



SUBSIDY HOUSING TYPOLOGY AND COSTS STUDY: DELIVERABLE 1
PART 3: BILL OF QUANTITIES FOR STANDARD 40M2 UNIT



human settlements

Department:
Human Settlements
REPUBLIC OF SOUTH AFRICA

SECTION NO. 2

Builders Work

BILL NO. 1

EARTHWORKS

EARTHWORKS (PROVISIONAL)

The Tenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and the Supplementary Preambles hereunder.

SUPPLEMENTARY PREAMBLES

Carting away of excavated material:

Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site.

SITE CLEARANCE, ETC.

Site clearance, etc.:

1	Digging up and removing rubbish, debris, vegetation, hedges, shrubs, bush, etc and trees not exceeding 200mm girth.	m ²	250	4.50	1 125 00
2	Strip average 150mm thick layer of topsoil and stockpile on site.	m ²	250	6.18	1 545 00

EXCAVATION, FILLING, ETC. OTHER THAN BULK

Excavation in earth not exceeding 2m deep:

3	Trenches average 800mm deep, including risk of collapse and keeping excavations free of water.	m ³	14	30.39	425 46
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Extra over all excavations for carting away:

4	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the Contractor.	m ³	4	72.00	288 00
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FILLING, ETC.

Filling with selected material from the excavations and compacted in 150mm thick layers to a density of at least 95% Mod AASHTO maximum density for:

5	Backfilling to trenches, holes, etc.	m ³	11	50.00	550 00
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Carried to Collection

R 3 933 46

Section No. 2

Bill No. 1

Earthworks

	Unit	Quantity	Rate	Amount	
<u>Earth filling supplied by the Contractor, including compaction in 150mm layers to 95% Mod AASHTO density, including scarifying and compaction of existing ground surface to a depth of 150mm:</u>					
6	Under floors.	m ³	12	107.18	1 286 16
<u>Surface preparation:</u>					
7	Compaction of ground surface, including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 95% Mod AASHTO density.	m ²	17	9.20	156 40
<u>SOIL POISONING</u>					
<u>Soil insecticide in accordance with SANS 5859:</u>					
8	Under floors etc. including forming and poisoning shallow furrows against foundation walls etc., filling in furrows and ramming.	m ²	40	5.00	200 00
9	To bottoms and sides of trenches etc.	m ²	79	5.00	395 00
			Carried to Collection	R	2 037 56
Section No. 2					
Bill No. 1					
Earthworks					



Standard Unit - Output 2
40m² Unit

SECTION NO. 2
Builders Work
BILL NO. 1
EARTHWORKS
COLLECTION

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3 933 46

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2 037 56

Amount

Carried To Section Summary

R

5 971 02

Section No. 2
Bill No. 1
Earthworks

	Unit	Quantity	Rate	Amount
<p><u>SECTION NO. 2</u> <u>Builders Work</u> <u>BILL NO. 2</u> <u>CONCRETE, FORMWORK AND REINFORCEMENT</u></p>				
<p><u>CONCRETE, FORMWORK AND REINFORCEMENT</u></p>				
<p>The Tenderer is referred to the relevant clauses in the separate document Model Preambles for Trades (2008 Edition) and the following supplementary preambles.</p>				
<p><u>SUPPLEMENTARY PREAMBLES</u></p>				
<p><u>Cost of tests:</u></p>				
<p>The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SABS 1200 G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent. (Test cubes are measured separately).</p>				
<p><u>Formwork:</u></p>				
<p>Descriptions of formwork shall be deemed to include use and waste only (except where described as left in or permanent), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use.</p>				
<p>The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself.</p>				
<p>Formwork to sides of bases, pile caps, ground beams, etc., will only be measured where it is prescribed by the Engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in Earthworks.</p>				
<p>Section No. 2 Bill No. 2 Concrete, Formwork And Reinforcement</p>			R	0 00
<p>Carried to Collection</p>				

	Unit	Quantity	Rate	Amount
Formwork to soffits of solid slabs etc., shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described.				
<u>UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES</u>				
<u>10 MPa/19mm Concrete:</u>				
1				
Strip footings foundations including formwork for steps, etc.	m ³	4	950.00	3 800 00
<u>UNREINFORCED CONCRETE</u>				
<u>10 MPa/19mm Concrete:</u>				
2				
Surface beds on waterproofing.	m ³	3	950.00	2 850 00
3				
Apron slabs cast in panels including for formwork to edges not exceeding 300mm high or wide.	m ³	2	950.00	1 900 00
<u>CONCRETE SUNDRIES</u>				
<u>Finishing top surfaces of concrete smooth with a steel float:</u>				
4				
Surface beds, slabs, etc.	m ²	40	11.85	474 00
<u>Wire brushing of concrete surfaces to expose aggregate:</u>				
5				
Apron slabs, including for forming channels in top.	m ²	17	15.76	267 92
Carried to Collection			R	9 291 92
Section No. 2				
Bill No. 2				
Concrete, Formwork And Reinforcement				
2-5				



Standard Unit - Output 2
40m² Unit

SECTION NO. 2

Builders Work

BILL NO. 2

CONCRETE, FORMWORK AND REINFORCEMENT

COLLECTION

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0 00

2-5

9 291 92

Carried To Section Summary

Section No. 2

Bill No. 2

Concrete, Formwork And Reinforcement

2-6

R

9 291 92

	Unit	Quantity	Rate	Amount	
SECTION NO. 2 Builders Work BILL NO. 3 MASONRY MASONRY The Tenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and the Supplementary Preambles hereunder. SUPPLEMENTARY PREAMBLES BRICKWORK Sizes in descriptions: Where sizes in descriptions are given in brick units, 'one brick' shall represent the length and 'half brick' the width of a brick. BRICKWORK IN FOUNDATIONS (PROVISIONAL) Brickwork in "Big Max" cement bricks in Class II mortar, size 290 x 140 x 90mm:					
1	140mm Brick walls.	m ²	8	135.00	1 080 00
BRICKWORK IN SUPERSTRUCTURE Brickwork in "Big Max" cement bricks in Class II mortar, size 290 x 140 x 90mm:					
2	140mm Brick walls.	m ²	50	135.00	6 750 00
3	Ditto, but in beamfilling.	m ²	3	135.00	405 00
4	90mm Brick walls.	m ²	29	122.00	3 538 00
5	Ditto, but in gable walls.	m ²	3	135.00	405 00
Brickwork reinforcement:					
6	75mm Wide reinforcement built in horizontally.	m	181	1.55	280 55
7	110mm Wide reinforcement built in horizontally.	m	331	1.55	513 05
			Carried to Collection	R	12 971 60
Section No. 2 Bill No. 3 Masonry					

	Unit	Quantity	Rate	Amount
<u>BRICKWORK SUNDRIES</u>				
<u>Prestressed fabricated lintels including necessary temporary supports:</u>				
8	m	9	36.12	325 08
<u>Galvanised hoop iron cramps, ties, etc:</u>				
9	No.	14	6.18	86 52
<u>Bagging of 1:3 cement and sand mixture:</u>				
10	m ²	114	39.14	4 461 96
<u>FIBRE CEMENT WINDOW CILLS</u>				
<u>Fibre cement cills bedded in class I mortar including metal fixing lugs etc:</u>				
11	m	7	66.50	465 50
Carried to Collection			R	5 339 06

Section No. 2
Bill No. 3
Masonry



Standard Unit - Output 2
40m² Unit

SECTION NO. 2

Builders Work

BILL NO. 3

MASONRY

COLLECTION

Amount

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12 971 60

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5 339 06

Carried To Section Summary

R

18 310 66

Section No. 2
Bill No. 3
Masonry

		Unit	Quantity	Rate	Amount		
<p><u>SECTION NO. 2</u> <u>Builders Work</u> <u>BILL NO. 4</u> <u>WATERPROOFING</u></p> <p>The Tenderer is referred to the relevant clauses in the separate document Model Preambles for Trades (2008 Edition).</p> <p><u>DAMPPROOFING OF WALLS AND FLOORS</u></p> <p><u>One layer of 375 micron "Consol Plastics Brikgrip DPC" embossed damp proof course:</u></p>							
1	In walls, cills.	m ²	7	8.76	61	32	
<p><u>One layer of 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape:</u></p>							
2	Under surface beds.	m ²	40	7.62	304	80	
<p>Carried To Section Summary</p>					R	366	12
<p>Section No. 2 Bill No. 4 Waterproofing</p>							

	Unit	Quantity	Rate	Amount
<p><u>SECTION NO. 2</u> <u>Builders Work</u> <u>BILL NO. 5</u> <u>ROOF COVERINGS</u></p> <p>The Tenderer is referred to the relevant clauses in the separate document Model Preambles for Trades (2008 Edition).</p> <p><u>ROOF COVERINGS, ETC.</u></p> <p><u>CORRUGATED METAL SHEETING AND ACCESSORIES</u></p> <p><u>0.5mm "Fullhard" corrugated sheeting fixed to timber purlins or rails with 75mm long "El Toro" drive screws, in strict accordance with manufacturer's specifications.</u></p>				
1	m ²	46	95.00	4 370 00
2	m	7	28.36	198 52
Carried To Section Summary			R	4 568 52
<p>Section No. 2 Bill No. 5 Roof Coverings</p>				

	Unit	Quantity	Rate	Amount
<p><u>SECTION NO. 2</u> <u>Builders Work</u> <u>BILL NO. 6</u> <u>CARPENTRY AND JOINERY</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate document "Model Preambles for Trades" (2008 Edition) and to the Supplementary Preambles incorporated hereunder.</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p>Prefabricated trusses shall be fabricated in a factory by a truss fabricator who has been awarded a Certificate of Competence by the Institute of Timber Construction and is approved by the Principal Agent.</p> <p>All trusses shall be designed by a registered Professional Engineer in accordance with SABS Code of Practice for Design of Timber Structures.</p> <p>The complete structure shall be inspected by the truss designer to ensure that the manufacture and erection details have been complied with.</p> <p><u>PREFABRICATED ROOF TRUSSES, ETC.</u></p> <p><u>Sawn softwood:</u></p> <p><u>ROOF BEAMS, ETC</u></p> <p><u>Sawn SA Pine Grade 6</u></p>				
1	m	48.08	40.00	1 923 20
<p><u>DOORS, ETC.</u></p> <p><u>40mm Frame ledged, braced and batten door, hung to steel frames (elsewhere measured):</u></p>				
2	No.	2	1 300.00	2 600 00
<p><u>40mm "Hardboard" hollow core flush panel door hung to steel frames (elsewhere measured):</u></p>				
3	No.	3	274.33	822 99
Carried To Section Summary			R	5 346 19
<p>Section No. 2 Bill No. 6 Carpentry And Joinery</p>				

	Unit	Quantity	Rate	Amount
<p><u>SECTION NO. 2</u> <u>Builders Work</u> <u>BILL NO. 7</u> <u>IRONMONGERY</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate document "Model Preambles for Trades" (2008 Edition).</p> <p><u>IRONMONGERY FIXED TO DOORS, ETC.</u></p> <p><u>LOCKS:</u></p>				
1	No.	2	102.50	205 00
2	No.	3	116.32	348 96
<p><u>BATHROOM FITTINGS</u></p> <p><u>Stainless steel:</u></p>				
3	No.	1	125.00	125 00
Carried To Section Summary			R	678 96
Section No. 2 Bill No. 7 Ironmongery				

	Unit	Quantity	Rate	Amount
<u>SECTION NO. 2</u> <u>Builders Work</u> <u>BILL NO. 8</u> <u>METALWORK</u>				
The Tenderer is referred to the relevant clauses in the separate document Model Preambles for Trades (2008 Edition).				
<u>PRESSED STEEL DOOR FRAMES</u>				
<u>1mm Thick "Durowin" rebated frames suitable for 90mm wide brick walls, with and including ironmongery and red oxide paint finish:</u>				
1	No.	3	243.00	729 00
<u>1mm Thick "Durowin" rebated frames suitable for 140mm wide brick walls, with and including ironmongery and red oxide paint finish:</u>				
2	No.	2	265.00	530 00
<u>STEEL WINDOWS, DOORS, ETC.</u>				
<u>1mm Thick "Durowin Type F7" residential windows complete with ironmongery, paint, etc. and fixing to brickwork or concrete:</u>				
3	No.	1	165.70	165 70
4	No.	2	332.60	665 20
5	No.	2	484.55	969 10
Carried To Section Summary			R	3 059 00
Section No. 2 Bill No. 8 Metalwork				

	Unit	Quantity	Rate	Amount
<p><u>SECTION NO. 2</u> <u>Builders Work</u> <u>BILL NO. 10</u> <u>PLUMBING AND DRAINAGE</u></p>				
<p>The Tenderer is referred to the relevant clauses in the separate document Model Preambles for Trades (2008 Edition).</p>				
<p><u>SUPPLEMENTARY PREAMBLES</u></p>				
<p><u>'Polycop' polypropylene pipes:</u></p>				
<p>Polypropylene pipes 54mm diameter and under shall be seamless copper coloured class 16 pipes jointed with 'Fast-fuse' heat welded thermoplastic or brass compression fittings as designed for use with copper pipes as stated.</p>				
<p>Pipes shall be firmly fixed to walls etc with coloured nylon snap-in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer's instructions.</p>				
<p>All pipe diameters are nominal external.</p>				
<p><u>'Polylink' polypropylene pipes:</u></p>				
<p>Polypropylene pipes 63mm diameter and over shall be class 12 pipes jointed with cast iron 'Supraclamp' running joints.</p>				
<p>Fusion welded bends, once or twice mitred as necessary, and tees shall be factory manufactured.</p>				
<p>Fusion welded bends and tees shall include jointing to pipes with PVC rubber ring double X joint couplers.</p>				
<p>Branch tees shall include flanged and bolted joints to 'Polycop' branch pipes in addition and for brass compression male iron to copper straight couplers.</p>				
<p>Reducers shall include jointing to pipes with PVC rubber ring double Z joint couplers and reduces shall be of sufficient overall length to accommodate same.</p>				
<p>All pipes shall be jointed and fixed strictly in accordance with the manufacturer's instructions.</p>				
<p>All pipe diameters are nominal external.</p>				
<p style="text-align: right;">Carried to Collection</p>			R	0 00
<p>Section No. 2 Bill No. 10 Plumbing And Drainage</p>				

	Unit	Quantity	Rate	Amount
<p><u>uPVC pressure pipes and fittings:</u></p>				
<p>Pipes for water supply shall be of the class stated.</p>				
<p>Pipes of 40mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings.</p>				
<p>Pipes of 50mm diameter and greater shall have sockets and spigots with push-in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type joints.</p>				
<p><u>Copper pipes:</u></p>				
<p>Pipes shall be hard drawn and half-hard pipes of the class stated. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), class 2 (half-hard) and class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers. Fittings to copper waste, vent and anti-syphon pipes, capillary solder fittings and compression fittings shall be 'Cobra Watertech' type. Capillary solder fittings shall comply with ISO 2016. Only compression fittings shall be used in walls or in ground.</p>				
<p><u>Internal water supplies:</u></p>				
<p>Prices for all piping laid in ground, inspection chambers, etc. shall include for excavations, keeping free of water, distributing surplus material on site (carting away has been separately measured) and backfilling in selected material (imported fill where required will be separately measured).</p>				
<p>Holes, chases, etc., are deemed to be included in the descriptions of the pipework.</p>				
<p><u>Fixing of pipes</u></p>				
<p>Unless specifically otherwise stated, descriptions of pipes shall be deemed to include for fixing to walls etc. casting in, building in or suspending not exceeding 1m below suspension level</p>				
<p><u>Lead pipes and traps:</u></p>				
<p>All soldered joints shall be wiped and brass unions shall be used for jointing lead to steel.</p>				
<p>Section No. 2 Bill No. 10 Plumbing And Drainage</p>	<p>Carried to Collection</p>		<p>R</p>	<p>0 00</p>

	Unit	Quantity	Rate	Amount
<p><u>Reducing fittings:</u></p>				
<p>Where fittings have reducing ends or branches they are described as 'reducing'. In the case of pipes with diameters not exceeding 60mm only the largest end or branch size is given. Should the Contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm all sizes are given and no claim for extra bushes, reducers, etc will be entertained.</p>				
<p><u>Wire gratings:</u></p>				
<p>Descriptions of gutter outlets etc shall be deemed to include wire balloon gratings.</p>				
<p><u>Exposed concrete surfaces:</u></p>				
<p>Exposed surfaces of concrete stormwater channels, cover slabs, inspection eye marker slabs, gully tops, cleaning eye tops, catchpits, inspection chambers, etc shall be finished smooth with plaster.</p>				
<p><u>Excavations:</u></p>				
<p>No claim for rock excavation will be entertained unless the Contractor has timeously notified the quantity surveyor thereof prior to backfilling.</p>				
<p>'Soft rock' and 'hard rock' shall be as defined in 'Earthworks'.</p>				
<p><u>Laying, backfilling, bedding, etc of pipes:</u></p>				
<p>Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions.</p>				
<p>Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following: SABS 1200 L : Medium pressure pipelines LD : Sewers LE : Stormwater drainage Pipe trenches etc shall be backfilled in accordance with clause 3, 5.5, 5.6, 5.7 and 7 of SAB.</p>				
<p><u>Flush pans:</u></p>				
<p>Flush pans shall have straight or side outlets and 'P' or 'S' traps as necessary.</p>				
<p>Section No. 2 Bill No. 10 Plumbing And Drainage</p>	Carried to Collection		R	0 00

	Unit	Quantity	Rate	Amount
<p><u>Stainless steel basins, sinks, wash troughs, urinals, etc:</u></p> <p>Units shall have standard aprons on all exposed edges and tiling keys against walls where applicable.</p> <p><u>Waste unions:</u></p> <p>Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings.</p> <p><u>'Densyl' petrolatum anti-corrosion tape as manufactured by Denso SA (Pty) Ltd:</u></p> <p>Pipes to be taped shall be coated with the appropriate primer and the tape shall be applied with minimum 15mm lap per spiral unless otherwise described.</p> <p>Couplings and fittings to pipes shall be taped in strict accordance with the manufacturer's instructions including all mastic, tape, 'Layflat' sheeting, securing of same, etc.</p> <p>Prices for wrapping of pipes shall include for all work as described to couplings in the length.</p> <p><u>SANITARY FITTINGS</u></p> <p><u>Sanitary fittings:</u></p>				
1	No.	1	1 815.00	1 815 00
2	No.	1	2 112.00	2 112 00
3	No.	1	2 173.00	2 173 00
4	No.	1	2 656.00	2 656 00
Carried to Collection			R	8 756 00
<p>Section No. 2 Bill No. 10 Plumbing And Drainage</p>				



Standard Unit - Output 2
40m² Unit

SECTION NO. 2

Builders Work

BILL NO. 10

PLUMBING AND DRAINAGE

COLLECTION

Amount

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2-19 8 756 00

Carried To Section Summary

R

8 756 00

Section No. 2

Bill No. 10

Plumbing And Drainage

	Unit	Quantity	Rate	Amount
SECTION NO. 2 Builders Work BILL NO. 12 GLAZING				
The Tenderer is referred to the relevant clauses in the separate document Model Preambles for Trades (2008 Edition).				
GLAZING TO STEEL WITH PUTTY				
3mm Clear float glass:				
1	m ²	9	140.75	1 266 75
3mm Obscure float glass:				
2	m ²	0.34	159.51	54 23
Carried To Section Summary			R	1 320 98
Section No. 2 Bill No. 12 Glazing				

	Unit	Quantity	Rate	Amount
<u>SECTION NO. 2</u> <u>Builders Work</u> <u>BILL NO. 13</u> <u>PAINTWORK</u>				
The Tenderer is referred to the relevant clauses in the separate document Model Preambles for Trades (2008 Edition).				
<u>ON WOOD SURFACES</u>				
<u>Prepare and apply two coats carbonlineum:</u>				
1	m ²	3	12.14	36 42
<u>Prepare and apply one coat polyurethane varnish for exterior use:</u>				
2	m ²	18	25.00	450 00
<u>ON METAL SURFACES</u>				
<u>Prepare and apply one coat primer and two coats enamel paint.:</u>				
3	m ²	4	38.00	152 00
4	m ²	14	38.00	532 00
Carried To Section Summary			R	1 170 42
Section No. 2 Bill No. 13 Paintwork				

Annexure A1

Detailed cost breakdown of a 40m ² subsidised house effective from 21 November 2012				
Output 2 - Construction Cost and Subsidy Amount for a 40m ² house	Output 2 - Construction Cost and Subsidy Amount for a 40m ² house	Output 3 -Energy efficiency compliance with SANS 400, SANS 400RX & SANS 10400X	Output 4 - Fully fledged electrical installation	Total
Earthworks (provisional)	R 5 971.02			R 5 971.02
Concrete, Formwork & Reinforcement	R 9 596.72			R 9 596.72
Brickwork	R 13 823.50			R 13 823.50
Roof Structure	R 6 614.66	1248		R 7 862.66
Ceiling and insulation		6509		R 6 509.00
Windows	R 3 652.98	3543		R 7 195.98
Doors and Frames	R 5 837.95			R 5 837.95
Finishing and Paintwork	R 8 231.96	1238		R 9 469.96
Electrical	R 2 779.00		6086	R 8 865.00
Plumbing and Toilet	R 8 881.00			R 8 881.00
Material				R 0.00
Labour - <i>included</i>				R 0.00
Sub-Total	R 65 388.79	R 12 538.00	R 6 086.00	R 84 012.79
P &G	R 5 943.84	R 1 139.70	R 553.22	R 7 636.76
Overheads - included				R 0.00
Transfer Costs - <i>excluded</i>				R 0.00
Beneficiary Administration - <i>excluded</i>				R 0.00
Profit - <i>included</i>				R 0.00
Total	R 71 332.63	R 13 677.70	R 6 639.22	R 91 649.55
Total (Rounded Off)	R 71 333.00	R 13 678.00	R 6 639.00	R 91 650.00