% SURFACING RENEWALS					
	SERIES 200: SITE CLEARANCE					**50,708**
	General Site Clearance	23,476	m²	2.16	50,708	
	SERIES 600: EARTHWORKS					**242,965**
	Excavation					
	Excavation of artificial hard material; Carriageway	3,369	m³	11.52	38,807	
	Excavation of artificial hard material; Footpaths	1,240	m³	11.52	14,284	
	Extra over for breaking out surfacing	4,609	m³	9.74	44,887	
	Disposal of Material					
	Disposal of acceptable material excluding Class 5A	4,609	m³	28.23	130,099	
	Completion of Formation and Sub-formation					
	Completion of sub-formation on acceptable material	18,381	m²	0.81	14,888	
	SERIES 700: PAVEMENTS					**590,231**
	Pavement; Car Park					
	Sub-base					
	Imported granular sub-base; Type 1 aggregate; 20mm depth car park (top up)	368	m²	0.99	363	
	Pavement					
	AC32 HDM base 40/60 Rec 150mm thick	12,476	m²	25.44	317,398	
	AC20 Dense binder course 40/60 Rec 60mm thick in carriageway and car park	12,476	m²	10.72	133,791	
	40mm Thin Surface course system	12,476	m²	11.12	138,680	
	SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**208,595**
	Footways and Paved Areas					
	Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	5,904	m²	35.33	208,595	
	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**10,000**
	Road Markings					
	Road Marking	10	shifts	1000.00	10,000	
				Total	**1,102,498**	

	100% ROAD RESURFACE					
	SERIES 200: SITE CLEARANCE					**155,448**
	General Site Clearance	71,967	m²	2.16	155,448	
	SERIES 700: PAVEMENTS					**979,857**
	Cold Milling					
	Cold milling/planning; 40mm thick	71,967	m²	2.00	143,934	
	Pavement; Car Park					
	Pavement					
	Tack coat	71,967	m²	0.50	35,983	
	40mm Thin Surface course system	71,967	m²	11.12	799,940	
	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**31,000**
	Road Markings					
	Road Marking	31	shifts	1000.00	31,000	
				Total	**1,166,306**	

9 Waterworks P&R

Mott MacDonald

Cambridge to Cambourne

Waterworks P & R

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
INITIAL CONSTRUCTION					
SERIES 200: SITE CLEARANCE					**137,685**
General Site Clearance	63,743	m²	2.16	137,685	
SERIES 300: FENCING					**28,385**
Close boarded fencing, 1.8m high, 125mm x 125mm concrete post, set in concrete foundation; painted	894	m	31.75	28,385	
SERIES 500: DRAINAGE AND SERVICE DUCTS					**1,100,100**
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	5,100	m	84.11	428,961	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	5	nr	277.32	1,387	
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	255	nr	491.64	125,368	
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	170	nr	3,084.61	524,384	
Drainage interceptor - Allowance	1	nr	10,000.00	10,000	
Outfalls - Allowance	1	nr	10,000.00	10,000	
SERIES 600: EARTHWORKS					**1,769,100**
Excavation of Topsoil					
Excavation of acceptable material Class 5A Topsoil 150mm	9,561	m³	5.61	53,640	
General Excavation					
Excavation to sub-formation; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	21,751	m³	1.49	32,409	
Excavation to attenuation pond; Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3	4,641	m³	1.49	6,915	
Deposition of Material					
Traffic island and Verge; Deposition of acceptable material; excluding Class 5A; normal material, excluding hard or artificially hard material, <2500m3	3,111	m³	6.03	18,759	
Imported Fill					
Imported acceptable material; Capping material; Class 6F2; for carriageway, 240mm thk	15,081	m³	40.64	612,904	
Disposal of Material					
Disposal of acceptable Class 5A topsoil	9,561	m³	28.23	269,920	
Disposal of acceptable material excluding Class 5A	23,281	m³	28.23	657,214	
Completion of Formation and Sub-formation					
Completion of sub-formation on acceptable material; carriageway	50,271	m²	1.10	55,298	
Completion of sub-formation on acceptable material; footpath	7,741	m²	1.10	8,515	
Lining of Watercourses					
Lining of new watercourse; attenuation pond	5,731	m²	9.34	53,527	
SERIES 700: PAVEMENTS					**2,872,435**
Pavement; Car Park					
Sub-Base					
Imported granular sub-base; Type 1 aggregate; 200mm depth	50,271	m³	9.86	495,672	
Pavement					
AC32 HDM base 40/60 Rec 150mm thick	50,271	m²	25.44	1,278,894	
AC20 Dense binder course 40/60 Rec 60mm thick	50,271	m²	10.72	539,086	
40mm Thin Surface course system	50,271	m²	11.12	558,783	

Mott MacDonald

Cambridge to Cambourne

Waterworks P & R

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
SERIES 1100: KERBS, FOOTWAYS AND PAVED AREAS					**434,417**
Kerbs, Channels, Edgings, Combined Drainage and Kerb Blocks					
Precast concrete kerb; half battered (HB2 125 x 255 x 915mm) laid straight or curved	5,633	m	20.19	113,730	
Precast concrete edgings; Laid straight or curved to radius exceeding 12m; 50mm x 150mm	3,440	m	13.72	47,197	
Footways and Paved Areas					
Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	7,741	m²	35.33	273,490	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**6,000**
Traffic Signs					
Signs - allowance	1	nr	2,000.00	2,000	
Road Markings					
Road Marking	2	shifts	1,000.00	2,000	
White lining	2	shift	1,000.00	2,000	

Mott MacDonald

Cambridge to Cambourne

Waterworks P & R

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
SERIES 1300: ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS					**136,897**
8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt	43	nr	1,671.12	71,858	
8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 1 (BGP623 DW50 - 15klm neutral white LED) mounted at 0° tilt	6	nr	1,486.63	8,920	
8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DW10 - 35klm neutral white LED) mounted at 0° tilt	8	nr	1,671.12	13,369	
CCTV					
Cameras to be mounted on Street lighting columns on 25% of SL poles - Allowance	14	nr	3,000.00	42,750	
SERIES 1400: ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS					**275,054**
Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	2,500	m	27.52	68,800	
Cabling 3 core XLPE/SWA/PVC- Allowance	3,355	m	33.14	111,185	
CCTV communication cabling - Allowance	839	m	10.00	8,391	
Terminations at each column- Allowance	57	nr	86.83	4,949	
Tofco feeder pillar (medium), including DNO connection within 2m of LV main	3	nr	3,382.51	10,148	
Telensa CMS node - Allowance	57	nr	153.22	8,734	
DNO connection within 2m of lv main (into feeder pillar) - Allowance	3	nr	15,000.00	45,000	
Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	25	nr	575.75	14,394	
CCTV chambers 450 x 450 x 900 (allow 1 per 100m)	6	nr	575.75	3,455	
SERIES 2500: SPECIAL STRUCTURES					**679,321**
Park and Ride Building					
Building (assumed 3m height)	224	m²	2,500.00	560,000	
Ticket machine @ Park and Ride - Allowance	2	nr	35,000.00	70,000	
Cycle Parking (Assumed Cycle Shelter - 10 Space Cycle Shelter & Bike Stands)	21	item	635.48	13,345	
Cycle boxes (Assumed bike away locker)	30	item	1,199.21	35,976	
SERIES 3000: LANDSCAPING AND ECOLOGY					**37,929**
Seeding and Turfing					
Seeding	6,481	m²	0.54	3,521	
Special Ecological Measures					
Environmental barrier (assumed bare rooted native species whips)	1,865	m²	18.45	34,408	
			Total	**7,477,321**	**7,477,321**

Mott MacDonald

Cambridge to Cambourne

Waterworks P & R

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
30% SURFACING RENEWALS					
SERIES 200: SITE CLEARANCE					**37,592**
General Site Clearance	17,404	m²	2.16	37,592	
SERIES 600: EARTHWORKS					**239,753**
Excavation					
Excavation of artificial hard material; car park surface	4,072	m³	11.52	46,909	
Excavation of artificial hard material; footpaths	488	m³	11.52	5,618	
Extra over for breaking out surfacing	4,560	m³	9.74	44,411	
Disposal of Material					
Disposal of acceptable material excluding Class 5A	4,560	m³	28.23	128,718	
Completion of Formation and Sub-formation					
Completion of sub-formation on acceptable material	17,404	m²	0.81	14,097	
SERIES 700: PAVEMENTS					**823,168**
Pavement; Car Park					
Sub-base					
Imported granular sub-base; Type 1 aggregate; 20mm depth car park (top up)	348	m²	0.99	343	
Pavement					
AC32 HDM base 40/60 Rec 150mm thick	17,404	m²	25.44	442,748	
AC20 Dense binder course 40/60 Rec 60mm thick in carriageway and car park	17,404	m²	10.72	186,629	
40mm Thin Surface course system	17,404	m²	11.12	193,448	
SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**82,047**
Footways and Paved Areas					
Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	2,322	m²	35.33	82,047	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**2,000**
Road Markings					
Road Marking	2	shifts	1000.00	2,000	
			Total	**1,184,560**	
CAR PARK RESURFACE					
SERIES 200: SITE CLEARANCE					**125,306**
General Site Clearance	58,012	m²	2.16	125,306	
SERIES 700: PAVEMENTS					**789,857**
Pavement; Car Park					
Cold Milling					
Cold milling/planning; 40mm thick	58,012	m²	2.00	116,024	
Pavement					
Tack coat	58,012	m²	0.50	29,006	
40mm Thin Surface course system	58,012	m²	11.12	644,827	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**2,000**
Road Markings					

Mott MacDonald

Cambridge to Cambourne

Waterworks P & R

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
Road Marking	2	shifts	1000.00	2,000	
			Total	**917,163**	

10 Scotland Farm P&R

Cambridge to Cambourne

Scotland Farm P & R

Item	Qty	Unit	Unit rate £	Total £	Subtotal £
INITIAL CONSTRUCTION					
SERIES 200: SITE CLEARANCE					**184,692**
General Site Clearance	85,505	m²	2.16	184,692	
SERIES 300: FENCING					**31,274**
Close boarded fencing, 1.8m high, 125mm x 125mm concrete post, set in concrete foundation; painted	985	m	31.75	31,274	
SERIES 500: DRAINAGE AND SERVICE DUCTS					**1,194,664**
Drains and Service Ducts (Excluding Filter Drains, Narrow Filter Drains and Fin Drains)					
Foul Water					
150mm diameter carrier drain with type S bed and surround; depth to invert not exceeding 2m	200	m	47.72	9,544	
Connections to existing drainage/outfalls; 150mm dia; depth to invert exceeding 2m but not exceeding 4m - allowance	1	nr	277.32	277	
Storm Water					
225mm diameter carrier drain with type S bed and surround; depth to invert 2m - 2.5m	5,500	m	84.11	462,605	
Connections to existing drainage/outfalls; 225mm dia; depth to invert exceeding 2m but not exceeding 4m	6	nr	277.32	1,525	
Chambers and Gullies					
Manhole; Depth : not exceeding 1.5 m; Type 2A (1.5m internal diameter) complete with allowance for concrete butt and rocker pipes	183	nr	3,084.61	565,512	
Precast concrete trapped gully with Class D400 grating and frame; 450mm x 750mm	275	nr	491.64	135,201	
Drainage interceptor - Allowance	1	nr	10,000.00	10,000	
Headwalls and Outfall Works					
Headwall and associated handrail/guardrail including outfall to attenuation pond - Allowance	1	nr	10,000.00	10,000	
SERIES 600: EARTHWORKS					**2,208,818**
General Excavation					
Excavation of acceptable material Class 5A Topsoil 150mm; excavate and set aside for re-use	12,826	m³	5.61	71,953	
Excavation of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3; to form carpark and buildings formation	41,043	m³	1.49	61,153	
Excavation of acceptable material excluding Class 5A; for attenuation pond	4,815	m³	10.62	51,135	
Excavation of acceptable material excluding Class 5A; for naturalised pond - 1m deep	1,539	m³	10.62	16,344	
Deposition of Fill					
Deposition of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3; Topsoil	12,826	m³	3.01	38,606	
Deposition of acceptable material normal material, excluding hard or artificially hard material, excluding Class 5A; > 2500m3; to form new traffic island	4,717	m³	3.01	14,199	
Disposal of Material					
Disposal of acceptable Class 5A topsoil	11,186	m³	28.23	315,768	
Disposal of acceptable material excluding Class 5A	42,679	m³	28.23	1,204,833	
Geotextiles					
Geotextile separator (Terram 1000 or similar)	80,299	m²	2.84	228,049	
Topsoiling and Storage of Topsoiling					

	Topsoiling; Class 5A material excavated from site; 150mm thick; Sloping at 10 eg or less to the horizontal	10,935	m²	1.10	12,029	
	Completion of Formation and Sub-formation					
	Completion of sub-formation on acceptable material	80,299	m²	1.10	88,329	
	Lining of Watercourses					
	Lining of new watercourse; attenuation pond	4,280	m²	9.34	39,975	
	Lining of new watercourse; naturalised pond	926	m²	9.34	8,653	
	Gabion Walling and Mattresses					
	Gabion walls; mesh basket filled with suitable aggregate; to attenuation pond	225	m³	256.85	57,791	
	SERIES 700: PAVEMENTS					**3,302,155**
	Pavement; Car Park					
	Sub-base					
	Imported granular sub-base; Type 1 aggregate; 200mm depth; Car park	53,312	m²	9.86	525,656	
	Pavement					
	AC32 HDM base 40/60 Rec 150mm thick	53,312	m²	25.44	1,356,257	
	AC20 Dense binder course 40/60 Rec 60mm thick in carriageway and car park	53,312	m²	10.72	571,696	
	40mm Thin Surface course system	53,312	m²	11.12	592,585	
	Pavement; Access Road					
	Sub-base					
	Imported granular sub-base; Type 1 aggregate; 200mm depth car park	4,480	m²	9.86	44,173	
	Pavement					
	AC32 HDM base 40/60 Rec 150mm thick in carriageway and car park	4,480	m²	25.44	113,949	
	AC20 Dense binder course 40/60 Rec 60mm thick in carriageway and car park	4,480	m²	10.72	48,042	
	40mm Thin Surface course system	4,480	m²	11.12	49,797	
	SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**333,241**
	Kerbs, Channels, Edgings, Combined Drainage and Kerb Blocks					
	Precast concrete kerb; half battered (HB2 125 x 255 x 915mm) laid straight or curved	4,598	m	20.19	92,834	
	Precast concrete kerbs (bus stop kerbs) laid straight or curved	144	m	190.76	27,469	
	Precast concrete edging(s) laid straight or curved	1,094	m	13.72	15,014	
	Footways and Paved Areas					
	400mm square x 65mm thick buff tactile paving laid on 25mm to 35mm semidry mortar on 150mm thick type 1 subbase	609	m²	85.87	52,295	
	Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	3,283	m²	35.33	115,988	
	Footpath type 2; comprising Type 1 granular material sub-base 150mm thick; 50mm thick compacted sand and 60mm thick buff pavers	609	m²	48.67	29,640	
	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**6,000**
	Traffic Signs					
	Signs - allowance	1	nr	2,000.00	2,000	
	Road Markings					
	Road Marking	2	shifts	1,000.00	2,000	
	White lining	2	shift	1,000.00	2,000	
	SERIES 1300: ROAD LIGHTING COLUMNS AND BRACKETS, CCTV MASTS AND CANTILEVER MASTS					**138,790**
	Road Lighting Columns and Brackets, Wall Mountings, CCTV Masts and Cantilever Masts					

	8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DS50 - 40klm neutral white LED) mounted at 0° tilt	48	nr	1,671.12	80,214	
	8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 3 (BGP627 DW10 - 35klm neutral white LED) mounted at 0° tilt	4	nr	1,671.12	6,684	
	8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 1 (BGP623 DX10 - 11klm neutral white LED) mounted at 0° tilt	6	nr	1,091.66	6,550	
	8m mounting height tubular galvanised steel column complete with a post top mounted Philips Luma 1 (BGP623 DS50 - 13.5klm neutral white LED) mounted at 0° tilt	1	nr	1,091.66	1,092	
	CCTV cameras to be mounted on Street lighting columns on 25% of SL poles - Allowance	15	no	3,000.00	44,250	
	SERIES 1400: ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS					**233,706**
	Cable and Duct					
	Street lighting duct; 1 way x 100mm diameter duct route in verge; not exceeding 1m deep to invert	2,500	m	27.52	68,800	
	Cabling 3 core XLPE/SWA/PVC	3,444	m	33.14	114,134	
	CCTV communication cabling - Allowance	861	m	10.00	8,613	
	Cable Joints and Terminations					
	Terminations at each column - Allowance	59	nr	86.83	5,123	
	Feeder Pillars					
	Tofco feeder pillar (medium), including DNO connection within 2m of LV main	3	nr	3,382.51	10,148	
	Telensa CMS node - Allowance	59	nr	153.22	9,040	
	Chambers					
	Street lighting chambers 450 x 450 x 900 (allow 1 per 100m)	25	nr	575.75	14,394	
	CCTV chambers 450 x 450 x 900 (allow 1 per 100m)	6	nr	575.75	3,455	
	SERIES 2500: SPECIAL STRUCTURES					**896,331**
	Passenger waiting structure	224	m²	3,500.00	784,000	
	Ticket machine @ Park and Ride - Allowance	2	nr	35,000.00	70,000	
	Cycle Parking (Assumed Cycle Shelter - 10 Space Cycle Shelter & Bike Stands)	10	item	635.48	6,355	
	Cycle boxes (Assumed bike away locker)	30	item	1,199.21	35,976	
	SERIES 3000: LANDSCAPING AND ECOLOGY					**1,157,556**
	Seeding and Turfing					
	Seeding	9,828	m²	0.54	5,339	
	Special Ecological Measures					
	Environmental barrier (assumed bare rooted native species whips)	62,453	m²	18.45	1,152,217	
				Total	**9,687,227**	

30% SURFACING RENEWALS					
SERIES 200: SITE CLEARANCE					**55,408**
General Site Clearance	25,652	m²	2.16	55,408	
SERIES 600: EARTHWORKS					**262,819**
Excavation					
Excavation of artificial hard material; car park surface	4,318	m³	11.52	49,746	
Excavation of artificial hard material; access road surface	363	m³	11.52	4,180	
Excavation of artificial hard material; footpaths	272	m³	11.52	3,136	
Extra over for breaking out surfacing	4,953	m³	9.74	48,246	
Disposal of Material					
Disposal of acceptable material excluding Class 5A	4,953	m³	28.23	139,833	
Completion of Formation and Sub-formation					
Completion of sub-formation on acceptable material	21,824	m²	0.81	17,677	
SERIES 700: PAVEMENTS					**1,124,136**
Pavement; Car Park					
Sub-base					
Imported granular sub-base; Type 1 aggregate; 20mm depth car park (top up)	15,994	m²	0.99	15,780	
Pavement					
AC32 HDM base 40/60 Rec 200mm thick in carriageway and car park	15,994	m²	33.91	542,397	
AC20 Dense binder course 40/60 Rec 60mm thick in carriageway and car park	15,994	m²	10.72	171,509	
40mm Thin Surface course system	15,994	m²	11.12	177,775	
Pavement; Access Road					
Sub-base					
Imported granular sub-base; Type 1 aggregate; 20mm depth car park (top up)	4,480	m²	1.09	4,888	
Pavement					
AC32 HDM base 40/60 Rec 150mm thick in carriageway and car park	4,480	m²	25.44	113,949	
AC20 Dense binder course 40/60 Rec 60mm thick in carriageway and car park	4,480	m²	10.72	48,042	
40mm Thin Surface course system	4,480	m²	11.12	49,797	
SERIES 1100: KERBS, FOOTWAYS AMD PAVED AREAS					**38,994**
Footways and Paved Areas					
400mm square x 65mm thick buff tactile paving laid on 25mm to 35mm semidry mortar on 150mm thick type 1 subbase	183	m²	43.54	7,955	
Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; AC20 DBM binder course 40/60 40mm thick; AC6 DBM surface course 20mm thick	985	m²	22.66	22,315	
Footpath type 1; comprising Type 1 granular material sub-base 150mm thick; 50mm thick compacted sand and 60mm thick buff pavers	183	m²	47.75	8,724	
SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**4,000**
Road Markings					
Road Marking	2	shifts	1000.00	2,000	
White lining	2	shift	1,000.00	2,000	
			Total	**1,485,357**	

	CAR PARK & ACCESS RD RESURFACE					
	SERIES 200: SITE CLEARANCE					**131,922**
	General Site Clearance	61,075	m²	2.16	131,922	
	SERIES 700: PAVEMENTS					**831,561**
	Cold Milling					
	Cold milling/planning; 40mm thick	61,075	m²	2.00	122,150	
	Pavement					
	Pavement					
	Tack coat	61,075	m²	0.50	30,538	
	40mm Thin Surface course system	61,075	m²	11.12	678,874	
	SERIES 1200: TRAFFIC SIGNS AND ROAD MARKINGS					**2,000**
	Road Markings					
	Road Marking	2	shifts	1000.00	2,000	
				Total	**965,483**	

11 WLC Maintenance Costs

Description	Quantity	Units	Rate	4Q18 Total (£)	2Q19 Total (£)	Service Costs (£)	4Q19 Outturn Cost (£)
Street Cleaning							
Operated Road Sweeper Vehicle - **Allowance**	1	day	440.00	440.00	446.60	66.99	
	1	visit			**446.60**	**66.99**	**513.59**
Landscaping Maintenance							
Labourer	1	days	159.84	159.84	162.24	24.34	
Ride On Mower	1	days	53.00	53.00	53.80	8.07	
5.5m Hedgecutter with operator	1	days	250.00	250.00	253.75	38.06	
	1	visit			**469.78**	**70.47**	**540.25**
Gully cleansing / Emptying							
Labourer	1	day	159.84	159.84	162.24	24.34	
Gully Emptier	1	day	790.00	790.00	801.85	120.28	
	1	visit			**964.09**	**144.61**	**1,108.70**
Street & CCTV Lighting							
Labour	4	man.hr	19.98	79.92	81.12	12.17	
Cherrypicker	2	hr	14.39	28.78	29.21	4.38	
Electrical fittings	1	nr	550.00	550.00	558.25	83.74	
	1	nr			**668.58**	**100.29**	**768.87**
Kerbing							
Take up existing Kerbs and dispose off site	1	m	9.42	9.42	9.56	1.43	
HB2 Kerb	1	m	21.65	21.65	21.97	3.30	
	1	m			**31.54**	**4.73**	**36.27**
Bus Stops							
Fittings	2	nr	3,000.00	6,000.00	6,090.00	913.50	
					6,090.00	**913.50**	**7,003.50**
Traffic lights							
Allowance to fix new traffic lights	1	item	250,000.00				
					0.00	**0.00**	**250,000.00**
Fencing Maintenance							
Take up and remove from site boundary fencing	1	m	10.95	10.95	11.11	1.67	
Replacement fencing	1	m	30.55	30.55	31.01	4.65	
	1	m			**42.12**	**6.32**	**48.44**
General Inspection (2 bridges)							
Senior Engineer	50	hr	50.00		2,500.00	375.00	
Engineer	50	hr	40.00		2,000.00	300.00	
Gen. Labourer	100	man.hr	19.98	1,998.00	2,027.97	304.20	
Access Platform	30	hr	15.64	469.20	476.24	71.44	
Materials Allowance					2,000.00		
Senior Engineer	16	hr	50.00		800.00	120.00	
	1	m			**9,804.21**	**1,170.63**	**10,974.84**
Principal Inspection (2 bridges)							
Senior Engineer	200	hr	50.00		10,000.00	1,500.00	
Engineer	200	hr	40.00		8,000.00	1,200.00	
Gen. Labourer	200	man.hr	19.98	3,996.00	4,055.94	608.39	
Access Platform	50	hr	15.64	782.00	793.73	119.06	
Materials Allowance					2,000.00		
Senior Engineer	32	hr	50.00		1,600.00	240.00	
	1	m			**26,449.67**	**3,667.45**	**30,117.12**
Special Inspection (2 bridges)							
Senior Engineer	300	hr	50.00		15,000.00	2,250.00	
Engineer	300	hr	40.00		12,000.00	1,800.00	
Gen. Labourer	300	man.hr	19.98	5,994.00	6,083.91	912.59	
Access Platform	100	hr	15.64	1,564.00	1,587.46	238.12	
Materials Allowance					2,000.00		
Senior Engineer	40	hr	50.00		2,000.00	300.00	
	1	m			**38,671.37**	**5,500.71**	**44,172.08**
Bearing Replacement - Abutments (2 bridges)							
Senior Engineer	20	hr	50.00	1000	1,015.00	152.25	
Engineer	20	hr	40.00	800	812.00	121.80	
Gen. Labourer	40	hr	26.40	1056	1,071.84	160.78	
Bridge jacking	2	item	25,000.00		50,000.00		
Minor Materials	2	item	1,000.00		2,000.00		
Bearings	8	nr	3,750.00	15000	15,225.00	2,283.75	
Bearing Disposal	8	nr	15.00	60	60.90	9.14	
Testing of Bearings	8	nr	500.00	2000	2,030.00	304.50	
	1	m			**72,214.74**	**3,032.21**	**75,246.95**

12 Phase 1 WLC

Mott Macdonald

Phase 1 Whole Life Costing

Location Ref	Work element Scenario 1	Assumptions	Quantity	Unit	Rate (£)	Cost per occurrence (£)	# Occurences	Total Cost (£)	1	2	3	4	5	6	7	8	9	10
CAPITAL																		
	Construct Road	P80 estimate	1	item	63,756,407	63,756,407	1	63,756,407	63,756,407									
TOTAL COSTS - CAPITAL								63,756,407										
OPERATIONAL																		
	Power Consumption - Lighting	505nr lights x 254w = 13208w per hour = 128.27kW x 4,380 hours year = 561,822.60kW (as advised by DW Windsor)	561,823	kW	0.12	67,419	60	4,045,123	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419
TOTAL COST - OPERATIONAL								**4,045,123**										
Maintenance and Renewals																		
	General inspection - 2 Bridge Structures	Every two years	1	item	10,974.84	10,975	30	329,245		10,975		10,975		10,975		10,975		10,975
	Principal inspection - 2 Bridge Structures	Every six years	1	item	30,117.12	30,117	10	301,171						30,117				
	Special inspection - 2 Bridge Structures	Every twenty years	1	item	44,172.08	44,172	3	132,516										
	Bearing Replacement - 2 Bridge Structures	Every 30 years	1	item	75,246.95	75,247	2	150,494										
	Bridge Deck Resurfacing (Full depth) - 2 Bridge Structures	Every 20 Years	1	item	320,657.36	320,657	3	961,972										
	100% Road Resurfacing	Every 20 Years	1	item	1,423,260.38	1,423,260	3	4,269,781										1,423,260
	30% Renew Road and Footpaths	Every 20 Years	1	item	1,752,901.41	1,752,901	2	3,505,803										
	Landscaping maintenance	Yearly	1	item	540.25	540	60	32,415	540	540	540	540	540	540	540	540	540	540
	Street Cleaning	Yearly	1	item	513.59	514	60	30,815	514	514	514	514	514	514	514	514	514	514
	Gully Cleansing / Emptying	Yearly	1	item	1,108.70	1,109	60	66,522	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
	Street Lighting	Every 20 Years	505	nr	768.87	388,639	2	777,277										
	Kerb Replacement	10% every 20 years	286	m	36.27	10,362	2	20,724										
	Fencing	Every 20 Years	2340	m	48.44	113,352	2	226,703										
TOTAL COST - MAINTENANCE								**10,805,439**										
TOTAL COST								**78,606,969**										
								Subtotals	63,825,988	80,556	69,581	80,556	69,581	110,673	69,581	80,556	69,581	1,503,816
								NPV @ 3.5%	0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089
								NPV (2019) Total **£67,424,939**	61,667,621	75,200	62,758	70,200	58,586	90,033	54,690	61,175	51,054	1,066,084

Year																											
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	
67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	
	10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		
	30,117						30,117						30,117						30,117						30,117		
									44,172																		
																			75,247								
									320,657																		
																			1,423,260								
									1,752,901																		
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	
									388,639																		
									10,362																		
									113,352																		
69,581	110,673	69,581	80,556	69,581	80,556	69,581	110,673	69,581	2,710,639	69,581	80,556	69,581	110,673	69,581	80,556	69,581	80,556	69,581	1,609,181	69,581	80,556	69,581	80,556	69,581	110,673	69,581	
0.6849	0.6618	0.6394	0.6178	0.5969	0.5767	0.5572	0.5384	0.5202	0.5026	0.4856	0.4692	0.4533	0.4380	0.4231	0.4088	0.3950	0.3817	0.3687	0.3563	0.3442	0.3326	0.3213	0.3105	0.3000	0.2898	0.2800	
47,659	73,242	44,491	49,766	41,532	46,457	38,771	59,582	36,193	1,362,275	33,787	37,793	31,540	48,470	29,443	32,934	27,485	30,745	25,658	573,316	23,952	26,792	22,359	25,011	20,873	32,077	19,485	

38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
																						0	
67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	67,419	
10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975		10,975	
				30,117						30,117						30,117						30,117	
		44,172																				44,172	
																						75,247	
		320,657																				320,657	
												1,423,260											
		1,752,901																					
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	
		388,639																					
		10,362																					
		113,352																					
80,556	69,581	2,710,639	69,581	110,673	69,581	80,556	69,581	80,556	69,581	110,673	69,581	1,503,816	69,581	80,556	69,581	110,673	69,581	80,556	69,581	80,556	69,581	550,750	**£78,606,968.55**
0.2706	0.2614	0.2526	0.2440	0.2358	0.2278	0.2201	0.2127	0.2055	0.1985	0.1918	0.1853	0.1791	0.1730	0.1671	0.1615	0.1560	0.1508	0.1457	0.1407	0.1360	0.1314	0.1269	
21,795	18,189	684,633	16,980	26,094	15,851	17,731	14,797	16,552	13,813	21,228	12,895	269,263	12,037	13,465	11,237	17,269	10,490	11,734	9,792	10,954	9,141	69,909	**£67,424,939.44 Net Present Value Total Sum**

13 Option 1 WLC

Mott Macdonald

Option 1 Whole Life Costing

Location Ref	Work element Scenario 1	Assumptions	Quantity	Unit	Rate (£)	Cost per occurrence (£)	# Occurences	Total Cost (£)	1	2	3	4	5	6	7	8	9	10
CAPITAL																		
	Construct Road	P80 estimate	1	item	47,619,348.39	47,619,348	1	47,619,348	47,619,348									
TOTAL COSTS - CAPITAL								47,619,348										
OPERATIONAL																		
	Power Consumption - Lighting (Luma 3)	418nr lights x 254w = 106,172w per hour = 106.17kW x 4,380 hours year = 465,025kW (as advised by DW Windsor)	465,025	kW	0.12	55,803	60	3,348,180	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803
TOTAL COST - OPERATIONAL								**3,348,180**										
Maintenance and Renewals																		
	100% Road Resurfacing	Every 20 Years	1	item	1,694,742.98	1,694,743	3	5,084,229										1,694,743
	30% Renew Road and Footpaths	Every 20 Years	1	item	2,527,524.62	2,527,525	2	5,055,049										
	Landscaping maintenance	Yearly	1	item	540.25	540	60	32,415	540	540	540	540	540	540	540	540	540	540
	Street Cleaning	Yearly	1	item	513.59	514	60	30,815	514	514	514	514	514	514	514	514	514	514
	Gully Cleansing / Emptying	Yearly	1	item	1,108.70	1,109	60	66,522	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
	Street Lighting	Every 20 Years	418	nr	768.87	321,387	2	642,773										
	Kerb Replacement	10% every 20 years	532	m	36.27	19,293	2	38,587										
TOTAL COST - MAINTENANCE								**10,950,391**										
TOTAL COST								**61,917,919**										
								Subtotals	47,677,314	57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	1,752,709
							NPV @ 3.5%		0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089
							NPV (2019) Total	**£51,729,543.53**	46,065,038	54,111	52,282	50,514	48,805	47,155	45,560	44,020	42,531	1,242,528

Year																										
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803
																			1,694,743							
									2,527,525																	
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
									321,387																	
									19,293																	
57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	2,926,170	57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	1,752,709	57,966	57,966	57,966	57,966	57,966	57,966	57,966
0.6849	0.6618	0.6394	0.6178	0.5969	0.5767	0.5572	0.5384	0.5202	0.5026	0.4856	0.4692	0.4533	0.4380	0.4231	0.4088	0.3950	0.3817	0.3687	0.3563	0.3442	0.3326	0.3213	0.3105	0.3000	0.2898	0.2800
39,703	38,361	37,063	35,810	34,599	33,429	32,299	31,206	30,151	1,470,593	28,146	27,195	26,275	25,386	24,528	23,698	22,897	22,123	21,375	624,452	19,953	19,279	18,627	17,997	17,388	16,800	16,232

38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	55,803	
												1,694,743											
		2,527,525																					
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	
		321,387																					
		19,293																					
57,966	57,966	2,926,170	57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	1,752,709	57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	57,966	**£61,917,918.98**

0.2706	0.2614	0.2526	0.2440	0.2358	0.2278	0.2201	0.2127	0.2055	0.1985	0.1918	0.1853	0.1791	0.1730	0.1671	0.1615	0.1560	0.1508	0.1457	0.1407	0.1360	0.1314	0.1269	

15,683	15,153	739,070	14,145	13,667	13,205	12,758	12,327	11,910	11,507	11,118	10,742	313,828	10,028	9,689	9,361	9,045	8,739	8,443	8,158	7,882	7,615	7,358	**£51,729,543.53 Net Present Value Total Sum**

14 Option 2 WLC

Mott Macdonald

Option 2 Whole Life Costing

Location Ref	Work element Scenario 1	Assumptions	Quantity	Unit	Rate (£)	Cost per occurrence (£)	# Occurences	Total Cost (£)	1	2	3	4	5	6	7	8	9	10
CAPITAL																		
	Construct Road	P80 estimate	1	item	27,365,073.29	27,365,073	1	27,365,073	27,365,073									
TOTAL COSTS - CAPITAL								27,365,073										
OPERATIONAL																		
	Power Consumption - Lighting (Luma 3)	231nr lights x 254w = 58,674w per hour = 58.67kW x 4,380 hours year = 256,975kW (as advised by DW Windsor)	256,975	kW	0.12	30,837	60	1,850,220	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837
TOTAL COST - OPERATIONAL								**1,850,220**										
Maintenance and Renewals																		
	Resurfacing Road	Every 10 Years	1	item	1,596,643.37	1,596,643	3	4,789,930										1,596,643
	Renew Road and Footpaths	Every 20 Years	1	item	2,850,557.88	2,850,558	2	5,701,116										
	Landscaping maintenance	Yearly	1	item	540.25	540	60	32,415	540	540	540	540	540	540	540	540	540	540
	Street Cleaning	Yearly	1	item	513.59	514	60	30,815	514	514	514	514	514	514	514	514	514	514
	Gully Cleansing / Emptying	Yearly	1	item	1,108.70	1,109	60	66,522	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
	Street Lighting	Every 20 Years	231	nr	768.87	177,608	2	355,217										
	Kerb Replacement	10% every 20 years	506	m	36.27	18,345	2	36,689										
TOTAL COST - MAINTENANCE								**11,012,704**										
TOTAL COST								**40,227,998**										
								Subtotals	27,398,073	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	1,629,643
								NPV @ 3.5%	0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089
								NPV (2019) Total **£31,550,010.78**	26,471,568	30,805	29,764	28,757	27,785	26,845	25,937	25,060	24,213	1,155,285

Year																										
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837
																			1,596,643							
									2,850,558																	
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
									177,608																	
									18,345																	
33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	3,079,510	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	1,629,643	33,000	33,000	33,000	33,000	33,000	33,000	33,000
0.6849	0.6618	0.6394	0.6178	0.5969	0.5767	0.5572	0.5384	0.5202	0.5026	0.4856	0.4692	0.4533	0.4380	0.4231	0.4088	0.3950	0.3817	0.3687	0.3563	0.3442	0.3326	0.3213	0.3105	0.3000	0.2898	0.2800
22,603	21,839	21,100	20,387	19,697	19,031	18,387	17,766	17,165	1,547,657	16,024	15,482	14,958	14,452	13,964	13,491	13,035	12,594	12,169	580,607	11,359	10,975	10,604	10,246	9,899	9,564	9,241

38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	30,837	
												1,596,643											
		2,850,558																					
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	
		177,608																					
		18,345																					
33,000	33,000	3,079,510	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	1,629,643	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	**£40,227,997.61**

0.2706	0.2614	0.2526	0.2440	0.2358	0.2278	0.2201	0.2127	0.2055	0.1985	0.1918	0.1853	0.1791	0.1730	0.1671	0.1615	0.1560	0.1508	0.1457	0.1407	0.1360	0.1314	0.1269	

8,928	8,626	777,800	8,053	7,781	7,517	7,263	7,018	6,780	6,551	6,330	6,115	291,793	5,709	5,516	5,329	5,149	4,975	4,807	4,644	4,487	4,335	4,189	**£31,550,010.78 Net Present Value Total Sum**

15 Option 3 WLC

Mott Macdonald

Option 3 Whole Life Costing

Location Ref	Work element Scenario 1	Assumptions	Quantity	Unit	Rate (£)	Cost per occurrence (£)	# Occurences	Total Cost (£)	1	2	3	4	5	6	7	8	9	10
CAPITAL																		
	Construct Road	P80 estimate	1	item	43,196,700.58	43,196,701	1	43,196,701	43,196,701									
TOTAL COSTS - CAPITAL								43,196,701										
OPERATIONAL																		
	Power Consumption - Lighting (Luma 3)	543nr lights x 254w = 137,922w per hour = 137.92kW x 4,380 hours year = 604,090kW (as advised by DW Windsor)	604,090	kW	0.12	72,491	60	4,349,448	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491
TOTAL COST - OPERATIONAL								**4,349,448**										
Maintenance and Renewals																		
	Resurfacing Road	Every 10 Years	1	item	2,732,258.61	2,732,259	3	8,196,776										2,732,259
	Renew Road and Footpaths	Every 20 Years	1	item	2,890,388.53	2,890,389	2	5,780,777										
	Landscaping maintenance	Yearly	1	item	540.25	540	60	32,415	540	540	540	540	540	540	540	540	540	540
	Street Cleaning	Yearly	1	item	513.59	514	60	30,815	514	514	514	514	514	514	514	514	514	514
	Gully Cleansing / Emptying	Yearly	1	item	1,108.70	1,109	60	66,522	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
	Street Lighting	Every 20 Years	543	nr	768.87	417,495	2	834,990										
	Kerb Replacement	10% every 20 years	1139	m	36.27	41,322	2	82,644										
TOTAL COST - MAINTENANCE								**15,024,939**										
TOTAL COST								**62,571,088**										
								Subtotals	43,271,354	74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	2,806,912
								NPV @ 3.5%	0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089
								NPV (2019) Total **£49,526,878.24**	41,808,071	69,690	67,333	65,056	62,856	60,731	58,677	56,693	54,775	1,989,873

Year																										
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491
																			2,732,259							
									2,890,389																	
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
									417,495																	
									41,322																	
74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	3,423,859	74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	2,806,912	74,653	74,653	74,653	74,653	74,653	74,653	74,653
0.6849	0.6618	0.6394	0.6178	0.5969	0.5767	0.5572	0.5384	0.5202	0.5026	0.4856	0.4692	0.4533	0.4380	0.4231	0.4088	0.3950	0.3817	0.3687	0.3563	0.3442	0.3326	0.3213	0.3105	0.3000	0.2898	0.2800
51,133	49,404	47,734	46,119	44,560	43,053	41,597	40,190	38,831	1,720,715	36,249	35,024	33,839	32,695	31,589	30,521	29,489	28,492	27,528	1,000,042	25,698	24,829	23,989	23,178	22,394	21,637	20,905

38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	72,491	
												2,732,259											
		2,890,389																					
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	
		417,495																					
		41,322																					
74,653	74,653	3,423,859	74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	2,806,912	74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	74,653	**£62,571,087.80**

0.2706	0.2614	0.2526	0.2440	0.2358	0.2278	0.2201	0.2127	0.2055	0.1985	0.1918	0.1853	0.1791	0.1730	0.1671	0.1615	0.1560	0.1508	0.1457	0.1407	0.1360	0.1314	0.1269	

20,198	19,515	864,772	18,218	17,602	17,006	16,431	15,876	15,339	14,820	14,319	13,835	502,587	12,915	12,478	12,056	11,649	11,255	10,874	10,506	10,151	9,808	9,476	**£49,526,878.24 Net Present Value Total Sum**

16 Waterworks P&R WLC

Mott Macdonald

Waterworks Park and Ride Whole Life Costing

Location Ref	Work element Scenario 1	Assumptions	Quantity	Unit	Rate (£)	Cost per occurrence (£)	# Occurences	Total Cost (£)	1	2	3	4	5	6	7	8	9	10	11	12
CAPITAL																				
	Construct Car Park	P80 estimate	1	item	17,056,883.92	17,056,884	1	17,056,884	17,056,884											
TOTAL COSTS - CAPITAL								17,056,884												
OPERATIONAL																				
	General Cleaning for the P&R building	Daily and 2 people for 2hrs at £15/hr required plus 10% to cover consumables/disposal	1,460	hr	16.50	24,090	60	1,445,400	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090
	Utilities cost for the P&R building	Yearly	224.00	m2	23.67	5,302	60	318,125	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302
	Monitor CCTV cameras	Allow 1 person hour per day to monitor the cameras (overtime paid to cover additional requirement)	365	hr	20.00	7,300	60	438,000	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300
	Power Consumption - Lighting (Luma 3)	51nr lights x 254w = 13,208w per hour = 12.95kW x 4,380 hours year = 56,739kW (as advised by DW Windsor)	56,739	kW	0.12	6,809	60	408,521	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809
	Power Consumption - Lighting (Luma 1)	6nr lights x 107w = 642w per hour = 0.64kW x 4,380 hours year = 2,803kW (as advised by DW Windsor)	2,803	kW	0.12	336	60	20,182	336	336	336	336	336	336	336	336	336	336	336	336
	Power Consumption - CCTV Cameras	Allow 25% of the above	14,886	kW	0.12	1,786	60	107,176	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786
TOTAL COST - OPERATIONAL								**2,737,403**												
Maintenance and Renewals																				
	Resurfacing Car Park and Access Road	Every 10 Years	1	item	2,718,173.55	2,718,174	3	8,154,521										2,718,174		
	Renew Car Park, Access Road and Footpat	Every 20 Years	1	item	2,104,586.19	2,104,586	2	4,209,172												
	Landscaping maintenance	Yearly	1	item	540.25	540	60	32,415	540	540	540	540	540	540	540	540	540	540	540	540
	Street Cleaning	Yearly	1	item	513.59	514	60	30,815	514	514	514	514	514	514	514	514	514	514	514	514
	Gully Cleansing / Emptying	Yearly	1	item	1,108.70	1,109	60	66,522	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
	Street Lighting	Every 20 Years	57	nr	768.87	43,825	2	87,651												
	CCTV	Every 20 Years	14	nr	768.87	10,956	2	21,913												
	Fencing	Every 20 Years	89	m	48.44	4,331	2	8,661												
	General Maintenance- Building	Yearly	1	item	6,557.56	6,558	60	393,454	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558
	Cycle Parking	Every 20 Years	1	item	49,321.26	49,321	2	98,643												
TOTAL COST - MAINTENANCE								**13,103,766**												
TOTAL COST								**32,898,053**												
								Subtotals	17,111,227	54,343	54,343	54,343	54,343	54,343	54,343	54,343	54,343	2,772,517	54,343	54,343
							NPV @ 3.5%		0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089	0.6849	0.6618
							NPV (2019) Total	**£22,888,889.98**	16,532,587	50,730	49,015	47,357	45,756	44,208	42,713	41,269	39,873	1,965,489	37,222	35,964

Year																														
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090		
5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302		
7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300		
6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809		
336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336		
1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786		
																	2,718,174													
							2,104,586																				2,104,586			
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540		
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514		
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109		
							43,825																				43,825			
							10,956																				10,956			
							4,331																				4,331			
6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558		
							49,321																				49,321			
54,343	54,343	54,343	54,343	54,343	54,343	54,343	2,267,363	54,343	54,343	54,343	54,343	54,343	54,343	54,343	54,343	54,343	2,772,517	54,343	54,343	54,343	54,343	54,343	54,343	54,343	54,343	54,343	2,267,363	54,343		
0.6394	0.6178	0.5969	0.5767	0.5572	0.5384	0.5202	0.5026	0.4856	0.4692	0.4533	0.4380	0.4231	0.4088	0.3950	0.3817	0.3687	0.3563	0.3442	0.3326	0.3213	0.3105	0.3000	0.2898	0.2800	0.2706	0.2614	0.2526	0.2440		
34,747	33,572	32,437	31,340	30,280	29,256	28,267	1,139,499	26,388	25,495	24,633	23,800	22,995	22,218	21,466	20,740	20,039	987,788	18,707	18,074	17,463	16,872	16,302	15,751	15,218	14,703	14,206	572,674	13,262		

42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	
5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	
7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	
6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	6,809	
336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	
1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	1,786	
								2,718,174											
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	
6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	
54,343	54,343	54,343	54,343	54,343	54,343	54,343	54,343	2,772,517	54,343	54,343	54,343	54,343	54,343	54,343	54,343	54,343	54,343	54,343	**£32,898,053.08**
0.2358	0.2278	0.2201	0.2127	0.2055	0.1985	0.1918	0.1853	0.1791	0.1730	0.1671	0.1615	0.1560	0.1508	0.1457	0.1407	0.1360	0.1314	0.1269	
12,813	12,380	11,961	11,557	11,166	10,788	10,423	10,071	496,429	9,401	9,083	8,776	8,479	8,193	7,916	7,648	7,389	7,139	6,898	**£22,888,889.98** **Net Present Value Total Sum**

17 Scotland Farm P&R WLC

Mott Macdonald

Scotland Farm Park and Ride Whole Life Costing

Location Ref	Work element Scenario 1	Assumptions	Quantity	Unit	Rate (£)	Cost per occurrence (£)	# Occurences	Total Cost (£)	1	2	3	4	5	6	7	8	9	10	11	12
CAPITAL																				
	Construct Car Park	P80 estimate	1	item	22,098,007.94	22,098,008	1	22,098,008	22,098,008											
TOTAL COSTS - CAPITAL								22,098,008												
OPERATIONAL																				
	General Cleaning for the P&R building	Daily and 2 people for 2hrs at £15/hr required plus 10% to cover consumables/disposal	1,460	hr	16.50	24,090	60	1,445,400	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090
	Utilities cost for the P&R building	Yearly	224.00	m2	23.67	5,302	60	318,125	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302
	Monitor CCTV cameras	Allow 1 person hour per day to monitor the cameras (overtime paid to cover additional requirement)	365	hr	15.00	5,475	60	328,500	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475
	Power Consumption - Lighting (Luma 3)	52nr lights x 254w = 13208w per hour = 13.21kW x 4,380 hours year = 57860kW (as advised by DW Windsor)	57,860	kW	0.12	6,943	60	416,592	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943
	Power Consumption - Lighting (Luma 1)	7nr lights x 107w = 749w per hour = 0.75kW x 4,380 hours year = 3285kW (as advised by DW Windsor)	3,285	kW	0.12	394	60	23,652	394	394	394	394	394	394	394	394	394	394	394	394
	Power Consumption - CCTV Cameras	Allow 25% of the above	14,465	kW	0.12	1,736	60	104,148	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736
TOTAL COST - OPERATIONAL								**2,636,417**												
Maintenance and Renewals																				
	Resurfacing Car Park and Access Road	Every 10 Years	1	item	3,408,402.01	3,408,402	3	10,225,206										3,408,402		
	Renew Car Park, Access Road and Footpat	Every 20 Years	1	item	2,215,464.81	2,215,465	2	4,430,930												
	Landscaping maintenance	Yearly	1	item	540.25	540	60	32,415	540	540	540	540	540	540	540	540	540	540	540	540
	Street Cleaning	Yearly	1	item	513.59	514	60	30,815	514	514	514	514	514	514	514	514	514	514	514	514
	Gully Cleansing / Emptying	Yearly	1	item	1,108.70	1,109	60	66,522	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109
	Street Lighting	Every 20 Years	59	nr	768.87	45,363	2	90,726												
	CCTV	Every 20 Years	15	nr	768.87	11,341	2	22,682												
	Fencing	Every 20 Years	99	m	48.44	4,771	2	9,543												
	General Maintenance- Building	Yearly	1	item	6,557.56	6,558	60	393,454	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558
	Cycle Parking	Every 20 Years	1	item	42,331.01	42,331	2	84,662												
TOTAL COST - MAINTENANCE								**15,386,954**												
TOTAL COST								**40,121,379**												
								Subtotals	22,150,668	52,660	52,660	52,660	52,660	52,660	52,660	52,660	52,660	3,461,062	52,660	52,660
							NPV @ 3.5%		0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089	0.6849	0.6618
							NPV (2019) Total	**£28,656,608.36**	21,401,612	49,159	47,497	45,890	44,339	42,839	41,391	39,991	38,639	2,453,612	36,070	34,850

Year																														
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090		
5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302		
5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475		
6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943		
394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394		
1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736		
																	3,408,402													
							2,215,465																				2,215,465			
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540		
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514		
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109		
							45,363																				45,363			
							11,341																				11,341			
							4,771																				4,771			
6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558		
							42,331																				42,331			
52,660	52,660	52,660	52,660	52,660	52,660	52,660	2,371,932	52,660	52,660	52,660	52,660	52,660	52,660	52,660	52,660	52,660	3,461,062	52,660	52,660	52,660	52,660	52,660	52,660	52,660	52,660	52,660	2,371,932	52,660		
0.6394	0.6178	0.5969	0.5767	0.5572	0.5384	0.5202	0.5026	0.4856	0.4692	0.4533	0.4380	0.4231	0.4088	0.3950	0.3817	0.3687	0.3563	0.3442	0.3326	0.3213	0.3105	0.3000	0.2898	0.2800	0.2706	0.2614	0.2526	0.2440		
33,671	32,533	31,432	30,370	29,343	28,350	27,392	1,192,052	25,570	24,706	23,870	23,063	22,283	21,530	20,801	20,098	19,418	1,233,102	18,127	17,514	16,922	16,350	15,797	15,263	14,747	14,248	13,766	599,085	12,851		

42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	24,090	
5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	5,302	
5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	
6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	6,943	
394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	394	
1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	1,736	
								3,408,402											
540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	540	
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	
1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	1,109	
6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	
52,660	52,660	52,660	52,660	52,660	52,660	52,660	52,660	3,461,062	52,660	52,660	52,660	52,660	52,660	52,660	52,660	52,660	52,660	52,660	**£40,121,379.15**
0.2358	0.2278	0.2201	0.2127	0.2055	0.1985	0.1918	0.1853	0.1791	0.1730	0.1671	0.1615	0.1560	0.1508	0.1457	0.1407	0.1360	0.1314	0.1269	
12,416	11,996	11,591	11,199	10,820	10,454	10,101	9,759	619,715	9,110	8,802	8,504	8,217	7,939	7,671	7,411	7,161	6,918	6,684	**£28,656,608.36** **Net Present Value Total Sum**

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