

**SURVEY OF LOTS 1 TO 6 OF LOT 27 LOCHVIEW OF LOCHVIEW. BULAWAYO DISTRICT.**

**COORDINATE LIST****SURVEY OF LOTS 1 TO 6 OF LOT 27 LOCHVIEW OF LOCHVIEW. BULAWAYO DISTRICT.****TRIG BEACONS**

		System = Lo 29°					
Fld	Calc	Point	Y (metres)	X			
Bk	Page	Name	Co-ord	Co-ord	Description	F/P	F/B
		CONSTANT	+30 000.00	+2 230 000.00			
3	100	22/T	+5 713,05	+2 112,21	(Standard Pillar) Willsgrove		
	100	250/T	+1 248,99	+1 785,60	(Standard Pillar) Rhobrik		

**WORKING STATIONS**

4	100	LV1	+5 330,74	+2 212,80	12mm Round Iron Peg	(P) 10
4	100	LV2	+5 118,46	+2 812,30	12mm Round Iron Peg	(P) 10
5	100	LV3	+4 768,56	+2 888,89	12mm Round Iron Peg	(P) 10
5, 6	100	LV4	+4 413,30	+2 790,71	12mm Round Iron Peg	(P) 10
7	100	LV5	+4 287,34	+3 077,63	12mm Round Iron Peg	(P) 10
9	100	LV6	+4 486,12	+2 827,715	12mm Round Iron Peg	(P) 10

**BEACONS FOUND**

102	26a	+4 243,81	+3 091,96	12mm Iron Peg	(F) SR124/05
102	26b	+4 322,08	+2 782,56	12mm Iron Peg	(F) SR124/05
102	27a	+4 326,21	+3 112,87	12mm Iron Peg	(F) SR124/05
102	b4	+4 320,73	+3 111,37	12mm Iron Peg	(F) SR124/05
102	C1	+4 420,10	+2 820,67	12mm Iron Peg	(F) SR124/05
102	V6	+4 432,25	+2 813,44	12mm Iron Peg	(F) SR124/05

**BEACONS PLACED**

104	1a	+4 333,63	+3 060,39	12mm Round Iron Peg	(P) 10
105	1b	+4 256,72	+3 040,93	12mm Round Iron Peg	(P) 10
104	2a	+4 346,54	+3 009,38	12mm Round Iron Peg	(P) 10
105	2b	+4 269,63	+2 989,92	12mm Round Iron Peg	(P) 10
104	3a	+4 372,35	+2 907,33	12mm Round Iron Peg	(P) 10
105	3b	+4 295,44	+2 887,87	12mm Round Iron Peg	(P) 10
106	3c	+4 285,05	+2 928,95	12mm Round Iron Peg	(P) 10
105	3d	+4 334,82	+2 941,54	12mm Round Iron Peg	(P) 10
105	3e	+4 327,69	+2 969,72	12mm Round Iron Peg	(P) 10
104	3f	+4 354,83	+2 976,59	12mm Round Iron Peg	(P) 10
104	4a	+4 388,57	+2 802,44	12mm Round Iron Peg	(P) 10
105	4c	+4 352,88	+2 849,30	12mm Round Iron Peg	(P) 10
104	4f	+4 395,82	+2 814,57	12mm Round Iron Peg	(P) 10
104	4x	+4 398,27	+2 804,88	12mm Round Iron Peg	(P) 10
104	5a	+4 366,08	+2 796,78	12mm Round Iron Peg	(P) 10
104	5b	+4 321,33	+2 785,53	12mm Round Iron Peg	(P) 10
105	5d	+4 313,36	+2 892,41	12mm Round Iron Peg	(P) 10

**CALCULATED POINTS**

103	27b	+4 404,52	+2 803,29	Not Beacons	10
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**SURVEY OF LOTS 1 TO 6 OF LOT 27 LOCHVIEW OF LOCHVIEW. BULAWAYO DISTRICT.****TRIG BEACONS**

System = Lo 29°			
	Y	( meters)	X
Name	Co-ord		Co-ord
CONSTANT	+30 000.00		+2 230 000.00
22/T	+5 713,05		+2 112,21
250/T	+1 248,99		+1 785,60
			(STANDARD PILLAR) Willsgrrove
			(STANDARD PILLAR) Rhobrik

**DATA FROM SR. 1858**

System = (Bulawayo Local Origin (BLO))			
	Y	(Cape Feet)	X
Name	Co-ord		Co-ord
CONSTANT	+/-0.00		+/-0.00
25b	+12 751,98		+11 393,15
26a	+12 764,96		+12 442,66
26b	+13 013,73		+11 459,37
27a	+13 026,71		+12 508,89
27b	+13 275,48		+11 525,60
28a	+13 288,46		+12 575,11
28b	+13 537,24		+11 591,82
QQ2	+11 921,54		+12 229,28

**DATA FROM SR. 124/2005**

System = Lo 29°			
	Y	(meters)	X
Name	Co-ord		Co-ord
CONSTANT	+30 000.00		+2 230 000.00
b3	+4 345,00		+3 117,51
b4	+4 320,77		+3 111,38
C1	+4 420,06		+2 820,74
V4	+4 422,51		+2 811,04
25b	+4 239,76		+2 761,68
26a	+4 243,83		+3 092,01
27a	+4 326,23		+3 112,86
27b	+4 404,52		+2 803,34
28a	+4 408,62		+3 133,71
28b	+4 486,91		+2 824,18
QQ2	+3 978,51		+3 024,89

**WORKING STATIONS**

LV1	+5 330,740	+2 212,802
LV2	+5 118,456	+2 812,303
LV3	+4 768,561	+2 888,885
LV4	+4 413,296	+2 790,708
LV5	+4 287,340	+3 077,629
LV6	+4 486,120	+2 827,715

**HELMERT (1st Order) CO-ORDINATE TRANSFORMATION BY PARAMETRIC ADJUSTMENT**  
**COMMON CONTROL POINTS**

DATA FROM SR. 1858				DATA FROM SR. 124/2005			
System = BLO				System Lo 29 <sup>0</sup>			
Name	y	(C. Ft.)	x	NAME	Y	(Metres)	X
28a	+13	288,460	+12 575,110	28a	+4	408,620	+3 133,710
28b	+13	537,240	+11 591,820	28b	+4	486,910	+2 824,180
27a	+13	026,710	+12 508,890	27a	+4	326,230	+3 112,860
27b	+13	275,480	+11 525,600	27b	+4	404,520	+2 803,340
26a	+12	764,960	+12 442,660	26a	+4	243,830	+3 092,010
25b	+12	751,980	+11 393,150	25b	+4	239,760	+2 761,680
QQ2	+11	921,540	+12 229,280	QQ2	+3	978,510	+3 024,890

<b><u>TRANSFORMED CONTROL POINTS</u></b>				
NAME	TY	TX	DY	DX
28a	34408,635	2233133,673	-0,0153	+0,0368
28b	34486,903	2232824,206	+0,0069	-0,0255
27a	34326,256	2233112,840	-0,0256	+0,0201
27b	34404,520	2232803,372	-0,0002	-0,0323
26a	34243,876	2233092,004	-0,0459	+0,0065
25b	34239,761	2232761,703	-0,0008	-0,0227
QQ2	33978,429	2233024,873	+0,0809	+0,0172

**TRANSFORMATION PARAMETERS**

CY = 30226,1384  
CX = 2229176,4217  
A = 0,3147194610  
B = 0,0000286216  
Scale = 0,3147194623  
Swing = +0:00:18,8  
Std. Devn = 0,0373

**HELMERT TRANSFORMATION OF NON-COMMON POINTS**

**TRANSFORMATION PARAMETERS**

CY = 30226,1384  
CX = 2229176,4217  
A = 0,3147194610  
B = 0,0000286216  
Scale = 0,3147194623  
Swing = +0:00:18,8

DATA FROM SR. 1858				DATA FROM SR. 124/2005			
System = BLO				System Lo 29 <sup>0</sup>			
Name	y	(C. Ft.)	x	NAME	Y	(Metres)	X
26b	+13	013,730	+ 11 459,370	26b	+4	322,141	+2 782,536
25a	+12	503,210	+ 12 376,440	25a	+4	161,496	+3 071,170
24a	+12	212,370	+ 12 302,860	24a	+4	069,961	+3 048,022
24b	+12	456,330	+ 11 338,570	24b	+4	146,712	+2 744,534

COMPARISON OF COORDINATES

Black = Data from SR 124/2005

Red = Data from This survey

System = Lo 29°				DY	DX	DIRN	DIST
NAME	Y	X					
1 25b	+4239,611	+2761,670	(R)				
2 25b	+4239,760	+2761,680		0,149	0,010	86°16'04"	0,149
1 26a	+4243,814	+3091,956					
2 26a	+4243,830	+3092,010		0,016	0,054	16°50'44"	0,056
1 26b	+4322,083	+2782,561					
2 26b	+4322,141	+2782,536		0,058	-0,025	137°36'09"	0,074
1 27a	+4326,205	+3112,868					
2 27a	+4326,230	+3112,860		0,025	-0,008	108°14'47"	0,026
1 C1	+4420,097	+2820,672					
2 C1	+4420,060	+2820,740		-0,037	0,068	331°45'26"	0,077
1 V6	+4432,251	+2813,438					
2 V6	+4432,210	+2813,500		-0,041	0,062	326°52'37"	0,074
1 b4	+4320,734	+3111,372					
2 b4	+4320,770	+3111,380		0,036	0,008	77°47'12"	0,037

Accept positions of all found beacons except 25b from SR 124/2005, however my coordinates were adopted for this survey.

HELMERT (1st Order) CO-ORDINATE TRANSFORMATION BY PARAMETRIC ADJUSTMENTCOMMON CONTROL POINTS

DATA FROM SR. 124/2005			DATA FROM THIS SURVEY		
System = Lo29°			System = Lo 29°		
Name	y (Meters)	x	NAME	Y (Metres)	X
26a	+4243,830	+3092,010	26a	+4243,814	+3091,956
26b	+4 322,14	+2 782,54	26b	+4322,083	+2782,561
C1	+4420,060	+2820,740	C1	+4420,097	+2820,672
V6	+4432,210	+2813,500	V6	+4432,251	+2813,438
b4	+4320,770	+3111,380	b4	+4320,734	+3111,372
27a	+4326,230	+3112,860	27a	+4326,205	+3112,868

TRANSFORMED CONTROL POINTS

NAME	TY	TX	DY	DX
26a	34243,808	2233091,994	+0,0059	-0,0375
26b	34322,131	2232782,472	-0,0483	+0,0893
C1	34420,064	2232820,712	+0,0333	-0,0401
V6	34432,215	2232813,472	+0,0361	-0,0341
b4	34320,753	2233111,369	-0,0188	+0,0034
27a	34326,213	2233112,849	-0,0081	+0,0191

**TRANSFORMATION PARAMETERS**

CY = 102,2332  
 CX = -163,7993  
 A = 1,0000726243  
 B = -0,0000469045  
 Scale = 1,0000726254  
 Swing = +0°00'09,7"  
 Std. Devn = 0,0471  
 Mean Y-Shift = -0,0082  
 Mean X-Shift = -0,0217

**HELMERT TRANSFORMATION OF NON-COMMON POINTS****TRANSFORMATION PARAMETERS**

CY = 102,2332  
 CX = -163,7993  
 A = 1,0000726243  
 B = -0,0000469045  
 Scale = 1,0000726254  
 Swing = +0°00'09,7"

**DATA FROM SR. 124/2005****System = Lo29<sup>0</sup>**

<b>Name</b>	<b>y</b> <b>(Meters)</b>	<b>x</b>
25b	+4239,760	+2761,680
28a	+4408,620	+3133,710
28b	+4486,910	+2824,180
b3	+4345,000	+3117,510
27b	+4404,520	+2803,340

**DATA FROM THIS SURVEY****System Lo 29<sup>0</sup>**

<b>NAME</b>	<b>Y</b> <b>(Metres)</b>	<b>X</b>
25b	+4239,753	+2761,639
28a	+4408,608	+3133,704
28b	+4486,918	+2824,155
b3	+4344,984	+3117,500
<b>27b</b>	<b>+4404,523</b>	<b>+2803,292</b>

**Join Calculations**

<b>Point</b>	<b>Horizontal</b>		<b>Horizontal</b>
<b>Name</b>	<b>Y</b>	<b>X</b>	<b>Direction Distance</b>
27a	4326,205	3112,868	
27b	4404,523	2803,292	165°48'10,9" 319,329
27b	4404,523	2803,292	
26b	4322,083	2782,561	255°53'05,6" 85,006
27b	4404,523	2803,292	
25b	4239,727	2761,822	255°52'30,8" 169,933
26a	4243,814	3091,956	
26b	4322,083	2782,561	165°48'12,5" 319,142
26a	4243,814	3091,956	
27a	4326,205	3112,868	75°45'29,7" 85,003
b4	4320,734	3111,372	
27a	4326,205	3112,868	74°42'24,4" 5,672

Intersection CalculationsIntersection - Direction and Direction

	Point	Y	X	Direction	Distance
From	b4	4320,734	3111,372	165°48'11,0"	319,213
From	27b	4404,523	2803,292	255°53'06,0"	5,671
<b>To</b>	<b>27bx</b>	<b>4399,023</b>	<b>2801,909</b>		

Polar Reductions

Direction	Distance	Name	Y	X
		27bx	4399,023	2801,909
345°48'11,0"	3,060	<b>4x</b>	<b>4398,272</b>	<b>2804,875</b>

Intersection CalculationsIntersection - Direction and Direction

	Point	Y	X	Direction	Distance
From	4x	4398,272	2804,875	255°53'06,0"	79,334
From	26a	4243,814	3091,956	165°48'12,0"	316,081
<b>To</b>	<b>5b</b>	<b>4321,333</b>	<b>2785,528</b>		

Join Calculations

Point Name	Y	X	Horizontal Direction	Horizontal Distance
b4	4320,734	3111,372		
4x	4398,272	2804,875	165°48'11,0"	316,153
5b	4321,333	2785,528		
26b	4322,083	2782,561	165°49'05,5"	3,060

Polar Reductions

Direction	Distance	Name	Y	X
		b4	4320,734	3111,372
165°48'11,0"	52,590	<b>1a</b>	<b>4333,632</b>	<b>3060,388</b>
		1a	4333,632	3060,388
165°48'11,0"	52,620	<b>2a</b>	<b>4346,537</b>	<b>3009,375</b>
		2a	4346,537	3009,375
165°48'11,0"	33,820	<b>3f</b>	<b>4354,832</b>	<b>2976,588</b>
		3f	4354,832	2976,588
165°48'11,0"	71,440	<b>3a</b>	<b>4372,353</b>	<b>2907,330</b>
		4x	4398,272	2804,875
345°48'11,0"	10,000	<b>4f</b>	<b>4395,820</b>	<b>2814,570</b>
		4x	4398,272	2804,875
255°53'06,0"	10,000	<b>4a</b>	<b>4388,574</b>	<b>2802,436</b>
		4a	4388,574	2802,436
255°53'06,0"	23,190	<b>5a</b>	<b>4366,084</b>	<b>2796,781</b>

<u>Join Calculations</u>				
<u>Point</u>			<u>Horizontal</u>	<u>Horizontal</u>
<u>Name</u>	<u>Y</u>	<u>X</u>	<u>Direction</u>	<u>Distance</u>
5a	4366,084	2796,781		
5b	4321,333	2785,528	255°53'06,0"	46,144
3a	4372,353	2907,330		
4f	4395,820	2814,570	165°48'11,0"	95,683
4f	4395,820	2814,570		
4a	4388,574	2802,436	210°50'38,5"	14,132

<u>Polar Reductions</u>				
<u>Direction</u>	<u>Distance</u>	<u>Name</u>	<u>Y</u>	<u>X</u>
		5a	4366,084	2796,781
345°53'06,0"	54,150	<u>4c</u>	<u>4352,879</u>	<u>2849,296</u>

<u>Intersection Calculations</u>					
<u>Intersection - Direction and Direction</u>					
	<u>Point</u>	<u>Y</u>	<u>X</u>	<u>Direction</u>	<u>Distance</u>
From	1a	4333,632	3060,388	255°48'11,0"	79,333
From	26a	4243,814	3091,956	165°48'12,0"	52,632
<b>To</b>	<b>1b</b>	<b>4256,722</b>	<b>3040,931</b>		

<u>Intersection - Direction and Direction</u>					
From	2a	4346,537	3009,375	255°48'11,0"	79,333
From	1b	4256,722	3040,931	165°48'12,0"	52,620
<b>To</b>	<b>2b</b>	<b>4269,627</b>	<b>2989,918</b>		

<u>Intersection - Direction and Direction</u>					
From	3a	4372,353	2907,330	255°48'11,0"	79,334
From	26b	4322,083	2782,561	345°48'12,0"	108,629
<b>To</b>	<b>3b</b>	<b>4295,442</b>	<b>2887,873</b>		

<u>Polar Reductions</u>				
<u>Direction</u>	<u>Distance</u>	<u>Name</u>	<u>Y</u>	<u>X</u>
		3a	4372,353	2907,330
255°48'11,0"	60,850	<u>5d</u>	<u>4313,361</u>	<u>2892,406</u>

<u>Join Calculations</u>				
<u>Point</u>			<u>Horizontal</u>	<u>Horizontal</u>
<u>Name</u>	<u>Y</u>	<u>X</u>	<u>Direction</u>	<u>Distance</u>
5d	4313,361	2892,406		
3b	4295,442	2887,873	255°48'11,0"	18,484
4c	4352,879	2849,296		
5d	4313,361	2892,406	317°29'22,9"	58,482

<u>Polar Reductions</u>				
<u>Direction</u>	<u>Distance</u>	<u>Name</u>	<u>Y</u>	<u>X</u>
		3f	4354,832	2976,588
255°48'11,0"	28,000	<u>3e</u>	<u>4327,687</u>	<u>2969,721</u>
		3e	4327,687	2969,721
165°48'11,0"	29,070	<u>3d</u>	<u>4334,817</u>	<u>2941,539</u>



**Intersection Calculations****Intersection - Direction and Direction**

	<b>Point</b>	<b>Y</b>	<b>X</b>	<b>Direction</b>	<b>Distance</b>
From	3d	4334,817	2941,539	255°48'11,0"	51,334
From	3b	4295,442	2887,873	345°48'12,0"	42,370
<b>To</b>	<b>3c</b>	<b>4285,050</b>	<b>2928,949</b>		

**Join Calculations**

<b>Point Name</b>	<b>Y</b>	<b>X</b>	<b>Horizontal Direction</b>	<b>Horizontal Distance</b>
2b	4269,627	2989,918		
3c	4285,050	2928,949	165°48'14,6"	62,890
26a	4243,814	3091,956		
b4	4320,734	3111,372	75°50'00,4"	79,333
b4	4320,734	3111,372		
27bx	4399,023	2801,909	165°48'11,0"	319,213
5b	4321,333	2785,528		
3b	4295,442	2887,873	345°48'10,4"	105,569

**CONSISTENCIES AND AREAS****(1) CONSISTENCY AND AREA OF LOT 1 OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT**

<b>Direction</b>	<b>Distance</b>	<b>Name</b>	<b>Y</b>	<b>X</b>		<b>DY</b>	<b>DX</b>
		1a	+4333,632	+3060,388	A		
255°48'11,0"	79,333	1b	+4256,722	+3040,931	B	0,000	0,000
345°48'12,0"	52,632	26a	+4243,814	+3091,956	C	0,000	0,000
75°50'00,0"	79,333	b4	+4320,734	+3111,372	D	0,000	0,000
165°48'11,0"	52,590	1a	+4333,632	+3060,388	A	0,000	0,000
<b>Area (m<sup>2</sup>) =</b>			<b>4173,778</b>				

**(2) CONSISTENCY AND AREA OF LOT 2 OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT**

<b>Direction</b>	<b>Distance</b>	<b>Name</b>	<b>Y</b>	<b>X</b>		<b>DY</b>	<b>DX</b>
		2a	+4346,537	+3009,375	A		
255°48'11,0"	79,333	2b	+4269,627	+2989,918	B	0,000	0,000
345°48'12,0"	52,620	1b	+4256,722	+3040,931	C	0,000	0,000
75°48'11,0"	79,333	1a	+4333,632	+3060,388	D	0,000	0,000
165°48'11,0"	52,620	2a	+4346,537	+3009,375	A	0,000	0,000
<b>Area (m<sup>2</sup>) =</b>			<b>4174,503</b>				

**(3) CONSISTENCY AND AREA OF REMAINDER OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT**

<b>Direction</b>	<b>Distance</b>	<b>Name</b>	<b>Y</b>	<b>X</b>		<b>DY</b>	<b>DX</b>
		3f	+4354,832	+2976,588	A		
255°48'11,0"	28,000	3e	+4327,687	+2969,721	B	0,000	0,000
165°48'11,0"	29,070	3d	+4334,817	+2941,539	C	0,000	0,000
255°48'11,0"	51,334	3c	+4285,050	+2928,949	D	0,000	0,000
345°48'12,0"	62,890	2b	+4269,627	+2989,918	E	-0,001	0,000
75°48'11,0"	79,333	2a	+4346,537	+3009,375	F	0,000	0,000
165°48'11,0"	33,820	3f	+4354,832	+2976,588	A	0,000	0,000
<b>Area (m<sup>2</sup>) =</b>			<b>4175,336</b>				

**CONSISTENCIES AND AREAS****(4) CONSISTENCY AND AREA OF LOT 3 OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT**

<u>Direction</u>	<u>Distance</u>	<u>Name</u>	<u>Y</u>	<u>X</u>	<u>DY</u>	<u>DX</u>
		3a	+4372,353	+2907,330	A	
255°48'11,0"	79,334	3b	+4295,442	+2887,873	B	0,000
345°48'12,0"	42,370	3c	+4285,050	+2928,949	C	0,000
75°48'11,0"	51,334	3d	+4334,817	+2941,539	D	0,000
345°48'11,0"	29,070	3e	+4327,687	+2969,721	E	0,000
75°48'11,0"	28,000	3f	+4354,832	+2976,588	F	0,000
165°48'11,0"	71,440	3a	+4372,353	+2907,330	A	0,000
			<b>Area (m<sup>2</sup>) = 4175,356</b>			

**(5) CONSISTENCY AND AREA OF LOT 4 OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT**

<u>Direction</u>	<u>Distance</u>	<u>Name</u>	<u>Y</u>	<u>X</u>	<u>DY</u>	<u>DX</u>
		4a	+4388,574	+2802,436	A	
255°53'06,0"	23,190	5a	+4366,084	+2796,781	B	0,000
345°53'06,0"	54,150	4c	+4352,879	+2849,296	C	0,000
317°29'23,0"	58,482	5d	+4313,361	+2892,406	D	0,000
75°48'11,0"	60,850	3a	+4372,353	+2907,330	E	0,000
165°48'11,0"	95,683	4f	+4395,820	+2814,570	F	0,000
210°50'38,0"	14,132	4a	+4388,574	+2802,436	A	0,000
			<b>Area (m<sup>2</sup>) = 4164,772</b>			

**(6) CONSISTENCY AND AREA OF LOT 5 OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT**

<u>Direction</u>	<u>Distance</u>	<u>Name</u>	<u>Y</u>	<u>X</u>	<u>DY</u>	<u>DX</u>
		5a	+4366,084	+2796,781	A	
255°53'06,0"	46,144	5b	+4321,333	+2785,528	B	0,000
345°48'12,0"	105,569	3b	+4295,442	+2887,873	C	0,001
75°48'11,0"	18,484	5d	+4313,361	+2892,406	D	0,000
137°29'23,0"	58,482	4c	+4352,879	+2849,296	E	0,000
165°53'06,0"	54,150	5a	+4366,084	+2796,781	A	0,000
			<b>Area (m<sup>2</sup>) = 4164,994</b>			

**(7) CONSISTENCY AND AREA OF LOT 6 OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT (ROAD)**

<u>Direction</u>	<u>Distance</u>	<u>Name</u>	<u>Y</u>	<u>X</u>	<u>DY</u>	<u>DX</u>
		27b	+4404,523	+ 2803,292		
255°53'06,0"	85,006	26b	+4322,083	+ 2782,561	A	0,000
345°48'12,0"	3,060	5b	+4321,333	+ 2785,528	B	-0,001
75°53'06,0"	69,334	4a	+4388,574	+ 2802,436	C	0,000
30°50'38,0"	14,132	4f	+4395,820	+ 2814,570	D	0,000
345°48'11,0"	306,153	b4	+4320,734	+ 3111,372	E	0,000
74°42'24,0"	5,672	27a	+4326,205	+ 3112,868	F	0,000
165°48'11,0"	319,329	27b	+4404,523	+ 2803,292	A	0,000
			<b>Area (m<sup>2</sup>) = 2103,331</b>			

**Beacon Descriptions:**

**Trig Beacons** 22/T and 250/T : Willsgrove Standard Pillar and Rhobrik Standard Pillar, respectively.

Working Stations: LV1, LV2, LV3, LV4, LV5 and LV6 :12mm Round Iron Peg.

Found Beacons 25b, 26a, 26b, 27a, b4, C1 and V6: 12mm Iron Peg (SR124/05)

All Placed Beacons: 12mm Round Iron Peg

Beacon 27b (calculated point): Not Beacons

**Land Surveyor:** Mr. S. Mkandla

**Assistant:** Mr. J. Manyati

**Date of Survey:** June 2021

## **CERTIFICATE**

DSG 1/96

### **SURVEY OF LOTS 1 TO 6 OF LOT 27 LOCHVIEW OF LOCHVIEW. BULAWAYO DISTRICT.**

**I, SIKUMBUZO MKANDLA, A PROFESSIONAL LAND SURVEYOR**, hereby certify that

1. The consistency of data has been checked directly from the Diagrams and Working Plan
2. The coordinates of the beacons appearing on the Diagrams have been checked against the Coordinate list and calculation fixes of these points.
3. The beacon descriptions on the Diagrams have been checked against those recorded in the Field Book and those shown on the Coordinate List.
4. All beacons shown on the Diagram and Working Plan were placed and checked.
5. I have satisfied myself of the correctness of the checks mentioned in the sub paragraphs (1), (2), (3), and (4) above

**Date: 15/06/2021**

**S. MKANDLA**  
**LAND SURVEYOR**

## **REPORT ON SURVEY**

**SURVEY OF** : LOTS 1 -6 OF 27 LOCHVIEW OF LOCHVIEW.  
**DISTRICT** : BULAWAYO.  
**DATE OF SURVEY** : JUNE 2021.  
**LAND SURVEYOR** : S. MKANDLA.  
**ASSISTANT** : J. B. MANYATI  
**PURPOSE OF SURVEY** : SUBDIVISION OF Private Land, vide Permit No.  
SDC 09/2021 dated 04 June 2021  
**SURVEY BASED ON** : 22/T and 250/T.  
**FOUND BEACONS** : V6, C1, 27a, 26a and 26b.  
**REJECTED BEACONS** : 25b.  
**REPLACED BEACONS** : 27b (Not beaconed).

### **COMMENTS**

The site was calibrated based on Trig Beacon 22/T and 250/T using the GPS Traversing method using work stations LV1, LV2, LV3, LV4, LV5 and LV6. Property beacons were relocated based on SR. No. 124/05 (Survey of Lots 1 and 2 of 28 Lochview of Lochview, Bulawayo District).

Beacons V6, C1, 27a, 26a, 26b and 25b from SR. No. 124/05 were found. All found beacons are described in SR. No. 124/05 as 12mm iron Pegs as they were on the ground.

All found beacons were tested and found to not have been disturbed since their original survey with the exception of Beacon 25b which was rejected based on Final Data Comparison Sketch attached in Calculations and the site conditions which indicated a high possibility of disturbance due to ongoing road excavations. However, my coordinates were adopted in this survey.

All other beacons of the property were placed as per Layout Plan No. SDC NO. 21/2021.

**S. MKANDLA**  
**PROFESSIONAL LAND SURVEYOR**

**Date of Survey: 10 June 2021**

**FIELD BOOK COVER**

**LAND SURVEYOR : S. MKANDLA.**

**ASSISTANT : J. MANYATI.**

**ADDRESS : 60 DUNCAN ROAD  
SUBURBS  
BULAWAYO**

**DATE OF SURVEY : JUNE 2021.**

**INSTRUMENTS : SPECTRA PRECISION EPOCH 50 RTK SYSTEM  
(BASE AND ROVER).**

**SURVEY OF : LOTS 1 TO 6 OF LOT 27 LOCHVIEW OF LOCHVIEW.**

**DISTRICT : BULAWAYO.**

# Survey Report

<b>Job name</b>	Lots 1 – 6 of 27 Lochview of Lochview
<b>Version</b>	530
<b>Distance Units</b>	Meters
<b>Angle units</b>	Degrees
<b>Pressure Units</b>	inHg
<b>Temperature Units</b>	Fahrenheit

Coordinate system (Job)	
<b>System</b>	Site
<b>Zone</b>	Lots 1 – 6 of 27 Lochview of Lochview
<b>Datum</b>	Cape
Projection	
<b>Projection</b>	Transverse Mercator
<b>Origin lat</b>	0°00'00.00000"N
<b>Origin long</b>	29°00'00.00000"E
<b>False northing</b>	0.000
<b>False easting</b>	0.000
<b>Scale</b>	1.00000000
<b>South azimuth (grid)</b>	Yes
<b>Grid coords</b>	Increase South-West

Local site	
<b>Type</b>	Grid
Datum transformation	
<b>Type</b>	Seven parameter
<b>Semi-major axis</b>	6378137.000
<b>Flattening</b>	298.257223
<b>Rotation X</b>	0°00'00.0000"
<b>Rotation Y</b>	0°00'00.0000"
<b>Rotation Z</b>	0°00'00.0000"
<b>Translation X</b>	134.730
<b>Translation Y</b>	110.920
<b>Translation Z</b>	292.660
<b>Scale</b>	0.00000ppm
Horizontal adjustment	
<b>Origin north</b>	2231780.904
<b>Origin east</b>	37448.613
<b>Translation north</b>	0.174
<b>Translation east</b>	-0.036
<b>Rotation</b>	0°00'17.8937"
<b>Scale factor</b>	0.99995074
Vertical adjustment	
<b>Origin north</b>	2231898.430
<b>Origin east</b>	35322.246
<b>Slope north</b>	0.000045
<b>Slope east</b>	-0.000142
<b>Constant adjustment</b>	32.400

Collected Field Data

<b>Note</b>	Created by version 5.3.0, Ranger3 (RS11C17814).
<b>Corrections</b>	
<b>South azimuth (grid)</b>	Yes
<b>Grid coords</b>	Increase South-West
<b>Magnetic declination</b>	0°00'00"
<b>Distances</b>	Grid
<b>Neighborhood adjustment</b>	Off

<b>Projection</b>	
<b>Projection</b>	Transverse Mercator
<b>Origin lat</b>	0°00'00.00000"N
<b>Origin long</b>	29°00'00.00000"E
<b>False northing</b>	0.000
<b>False easting</b>	0.000
<b>Scale</b>	1.00000000



Local site									
Type	Grid								
Datum transformation									
Type	Seven parameter								
Semi-major axis	6378137.000								
Flattening	298.257223								
Rotation X	0°00'00.0000"								
Rotation Y	0°00'00.0000"								
Rotation Z	0°00'00.0000"								
Translation X	134.730								
Translation Y	110.920								
Translation Z	292.660								
Scale	0.00000ppm								
Coordinate system									
System	South Africa								
Zone	Lo 29								
Datum	Cape								
Opened by version 5.3.0, Ranger3 (RS11C17814).									
Point	22T	North	2232112.210	East	35713.050	Elevation	1394.400	Description	036F
Note	Opened by version 5.3.0, Ranger3 (RS11C17814).								
Point	22T_GNSS	Latitude	20°10'50.65049 "S	Longitude	28°39'28.92961 "E	Height	-	Description	Base Setup
Note	Geodetic coordinates computed from plane coordinates for base setup.								
GPS receiver									
Receiver type	EPOCH 50								
Serial number	5219831437								
Firmware version	1.0.0								
Antenna type	EPOCH 50 Internal								
Measurement method									
Tape adjustment	0.000								
Horizontal offset	0.000								
Vertical offset	0.115								

Base point									
<b>Point</b>	22T_GNSS	<b>Antenna height</b>	0.360	<b>Type</b>	Uncorrected				
GPS receiver									
<b>Receiver type</b>	EPOCH 50								

<b>Point</b>	LV1	<b>ΔX</b>	-230.353	<b>ΔY</b>	309.645	<b>ΔZ</b>	-88.358	<b>Description</b>	12mm
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>Hz Prec</b>	0.007	<b>Vt Prec</b>	0.011	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	14	<b>PDOP</b>	1.4	<b>HDO P</b>	0.7	<b>VDOP</b>	1.2
		<b>RMS</b>	53.116	<b>Positions used</b>	6				
<b>QC 2</b>		<b>Satellites</b>	14	<b>VCV xx (m²)</b>	0.000111	<b>VCV xy (m²)</b>	0.000043	<b>VCV xz (m²)</b>	-0.000063
		<b>Error scale (m)</b>	0.010			<b>VCV yy (m²)</b>	0.000066	<b>VCV yz (m²)</b>	-0.000043
								<b>VCV zz (m²)</b>	0.000084

Base point									
<b>Point</b>	LV1	<b>Antenna height</b>	1.720	<b>Type</b>	Uncorrected				

<b>Point</b>	LV2	<b>ΔX</b>	-278.541	<b>ΔY</b>	88.281	<b>ΔZ</b>	-565.079	<b>Description</b>	12mm
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>Hz Prec</b>	0.009	<b>Vt Prec</b>	0.017	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	16	<b>PDOP</b>	1.4	<b>HDO P</b>	0.6	<b>VDOP</b>	1.2
		<b>RMS</b>	75.557	<b>Positions used</b>	0				
<b>QC 2</b>		<b>Satellites</b>	16	<b>VCV xx (m²)</b>	0.000277	<b>VCV xy (m²)</b>	0.000096	<b>VCV xz (m²)</b>	-0.000080
		<b>Error scale (m)</b>	0.014			<b>VCV yy (m²)</b>	0.000239	<b>VCV yz (m²)</b>	-0.000068
								<b>VCV zz (m²)</b>	0.000127

Base point									
Point	LV2	Antenna height	1.700	Type	Uncorrected				
GPS receiver									
Receiver type		EPOCH 50							

[illegible]

Base point									
Point	LV3	Antenna height	1.740	Type	Uncorrected				

GPS receiver	
Receiver type	EPOCH 50

<b>Point</b>	LV4	<b><math>\Delta X</math></b>	-140.608	<b><math>\Delta Y</math></b>	328.353	<b><math>\Delta Z</math></b>	91.282	<b>Description</b>	12mm
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>H<sub>z</sub> Prec</b>	0.006	<b>V<sub>t</sub> Prec</b>	0.012	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	14	<b>PDOP</b>	2.1	<b>HDO P</b>	0.8	<b>VDOP</b>	1.9
		<b>RMS</b>	44.548	<b>Positions used</b>	6				
<b>QC 2</b>		<b>Satellites</b>	14	<b>VCV<sub>xx</sub> (m<sup>2</sup>)</b>	0.000227	<b>VCV<sub>xy</sub> (m<sup>2</sup>)</b>	0.000068	<b>VCV<sub>xz</sub> (m<sup>2</sup>)</b>	-0.000039
		<b>Error scale (m)</b>	0.008			<b>VCV<sub>yy</sub> (m<sup>2</sup>)</b>	0.000052	<b>VCV<sub>yz</sub> (m<sup>2</sup>)</b>	-0.000015
								<b>VCV<sub>zz</sub> (m<sup>2</sup>)</b>	0.000026

## Base point

<b>Point</b>	LV4	<b>Antenna height</b>	1.830	<b>Type</b>	Uncorrected				
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## GPS receiver

<b>Receiver type</b>	EPOCH 50
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<b>Point</b>	25b	<b>North</b>	2232761.680	<b>East</b>	34239.700	<b>Elevation</b>	---	<b>Description</b>	12mm
<b>Point</b>	26a	<b>North</b>	2233092.010	<b>East</b>	34243.830	<b>Elevation</b>	---	<b>Description</b>	12mm
<b>Point</b>	26b	<b>North</b>	2232782.530	<b>East</b>	34322.054	<b>Elevation</b>	---	<b>Description</b>	12mm
<b>Point</b>	27a	<b>North</b>	2233112.860	<b>East</b>	34326.230	<b>Elevation</b>	---	<b>Description</b>	12mm
<b>Point</b>	C1	<b>North</b>	2232820.740	<b>East</b>	34420.060	<b>Elevation</b>	---	<b>Description</b>	12mm
<b>Point</b>	b4	<b>North</b>	2233117.380	<b>East</b>	34320.770	<b>Elevation</b>	---	<b>Description</b>	12mm
<b>Point</b>	V6	<b>North</b>	2232813.500	<b>East</b>	34432.210	<b>Elevation</b>	---	<b>Description</b>	12mm

## Base point

<b>Point</b>	LV4	<b>Antenna height</b>	1.799	<b>Type</b>	Uncorrected				
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<b>Point</b>	C1	<b><math>\Delta X</math></b>	-5.442	<b><math>\Delta Y</math></b>	-10.799	<b><math>\Delta Z</math></b>	-28.257	<b>Description</b>	12mm
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>H<sub>z</sub> Prec</b>	0.006	<b>V<sub>t</sub> Prec</b>	0.012	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	17	<b>PDOP</b>	1.3	<b>HDO<sub>P</sub></b>	0.6	<b>VDOP</b>	1.2
		<b>RMS</b>	51.988	<b>Positions used</b>	1				
<b>QC 2</b>		<b>Satellites</b>	17	<b>VCV<sub>xx</sub> (m<sup>2</sup>)</b>	0.000157	<b>VCV<sub>xy</sub> (m<sup>2</sup>)</b>	0.000072	<b>VCV<sub>xz</sub> (m<sup>2</sup>)</b>	-0.000039
		<b>Error scale (m)</b>	0.010			<b>VCV<sub>yy</sub> (m<sup>2</sup>)</b>	0.000088	<b>VCV<sub>yz</sub> (m<sup>2</sup>)</b>	-0.000027
								<b>VCV<sub>zz</sub> (m<sup>2</sup>)</b>	0.000040
<b>Stake out point (C1)</b>		Design point: C1 Description:							
<b>Method</b>		To the point							
<b>Stakeout</b>	<b>Deltas: Grid</b>	<b><math>\Delta</math> North</b>	0.068	<b><math>\Delta</math> East</b>	-0.037	<b><math>\Delta</math>Elev</b>	-0.773		

<b>Point</b>	V6	<b><math>\Delta X</math></b>	2.679	<b><math>\Delta Y</math></b>	-20.197	<b><math>\Delta Z</math></b>	-21.483	<b>Description</b>	12mm
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>H<sub>z</sub> Prec</b>	0.007	<b>V<sub>t</sub> Prec</b>	0.015	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	11	<b>PDOP</b>	2.0	<b>HDO<sub>P</sub></b>	0.9	<b>VDOP</b>	1.8
		<b>RMS</b>	44.714	<b>Positions used</b>	1				
<b>QC 2</b>		<b>Satellites</b>	11	<b>VCV<sub>xx</sub> (m<sup>2</sup>)</b>	0.000287	<b>VCV<sub>xy</sub> (m<sup>2</sup>)</b>	0.000113	<b>VCV<sub>xz</sub> (m<sup>2</sup>)</b>	-0.000045
		<b>Error scale (m)</b>	0.008			<b>VCV<sub>yy</sub> (m<sup>2</sup>)</b>	0.000133	<b>VCV<sub>yz</sub> (m<sup>2</sup>)</b>	-0.000051
								<b>VCV<sub>zz</sub> (m<sup>2</sup>)</b>	0.000062
<b>Stake out point (V6)</b>		Design point: V6 Description:							
<b>Method</b>		To the point							
<b>Stakeout</b>	<b>Deltas: Grid</b>	<b><math>\Delta</math> North</b>	0.062	<b><math>\Delta</math> East</b>	-0.041	<b><math>\Delta</math>Elev</b>	---		

<b>Point</b>	26b	<b><math>\Delta X</math></b>	-41.800	<b><math>\Delta Y</math></b>	81.147	<b><math>\Delta Z</math></b>	7.651	<b>Description</b>	12mm
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>H<sub>z</sub> Prec</b>	0.005	<b>V<sub>t</sub> Prec</b>	0.011	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	14	<b>PDOP</b>	1.6	<b>HDOP</b>	0.7	<b>VDOP</b>	1.4
		<b>RMS</b>	40.900	<b>Positions used</b>	1				
<b>QC 2</b>		<b>Satellites</b>	14	<b>VCV<sub>xx</sub> (m<sup>2</sup>)</b>	0.000140	<b>VCV<sub>xy</sub> (m<sup>2</sup>)</b>	0.000063	<b>VCV<sub>xz</sub> (m<sup>2</sup>)</b>	-0.000034
		<b>Error scale (m)</b>	0.008			<b>VCV<sub>yy</sub> (m<sup>2</sup>)</b>	0.000077	<b>VCV<sub>yz</sub> (m<sup>2</sup>)</b>	-0.000025
								<b>VCV<sub>zz</sub> (m<sup>2</sup>)</b>	0.000037
<b>Stake out point (26b)</b>		Design point: 26b Description:							
<b>Method</b>		To the point							
<b>Stakeout</b>	<b>Deltas: Grid</b>	<b><math>\Delta</math> North</b>	-0.031	<b><math>\Delta</math> East</b>	-0.029	<b><math>\Delta</math>Elev</b>	---		

<b>Point</b>	LV5	<b><math>\Delta X</math></b>	-144.513	<b><math>\Delta Y</math></b>	63.893	<b><math>\Delta Z</math></b>	-270.705	<b>Description</b>	12mm
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>H<sub>z</sub> Prec</b>	0.006	<b>V<sub>t</sub> Prec</b>	0.009	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	11	<b>PDOP</b>	1.3	<b>HDOP</b>	0.8	<b>VDOP</b>	1.1
		<b>RMS</b>	40.768	<b>Positions used</b>	6				
<b>QC 2</b>		<b>Satellites</b>	11	<b>VCV<sub>xx</sub> (m<sup>2</sup>)</b>	0.000087	<b>VCV<sub>xy</sub> (m<sup>2</sup>)</b>	0.000032	<b>VCV<sub>xz</sub> (m<sup>2</sup>)</b>	-0.000038
		<b>Error scale (m)</b>	0.008			<b>VCV<sub>yy</sub> (m<sup>2</sup>)</b>	0.000040	<b>VCV<sub>yz</sub> (m<sup>2</sup>)</b>	-0.000022
								<b>VCV<sub>zz</sub> (m<sup>2</sup>)</b>	0.000051

Base point									
Point	LV5	Antenna height	1.755	Type	Uncorrected				
Point	b4	$\Delta X$	5.819	$\Delta Y$	-34.967	$\Delta Z$	-31.595	Description	12mm
Antenna height	2.000	Type	Uncorrected	H <sub>z</sub> Prec	0.006	V <sub>t</sub> Prec	0.010	Solution	Fix
QC 1		Satellites	12	PDOP	1.6	HDOP	0.9	VDOP	1.4
		RMS	38.041	Positions used	1				
QC 2		Satellites	12	VCV <sub>xx</sub> (m <sup>2</sup> )	0.000128	VCV <sub>xy</sub> (m <sup>2</sup> )	0.000048	VCV <sub>xz</sub> (m <sup>2</sup> )	-0.000037
		Error scale (m)	0.007			VCV <sub>yy</sub> (m <sup>2</sup> )	0.000069	VCV <sub>yz</sub> (m <sup>2</sup> )	-0.000018
								VCV <sub>zz</sub> (m <sup>2</sup> )	0.000039
Stake out point (b4)		Design point: b4 Description:							
Method		To the point							
Stakeout	Deltas: Grid	$\Delta$ North	0.008	$\Delta$ East	0.036	$\Delta$ Elev	---		

<b>Point</b>	27a	<b><math>\Delta X</math></b>	7.750	<b><math>\Delta Y</math></b>	-40.152	<b><math>\Delta Z</math></b>	-32.886	<b>Description</b>	12mm
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>H<sub>z</sub> Prec</b>	0.006	<b>V<sub>t</sub> Prec</b>	0.010	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	12	<b>PDOP</b>	1.7	<b>HDOP</b>	0.9	<b>VDOP</b>	1.4
		<b>RMS</b>	37.886	<b>Positions used</b>	1				
<b>QC 2</b>		<b>Satellites</b>	12	<b>VCV<sub>xx</sub> (m<sup>2</sup>)</b>	0.000133	<b>VCV<sub>xy</sub> (m<sup>2</sup>)</b>	0.000053	<b>VCV<sub>xz</sub> (m<sup>2</sup>)</b>	-0.000037
		<b>Error scale (m)</b>	0.007			<b>VCV<sub>yy</sub> (m<sup>2</sup>)</b>	0.000074	<b>VCV<sub>yz</sub> (m<sup>2</sup>)</b>	-0.000018
								<b>VCV<sub>zz</sub> (m<sup>2</sup>)</b>	0.000037
<b>Stake out point (27a)</b>		Design point: 27a Description:							
<b>Method</b>		To the point							
<b>Stakeout</b>	Deltas: Grid	<b><math>\Delta</math> North</b>	-0.008	<b><math>\Delta</math> East</b>	0.025	<b><math>\Delta</math>Elev</b>	---		





Base point									
<b>Point</b>	LV6	<b>Antenna height</b>	1.880	<b>Type</b>	Uncorrected				

<b>Point</b>	25b	<b>ΔX</b>	36.197	<b>ΔY</b>	-6.838	<b>ΔZ</b>	87.674	<b>Description</b>	12mm
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>Hz Prec</b>	0.006	<b>Vt Prec</b>	0.011	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	12	<b>PDOP</b>	1.6	<b>HDO P</b>	0.8	<b>VDOP</b>	1.4
		<b>RMS</b>	43.317	<b>Positions used</b>	1				
<b>QC 2</b>		<b>Satellites</b>	12	<b>VCV xx (m²)</b>	0.000167	<b>VCV xy (m²)</b>	0.000054	<b>VCV xz (m²)</b>	-0.000040
		<b>Error scale (m)</b>	0.008			<b>VCV yy (m²)</b>	0.0000069	<b>VCV yz (m²)</b>	-0.0000015
								<b>VCV zz (m²)</b>	0.0000039

<b>Stake out point (25b)</b>		Design point: 25b Description:							
<b>Method</b>		To the point							
<b>Stakeout</b>	<b>Deltas: Grid</b>	<b>Δ North</b>	0.010	<b>Δ East</b>	0.089	<b>ΔElev</b>	---		

<b>Point Check</b>	250/T	<b>ΔX</b>	-1097.002	<b>ΔY</b>	2785.121	<b>ΔZ</b>	994.572	<b>Description</b>	036F
<b>Antenna height</b>	2.000	<b>Type</b>	Uncorrected	<b>Hz Prec</b>	0.007	<b>Vt Prec</b>	0.013	<b>Solution</b>	Fix
<b>QC 1</b>		<b>Satellites</b>	14	<b>PDOP</b>	1.4	<b>HDO P</b>	0.7	<b>VDOP</b>	1.2
		<b>RMS</b>	55.089	<b>Positions used</b>	6				
<b>QC 2</b>		<b>Satellites</b>	14	<b>VCV xx (m²)</b>	0.000198	<b>VCV xy (m²)</b>	0.000105	<b>VCV xz (m²)</b>	-0.0000035
		<b>Error scale (m)</b>	0.010			<b>VCV yy (m²)</b>	0.000112	<b>VCV yz (m²)</b>	-0.0000029
								<b>VCV zz (m²)</b>	0.0000045

## **BEACON DESCRIPTIONS**

Trig Beacons 22/T and 250/T : **Standard Pillar**

Working Stations LV1, LV2, LV3, LV4, LV5, LV6 : **12mm Round Iron Peg**

Found Beacons 25b, 26a, 26b, 27a, b4, C1, V6 : **12mm Iron Peg (SR 124/05)**

All Placed Beacons : **12mm Round Iron Peg**

Beacon 27b (calculated point) : **Not Beacons**

**SURVEY RECORDS CHECK LIST**  
**SURVEY OF LOTS 1 TO 6 OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT.**

**A. FIELD NOTES, COORDINATE LISTS, CALCULATIONS AND REPORT**

1. Field Book Cover completed and details checked \_\_\_\_\_
2. Field Book Pages dated and numbered \_\_\_\_\_
3. Beacon Descriptions and Party Wall statements entered in field book \_\_\_\_\_
4. No overwriting or erasures in field book \_\_\_\_\_
5. Coordinates on coordinate list checked from calculations and referenced to calculations and field notes \_\_\_\_\_
6. Descriptions of survey, system, unit of measure and constant checked on each page of coordinate list (Trigs and TSM's may have different constants) \_\_\_\_\_
7. Descriptions of beacon and stations checked from field book and stated whether placed or found and referenced \_\_\_\_\_
8. Coordinate List in Alphabetical and Numerical order (Trigs and TSM's may be at the beginning) \_\_\_\_\_
9. Descriptions of adopted beacons checked and referenced \_\_\_\_\_
10. Conversions from local origins checked \_\_\_\_\_
11. Conversions to metric checked \_\_\_\_\_
12. Base reductions checked \_\_\_\_\_
13. Reduction of measured distances checked, and transcription to calculations checked and referenced \_\_\_\_\_
14. Error figure checked \_\_\_\_\_
15. Horizontal observations, means and transcription to calculations checked and referenced \_\_\_\_\_
16. Traverses oriented and adjusted correctly \_\_\_\_\_
17. Polars to beacons and stations, found or placed, checked and within limits \_\_\_\_\_
18. Comparison of coordinates (or sketch) - Reg. 67(5) \_\_\_\_\_
19. Comparisons in terms of Reg.15 (if any coordinates adopted) \_\_\_\_\_
20. Consistency check and areas given in calculations \_\_\_\_\_
21. Planning Approval (or Permit) lodged and still in force \_\_\_\_\_
22. Report signed and dated \_\_\_\_\_

**B. WORKING PLAN**

1. Description checked \_\_\_\_\_
2. District checked \_\_\_\_\_
3. True North checked \_\_\_\_\_
4. Scale checked \_\_\_\_\_
5. Coordinate axes and values \_\_\_\_\_
6. Plot of coordinated points \_\_\_\_\_
7. Depiction of beacons/stations \_\_\_\_\_
8. Surrounding properties \_\_\_\_\_
9. Road names and widths \_\_\_\_\_
10. Roadway data by computation \_\_\_\_\_
11. Statements of vested roads \_\_\_\_\_
12. Area of vested roads \_\_\_\_\_
13. Curvilinear and rectilinear areas given and total areas \_\_\_\_\_
14. Indicatory Data \_\_\_\_\_
15. Servitudes designated and statements added \_\_\_\_\_
16. River reduction \_\_\_\_\_
17. River name, flow \_\_\_\_\_
18. Alignment statement \_\_\_\_\_
19. Prescribed insets \_\_\_\_\_
20. Should any fences be shown \_\_\_\_\_
21. Signed and dated \_\_\_\_\_

**Date: 15/06/2021**

**S Mkandla**

**LAND SURVEYOR**

**SURVEY RECORDS CHECK LIST**  
**SURVEY OF LOTS 1 TO 6 OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT.**

C.	<b><u>DIAGRAM</u></b>	31.	Copies compared	_____	
1.	Directions or Angles deleted	_____	32.	Amendments initialled	_____
2.	Trig system and constant	_____	33.	No erasures	_____
3.	Data: coordinates etc	_____	34.	Reg. 53 Data	
4.	Beacon names (if given)	_____		Immediate Parent Diagram No.	_____
5.	Data lettering agrees with figure and verbal definition	_____		Immediate Parent Title Deed No.	_____
6.	Consistency	_____		Original Title Diagram No.	_____
7.	Connections	_____		Original Title Deed No.	_____
8.	Area	_____			
9.	Servitude depicted, data and statements (including party walls)	_____			
10.	Radii of curves	_____			
11.	Coordinates of centres	_____			
12.	Indicatory Data	_____			
13.	Beacon descriptions	_____			
14.	Surrounding properties	_____			
15.	North Pointer oriented	_____			
16.	Scale	_____			
17.	Plot of figure correct	_____			
18.	No new sides more than 6000m	_____			
19.	Plot of curvilinear boundary	_____			
20.	River name and flow	_____			
21.	Colour wash	_____			
22.	Roads colour-washed, named and width	_____			
23.	Topo, if any on W.P. / G.P.	_____			
24.	Size of figure is over 650mm squared	_____			
25.	Common data agrees	_____			
26.	Lines defining differences in tenure	_____			
27.	Verbal definition	_____			
28.	Description	_____		I certify that I have personally carried out the above checks	
29.	District	_____			
30.	Certificate, date and signature	_____			

**Date: 15/06/2021**

**S Mkandla**

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Cadastral, Engineering & Topographical Surveyors, Rural and Township Planning Consultants.  
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+263 771 988 213  
**DATE: 15/06/2021**

**The Surveyor General**  
P. O. Box 1580  
**BULAWAYO**

Our Ref: Lots 1 to 6 Lochview/06/2021  
Your ref:

Dear Sir,

**SURVEY OF LOTS 1 TO 6 OF LOT 27 LOCHVIEW OF LOCHVIEW, BULAWAYO DISTRICT.**

Please find here enclosed for your examination and subsequent approval;

- Subdivision Permit Reference No. Lot 27 Lochview dated 18 May 2021.
- Check List.
- Certificate DSG 1/96.
- Calculations.
- Field Book.
- 6 x Diagram and examined print.
- Coordinate List.
- Working Plan + examined print.
- Survey Report.
- Examination Fees of RTG\$ .....

Yours faithfully

signed: \_\_\_\_\_

**S. MKANDLA**

- *L.S. (Registered Land Surveyor - Zimbabwe, No. 225)*
- *SURVEY INSTITUTE OF ZIMBABWE (SIZ) MEMBER*
- *ZIMBABWE INSTITUTE OF GEOMATICS (ZIG) MEMBER.*
- *Pr L (PROFESSIONAL LAND SURVEYOR, SOUTH AFRICA-PLS No. 1193-D)*
- *SOUTH AFRICAN GEOMATICS INSTITUTE MEMBER (SAGI) No. Pr.M.SAGI 884*