C2.2: BILL OF QUANTITIES

The Bill of Quantities follows and comprises of 18 pages. The pages are numbered BOQ 67 to BOQ 84

C.2.2.1 : INDEX TO BILL OF QUANTITIES

SECTION 1 PRELIMINARY AND GENERAL ITEMS

PART 0102 C1.2 GENERAL REQUIREMENTS AND PROVISIONS
PART 0103 C1.3 CONTRACTOR'S SITE ESTABLISHMENT AND

SECTION 2 SITE CLEARANCE

PART 0106 C1.6 CLEARING AND GRUBBING

SECTION 3 PROVING OF SERVICES / EXISTING LAYERWORKS

PART 0201 C2.1 GEN REQMENTS AND TRENCHING SERVICE

SECTION 4 WATERMAINS

PART 023B C2.3B WET SERVICES - WATER MAINS

SECTION 5 DRAINAGE

PART 0302 C3.2 CULVERTS

SECTION 6 BULK EARTHWORKS

PART 0402 C4.2 CUT MATERIALS

SECTION 7 KERBING

PART 0303 C3.3 CONCRETE KERBING AND CHANNELING

SECTION 8 LAYERWORKS AND SURFACING

PART 0404 C4.4 COMMERCIAL MATERIALS
PART 0501 C5.1 ROADBED
PART 0502 C5.2 FILL
PART 0503 C5.3 ROAD PAVEMENT LAYERS
PART 0801 C8.1 PRIME COAT
PART 0901 C9.1 ASPHALT LAYERS
PART 1304 C13.4 CONCRETE

SECTION 9 GENERAL REINSTATEMENTS

PART 0505 C5.5 RECONSTRUCTION OF PAVEMENT LAYERS
PART 1105 C11.5 FENCING
PART 1301 C13.1 FOUNDATIONS

C.2.2.2 : BILL OF QUANTITIES

SECTION 1 PRELIMINARY AND GENERAL ITEMS

PART 0102 C1.2 GENERAL REQUIREMENTS AND PROVISIONS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Health and Safety				
1	C1.2.5.1	Preparation, compilation, submission and approval of the Contractor's project-specific Health and Safety Plan, including risk assessments, method statements and all supporting documentation required by the Construction Regulations	Lump sum	1		
2	C1.2.5.2	Implementation, maintenance and updating of the approved Health and Safety Plan for the duration of the contract, including compliance with all statutory requirements	months	4		
		Environmental Management				
3	C1.2.1.1	Monitor compliance with the Environmental Management Programme (EMP), maintain environmental records, undertake inspections, implement corrective actions, attend environmental meetings and prepare all required environmental compliance reports for the duration of the Contract	months	4		
		Programming and Reporting				
4	C1.2.2.4	Prepare, submit, revise as necessary and obtain approval of a detailed Contract Programme showing the sequence, duration and interrelationship of all activities required for the execution of the Works, including procurement, construction activities, milestones and completion dates	Lump sum	1		
		Other Documentation				
5	C1.2.2.6	Preparation, compilation and submission of all information, returns, records and reports required in terms of the Contract Documentation, including reporting on local labour employment, labour statistics, training, community participation, progress and any other reporting requirements specified in the Contract	months	4		

Part Continued on next page

Part Continued **PART 0102 C1.2 GENERAL REQUIREMENTS AND PROVISIONS**

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Stakeholder Management & Liaison (CLO)				
6	C1.2.4 C1.2.3	Provide stakeholder management and liaison services for the duration of the Contract, including engagement with local communities, stakeholders, labour representatives, business forums, community structures and the Employer, and the management of stakeholder-related issues arising from the Works	months	4		
7		Provide all labour, equipment, instruments and materials necessary for surveying, establishment of control points, setting out of the Works, checking of levels and positions, and maintenance of survey control for the duration of the Contract	PC Sum	30000	1.00	30,000.00
8		Handling Costs and Profit in respect of sub-item 1.0102.7 for Surveying and Setting Out of the Works	%	30000		
9		Submission of As-Built Drawings by the Contractor. Prepare and submit complete as-built drawings and records for the Works as constructed, including all surveys, measurements, drafting, revisions and submissions required by the Contract	sum	1		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES **R**

PART 0103 C1.3 CONTRACTOR'S SITE ESTABLISHMENT AND

Item	Clause	Description	Unit	Quantity	Rate	Amount
		The Contractor's General Obligations				
1	C1.3.1.1	Fixed obligations	Lump sum	1		
2	C1.3.1.3	Time-related obligations	months	4		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES **R**

SECTION 2 SITE CLEARANCE

PART 0106 C1.6 CLEARING AND GRUBBING

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Clearing				
1	C1.6.1.1	Clear and grub the area indicated by the Engineer by removing grass, shrubs, bushes, debris and other surface obstructions using mechanical equipment supplemented by Clear and grub the area indicated by the Engineer by removing grass, shrubs, bushes, debris and other surface obstructions using mechanical equipment supplemented by hand labour where necessary. Disposal of unsuitable material shall be included	m2	3250		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES R

SECTION 3 PROVING OF SERVICES / EXISTING LAYERWORKS

PART 0201 C2.1 GEN REQMENTS AND TRENCHING SERVICE

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Proving				
1	C2.1.1.1	Locate, identify, verify, expose where necessary, protect, support and maintain existing services affected by the Works, including liaison with relevant service authorities and implementation of all measures required to prevent damage to existing services	Lump sum	1		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES **R**

SECTION 4 WATERMAINS

PART 023B C2.3B WET SERVICES - WATER MAINS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Rider Mains				
1	C2.3.21.1(a)	Supply and lay water mains / rider mains complete with couplings and connections: 100 mm diameter HDPE PN16 pipe, including supply, delivery, trench excavation, bedding, laying, jointing, couplings, fittings, testing, commissioning, backfilling and compaction complete	m	100		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES **R**

SECTION 5 DRAINAGE

PART 0302 C3.2 CULVERTS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Excavation: **Pipes, Manholes, Inlets and Headwalls**				
1	C3.2.1.1(a)	Excavation for culvert structures for pipes: in all material situated within the following depth ranges below the surface level: (a) 0 m to 1,5 m	m3	180		
2	C3.2.1.1(b)	(b) Exceeding 1,5 m and up to 3,0 m	m3	30		
3	C3.2.2.1	Backfilling: Using the excavated material	m3	30		
		Backfilling: **Pipes, Manholes, Inlets and Headwalls**				
4	C3.2.2.2(a)	Backfilling: Using imported selected material: (a) From commercial sources (Using granular material) - G7 material or better	m3	16		
5	C3.2.2.2(a)	Backfilling: Using imported selected material:(a) From commercial source(Clean course River Sand)	m3	55		
		Concrete Pipes: Spigot and Socket Type				
6	C3.2.3.2	Supply, delivery and installation of GeoStruct™ or approved equivalent 450mm HDPE Stormwater Pipe with Mechanical Coupling + Rubber Seal SN4 or SN8	m	100		
		Compaction				
7	C3.2.24.1	Compaction of bedding for inlets, outlets, manholes and catchpits: Preparation and compaction of in situ bedding material to 90 % of MDD (depth 150mm)	m3	55		
		Manholes and Inlets				
8	C3.2.16.2	Construct 230 mm thick brickwork manholes in engineering bricks in approved cement mortar, including cutting, bonding, jointing, scaffolding and all incidental work necessary to complete the brickwork manholes	m2	7		
9	C3.2.18	Construct concrete benching in manholes around and adjacent to the channel, including shaping, finishing and curing complete	m3	0.5		

Part Continued on next page

Part Continued **PART** **0302 C3.2 CULVERTS**

Item	Clause	Description	Unit	Quantity	Rate	Amount
10	C3.2.19.1	Supply and install manhole frame and cover complete in accordance with Standard Drawings No. 38571 and 38572, including bedding in approved mortar, setting to line and level, fixing in position and all incidental work necessary for a complete installation	no	4		
11	C3.2.19.4	Supply, deliver and install manhole covers or gratings complete with frames in accordance with Standard Drawings No. 38571 and 38572, including bedding, fixing, adjustment to finished levels and all incidentals necessary for a complete installation	no	4		
12	C3.2.7.2	Cast in situ concrete and formwork: In complete in situ floor slabs for rectangular culverts, manholes and catchpits including formwork, joints and Class U2 surface finish (class of concrete indicated) (installed at a standard depth of 1,0 m)	m3	10		
13	C13.4.11	Transport, handle and erect precast concrete members, inlet covers and frames in the positions shown on the drawings, including lifting, bedding, jointing, alignment, fixing and all incidentals necessary for complete installation	no	4		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES **R**

SECTION 6 BULK EARTHWORKS

PART 0402 C4.2 CUT MATERIALS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Excavation to Stockpile or Fill				
1	C4.2.3.1	Excavating of materials in cuttings and stockpile for use in the Works, material obtained from: (a) Soft Excavation Excavate approved material from cuttings in soft excavation, load, transport and stockpile for later use in the Works, including trimming, shaping, maintaining stockpiles and all incidental operations	m3	320		
2	C4.2.3.1	Excavating of materials in cuttings and spoil at approved site, material obtained from: (a) Soft Excavation Excavate material from cuttings in soft excavation, load, haul and dispose of surplus or unsuitable material at an approved spoil site	m3	320		
3	C1.7.1.1	Load approved material from stockpiles using mechanical equipment supplemented by hand labour where necessary, including trimming of stockpiles and all incidental operations required for loading	m3	160		
		Breaking of Material by means of Mechanical Operations				
4	C4.2.11	Breaking down and removal of oversize material, hard rock and boulders using a 20 t excavator or similar equipped with a mechanical hammer. Break down oversized material, hard rock and boulders to sizes suitable for handling, loading and disposal or reuse in the Works, including all plant, labour, fuel and incidental operations.	m3	100		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES R

SECTION 7 KERBING

PART 0303 C3.3 CONCRETE KERBING AND CHANNELING

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Kerbs and Channel/Fillet				
1	C3.3.2.1,	Prefabricated Kerbing, Transition Kerbing, Cast In-Situ Channelling / Fillet: Type B Barrier Kerb, Fig. 6 as per Standard Drawing 38577 Supply, transport and install precast Type B Barrier Kerbing complete, including excavation, bedding, haunching, jointing, alignment, cutting to length where necessary and all incidentals required for a complete installation	m	680		
2	C3.3.16	Break out, remove and dispose of existing kerbs and/or channels, including excavation where necessary, loading, transport and disposal of material at an approved site, and making good adjacent surfaces	m3	15		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES **R**

SECTION 8 LAYERWORKS AND SURFACING

PART 0404 C4.4 COMMERCIAL MATERIALS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Import Layerworks - Roadworks				
1	C4.4.2.1(d)	Commercial materials identified by the Contractor from commercial, private or other non-commercial suppliers: Pavement Layer Material: Type G4 Supply, haul, place, spread, process, water and compact approved G4 pavement material obtained from an approved commercial source complete to the specified density and profile	m3	250		
2	C4.4.2.1(g)	Commercial materials identified by the Contractor from commercial, private or other non-commercial suppliers: Pavement Layer Material: Type G7 Supply, haul, place, spread, process, water and compact approved G7 pavement material obtained from an approved commercial source complete to the specified density and profile	m3	550		
		Import Layerworks - Sidewalk				
3	C4.4.2.1(d)	Commercial materials identified by the Contractor from commercial, private or other non-commercial suppliers: Pavement Layer Material: Type G4 Supply, haul, place, spread, process, water and compact approved G4 pavement material obtained from an approved commercial source complete to the specified density and profile	m3	60		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES **R**

PART 0501 C5.1 ROADBED

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Roadbed Construction				
1	C5.1.1.2	Roadbed Construction and Compaction to 93% of MDD Construct the roadbed by processing the in-situ material, shaping, watering and compacting to 93% of Modified AASHTO Maximum Dry Density (MDD), complete to the specified lines, levels and crossfalls	m3	130		
2	C5.1.4.2(a)	Removal of unsuitable material to spoil (Undercut): In layer thicknesses exceeding 200 mm (b) Unsuitable material	m3	65		

PART 0501 C5.1 ROADBED

Item	Clause	Description	Unit	Quantity	Rate	Amount
TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES					R	

PART 0502 C5.2 FILL

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Fill Construction				
1	C5.2.2.2(b)	Fill Construction: Coarse Fill Material in Compacted Layer Thicknesses Exceeding 200 mm (b) Compacted to 93% of MDD Provide, place, spread, water and compact approved coarse fill material in layers exceeding 200 mm compacted thickness to 93% of Modified AASHTO Maximum Dry Density (MDD), complete to the specified lines, levels and cross-sections	m3	2100		
TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES					R	

PART 0503 C5.3 ROAD PAVEMENT LAYERS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Processing and Compaction - Roadworks				
1	C5.3.2.1(k)	Upper Subbase Gravel Layer G4 (Unstabilised) Construct a 150 mm thick upper subbase layer using approved G4 gravel material, including supply, haulage, placing, spreading, shaping, watering and compaction to 98% of Modified AASHTO Maximum Dry Density (MDD), complete to the specified lines, levels and crossfalls	m3	120		
2	C5.3.2.1 (c)	Upper Subbase Gravel Layer G7 (Unstabilised) Construct a 150 mm thick upper subbase layer using approved G7 gravel material, including supply, haulage, placing, spreading, shaping, watering and compaction to 95% of Modified AASHTO Maximum Dry Density (MDD), complete to the specified lines, levels and crossfalls	m3	200		

Part Continued on next page

Part Continued **PART 0503 C5.3 ROAD PAVEMENT LAYERS**

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Processing and Compaction - Sidewalk				
3	C5.3.2.1(m)	Upper Subbase Gravel Layer G4 (Unstabilised) Construct a 150 mm thick upper subbase layer using approved G4 gravel material, including supply, haulage, placing, spreading, shaping, watering and compaction to 98% of Modified AASHTO Maximum Dry Density (MDD), complete to the specified lines, levels and crossfalls	m3	60		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES R

PART 0801 C8.1 PRIME COAT

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	C8.1.1.2	Prime coat with MC-30 cut-back bitumen applied at 0.6 L/m², including supply, transport, surface preparation and spraying	l	315		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES R

PART 0901 C9.1 ASPHALT LAYERS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Sidewalk				
1	C9.1.5.1(a)	Asphalt Surfacing (a) Stone Skeletal Mix – Continuously Graded (SA-S10) Supply, produce, transport, lay and compact a 25 mm thick Stone Skeletal Asphalt Mix (SA-S10), continuously graded, complete in accordance with the Specifications, including rolling, joints and all incidental work	t	30		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES R

PART 1304 C13.4 CONCRETE

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Multi-Cell and Concrete				
1	PS.12	Supply, cut to width, lay and anchor 150 mm deep Multi-cell Reinforcement System complete in accordance with the drawings and specifications, including all labour, plant, fixing accessories, trimming and incidentals necessary for completion.	m2	720		

Part Continued on next page

Part Continued **PART 1304 C13.4 CONCRETE**

Item	Clause	Description	Unit	Quantity	Rate	Amount
2	C13.3.3 PS.10	Labour enhanced cast in situ concrete of 20Mpa (19mm stone) - Road : Commercially- Sourced concrete (Rate to include the supply, lay and vibrating of the concrete)	m3	320		
3	C4.3.4.1(a)	Saw-cutting existing materials within the following average depth ranges: Concrete : (a) Up to 50 mm @ 40m spacings	m	30		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES **R**

SECTION 9 GENERAL REINSTATEMENTS

PART 0505 C5.5 RECONSTRUCTION OF PAVEMENT LAYERS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Driveways and Accesses				
1	C5.5.13.1(b)	Cemented Material 100 mm Thick G4 Crusher Run Compacted Layer in Driveways (Between Road Edge and Boundary) Construct a 100 mm thick compacted G4 crusher run layer in driveways, including supply, transport, spreading, watering, processing and compaction to the specified density	m3	110		
2	C5.5.14.2(a)	Asphalt SA-S10 50 mm Thick Compacted Surface Layer in Driveways (Between Road Edge and Boundary) Supply, produce, transport, lay and compact a 50 mm thick SA-S10 continuously graded asphalt surface layer in driveways between the road edge and property boundary	t	80		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES R

PART 1105 C11.5 FENCING

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Ancillary Work on Property Boundary				
1	C11.5.1.1	Supply and erect new fencing material for new fences and for supplementing material in existing fences 1.8 m high which are being repaired or removed, using galvanized PVC-coated diamond mesh or approved equivalent.The rate shall include all posts, stays, straining wires, binding wires, concrete foundations, fittings, erection, tensioning and all incidentals necessary for a complete fence installation	m	120		
2	C11.5.3.2	Moving Existing Gates - Raising / Lowering Existing Gates, Rails and Posts Carefully remove, raise and/or lower existing gates, rails and gate posts as directed by the Engineer, including dismantling, excavation,reinstatement of foundations, re-erection, alignment, adjustments and all incidentals necessary to restore the gate to full operational condition	no	5		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES R

PART 1301 C13.1 FOUNDATIONS

Item	Clause	Description	Unit	Quantity	Rate	Amount
		Boundary Walls Foundations				
1		Excavate for foundations and structures in all classes of material not otherwise measured, including trimming of sides and bottoms, keeping excavations free of water, stockpiling selected material and disposal of surplus material complete	m3	30		
2		Provide and place foundation concrete blinding of the specified thickness beneath foundations and structures, including surface preparation, placing, levelling, finishing and curing complete	m3	2		
3		Supply and place 20 MPa concrete in footings and foundations, including mixing or delivery, placing, compaction, finishing, curing and all incidentals necessary to complete the work in accordance with the drawings and specifications	m3	20		
		Boundary Walls				
4		Supply and Install 230 mm brickwork in approved engineering bricks laid in cement mortar, including bonding, jointing, cutting, scaffolding, curing and all incidental work necessary to complete the brickwork in accordance with the drawings and specifications	m2	80		
5		Supply and Install 190 mm Concrete Blockwork Boundary Walls using approved concrete masonry units laid in cement mortar, including jointing, bonding, cutting, scaffolding, curing and all incidental work necessary to complete the wall in accordance with the drawings and specifications	m2	80		
6		Provide and install 50 mm diameter uPVC weepholes formed with uPVC pipe cut to 0.5 m length, including positioning, installation through the wall, trimming and all incidental work necessary for a complete installation	no	50		

Part Continued on next page

Part Continued **PART 1301 C13.1 FOUNDATIONS**

Item	Clause	Description	Unit	Quantity	Rate	Amount
7		Supply and install 110 mm diameter perforated uPVC subsoil drain pipe behind retaining walls, including fittings, jointing, alignment, bedding, wrapping with approved geotextile where specified, connection to outlets and all incidentals necessary for a complete installation	m	50		
8		Backfill behind structures with approved material, including placing, spreading, watering and compacting in layers to the specified density, complete in accordance with the drawings and specifications	m3	15		
		Gabion Structures				
9		Supply, assemble and install gabion baskets of size 1 m x 1 m x 1 m, including galvanised PVC-coated wire mesh, lacing wire, diaphragms, approved rock fill, placing, tying, alignment and all incidentals necessary to complete the gabion retaining wall in accordance with the drawings and specifications	m3	50		
		Retaining Wall Structures				
10		Supply and construct L500 block retaining wall (or approved equivalent), complete in accordance with the standard details and specifications, including supply and installation of retaining wall blocks, 1:12 cement stabilised sand bedding layer, drainage fabric, alignment, cutting, trimming and all incidentals necessary for a complete installation	m2	100		

TOTAL CARRIED TO C.2.2.3 : SUMMARY OF BILL OF QUANTITIES **R**

C.2.2.3 : SUMMARY OF BILL OF QUANTITIES

Section

1	PRELIMINARY AND GENERAL ITEMS		R _____
	0102 C1.2 GENERAL REQUIREMENTS AND PROVISIONS	R _____	
	0103 C1.3 CONTRACTOR'S SITE ESTABLISHMENT AND	R _____	
2	SITE CLEARANCE		R _____
	0106 C1.6 CLEARING AND GRUBBING	R _____	
3	PROVING OF SERVICES / EXISTING LAYERWORKS		R _____
	0201 C2.1 GEN REQMENTS AND TRENCHING SERVICE	R _____	
4	WATERMAINS		R _____
	023B C2.3B WET SERVICES - WATER MAINS	R _____	
5	DRAINAGE		R _____
	0302 C3.2 CULVERTS	R _____	
6	BULK EARTHWORKS		R _____
	0402 C4.2 CUT MATERIALS	R _____	
7	KERBING		R _____
	0303 C3.3 CONCRETE KERBING AND CHANNELING	R _____	
8	LAYERWORKS AND SURFACING		R _____
	0404 C4.4 COMMERCIAL MATERIALS	R _____	
	0501 C5.1 ROADBED	R _____	
	0502 C5.2 FILL	R _____	
	0503 C5.3 ROAD PAVEMENT LAYERS	R _____	
	0801 C8.1 PRIME COAT	R _____	
	0901 C9.1 ASPHALT LAYERS	R _____	
	1304 C13.4 CONCRETE	R _____	
9	GENERAL REINSTATEMENTS		R _____
	0505 C5.5 RECONSTRUCTION OF PAVEMENT LAYERS	R _____	
	1105 C11.5 FENCING	R _____	
	1301 C13.1 FOUNDATIONS	R _____	

SUB TOTAL R _____

ADD VAT (15%) - (only if a registered VAT Vendor) R _____

TOTAL CARRIED TO FORM OF OFFER AND ACCEPTANCE (C.1.1) R _____